Connecticut Statewide Transportation Study

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16. Abstract

Connecticut Department of Transportation (CTDOT) has embarked on the development of a new statewide travel demand model which will enhance evaluation of a variety of new transportation policy and planning applications, including transit oriented developments, multimodal public transportation systems and commuter rail options. A key input to successful implementation of a travel demand model is household travel survey data that provides detailed information regarding the different measurements of travel patterns of a representative subset of households/individuals in the study area. Household travel surveys also provide rich information regarding a variety of socio-economic, demographic and land use attributes that can be used to comprehend and analyze the travel choices people make. A household travel survey called the Connecticut Statewide Transportation Study was carried out between July 2015 and August 2017. The primary objective of the study was to conduct a comprehensive multi-modal statewide household travel survey that will facilitate the development of travel demand models by CTDOT and other planning agencies in the state. The report provides details regarding the design, development, data collection, data processing, and data preparation aspects of the study. The report also provides an overview of the travel behavior trends of Connecticut residents.

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EXECUTIVE SUMMARY

Connecticut Statewide Transportation Study (CSTS), a comprehensive multi-modal statewide household travel survey, was conducted on behalf of the Connecticut Department of Transportation (CTDOT) between May 2015 and August 2017. The survey was conducted by the Connecticut Transportation Institute at the University of Connecticut and a consultant team comprising of Resource Systems Group Inc. and ETC Institute. A summary of the study is provided below.

Purpose

The primary objective of the CSTS was to collect complete travel information for a 24-hour weekday period from a representative sample of at least 7,500 households across the state of Connecticut. In addition to the travel characteristics, socio-economic characteristics, demographic factors, and vehicle ownership attributes were collected from each sampled household. The last household travel survey, in the state of Connecticut, was conducted in the late 1970's. Since that time, state demographics, employment, land use, and travel patterns have changed significantly. CSTS serves as a comprehensive and up-to-date database of travel behaviors of CT residents. Information from the survey will be used by CTDOT for developing a new statewide travel demand model (STDM) system, and for other transportation analyses.

Data

Each sampled household was asked to report detailed travel information for a pre-assigned travel day include travel mode, destination location, and destination purpose among other characteristics. In addition, socio-economic characteristics, demographic attributes, and vehicle ownership and usage information was requested from all individuals within the sampled household. The final dataset contained demographics and travel data for 17,481 persons residing in 8,403 households throughout the entire state of Connecticut. While residents of neighboring states (New York, Massachusetts, and Rhode Island) may also travel into and through Connecticut, residents of these states were not included in this study.

Respondents

A sample of households were invited from those residing in the state of Connecticut using a combination of simple geographic proportional random sampling, targeted oversampling (higher sampling rates) in selected areas, and upsampling (increased invitation rates) in other areas where higher proportions of hard-to-reach are identified. In order to obtain sufficient responses, invitation letters were mailed to 153,649 households across the state, and 8,403 households completed the study corresponding to a sampling rate of 0.6%.

Data Collection

Data was primarily collected using an online survey instrument. Sampled households could either self-administer the survey by logging on to the survey online or could call a toll-free number and provide their responses over phone. Call center operator used the same online survey instrument to enter the information provided by the callers. The survey contained two parts: recruit survey and travel diary survey. The recruit survey collected household-, person-, and vehicle-level information. Only one adult household member was required to complete the recruit survey.

Once this section was completed, respondents were shown (or read) a survey dashboard with further instructions about logging their trips on the assigned travel day and completing the travel diary survey. In order for a household to be counted as complete, travel diaries of all household members were required to be completed after their assigned travel date had passed. Individuals could self-report or a household member could report trips for others. Adults were asked to fill out travel diaries for children in the household.

Timeline

The main data collection effort began in February 2016 and ended in June 2016. The households invited to the survey were assigned one of 30 weekday "travel dates", spread over ten weeks in March, April and May 2016. One week in the middle was "skipped" to allow time for review and adjustment after the first few weeks of data collection. All travel dates were on a Tuesday, Wednesday, or Thursday of each week, due to the focus on typical weekday travel of residents. Travel dates were pre-assigned to households and invitations were evenly distributed over all the dates so that the recruitment and survey retrieval process could be easily managed. Distributing the sample evenly over all the travel dates also improved the final dataset as it contains a sufficient sample of each of the three weekdays and includes data for different months.

Travel Characteristics of CT residents

Below a summary of the travel characteristics of Connecticut residents are provided. The statistics were generated using travel survey data from the 2016 CSTS. All statistics reported are based on weighting analysis to match characteristics of CT residents from the 2009-2013 American Community Survey. Where appropriate, imputed, or logically estimated, values are utilized to supplement the collected data from the survey. As with any survey, the statistics are subject to error and bias.

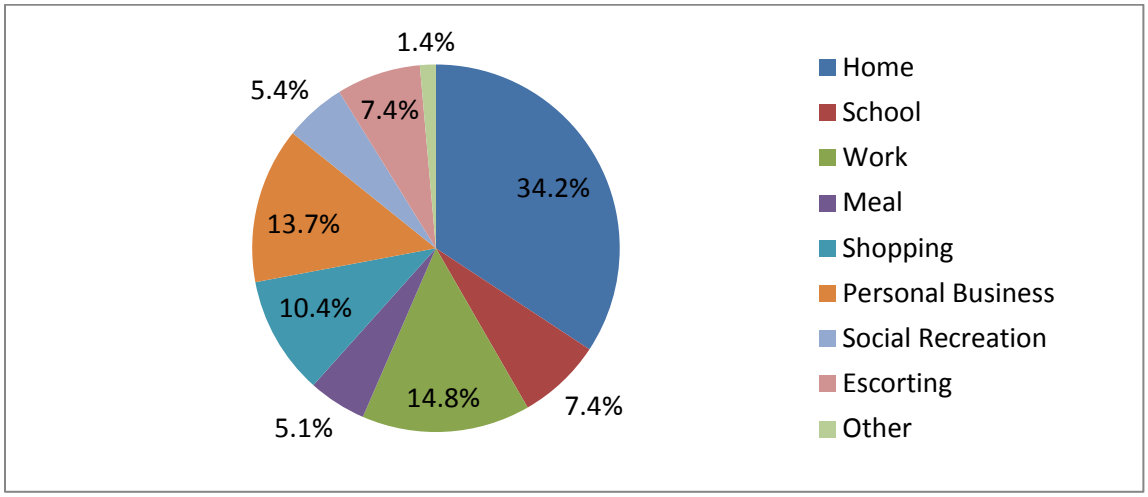
<u>Overall Trends</u>

The approximately 3.4 million Connecticut residents, residing in 1.4 million households, made a total of 11.8 million trips. The average trip rate is 3.51 per person and 8.68 per household. Trip rates increase with household income, presence of children and household size. Women have lower work trip rates, but higher total trip rates than men. Persons 35-54 years of age have higher trip rates than the other age groups.

<u>Trip Purpose</u>

The largest proportion of trips (34.2%) are made to return home from an activity location. This is followed by work which accounted for 14.8% of trips and personal business which accounted for another 13.7% of trips. Shopping accounted for 10.4% of trips. The three purposes with the lowest shares are social recreation, meal, and other.

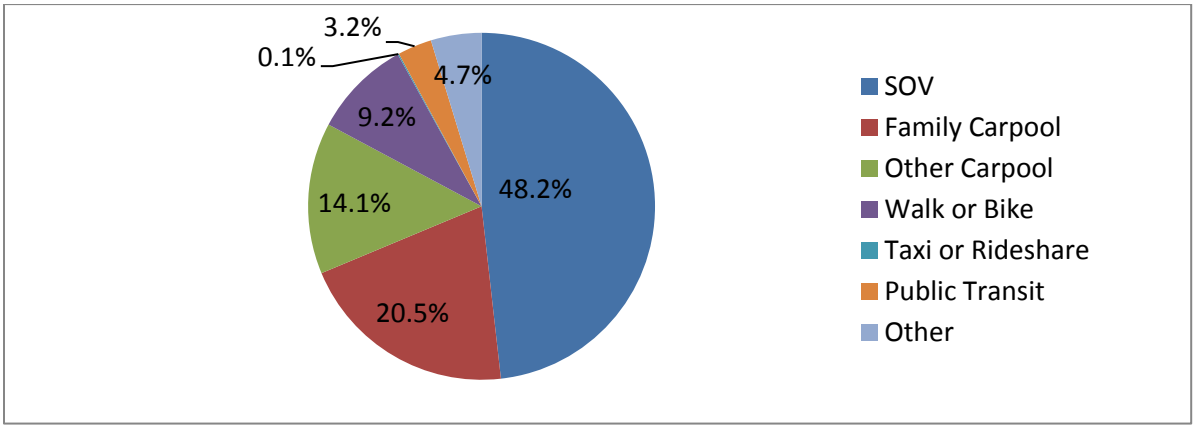
Trip Purpose Distribution



Trip Mode

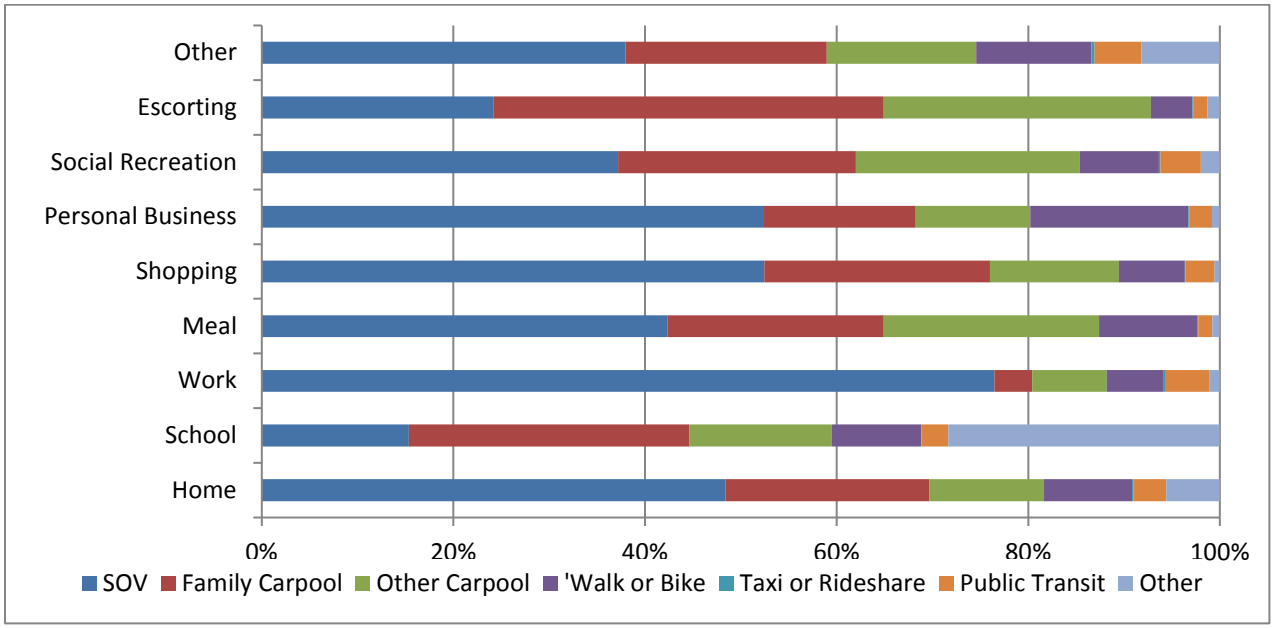
Automobile is the dominant mode used for traveling accounting for nearly 82.8% of the trips. Out of the 82.8%, 48.2% of trips are made by Single Occupant Vehicle (SOV) mode, and the remaining 34.6% of trips involve some form of carpooling. Walk/bike is the next most popular mode accounting for 9.2% of all trips. Public transit serves 3.2% of all weekday trips in Connecticut.

Distribution of Primary Mode for Trips



SOV is the most popular mode for all types of trips except for school trips and escorting trips. 76.5% of work trips are made by SOV mode. About 50% of shopping, personal business and home trips are made by SOV mode as well. 28.4% of school trips are made by family carpool and 27.6% are made using school bus.

Distribution of Primary Trip Mode by Purpose

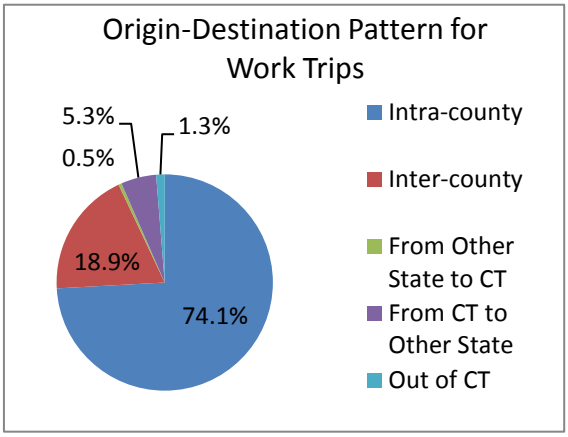


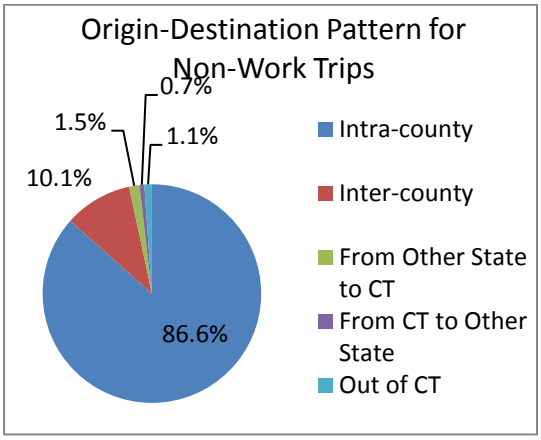
Spatial Distribution of Trip Ends

The average reported travel duration for all types of trips is 22.90 minutes. Work trips on average are longer than other trips. The average reported work travel duration is 29.66 minutes and reported non-work travel duration is 21.71 minutes. The average reported travel duration of trips by employed persons is 24.47 minutes whereas average travel duration of trips by unemployed persons is 20.09 minutes. It is interesting to note that the average travel duration of kids (age less than 16 years old) is slightly higher than the average duration for unemployed individuals.

A majority of trips made are within Connecticut. 84.7% of trips are intra-county and 11.4% of trips are inter-county of Connecticut. Only about 1% of trips are made from/to a location outside Connecticut. Intra-county trips account for the greatest proportion of both work trips and non-work trips.

Distribution of Trip Ends





Travel Accompaniment

57.6% of all trips were made by individuals alone, while 43.4% of trips were made with others. Majority of work trips (85.1%) and personal business (65.7%) trips are made alone. Escorting trips, school trips and social recreation trips are more likely to be made along with others.

Other Key Travel Trends

- Profile of transit travelers:
  - 89% of the transit trips were made by residents of Hartford, Fairfield, and New Haven counties
  - Majority of the trips were made by females (53%) and by those who were in the 45 to 54 age group (20%)
  - 48% of the trips were made by those who were employed
  - 13% of the trips were made by students who were either enrolled fulltime or part time
  - 49% of the trips were made by those with a driver's license
  - Most common trip purposes were "Go home" (37%) and "Go to primary workplace" (19%)
- Profile of bike/walk travelers:
  - 81% of the bike/walk trips were made by residents of Hartford, Fairfield, and New Haven counties
  - Majority of the trips were made by females (51%) and by those who were in the 25-34 age group (18%)
  - 40% of the trips were made by those who were employed
  - 14% of the trips were made by students who were either enrolled fulltime or part time
  - 67% of the trips were made by those with a driver's license
  - Most common trip purpose was "Go home" (34%) and "Exercise" (19%)

CHAPTER 1 INTRODUCTION

With growing needs to evaluate a variety of new transportation policy and planning applications including transit oriented developments, multimodal public transportation systems, and commuter rail options among others, the Connecticut Department of Transportation (CTDOT) has embarked on the development of a new statewide travel demand model (STDM) system. A key input to successful implementation of a STDM is household travel survey data that provides detailed information regarding the different dimensions of travel engagement choices. Additionally, such information is sought from a representative subset of the households/individuals in the study area so as to make reliable inferences about all residents in the state. Household travel surveys also provide rich information regarding a variety of socio-economic, demographic, and land use attributes that can be used to explain the travel choices people make.

The last comprehensive household travel survey data collection in the state of Connecticut was conducted in the late 1970's. Since that time, state demographics, employment, land use, and travel patterns have changed significantly. While some of these changes (i.e. demographic changes, and limited travel measures) can be observed in Census records, a more comprehensive and up-to-date database of travel behaviors is needed in order for the travel model to be calibrated with this latest information. Subsequently, this will ensure a more accurate estimation of the impacts of various policy and planning applications.

The remainder of the chapter is structured as follows:

- Section 1.1 provides an overview of the 2016 Connecticut Statewide Transportation Study.
- Section 1.2 describes the pilot study portion of the project.
- Section 1.3 presents details regarding the main study phase of the project.
- Finally, Section 1.4 describes the report organization.

1.1 Connecticut Statewide Travel Survey Overview

The 2016 Connecticut Statewide Transportation Study (CSTS) provides data about travel patterns of residents within local communities, in regional planning areas, and across the state of Connecticut.

1.1.1 Focus of the Travel Data

The primary objective for the CSTS was to collect complete travel information for a 24-hour weekday period from a representative sample of at least 7,500[1] "complete"[2] households across the state of Connecticut. Each sampled household was asked to report travel information for a

[1] This number was determined based on a review of sample sizes from recent statewide survey efforts in other states. For instance, 2010-2011 Massachusetts Travel Survey collected travel data from 15,033 households out of the 2.54 million households in the state representing a sampling rate of 0.59%. In CT there are approximately 1.36 million households as per the Census 2009-2013 ACS 5-Year Estimates. The 7,500 target represents a sampling rate of 0.55%.

[2] In this study, a complete household is defined as one in which each member of the household has provided valid information for all data items collected in the survey.

pre-assigned travel day. In addition to the travel characteristics, a variety of other information was requested from all individuals within the sampled household including socio-economic characteristics, demographic factors, and vehicle ownership attributes.

Particular focus was placed on collecting daily "personal travel"[3] pursued by individuals and households on weekdays (i.e. Tuesday through Thursday). The study also sought to collect a sufficient sample of the types of households that are traditionally more difficult to reach, yet are important for transportation policies and planning applications. This included low-income households, low- or no-vehicle households, and households that frequently use transit. The study collected a broad range of possible household travel behaviors, including detailed trip purposes, all types of trip modes (e.g., driving, walking, bicycling, riding transit, etc.), and trips made by every household adult and child (both individually and jointly with other household members).

The household travel survey was designed, developed and deployed to conform to the state of practice in survey research methodologies to efficiently and effectively complete the CSTS, including:

- ❑ A stratified sampling plan to balance the objectives of representativeness and sufficient sample from sub-populations of interest
- ❑ An address-based recruitment strategy with multiple first-class mailings to invited households
- ❑ A multimodal data collection strategy including telephone retrieval and web survey technology
- ❑ An informative and aesthetically appealing public website with consistent branding and messaging throughout all official outreach materials and activities
- ❑ Applying state of research and practice methodologies for survey data cleaning and processing to prepare final datasets

1.1.2 Study Area

The CSTS collected data from households throughout the entire state of Connecticut, and included all travel reported by these households on their assigned travel dates (whether the travel took place within the state or elsewhere). While residents of neighboring states (New York, Massachusetts, and Rhode Island) may also travel into and through Connecticut, residents of these states were not included in this study.

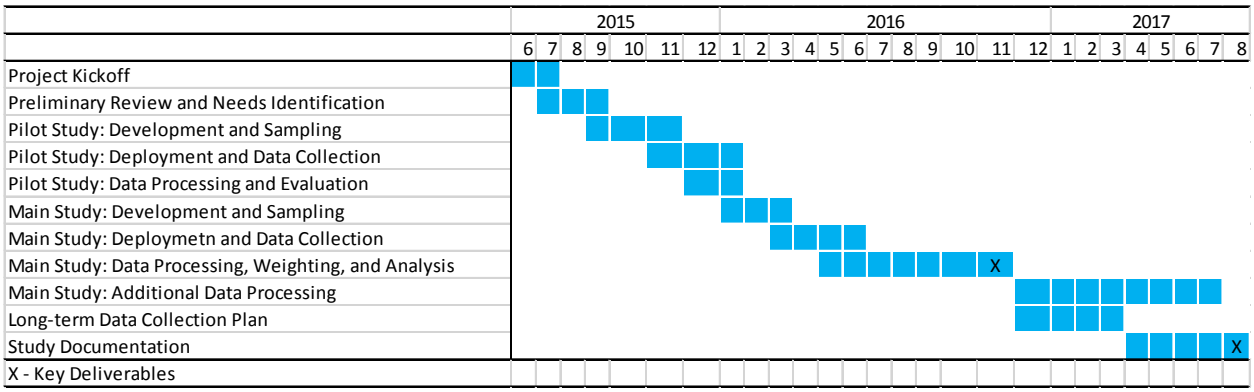
1.1.3 Study Timeline

The CSTS began in June 2015. During fall of 2015, the study team evaluated the study needs, developed the survey instrument, developed administration materials and protocols, and designed a pilot sampling plan. In the winter of 2015, the pilot study was carried out. Following the pilot study, the instruments, materials, protocols, and sampling plan were refined and revised

[3] In addition to personal travel, there are a number of contributors to traffic on roadways in the state including inter-city travel from/to cities in surrounding states, and freight travel among others. The survey effort to collect data about these other contributors is very different from those aimed at collecting for daily personal travel. Therefore, information regarding the other contributors must be undertaken as separate surveys (e.g. long distance surveys, and freight surveys) in the future if so desired.

for the main study. The main study data collection began in spring 2016 and was completed by middle of summer. Finally, after data collection was complete, the study team processed and analyzed the data. A final version of the dataset was transmitted to CTDOT towards the end of 2016, to support the validation of the STDM system that was being developed. Additional data cleaning and data processing tasks were carried out to further enhance the quality and validity of the dataset beginning in the winter of 2016 through summer of 2017. The study team also developed long-term plans during the spring of 2017 in support of possible future data collection activities. Table 1 below illustrates the timeline of these activities.

Table 1: An Overview of the Study Timeline



1.2 Pilot Study Overview

The overall study can be divided into two major phases: the pilot study phase and the main study phase. The primary objectives of the pilot study phase were to develop, deploy, test, and revise the survey materials, and prepare for the main study. Specific emphasis was placed on testing the questionnaire and online survey instrument, evaluating the print and online materials used for survey recruitment and data collection, analyzing the survey administration processes and protocols, and studying the response rates. Based on the findings from the pilot study, necessary changes were made to various aspects of the survey and preparations were made for the main study. The pilot study spanned from July 2015 through January of 2016 and is discussed in detail in Chapter 2.

1.3 Main Study Overview

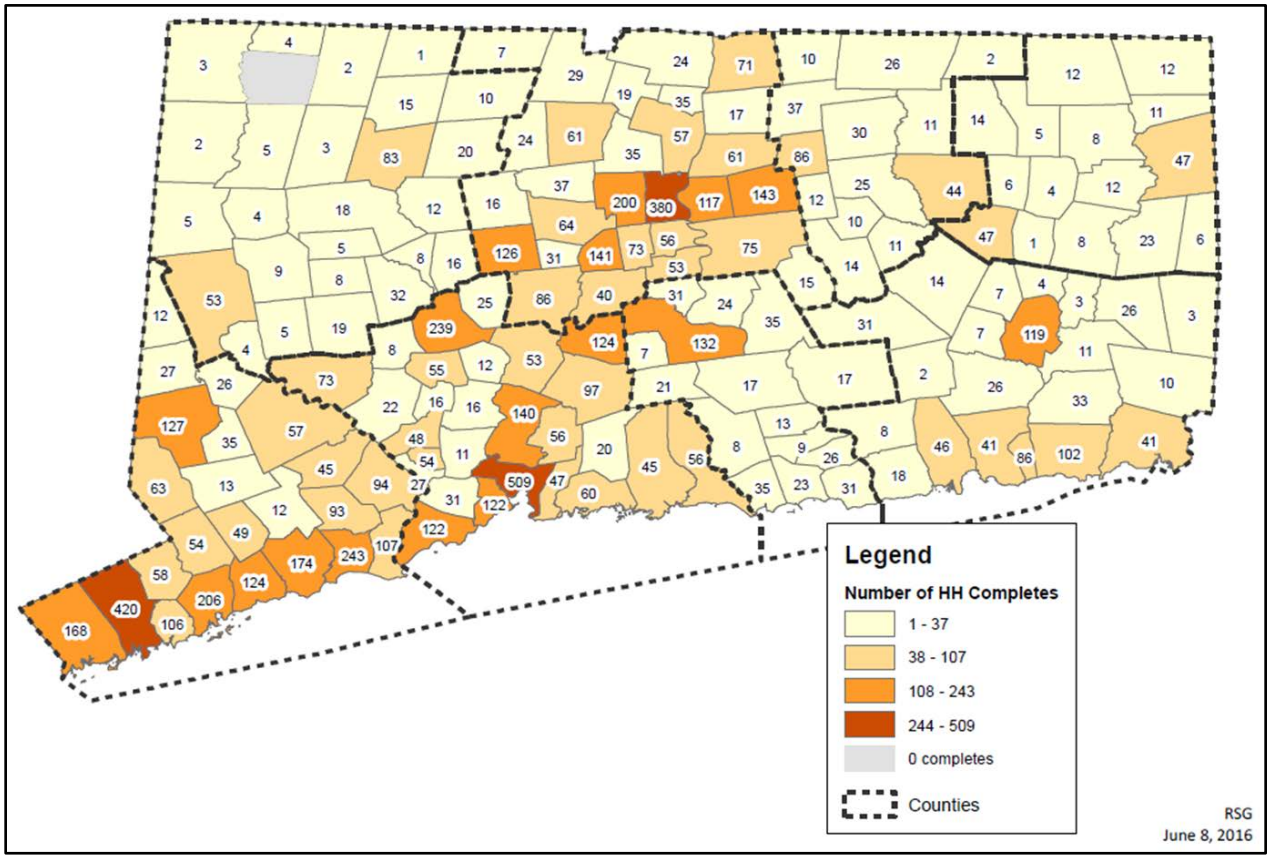
The primary objective of the main study was to collect responses from 7,500 "complete" households across the state of Connecticut. The main data collection effort began in February 2016 and "first version"[4] of the data was transmitted in November 2016 to support the model validation. Invitation letters were mailed to 153,649 households across the state, with 8,403[5] households completing the study. This resulted in a sampling rate of approximately 0.6%, exceeding the initial target of 7,500 responses and 0.55% sampling rate. Figure 1 illustrates the distribution of respondent households in towns across the state. As expected, areas shaded in

[4] In the report, two versions of the data are referenced corresponding to the two waves of deliverables transmitted in November 2016 and August 2017. The data delivered in November 2016 is referred to as first version and the data delivered in August 2017 is referred to as the final version.

[5] This number represents the final count of "complete" households with usable information.

darker red (representing higher number of responses) are generally concentrated in the densely populated regions in the southwest and central parts of the state. These areas follow the Metro North commuter rail routes toward New York, the I-95 corridor, and the I-84 and I-91 corridors between New Haven and Hartford. The main study approach and findings are discussed in greater detail in Chapter 3.

Figure 1*:* Complete Responses by Town



1.4 Report Organization

The pilot study and the main study are discussed in greater length in Chapter 2 and Chapter 3 respectively. The Appendices at the end of the report includes survey materials, memos, and documentation in support of the deliverables.

CHAPTER 2 PILOT STUDY

A pilot study was first carried out in order to evaluate survey response rates, study materials and survey design prior to the main study. The pilot study also explored the response rate implications of different types of incentive schemes (guaranteed incentive versus raffle) and mode of paper survey (online/phone versus paper diary). The goal of the pilot study was to collect data from 250 households.

The remainder of this chapter is organized as follows:

- ❑ Sampling plan is described in Section 2.1
- ❑ Incentive plan is presented in Section 2.2
- ❑ Questionnaire design and development is presented in Section 2.3
- ❑ Survey implementation is discussed in Section 2.4
- ❑ Development of survey design and branding materials is presented in Section 2.5
- ❑ Survey administration protocol and procedures are discussed in Section 2.6
- ❑ The approach to data processing and preparation is presented in Section 2.7
- ❑ Pilot study results are presented in Section 2.8
- ❑ Main study recommendations are discussed in Section 2.9

2.1 Sampling Plan

A stratified split sample design was used for the pilot study. To achieve the sample target of 250 complete households, those households residing in select regions from the state were divided into six segments based on geography (namely block groups). Subsequently, invitations were mailed to a random sample of approximately 8,500 residential households from within the geographies based on expected response rates, and survey protocol alternatives. It must be noted that the primary goal of the pilot was to assess the overall process (survey and material designs, protocols, and response rates). Subsequently, the information was used to refine the main study to be more effective and efficient. Therefore, the pilot results were not expected to be representative of the population.

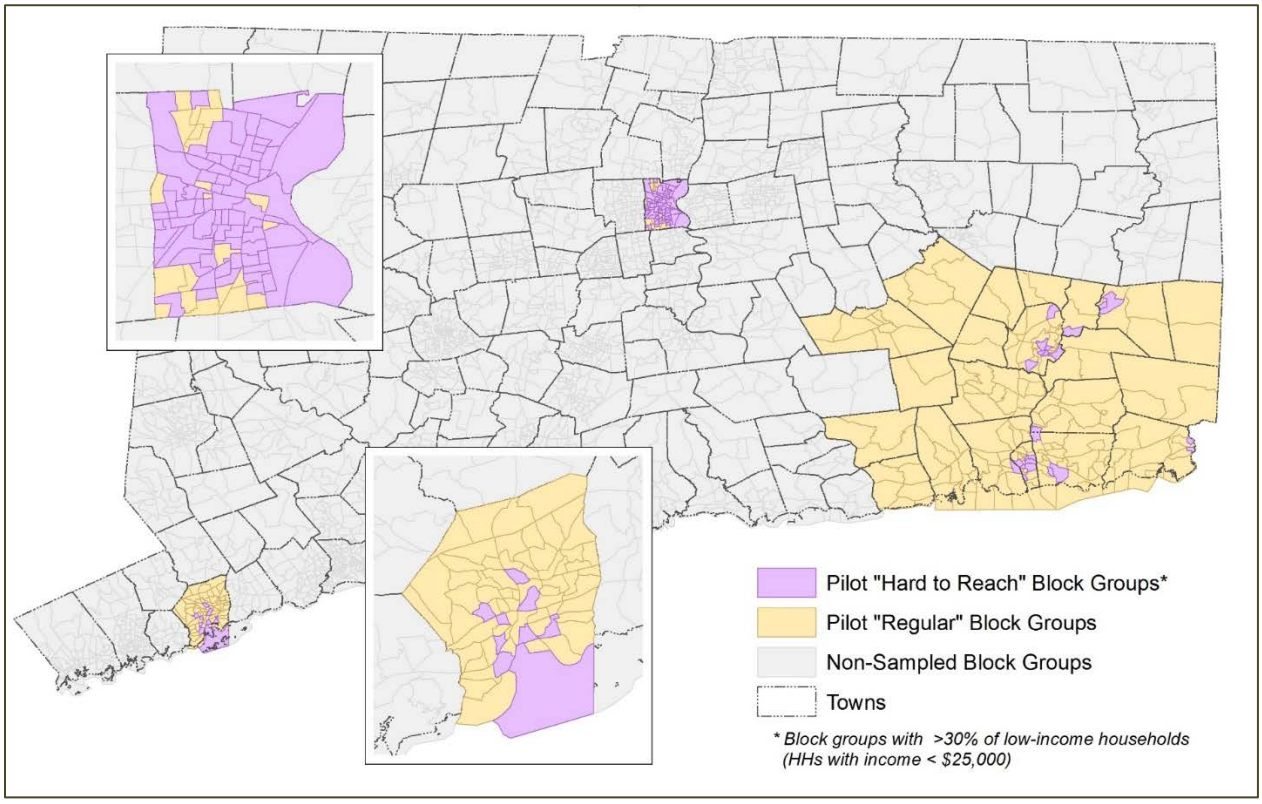
2.1.1 Sampling Frame

Due to the smaller sample size, the pilot sample was invited from a smaller sub-area within the state instead of drawing a sample from the entire state. This provided for a higher pilot sampling rate[6], which in turn helped enable a better assessment of the pilot response. Three areas from within the state were identified for the pilot sample as shown in Figure 2. They were chosen to be representative of the diverse set of regions in the state. These areas included: 1) the town of Hartford –the state capital and a higher concentration of traditionally "hard-to-reach" households, 2) the town of Norwalk –located in the southwest part of the state and part of the New York City commute-shed, and 3) the county of New London –located in the eastern part of the state and less densely populated. The sampling frame for the pilot included all residential mailing addresses within the chosen areas in the state. The sample list was obtained by randomly

[6] Defined as the ratio of number of complete households to the total population for the chosen study area.

drawing from the sampling frame based on pre-specified spatial stratification and sampling rate. The sample list was obtained from Marketing Systems Group (MSG), a data vendor that maintains the United States Post Office's Computerized Delivery Sequence File – a list of all addresses.

Figure 2: Pilot Sample Geographies



It was not expected that the sample distribution from the pilot sample areas would closely match statewide population demographic distributions (see Table 2 for a comparison of key demographic characteristics for the pilot sample areas and state as a whole). By controlling for an important determinant of response rates and collecting enough responses in the pilot study, however, the study team was able to evaluate response patterns of different types of households of interest and design a more comprehensive sampling plan for the main study.

Table 2: Demographic Summary of the Sample Areas and state of Connecticut as a whole

	Hartford Town	**Norwalk Town**	**New London County**	**Connecticut**
Total HHs	45,808	36,236	107,066	1,355,849
% Low-income HHs (<$25k)	44.3%	17.1%	16.0%	18.0%
% 0-Vehicle HHs	35.5%	9.4%	7.1%	9.0%
% Large HHs (4+ persons)	22.3%	19.1%	20.9%	23.1%
% Young HHs (householder <35yr)	27.5%	16.9%	17.2%	15.7%
% Low-income HHs (<$25k)	27.5%	11.7%	7.1%	8.7%

2.1.2 Sample Segments

As noted earlier, the sampling plan was designed at the block group level. The block groups from chosen pilot study areas in the state were categorized into six segments based on three primary considerations of the pilot study and were applied in the order presented below.

- *Expected response rates by demographic factors.* Within the three areas identified above, two types of households were defined as 1) hard-to-reach and 2) regular households. Characteristics of the two types of households are described below:
  - Hard-to-Reach households: Typically, households with lower incomes respond to surveys at lower rates (Stopher 1996[7], Zimowski 1997[8]). Therefore, it is important to account for the differential response rates to avoid sample biases. This is customarily achieved by drawing additional samples in proportion to anticipated lower responses rates – a process also referred to as up-sampling. Within the pilot study areas, the designated up-sample geographies are block groups with more than 30% households in the low income category (i.e. income less than $25,000). It must be noted that there are other types of households who also respond at lower rates (e.g. large households and households with younger members among others). However, given the size of the sample target in the pilot, it was not feasible to account for the differential response rates due to other characteristics. The focus in the pilot study was limited to one of the important and widely acknowledged determinants of lower response rates, income. Potential differential response rates due to other factors were analyzed using data collected in the pilot and utilized to design the sampling plan for the main study[9].
  - Regular households: All block groups in the pilot sample areas that were not identified as hard-to-reach were designated as the regular sample geographies. These block groups have 30% or fewer households in the low-income category. Households from these areas, therefore, were expected to respond at somewhat higher rates than those in the hard-to-reach geographies.
- *Expected response rates by incentive offered.* Within each of the hard-to-reach and regular block groups, the invited households were divided into two sub-groups. Half of the households were offered a guaranteed incentive, in the form of a gift card, upon completion of the study. The other half of the households were entered into a raffle for a predetermined prize. Each of these sub-groups were sent different invitation materials reflecting the differences in the incentives offered. However, both sub-groups received the same kinds of study information and reminders and completed the exact same survey (online or over the phone only). It was anticipated that the raffle sub-group would participate at lower rates than the gift card sub-sample

[7] Stopher, P. (1996). Household Travel Surveys: New Concepts and Research Needs. Conference on Household Travel Surveys. (Website: http://onlinepubs.trb.org/Onlinepubs/conf/1995/cp10/cp10-001.pdf, Accessed: October 15, 2017)

[8] Zimowski, M., Tourangeau, R., Ghadialy, R., and Pedlow, S. (1997). Nonresponse in Household Travel Surveys. (Website: https://www.fhwa.dot.gov/ohim/nonrespond.pdf, Accessed: October 15, 2017)

[9] More details regarding the adjustments for differential response rates in the main study are discussed in Chapter 3, Section 3.1.

(Zimowski 1997). As a result, in the sampling plan, differential response rates were accounted for and invitations were adjusted accordingly.

- *Expected response rates by survey response method offered.* In order to test impact of survey mode on response rates, separate, non-overlapping invitations were drawn from the same hard-to-reach and regular block groups. These sub-groups were provided different invitation materials that included the option to fill out the travel diary portion of the survey using a paper diary in addition to the web and phone options. Households that choose to respond online or over the phone were allowed to use the same survey instrument as those who were not offered the paper option. On the other hand, households that prefer the paper diary were provided a paper diary along with instructions to complete the survey and mail it back. It was anticipated that those who were offered a paper diary option would complete the survey at lower rates than those required to complete online or over the phone (Zimowski 1997, Morency 2014[10]). As a result, the number of invitations was adjusted accordingly.

The above process resulted in a total of six sample segments as shown in Table 3 below. The number of invitations was selected based on anticipated response rates. Invitations for each of the six segments were randomly selected from households within the corresponding block groups. The study team tried to ensure that there was no overlap across the invitations (i.e. no duplicate addresses). Also, during the pilot study, each segment was monitored separately. It must also be noted that for the segments offered the paper option, they were entered into the same raffle as the other raffle invitation segments.

2.1.3 Invitations

Once the sample strata were determined, the next step was to determine the number of desired responses and resulting number of invitations needed for each segment. The desired overall sample size for the pilot study was predetermined as 250 households, or approximately a 0.13% sampling rate of the total households in the pilot sample areas. This is typically sufficient proportion to offer the type of insights motivating a pilot study. Next, response rates were assumed for the different sample segments based on a combination of demographics, incentives offered, and recent similar studies. The invitee count was then obtained by dividing the anticipated number of responses for each segment by the assumed response rate for the segment. In order to obtain the 250 responses, a total of 8,510 invitations were mailed out. Table 3 below shows the breakdown of the invitations by individual segments.

[10] Morency, C. (2014). Recent Development and Analysis on Household Travel Surveys. (Website: http://uttri.utoronto.ca/files/2014/10/6-Morency-Recent-development-and-analysis-on-Household-Travel-Surveys-in-Quebec.pdf, Accessed: October 15, 2017)

Table 3: Characteristics, Assumed Response Rates, and Target Responses for the Pilot Sample Segments[11]

ID	Sample Segment Description[12]	% of Sample	Sample Size[13]	Diary Mode Options	Sampling Rate[14]	Sample Area Block Groups Type	# Block Groups[15]	# HHs[16]	Response Rate[17]	Invites, # HHs[18]	Invites, % of HHs[19]
1	Hard-to-reach / Raffle	20%	50	Online/Phone	0.09%	Hard-to-Reach	106	58,245	2.0%	2,500	4.3%
2	Hard-to-reach / Gift card	20%	50	Online/Phone	0.09%	Hard-to-Reach	106	58,245	4.0%	1,250	2.1%
3	Regular / Raffle	20%	50	Online/Phone	0.04%	Regular	247	130,865	3.0%	1,670	1.3%
4	Regular / Gift card	20%	50	Online/Phone	0.04%	Regular	247	130,865	5.0%	1,000	0.8%
5	Hard-to-reach / Raffle/ Paper	10%	25	Online/Phone /Paper	0.04%	Hard-to-Reach	106	58,245	2.0%	1,250	2.1%
6	Regular / Raffle/ Paper	10%	25	Online/Phone /Paper	0.02%	Regular	247	130,865	3.0%	840	1.4%
Total		**100%**	**250**		**0.13%**		**353**	**189,110**	**2.9%**	**8,510**	**4.5%**

[11] In the table, the short form HHs is used to denote households.
[12] Defined by a combination of block group category, incentive type, and mode options offered to complete the diary portion of the survey.
[13] Sample size is the target number of households who have completed the entire survey (including the recruit survey and travel diary survey).
[14] Sampling rate is the target percent of total households who have completed the survey (i.e. number of responses / total number of households).
[15] This column notes how many block groups are within the particular category of block group type in the pilot sample areas.
[16] This is the estimated total number of households within the corresponding block groups based on 2009-2013 ACS 5-year estimates.
[17] In the CSTS, a complete household is defined as one where every person in the household answers every question (i.e. no missing responses). The predicted survey completion rates are based on demographics, incentives offered, and recent similar studies. Actual completion rates for the pilot were used to design the main study sampling plan.
[18] Number of households invited is determined by the desired sample size and predicted completion rate (sample size / completion rate).
[19] Percent of households invited is the percent of all households expected to receive study information.

2.1.4 Travel Date Assignment

The households invited to the survey were assigned to one of 6 weekday travel dates as shown in Table 4. All travel dates were on a Tuesday, Wednesday, or Thursday owing to the focus of the data collection on collecting information about travel behaviors on typical weekdays. This is a common approach for household travel surveys because travel on these days is expected to represent "typical" household travel patterns. CTDOT also confirmed their preference to focus on the typical weekday travel during this study, so that the study's primary objective of establishing a statewide database of travel behaviors can be achieved more efficiently.

Table 4: Travel Date Assignment by Segment ID

Assigned Travel Date	Segment ID[20]
December 8, 2015	1 through 4
December 9, 2015	1 through 4
December 10, 2015	1 through 4
January 12, 2016	5 and 6
January 13, 2016	5 and 6
January 14, 2016	5 and 6

Travel dates were pre-assigned to households and invitations were evenly distributed over all the dates. This also allowed the study team to manage resources for the recruitment and survey retrieval processes. Another reason to pre-assign travel dates is to minimize response bias and increase the ability of the dataset to describe a typical day for the region (even if it is not a typical day for a given individual). If participants were given a choice of travel dates or simply asked to report on a recent or a typical day, many might unintentionally (or intentionally) bias their response by choosing to report on a busy day or a day with unusual travel patterns (for example, the day they took the bus to work), or choosing a day with little or no travel to reduce their survey burden.

2.2 Incentive Plan

As noted earlier, a split sample design was proposed to test the efficacy of a raffle versus a guaranteed incentive. Nearly half of the invitees were considered to be part of the gift card group (i.e. segment IDs 2 and 4) and half of invitees were considered to be part of the raffle group (i.e. segment IDs 1, 3, 5, and 6). All respondents in the gift card group received a guaranteed gift card and all respondents in the raffle group were entered into a raffle for a chance to win a non-monetary award. Further, the plan for the gift card group in the pilot was implemented as follows:

- ❑ Contingent upon completion of the study, all gift card group households were offered a guaranteed incentive of $10
- ❑ Households could choose from an Amazon e-card, a Walmart e-card, or a Walmart mailed (physical) card

[20] Please see Table 2 for descriptions of the sample segments.

- Respondents were also offered the option to not receive an incentive (if they so choose)
- Hard-to-reach households were offered a differential incentive. Households were defined as hard-to-reach[21] (or not) based on two predetermined criteria: 1) household income less than $25,000, and 2) household size greater than or equal to 5. At the end of the recruitment survey, households determined as hard-to-reach were offered $20 instead of $10 to complete their travel diary portion of the survey. The hard-to-reach households were not informed of why they are being offered a higher incentive. Instead they were just told that approximately 1 in 10 households were selected to receive a higher incentive.

2.3 Questionnaire Design

The questionnaire was designed to collect travel information from all individuals in a household in a travel diary format (i.e. a record of all trips made by the household on a single randomly assigned day was gathered). The survey also collected demographic information and typical travel behavior from households and individuals to help explain variations in travel patterns. In addition to serving as explanatory variables in statistical models of travel characteristics, demographic information can be used to rectify biases through weighting analysis.

The survey was developed in three phases as described below:

- *Variable Identification*: A list of important variables for use in the travel demand model development and for performing other transportation analysis was developed. The enumeration of the variables was based on study team's experience and review of similar studies. The study team, along with Cambridge Systematics (CS) and CTDOT, reviewed and created the final list of variables based on importance to current and future transportation modeling needs, while also evaluating impact on overall survey burden and response rates. The final list primarily consisted of data elements required for development of the STDM that is currently underway and also to facilitate development of more advanced STDM implementations in the near future (e.g. activity-based model systems). Additionally, supplemental variables about commuting behaviors, travel preferences, and typical trip-making behavior over time were also compiled. These latter data items are not required for the STDM but can be helpful for future STDM development and for other transportation planning analyses.
- *Questionnaire Development*: Using the final list of variables, the questionnaire was developed including all question text, answer options, branching logic, question order, and survey instructions. The order of questions in the survey was carefully determined to provide a logical flow. The survey also included extensive question skip logic to ensure that respondents only saw questions that were applicable to them. During the questionnaire development, a balance was attempted between collecting detailed information versus survey burden and sensitivity, so as to minimize participants dropping out of the study and to promote response rates. After receiving feedback from CTDOT and CS, the questionnaire was finalized.

[21] This is different from the hard-to-reach block groups that were defined as part of the sampling plan segments.

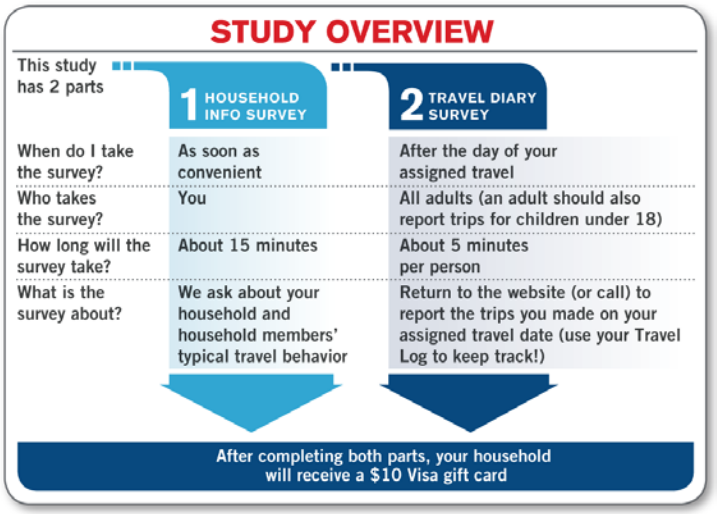
- *Survey Design and Implementation*: The questionnaire was then programmed as an online survey instrument. This online instrument was the primary data retrieval tool for collecting responses. For participants who preferred to complete the survey over phone, ETC (the call center operator) used the same online survey instrument to administer the survey verbally. CTDOT and CS had the opportunity to preview and comment on the survey instrument before the survey was fielded.

The survey was broken down into two distinct parts:

- *Recruit survey*[22] wherein information about the household, its members, and vehicles was collected
- *Travel Diary survey* wherein a one-day travel diary for each person in the household was gathered

The study overview shown in Figure 3 summarizes the two parts of the survey. Only one adult household member was required to complete the recruit survey. Once this section was completed, respondents were shown (or read) a survey dashboard with further instructions about logging their travel day trips and completing the travel diary survey. In order for a household to be counted as complete, travel diaries of all household members were required to be completed after their assigned travel date had passed. Individuals could self-report or a household member could report trips for others. Adults were asked to fill out travel diaries for children in the household. A household member was defined as anyone who lives in the same dwelling unit, including relatives, roommates, friends or household help.

Figure 3: A Graphic of the Study Overview



In the following two subsections, details regarding the recruit survey and travel diary are provided.

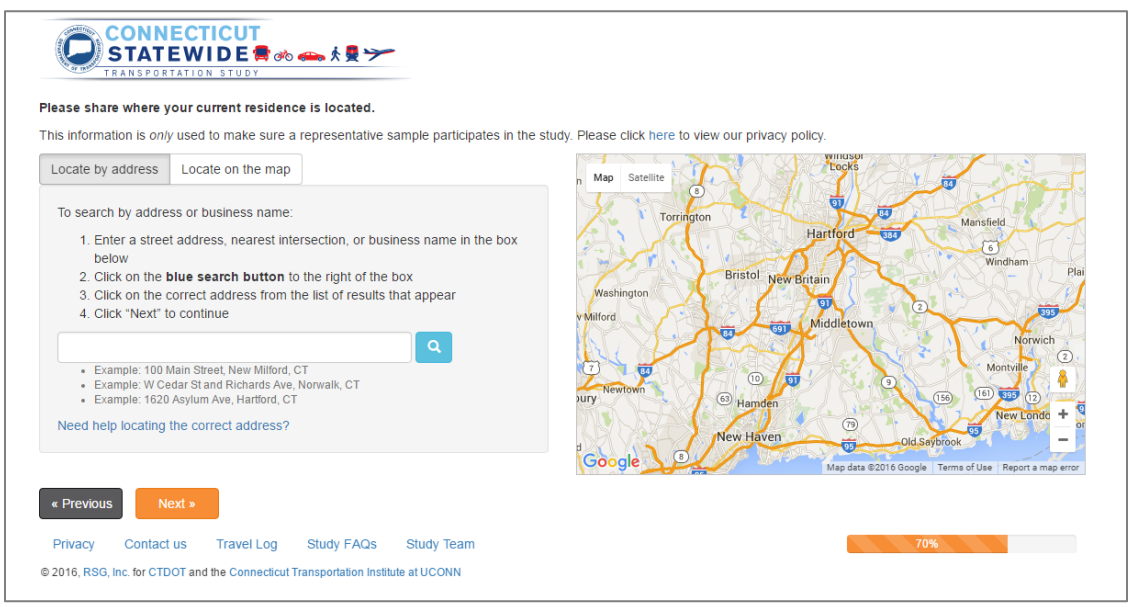
[22] Also, referred to as the household information survey.

2.3.1 Recruit Survey

The recruit survey was designed as a stand-alone survey that could be completed by invited households. Households could complete this survey up to a week before their travel date, or could complete it after their travel date and then proceed directly to complete the travel diary survey. The recruit survey included questions about household-level and person-level demographic information as well as typical travel behaviors. Additionally, household vehicle information, and administrative details, such as contact information and incentive preferences, were collected to aid in the travel diary administration. Below is a summary of the household-, person-, and vehicle-level information collected along with screenshots of example questions from the online survey instrument. A copy of the questionnaire design in the form of a PowerPoint document is included as Appendix A at the end of the report.

- *Household Information*: Household data collected in the recruit survey included the following variables:
  - Household composition (number of members and relationships to householder)
  - Household demographics (e.g., income)
  - Current home location (Figure 4 shows screenshot of the online survey instrument for collecting location information), type, and tenure
  - Number of household vehicles
  - Administrative data (e.g., contact information and incentive preferences)

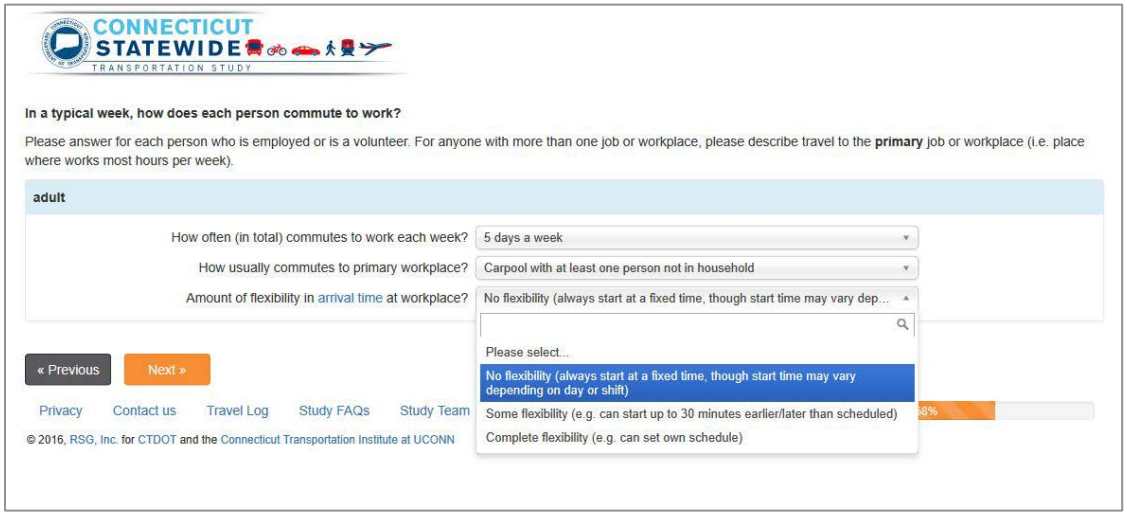
Figure 4: Example Home Location Question



- *Person Information*: The person-level details collected in the recruit survey included:
  - Person-level demographics (e.g., age, gender, employment status, education level)
  - Work details (if employed) (e.g., work locations, occupation/industry, typical commute behavior); Figure 5 shows example questions of participants who commute to work

- School details (if applicable) (e.g. school locations, typical school commute behavior)
- Other travel behavior questions (e.g., driver's license possession, frequency of transit use)

Figure 5: Example Participant Commute Questions



- ❑ *Vehicle Information*: Respondents were asked how many motor vehicles were in their household (including leased or company-owned vehicles, but excluding recreational vehicles). For each vehicle, respondents were asked to provide the following details:
  - Year
  - Make
  - Model
  - Presence of a toll transponder (e.g., EZ Pass)

Information collected in the recruit survey was later used to prepopulate responses for questions in the travel diary survey. For example, the vehicle information was used to prepopulate responses when a household vehicle was used to complete a trip. Any vehicle listed in the recruit survey became a mode option for trips reported in the travel diary survey.

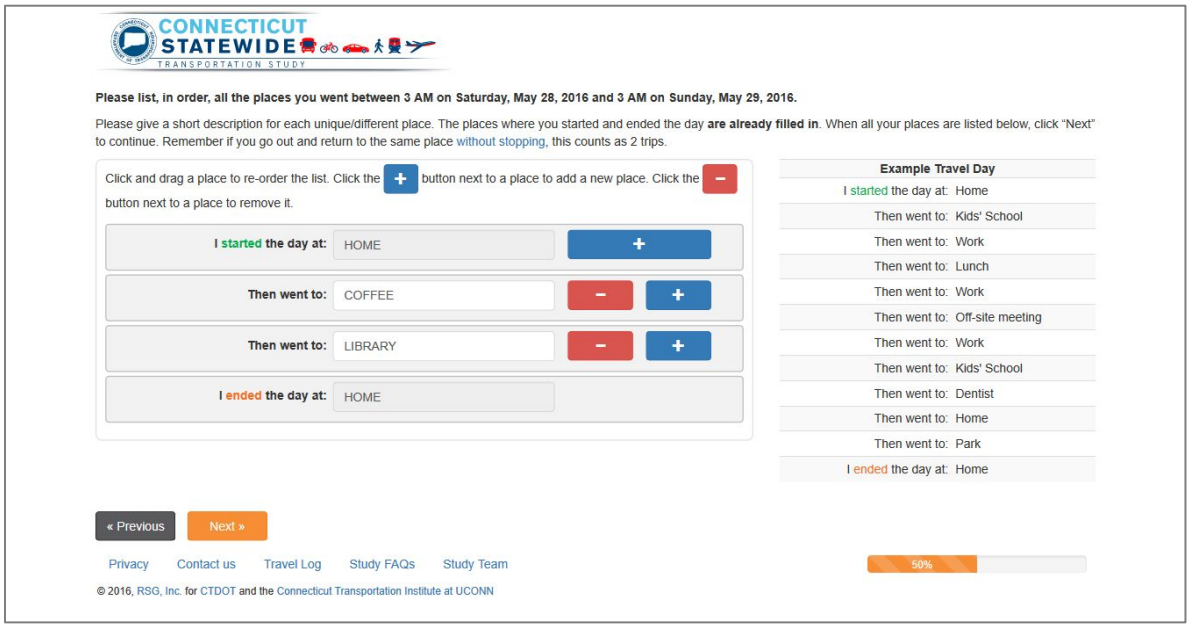
2.3.2 Travel Diary Survey

In the travel diary survey, details regarding all trips completed by members of the respondent household over a preassigned 24 hour period were collected. Additionally, this survey included a small number of follow up questions about other activities on the travel date (including reasons why no trips were made if such was the case and if it was a typical travel day or not). The travel diary survey was made available to respondents on the day after their assigned travel date had passed.

The travel diary survey was designed to collect detailed information about the trips. The first question was a proxy reporting question to determine whether the respondent was filling out his or her own survey, was present while another household member filled out the survey, or was not present while the survey was filled out by another household member. Respondents then

reported where they started and ended their travel day (defined as 24 hours, beginning at 3 a.m. on the travel date). Respondents were then asked to provide a full list of all of the places they visited during the travel date – this is referred to as the trip roster (see Figure 6 for an example of trip roster on the online survey instrument). If respondents did not go anywhere, they skipped this roster, and instead were asked to select one or more reasons why they did not travel.

Figure 6: Example Online Trip Roster



After the trip roster page, a prompt question asked respondents to verify that they had reported all of their trip destinations. This question listed the types of trips that are commonly overlooked and provided respondents with the opportunity to return to their roster to add these or any other types of trip destination locations they may have forgotten to report. Commonly under-reported trips include short trips (e.g., stopping for gas or running a short errand on a lunch break) and loop trips (e.g., walking the dog or going for a run). Specific instructions for loop trips included a graphic that showed how those trips should be reported.

Once the roster was filled out, the travel diary survey then collected the location for each place that the person went on their travel day (located by searching for an address or placing a marker on a map). Respondents located each place that they listed in their roster. If they went home or to their usual school or work location (reported in the recruit survey), this location would be prepopulated and the respondent could confirm the address. If they went to the same place more than once (e.g., dropping a child off at an activity and then picking them up from the same place later), they only had to locate that location once.

Finally, the travel diary survey collected details about each individual trip (see an example in Figure 7). As previously noted, some questions were skipped when they were not relevant to a given trip.

- ❑ For all trips, respondents were asked:

- when they traveled (when they started traveling and when they arrived)
- the main purpose of their trip (e.g., go to work, personal errands, eat at a restaurant, drop off another person, shopping, etc.)
- the main way they traveled (e.g., in a household or other vehicle, riding transit, walking, etc.)
- who they traveled with if applicable (other household members, non-household members, or a combination of both)

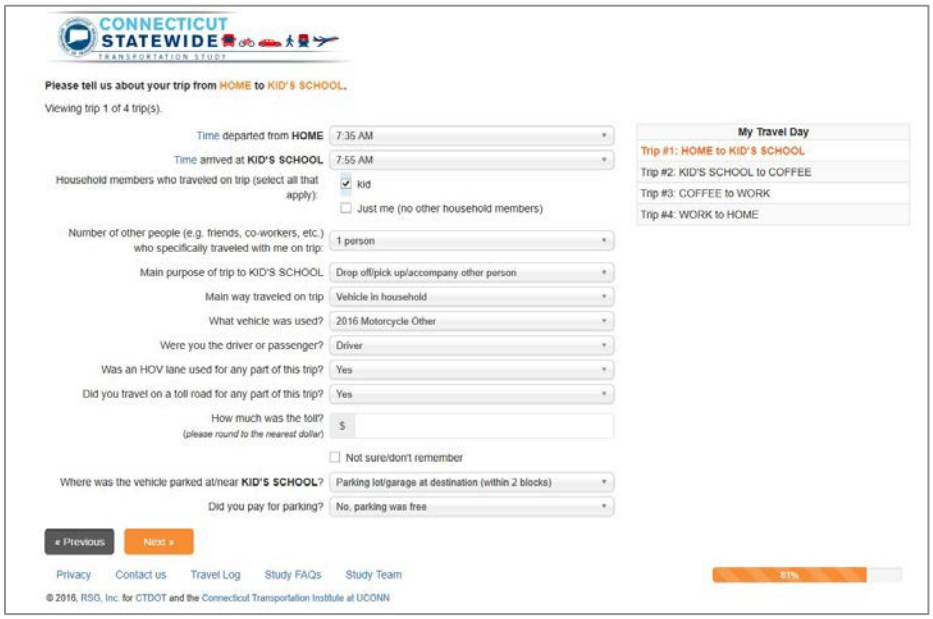
❑ For private vehicle trips, respondents were asked about:
- the vehicle used
- the type of parking location and cost to park there (if applicable)
- whether they used a toll road on that trip (if applicable)

❑ For carpool or vanpool trips (i.e., vehicle trips with other people in the travel party), respondents were asked:
- whether they were the driver or passenger
- whether an High Occupancy Vehicle (HOV) lane was used (if applicable)

❑ For transit trips, respondents were asked:
- how they got to and from the transit stop
- the cost of the transit fare
- which specific transit system(s) and route(s) were used

❑ For taxi and rideshare trips, respondents were asked:
- the total cost of the fare for the trip

Figure 7: Example Set of Trip Detail Questions



An important feature of the travel diary was the ability for respondents to copy trips where they were reported as a member of the travel party with other household members. The first household member to complete the travel diary would provide full details for the joint trip with other household members. Subsequently, the other household members can copy the trips and

thus avoid having to provide the same information again. They also have the option of altering the purpose of the copied trips as the purpose for one member may be different from the purpose of a different member (e.g. for a trip where a parent is dropping off their child to school, the purpose for the parent will be "drop-off" whereas the purpose for the child will be "school"). Once the trips have been copied, the other household members can add more locations to the trip roster to complete their travel diary.

2.4 Survey Implementation

2.4.1 Survey Instrument Development

Resource Systems Group, Inc. (RSG) programmed an online survey instrument as the primary data retrieval option for respondents. The online survey used RSG's proprietary survey software, rSurvey™, which includes rigorous protocols to protect data during and after data collection. The survey, conducted over the internet, is hosted on a secure https website; the rSurvey™ application uses Microsoft Azure to run the survey and store responses. Microsoft Azure employs numerous protocols and tools to ensure data security and data privacy.

As a further step to protect respondent privacy, all contact information was stored separately from response data. The only link between the mailed study invitations and the survey responses was a unique, randomly assigned password provided to respondents. This password was only used for administering the study and was not included in the final datasets, and only a small number of trained study administration staff had access to the passwords and contact information. Participating households entered their unique password and completed the survey through the online survey portal, which was accessible from the project website.

rSurvey™ also has several features that ensure data quality and minimizes respondent burden. One feature of rSurvey™ is that participants who stop midway through the survey arrive at the question they last answered when they return to the survey (with all previously provided data saved). Other functionalities to ensure data consistency and minimize respondent burden included real-time data validation, as described in Section 2.4.2 below.

ETC Institute (ETC) conducted all telephone activities for the survey using the same online survey tool to administer the survey over the phone if respondents preferred this option. Respondents who preferred to complete their survey over the phone were read the same web-based survey that web participants used. By administering the same survey to both phone and online participants, respondents who used the call-in option were fully integrated in real-time with all web respondents. ETC operators also had additional materials and information on hand such as the project Frequently Asked Questions (FAQs), the invitation letter, and a study overview document created by RSG, to interact with household members in an informed way and facilitate the process of data collection. Both English and Spanish speaking interviewers were available to assist callers.

Paper diaries that were offered to segment IDs 5 and 6 were designed and printed by UConn. The diaries were mailed to participants. Once the diaries were returned, the data was manually recorded.

2.4.2 Data Validation

An important step in collecting and preparing accurate, high-quality survey data is to ensure that respondents understand the questions and provide complete, accurate data as they take the survey. RSG's proprietary survey software, rSurvey™, includes built-in data checks that reduce respondent confusion, improve survey flow, reduce burden, verify response completeness and consistency, facilitate dataset preparation, and reduce the amount of data cleaning and up-coding required. A few examples of these built-in data checks include the following:

- ❑ Validation logic required that respondents answered all questions on a page (where a response was required) before continuing the survey, ensuring complete response records.
- ❑ Spatial validation, such as real-time geocoding of addresses, businesses, or location points on a Google map, ensured complete geographic data.
- ❑ Reported trip sequences were required to be spatially and temporally logical (i.e., one trip's end location was required to match the next trip's starting location, and a trip's starting time could not be before the previous trip ended).
- ❑ Filters to automatically show or hide certain questions based on previous responses helped reduce respondent burden (e.g., unemployed respondents were not asked commuting questions).
- ❑ Metadata collection (passive collection of data such as survey duration and browser type) was used to help troubleshoot survey errors and assist households that called or e-mailed for help. These metadata also helped inform improvements to the survey design between the pilot and main data collection periods.
- ❑ The "copy trips" feature in rSurvey™ allowed a household member to select and copy information for trips made with other household members who had already reported those joint trips. This feature, described in more detail in the previous section on survey design, ensures that jointly made household trips were reported with the same locations, modes, and trip times.

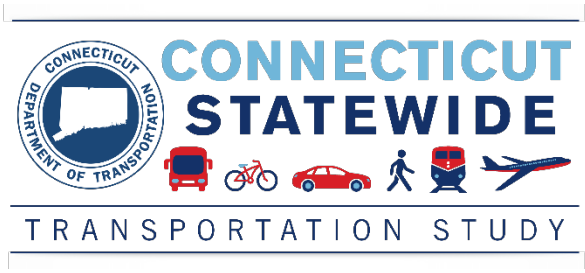
The above data validation features were not available for the data recorded from the paper diaries. These checks were manually done to qualify the completeness of the travel diaries returned by those who requested the paper survey mode.

2.5 Branding and Survey Materials

2.5.1 Survey Branding

A unique study branding was created with input from CTDOT. All study resources and materials (e.g., the study website and print materials) were branded in order to create a cohesive public profile for the study and to build legitimacy. The first step in this process was to develop the study name and logo. Figure 8 shows the logo and the study name. This logo was then included on all official study materials. The study name, icons, fonts, and color schemes selected for the logo also influenced the design of all other aspects of the invitation and outreach materials.

Figure 8: Study Logo



2.5.2 Print Materials

Initial recruitment of households began with invitations delivered via First-Class Mail. Households received a pre-notice postcard informing them of the survey, an invitation packet inviting them to participate in the survey, and two reminder postcards. Below are more details about these printed invitation materials. A copy of the printed invitation materials are included in Appendix B.

- *Pre-notice Postcard*: A pre-notice postcard was sent and arrived approximately 7-8 days prior to the assigned travel date notifying each potential respondent household that a formal invitation would be arriving. The postcard included the study website and phone number, the household's password, and information about the study incentives. Households were invited to log onto the website or call the toll-free number in order to learn more about the study and to fill out the recruit survey.
- *Invitation Packet*: A formal invitation packet arrived shortly after the pre-notice postcard – approximately 4-5 days prior to the assigned travel date. The packet included a letter branded with the study logo and printed on CTDOT letterhead. The contents of the packet explained the purpose for collecting residents travel behavior, provided the household's assigned travel date, and described the steps necessary to complete the study. The packet also included reminders about the website address and phone number for providing responses. Other materials included in the invitation packet were travel logs and a sheet with study FAQs.
- *Reminder Postcard One*: A reminder postcard arrived approximately 1-2 days before the assigned travel date to encourage every household to complete the travel diary. It reminded households regarding the study phone number, website address, and participant travel date and login information.
- *Reminder Postcard Two*: A second reminder postcard arrived approximately 1-2 days after the assigned travel date as a final reminder to complete the travel diary. It was identical to the first reminder postcard.

UCONN's Connecticut Transportation Institute (CTI) address was established as the study address on all printed materials, and was used as the return address for any invitations that were undeliverable.

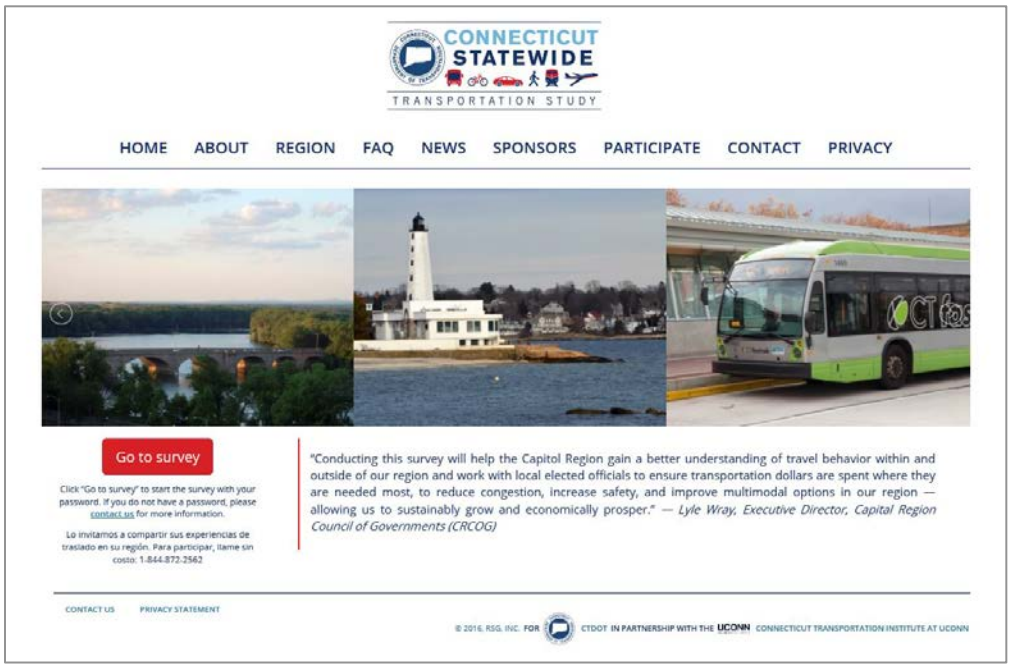
The study team established a print material QA/QC process to support smooth transitions between each stage of the invitation process (from address list development to print production to mail distribution). In the first stage, sampled address list purchased from MSG was reviewed

to check for duplicates and out-of-state addresses. Duplicates and out-of-state addresses were subsequently removed. In order to keep the number of invitations at the level determined in the sampling plan, a small percentage of additional addresses were requested from MSG. The address list was then processed and prepared for bulk mailing (including identifying forwarding addresses for any households that had moved, eliminating duplicates, and mail sorting). Finally, the list was uploaded to the online survey instrument's database to be used for administering the survey online and over the phone. For each weekly mailing, electronic proofs were reviewed for quality, by conducting spot checks, and consistency, by comparing against the master database to ensure consistency between mailed materials and online materials for each password and address pair. Survey invitation materials were then mailed out to potential respondents.

2.5.3 Survey Website

The study team developed a project website specifically for the study. The website served two primary purposes. First, it hosted the online survey instrument where invited households could complete the recruit and travel diary surveys after entering their assigned household password. Second, it provided general information about the study including answers to FAQs, news mentions, and contact information. The informational portion of the project website was available to the public as well as invited households. The home page of the website is shown in Figure 9. The website was published in early fall before the pilot survey was fielded and was updated prior to the main data collection effort.

Figure 9: Study Website Homepage



2.6 Survey Administration

2.6.1 Participation Methods

All respondents were recruited by USPS First-Class Mail. Potential respondents can self-recruit themselves by visiting the website or by calling the phone line. In the address list purchased from MSG, a subset of the households had an associated landline number. These households were actively recruited if they did not already self-recruit themselves. As noted in the previous section, several print materials were mailed to each invited household. Once households completed the recruit survey, they received email or telephone reminders before and after their assigned travel date, until they completed the diary (up to one week after the travel date). Consistent visual elements were used across all print and online materials (including the online survey, website, and reminder emails), with the intent of connecting all invitations, reminders, and other notices concerning the project in order to maximize response rates. All online and print materials included a toll-free telephone number, the website URL, the study email address, and the unique password assigned to each household. All aspects of this process were reviewed and refined with feedback from CTDOT.

Participants could complete the study through a combination of the three response methods, as described below.

- *Online Survey*: Households invited to take the survey were able to enter their unique password and complete the survey through the self-administered online survey instrument, which was accessible from the study website. rSurvey™ has several features that ensure data quality and minimize respondent burden as described in previous sections.
- *Telephone Survey*: ETC was responsible for all telephone communications. Each telephone interviewer underwent training for the 2016 CSTS, which included review of the online survey, print materials, and study website. Training documents including the questionnaire (screen by screen) for reference, guidelines for what operators should say, and a study overview sheet for quick reference while on the phone, were prepared. ETC also fielded incoming calls and made outbound calls to households with a known phone number. Both English and Spanish speaking interviewers were available to assist callers. Households could call to participate over the phone or call with specific questions. Respondents who preferred to complete their survey over the phone were read the same web-based survey that web participants used as described in previous sections.
- *Paper Survey*: For those households who belonged to segment IDs 5 and 6, and who preferred to complete the travel diary by paper mode, personalized mailings and instructions were distributed for completing the paper travel diaries. They were also provided a postage paid return envelope and instructions for returning the diaries.

2.6.2 Communication

The project team conducted several activities to engage invited households and the general public. The primary goal of communication activities was to encourage invited households to participate in and complete the study. Part of public engagement included responding to inbound questions from both invited households and the public. Residents (invited or not) were welcome

to provide comments about transportation issues or the survey process. Respondents continually received information about the study, and they were able to communicate with the survey team to ask questions or provide feedback. Multiple communication methods were utilized: the mailed invitations, the project website, and email and telephone contacts. Details regarding the different telephone communication activities are described below:

- *Outbound Telephone Recruitment*: After printed invitation materials were sent, households with known telephone numbers received calls encouraging them to participate in the survey. Households who agreed could complete the recruit survey over the telephone or could participate online on their own. ETC conducted recruitment calls up until the day before a household's travel date.
- *Outbound Telephone Reminders*: For households that preferred receiving reminders via telephone, reminder calls were made using the following process:
  - A telephone call was placed to the household on the day before their travel date to remind the household to track their travel the following day.
  - Additional calls were placed (for up to seven days after the travel day) to the households to remind them to complete the survey online or over the telephone. The timing and frequency of telephone calls varied based on households' previously expressed preferences for a call back and the ease of reaching the household.
  - After seven days from the travel date passed, no additional phone calls were placed to that household.
  - It was ensured that all reminder phone calls were placed on time and that scripted voice messages were left if they reached a voice mailbox instead of a live person.
- *Inbound Telephone Calls from Respondents*: ETC also responded to inbound telephone calls, including questions and requests to complete the survey over the phone. If an operator did not know the answer to a question or needed more information, then they reached out to RSG for guidance. In cases where a participant was having trouble completing the survey, the operator would help them complete the survey over the phone. Calls from households who wanted to report their travel on their travel date (rather than on the day after) were scheduled for callback. Calls to ask about the household's gift card status were forwarded to RSG for resolution. ETC would then call the household back with a status update.

Overall, call prioritization was based on the following criteria: 1) inbound calls, 2) reminder calls, 3) recruitment calls.

Details regarding different types of email communication activities are described below:

- *Outbound Email Reminders*: Email reminders were sent to households that had completed the recruit survey and preferred email contact. The emails were aimed at encouraging them to log and report trips for their assigned travel date. These emails also described the reporting process. Reminders included a link to the survey website, the household password, and the toll-free telephone number. If a household completed the recruit and travel diary survey at the same time (after their travel

date), they did not receive any email reminders. If a household had not reported travel after seven days past the assigned travel date, the survey was closed and no further email reminders were sent to the household. Approximately 53% of all recruited households received one or more email reminders. Depending on when a household was recruited and when they completed the last part of the survey, they received up to four reminder emails:

- Reminder 1: sent the day before the assigned travel date (reminder to log travel the following day).
- Reminder 2: sent the morning after the assigned travel date (reminder to report travel from the previous day).
- Reminder 3: sent three days after the travel date (only if travel had not yet been reported).
- Reminder 4: sent five days after the travel date (only if travel had not yet been reported).

- ❑ *Inbound Emails from Respondents*: RSG monitored and maintained project email accounts for the pilot and main surveys. As standard protocol, they responded to all email inquiries within one business day. Inquiries sent via email typically were for clarifications (e.g. how to fill out certain questions) or requests for information (e.g. study purpose).

Additionally, residents who had not been invited to the survey as part of the random sample were also welcome to complete the survey as volunteers. However, this volunteer data was distinguished from the statistically representative sample of invited households. Only those volunteer households that completed the entire main study (recruit survey and travel diary survey) were archived. Data for these volunteers are not included in the final dataset.

2.6.3 Incentives

For the CSTS pilot study, two different incentive plans were provided based on the segment to which the respondent belonged. Households belonging to segment IDs 2 and 4 were offered a guaranteed incentive, while segments with ID 1, 3, 5 and 6 were offered entry into a raffle for an iPad[23]. Both incentives were distributed only after completion of the recruit and travel diary portions of the survey by all members of the household. For households offered a guaranteed incentive, the payment was in the form of a $10 gift card from their choice of Amazon or Walmart. After completing the recruit survey, some pre-defined hard-to-reach households were offered an additional $10 incentive (for a total of $20) to help promote participation (see Section 2.2 for more information).

2.6.4 Response Monitoring

Once households began completing the study, the responses were monitored to ensure:

- ❑ Progress toward the total target of 250 complete households
- ❑ Progress toward the targets within each sample segment (discussed in Section 2.1)

[23] A 32GB Apple iPad Air Model MD7866LL with 9.7 inch display was offered as a raffle prize.

- ❑ Quality of the data and assessing errors with data collection

In order to monitor the responses, an online dashboard was created that was available for viewing by different partners of the study team and CTDOT. The dashboard included aggregate distributions along key factors of interest including response rates overall and by segment, person-level variables, household-level attributes, and travel characteristics. The tables in the dashboard were monitored to evaluate objectives described above.

2.6.5 Public Outreach

Since the pilot study was aimed at collecting a small number of responses, the study team did not engage in any public outreach efforts. The study team also did not want to cause potential study fatigue that could possibly impact response rates for the main study.

2.7 Data Processing and Preparation

In addition to the real-time checks used during data collection, a number of additional quality checks and data cleaning procedures were conducted after data collection was completed. The purpose of these checks was to confirm that the real-time controls worked correctly and consistently, and to evaluate any data issues that could not easily be resolved by real-time rules. Additionally, certain records and variables were excluded from the dataset to create a dataset that only includes complete valid responses and does not include personally identifiable information. Post-data collection checks included the following:

- ❑ Review of all data tables to check for missing data where responses were expected
- ❑ Inspection of potential outliers (i.e. responses that are allowed but are typically outside the normal/ expected distribution, such as trips with long reported travel times and short distances)
- ❑ Review of geocoded address fields for potential Google write-out errors
- ❑ Review of geocoded home locations (compared to the study area)
- ❑ Review of copied-trip details for potential inconsistencies

Household record exclusions checked for and implemented in this dataset included the following:

- ❑ Incomplete households (where some or all members did not complete the diary)
- ❑ Reviewer households (any records from UConn, RSG, CTDOT, or other stakeholders)
- ❑ Households outside of the study area
- ❑ Duplicate households

All person-, vehicle-, and trip-records associated with excluded households were also removed.

Variable exclusions from this dataset included the following:

- ❑ Sample mailing address information (purchased from the sample provider)
- ❑ Passwords (associated with the sample mailing address information, replaced with ID numbers)
- ❑ Email addresses and phone numbers (collected for survey administration only)

2.8 Results

2.8.1 Response pattern analysis

The pilot study resulted in complete responses from 250 households exclusively offered online and telephone options, and an additional 37 complete or partially complete responses from households offered a paper diary option. Table 5 summarizes the pilot response rates.

As expected, response rates were significantly higher from households offered a guaranteed gift card compared with raffle incentive. Additionally, between the hard-to-reach and regular households, the response rates were higher for the regular segments. When comparing the observed and target response rates, for the non-paper segments, response rates from the hard-to-reach areas were somewhat lower than the target, while response rates from the regular sample area were higher than target. The observed response rates for both paper segments were lower than expected for both regular and hard-to-reach groups.

Conversion rates for the non-paper segments were much higher (in the range of 73.8% to 83.9%) when compared to those segments where a paper survey was offered (41.1% to 46.7%). Within the non-paper segments, it was interesting to note that the conversion rate is higher for the hard-to-reach segment when offered a raffle versus when they were offered a gift card. On the other hand, for the regular segment the conversion rate for the gift card was higher than the raffle segment. It appears that for the hard-to-reach segments, the raffle with larger payout, even though it has lower odds, is more appealing whereas for the regular segments, the gift card with the more guaranteed payout is more appealing.

Upon analyzing the non-responses, the patterns were consistent with other studies. When only reviewing the data from the online survey instrument, it was found that 61 households dropped out of the recruit survey for a retention rate of 84 percent. Approximately 41 percent of the households actually dropped out without answering any questions – these households were likely curious about the survey but did not intend to participate. Out of all those who began the travel diary, 21 dropped out of the diary survey for a retention rate of 96 percent. The primary challenge was still encouraging households to begin the study. As a result, in the main study, the study embarked on numerous outreach efforts as discussed in Chapter 3.

Figure 10 shows the concentration of pilot responses in the different sample areas, aggregated to the town level. There are more responses per town in Hartford and Norwalk. The response rates in these towns (approximately 1.4% and 3.6%, respectively), however, are lower than New London County as a whole (approximately 4.6%). This can be attributed to the higher concentration of hard-to-reach households in Hartford and Norwalk (as shown in Figure 2), who report at lower rates.

Table 5: Summary of Responses

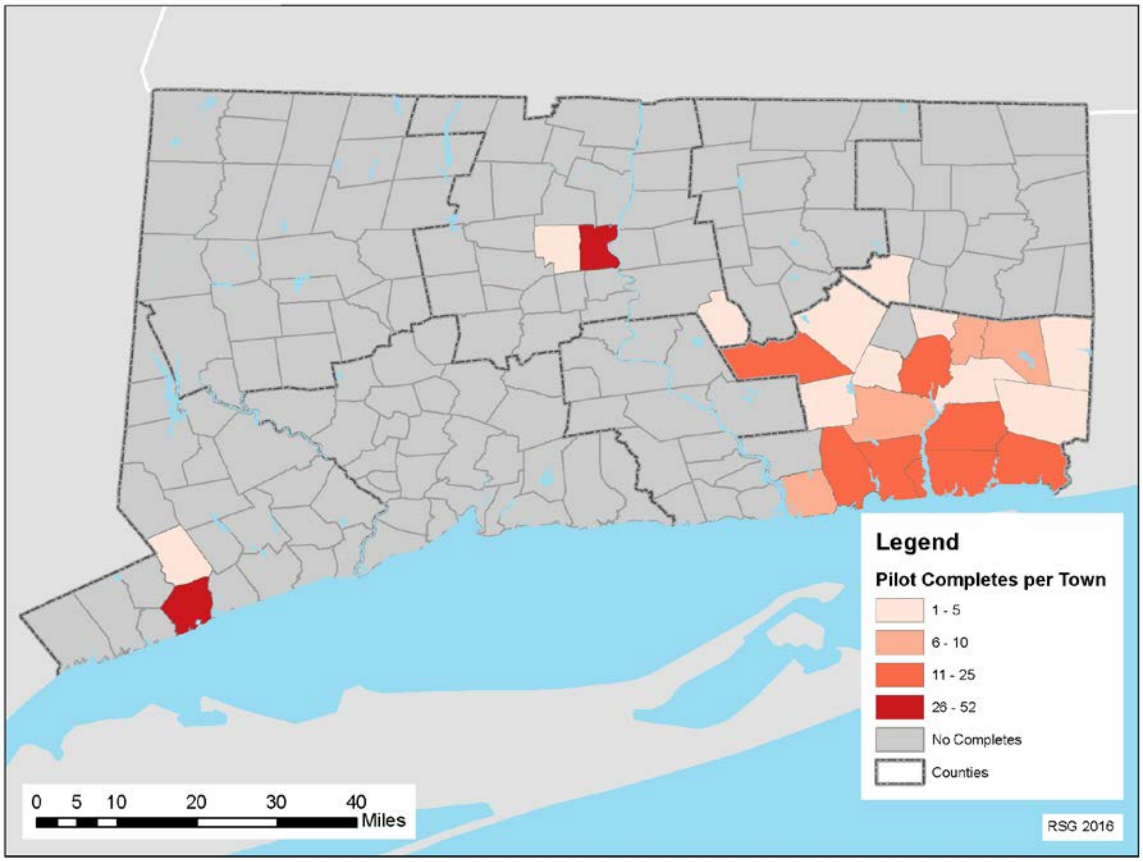
ID	Sample Segment Description	Diary Mode Options	Target Responses			Actual Responses			
			# Completes	Response Rate	Invites	# Recruited	# Completed	Response Rate	Conversion Rate[24]
1	Hard-to-reach / Raffle	Online/ Phone	50	2.0%	2,500	49	38	1.5%	77.6%
2	Hard-to-reach / Gift card	Online/ Phone	50	4.0%	1,250	61	45	3.6%	73.8%
3	Regular / Raffle	Online/ Phone	50	3.0%	1,670	91	68	4.1%	74.7%
4	Regular / Gift card	Online/ Phone	50	5.0%	1,000	118	99	9.9%	83.9%
5	Hard-to-reach / Raffle/ Paper	Online/ Phone/ Paper	25	2.0%	1,250	30	14[25]	1.1%	46.7%
6	Regular / Raffle/ Paper	Online/ Phone/ Paper	25	3.0%	840	56	23[26]	2.7%	41.1%
Total			**250**	**2.9%**	**8,510**	**405**	**287**	**3.4%**	**70.9%**

[24] Ratio of households who completed both recruit and travel diary to those who completed the recruit portion.

[25] 9 out of the 14 responded using paper mode for the travel diary. The data for these 9 households are either complete or partially complete owing to the mode used for data collection.

[26] 5 out of the 23 responded using paper mode for the travel diary. The data for these 5 households is either complete or partially complete owing to the mode of data collection.

Figure 10: Counts of Respondent Households by Towns



Based on findings from the pilot survey, the sampling plan was enhanced for the main study (as discussed in Section 3.1).

2.8.2 Respondent Incoming Communication

In this subsection, inbound communications in the form of emails, phone calls, and open-ended feedback from the online survey instrument are summarized. A total of 20 emails and 37 phone calls were received. The majority of the inbound emails and phone calls sought clarifications to questions (e.g. how to answer certain questions), and requests for more information (e.g. study purpose). In addition, a total of 378 comments were received in the text boxes at the end of the online survey instrument. Nearly two thirds of the comments were non-specific (e.g. “no comment”, “all was clear”) or positive (e.g. “thanks for inviting me”, “easy to complete”, “glad I could copy my kid’s trips”). Of the specific comments, nearly 30 were related to personal travel experiences and suggestions for transportation improvements. Another 100 were related to the survey, which were analyzed further in an effort to improve the main study. Common themes of the survey comments include, concerns regarding length of the survey and privacy concerns, confusion about instructions, and feedback to specific sections of the survey. The comments aligned closely with expectations and helped to guide changes that were recommended and implemented in the main study (see Section 2.9 for specific changes that were implemented).

2.8.3 Survey Results

Household, person, travel and vehicle characteristics from the pilot survey were analyzed for reasonableness and to identify improvements to the main study. Since, the primary focus of the pilot survey was to evaluate the overall process, specific survey data results are not discussed in this chapter. Also, since no weighting analysis was performed, tabulations of sample characteristics will be subject to sampling biases and thus the results would not be interpretable. As a result, a presentation of the survey results is reserved for Chapter 3 utilizing the full data where sampling bias corrections were applied.

2.9 Main Study Recommendations

The pilot response rates and other observations from the pilot responses helped refine assumptions and survey design choices. A number of changes were made to the materials and methods for the main study. Key observations and the resulting changes included the following:

- Response rates in the pilot study were lower than initially predicted for areas with high concentrations of hard-to-reach households. Therefore, more conservative rates were used to estimate main survey responses and to predict the number of invitations needed to meet sampling targets for these segments.
- The pilot results showed that respondents who were offered a guaranteed incentive responded at higher rates than those who were offered a raffle. Multiplying this effect over the larger sample required for the main study and estimating the effect on invitation costs showed that guaranteed incentives would provide overall project savings compared to the raffle. Therefore, guaranteed gift card incentives were provided for all respondents who completed the main study.
- The portion of pilot respondents who were offered the option to fill out a paper diary responded at lower rates than those who were only offered the online and telephone options. Paper diary responses also allowed for skipped questions and more incomplete records. Therefore, the survey retrieval options were simplified for the main study to only include online and telephone response options.
- Pilot respondents provided feedback that questions about certain trip detail questions were burdensome to answer repeatedly for each trip, particularly when those details were about facilities that a person never used on their travel day (e.g., use of paid parking, toll roads or HOV lanes). Earlier questions had asked respondents about their typical weekly use of these facilities in order to filter these questions for people who never used these facilities, but did not reduce burden for many respondents who used these facilities occasionally. Therefore, in the main survey these questions were revised to ask respondents about their use of these facilities on their specific travel day, which then allowed more accurate filtering and a more effective reduction of survey burden.

In addition to these specific changes, a number of small changes were made to the study information and survey instruction text throughout the printed materials as well as the survey instrument in order to increase the clarity of instructions and improve response quality. These changes were made based on specific feedback from participants who identified parts of the survey that were ambiguous or confusing. For example, there were questions about how to use

the geocoder to report their trip locations or whether non-auto trips should be included. Details on these types of administrative changes as well as other aspects of the study design are provided in Chapter 3.

CHAPTER 3 MAIN STUDY

The primary goal of the main study was to collect complete data from a representative set of 7,500 households to support the statewide model development and application. A secondary goal was to collect travel information from a sufficient number of transit-users and zero-vehicle households (from within the total sample) in order to better model travel behaviors of these groups in the statewide travel demand model. Furthermore, in comparison to the pilot study, additional data processing and data preparation tasks were pursued in the main study to prepare a final usable dataset.

The remainder of this chapter is organized as follows:

- Description of the sampling plan is provided in Section 3.1
- Incentive plan is descried in Section 3.2
- The questionnaire design and development process is presented in Section 3.3
- Survey implementation is presented in Section 3.4
- Survey design and branding materials are discussed in Section 3.5
- Survey administration protocol and procedures are presented in Section 3.6
- Data processing approach and preparation of the final data are presented in Section 3.7
- Results from the main study are presented in Section 3.8

3.1 Sampling Plan

An address-based sampling approach was adopted similar to the pilot study. A sample of households were invited from those residing in the state of Connecticut using a combination of simple geographic proportional random sampling, targeted oversampling (higher sampling rates) in selected areas, and upsampling (increased invitation rates) in certain areas where higher proportions of hard-to-reach households (typically report at lower rates) are identified. Details regarding the sampling frame, sample stratification scheme, sampling and invitation rates, invitations, and recommended travel date assignment are presented in the following subsections.

3.1.1 Sampling Frame

Similar to the pilot study, the geographic unit used for analysis and development of the main study sampling plan was block groups. These block group boundaries are as defined in the 2010 Census. Block groups are the smallest spatial resolution at which the detailed marginal distributions of various household and person variables are available from the US Census Bureau. In preparing the sampling plan, marginal distributions obtained from the 2009-2013 American Community Survey (ACS) were used. It must be noted that the marginal distributions used for the sampling plan are a little dated and do not reflect population distributions observed presently. While marginal distributions for more recent years are available from Census, they were only available at the higher spatial resolution of Census tracts. Census tracts, a coarser spatial resolution than block groups, offer less control of the sampling plan and are, as a result, less desirable. The choice of block groups as the spatial resolution (block groups) and the 2009-2013 ACS for the marginal distributions was made to develop a sampling plan that utilized the maximum amount of information at the most disaggregate spatial resolution available.

The sampling frame for the main study included all residential addresses in the state of Connecticut. Unlike the pilot study, all regions in the state were considered in the sampling plan. The sample list of addresses for potential respondents was obtained by randomly drawing from all residential addresses based on pre-specified spatial stratification and sampling rate. The sample list was obtained from Marketing Systems Group (MSG), a data vendor who maintains the full list of residential addresses utilizing the United States Post Office's Computerized Delivery Sequence File. Additionally, matching landline information for the sample list of addresses was obtained where applicable.

3.1.2 Sample Segments

A stratified sampling approach was adopted and the sampling plan was designed at the block group level. More specifically, targeted oversampling[27] was used to obtain a larger proportion of responses from transit-using and zero-vehicle households. In addition, upsampling[28] was utilized for areas with more hard-to-reach households and lower predicted response rates in order to mitigate non-response biases.

To achieve the primary and secondary goals identified above, the block groups were categorized into six segments. Marginal distributions for five different variables from the 2009-2013 ACS were analyzed at the block group level to incorporate oversampling and upsampling considerations in the sampling plan. Moreover, using data from the ACS to stratify the random sample assists the process for weighting the final dataset after data collection is complete, since the same data source can be used to determine weighting targets.

Variables Used for Stratification

Two of the five variables used to address oversampling in the final sampling plan include:

- Percent of resident workers who use transit to travel to work (representing transit commuters)
- Percent of resident households that do not own a vehicle (representing 0-vehicle households)

Transit commuters and households without vehicles make up a small percentage of Connecticut's population (4.7% and 9%, respectively, though this varies by region within the state). However, the travel behavior of these types of travelers and households was deemed important for policy

[27] "Oversampling" is used when larger proportions of certain behaviors or demographics of interest may be desired in the final sample. This is mainly done because the behaviors or demographics of interest may be rare in the population (e.g., transit riders) and proportional sampling will lead to sample counts that may not be adequate for subsequent analysis (e.g. mode choice model estimation). In oversampling, higher targets for complete responses from certain subpopulation groups are established. Accordingly, additional invitations are sent out to meet the targets.

[28] "Upsampling" is used when a representative sample (proportional to population) is desired, but certain subpopulation groups are known to respond at lower rates compared to others (e.g. large households, younger individuals). Not accounting for the differences in response rates will lead to biases when drawing inferences using the data collected (also referred to as non-response bias). To account for the differences in response rates across different population subgroups, the number of invitations is based on the rates at which different groups respond.

analysis and modeling needs from discussions with CTDOT. Therefore, the study team decided to oversample these types of residents in the final sample.

The remaining three variables used to address upsampling in the final sampling plan include:

- ❑ Percent of resident households with incomes under $25,000 (representing low-income households)
- ❑ Percent of resident households with the head of household under age 35 (representing young households)
- ❑ Percent of resident households with 4 or more members (representing large households)

These variables represent the types of households that typically respond at lower rates in travel surveys. The pilot study results[29] also confirm this tendency (as shown in Appendix C) – the proportions of pilot study respondents with lower incomes, younger householders, and larger household sizes was lower than population proportions for the respective household types from the 2009-2013 ACS data. The variables identified above were used to stratify the block groups and accommodate oversampling and upsampling considerations.

Stratification Criterion

The first step to stratifying the block groups to address oversampling and upsampling was to evaluate the distribution of the five variables of interest across the block groups in the state. To assist exploration of the distribution of the data, the values of the variables for each block group were categorized into percentile ranges as described below:

- ❑ Range 1: Contains block groups in the 0 to 25th percentile
- ❑ Range 2: Contains block groups in the 25th to 50th percentile
- ❑ Range 3: Contains block groups in the 50th to 75th percentile
- ❑ Range 4: Contains block groups in the 75th to 90th percentile
- ❑ Range 5: Contains block groups in the 90th to 100th percentile

As can be seen, the first three ranges (1-3) of percentiles represent the bottom three quartiles. The highest quartile was split to focus only on the top 10 percent of block groups for each demographic measure, resulting in the last two ranges (4-5). Table 6 shows the values for each variable corresponding to the different percentile cutoffs. For example, a value of 7.0% under the "% low-income households" indicates that 25 percent of the block groups in the state have less than 7 percent of their households in the low income category. Similarly, 90 percent of the block groups in the state have less than 39.8 percent of their households in the low income category.

[29] It must be noted that only pilot study results from the Segments IDs 2 and 4 were used as the modes were limited to online and phone and the gift card incentive type was adopted in the main study.

Table 6: Percentile Ranges for Key Variables of Interest in the Main Study Sampling Plan

Percentile Value	% low-income households	% young households	% large households	% 0-vehicle households	% transit commuters
25th percentile	7.0%	5.9%	15.5%	0.5%	0.0%
50th percentile	13.7%	12.3%	22.9%	4.2%	2.0%
75th percentile	24.6%	22.3%	31.2%	11.9%	7.2%
90th percentile	39.8%	33.5%	39.0%	26.2%	16.7%
100th percentile (max)	100.0%	90.2%	100.0%	84.2%	63.9%

After exploring the distribution of the variables of interest, the first stratification of the block groups was performed to address oversampling. The approximate 90th percentile value of transit commuters and 0-vehicle households variables were used to identify block groups for oversampling. The block groups that exceed the 90th percentile values for these variables represent those block groups where the transit or 0-vehicle households are most likely to live. Subsequently, this suggests the areas where oversampling is most likely to be effective, since the chance is greater that a 0-vehicle or transit household will be randomly selected into the list of invitees. Therefore, the first stratification of the sample plan created two types of block groups:

- *Oversample block groups* where more than 15% of commuters take transit OR where more than 25% of households do not own vehicles
- *Regular sample block groups* where less than 15% of commuters take transit and less than 25% of households do not own vehicles

After the first stratification based on shares of transit commuters and 0-vehicle households to address oversampling, the block groups were further separated into groups based on expected response rates. The second level of stratification primarily addresses upsampling considerations to account for differential response patterns across subpopulation groups. The oversample and regular sample block groups were each separated into three groups of block groups as described below:

- *Low response block groups* where the most invitations should be sent were identified using the approximate 90th percentile values for low-income and young households (since low-income and young households had the lowest response rates in the pilot). In particular, block groups where more than 40% of households have low incomes (less than $25,000) or more than 35% of householders are young (under age 35)
- *Medium response block groups* were identified using the approximate 50th percentile value for low-income households and the approximate 90th percentile value for large households (since medium-income and large households had a moderate response rate in the pilot). More specifically, block groups where more than 15% but less than 40% of households have low incomes or more than 40% of households are large (have 4 or more members)
- *High response block groups* included all of the other block groups. As with the oversample criteria, this stratification suggests where upsampling is most likely to be

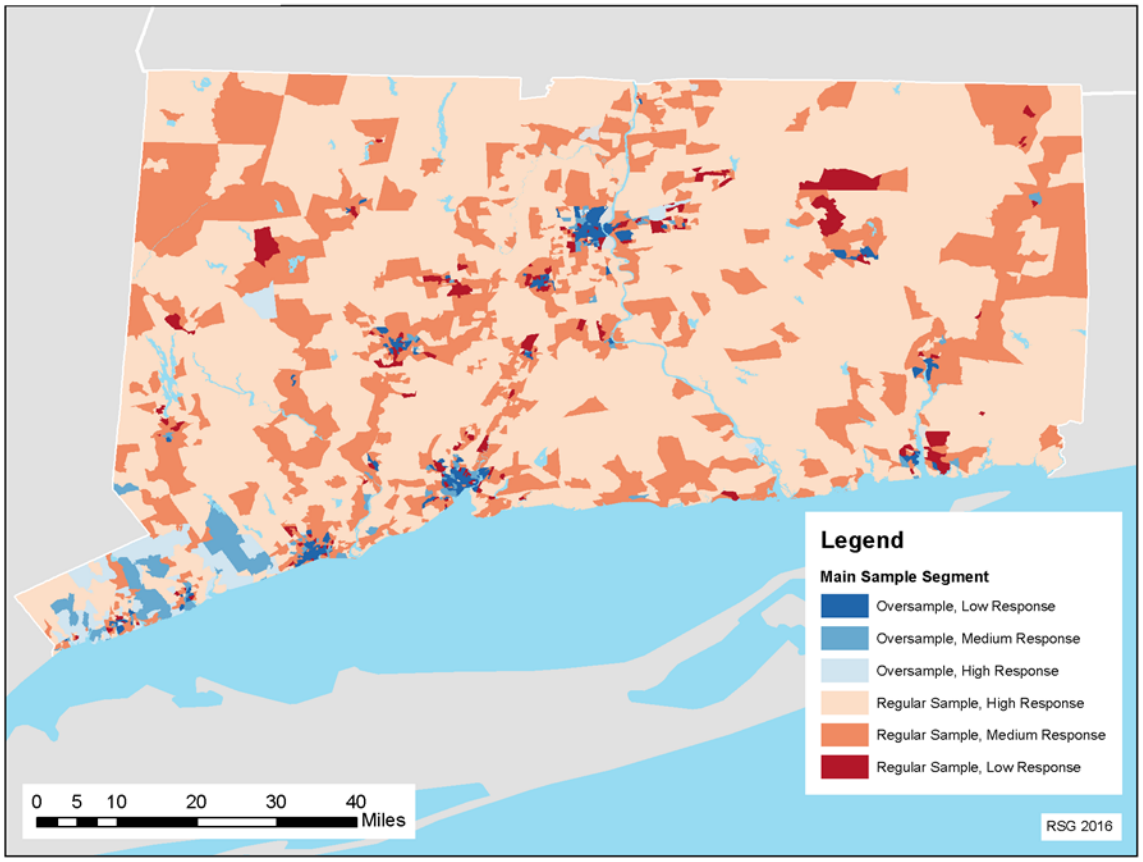
effective. In particular, all other block groups (where less than 15% of households have low incomes, less than 35% of householders are young, and less than 40% of households are large).

When the oversample and upsample criterion were combined, the stratification created six types of block groups as follows:

- ❑ Oversample, low response
- ❑ Oversample, medium response
- ❑ Oversample, high response
- ❑ Regular sample, low response
- ❑ Regular sample, medium response
- ❑ Regular sample, high response

By stratifying the block groups this way, study invitations and other recruitment efforts were appropriately targeted to the areas in an effort to achieve the main study objectives. Figure 11 shows a map of the block groups in the state of Connecticut based on the above stratification scheme.

Figure 11: Map Showing Block Groups in the Study Area Defined by the Stratification Segment



3.1.3 Invitations

Similar to the pilot study, once the sample strata were determined, the next step was to determine the number of desired responses and resulting number of invitations needed for each segment. The desired overall sample size was predetermined as 7,500 households, or approximately a 0.56% sampling rate of the total households in the state (typically a sufficient proportion to provide a statistically reliable sample). From this statewide average, the relative sampling rates for the oversample and regular sample segments were adjusted so that a higher proportion of responses would be obtained from transit users and zero-vehicle households (as previously discussed). The sampling rate for oversample segments was set to 1.1%, with the sampling rate of the regular sample naturally adjusted down to 0.45%. This aggressive oversampling rate (more than twice the regular sample rate) was set based on three factors: 1) previous experience, 2) information about the proportions of transit commuters and zero-vehicle households in these block groups (as not all respondents from high transit block groups would necessarily be transit users themselves), and 3) the cost implications.

For determining expected response rates, and the necessary number of invitations, the study team reviewed the pilot results as well as experiences from past studies. Also considered was the impact of the changes to the full-study incentive plan; since differential incentives will not be used in the main study. Table 7 shows the pilot response rate broken down by the full study sample segments.

Table 7: Observed response rate from pilot study for the full study sample segments[30]

Full Study Sample Segment	# Pilot Block groups in Segment	# Pilot HHs Invited	# Pilot HHs Completed	Pilot Response Rate	Assumed Response Rate
1-Oversample, Low response	73	884	28	3.2%	3.0%
2-Oversample, Medium response	25	202	7	3.5%	4.0%
3-Oversample, High response	9	27	3	11.1%	7.0%
4-Regular sample, Low response	25	180	6	3.3%	3.5%
5-Regular sample, Medium response	80	441	28	6.3%	6.0%
6-Regular sample, High response	137	585	72	12.3%	8.0%
Total	**350**	**2320**	**144**	**6.2%**	**5.1%**

It must be noted that the response rates presented in the table are based on invitations and completions from the gift card segments of the pilot study only because they are the most comparable to the full study plan. In the pilot study, the completion rates for the hard-to-reach segments are lower than what was observed from some previous studies, while the completion rates for other segments are higher than those observed in other efforts. Based on all of these factors, the expected response rates for each segment were adjusted from the pilot study as shown in Table 7. Also, assumed response rates closely follow observations from the pilot study

[30] In the table, the short form HHs is used to denote households.

while also accommodating contingencies in case pilot survey response observations were unusual.

Similar to the pilot study, the invitee count was obtained by dividing the anticipated number of responses for each segment by the assumed response rate for the segment. To obtain the 7,500 responses, a total of 150,006 invitations were mailed. The breakdown of the invitations by individual segments is shown in Table 8.

Table 8: Characteristics, Assumed Response Rates, and Target Responses for the Main Study Segments[31]

Sample Segment Description	Target Sample Size[32]	Sampling Rate[33]	# HHs[34]	Initial Response Rate[35]	Initial Invites, # HHs[36]	Initial Invites, % of HHs[37]
1-Oversample, Low response	1,367	1.10%	124,269	3.0%	46,647	37.5%
2-Oversample, Medium response	685	1.10%	62,256	4.0%	17,530	28.2%
3-Oversample, High response	361	1.10%	32,816	7.0%	5,273	16.1%
4-Regular sample, Low response	411	0.45%	91,414	3.5%	11,996	13.1%
5-Regular sample, Medium response	1,967	0.45%	437,164	6.0%	33,557	7.7%
6-Regular sample, High response	2,736	0.45%	607,930	8.0%	35,003	5.8%
Total	**7,500**	**0.56%**	**1,355,849**	**5.0%**	**150,006**	**11.1%**

The sampling targets and response rates were not further stratified by county, town or other sub-state geographies. Response by county, however, was monitored throughout the study. After the sampling targets and invitations were distributed among the block groups within each sample segment, the number of desired responses and invitations were tallied for each county. Expected response rates and sampling rates were calculated based on these distributions, as shown in Table 9. This table reflects the number of invites at the start of the study (after processing/excluding duplicates and households that moved out of state), not including "extra" samples added later in the study (discussed below).

[31] In the table, the short form HHs is used to denote households.

[32] Target sample size is the number of households who have completed the entire survey (including the recruit survey and travel diary survey).

[33] The sampling rate is the percent of total households who have completed the survey (i.e. number of responses / total number of households).

[34] This is the estimated total number of households within the corresponding block groups based on ACS 5-year estimates (2009-2013).

[35] In the CSTS, a complete household is defined as one where every person in the household answers every question (no missing responses). The predicted survey completion rates are based on demographics, incentives offered, and recent similar studies. Actual completion rates for the pilot were used to design the main study sampling plan.

[36] Number of households invited is determined by the desired sample size and predicted completion rate (sample size / completion rate).

[37] Percent of households invited is the percent of all households expected to receive study information.

Table 9: Main Sample Plan, Targets and Initial Invitation Counts by County[38]

County	# HHs	Sampling Rate	Target Sample Size	Initial Response Rate	Initial Invites, # HHs
Fairfield County	332,655	0.64%	2,136	5.0%	42,801
Hartford County	347,874	0.55%	1,919	4.8%	39,710
Litchfield County	75,755	0.44%	332	6.3%	5,244
Middlesex County	66,141	0.48%	315	6.0%	5,209
New Haven County	328,013	0.56%	1,837	4.7%	39,012
New London County	107,066	0.50%	531	5.3%	10,090
Tolland County	54,327	0.46%	248	6.3%	3,950
Windham County	44,018	0.48%	210	5.3%	3,990
Total	**1,355,849**	**0.56%**	**7,527**	**5.0%**	**150,006**

The resulting expected sample rates per county from this distribution ranged between 0.44% - 0.64%. No single county had an aggressively high or low sample rate (compared to the statewide average). Fairfield, Hartford and New Haven counties had slightly higher rates than the rest of the counties as these counties contained higher concentrations of transit commuters and zero-vehicle households found in the "targeted oversample" segments.

Mid-Point Sample Adjustment

As responses came in, the study team closely monitored progress toward the final targets for the state as a whole and for each sample segment and county. After three weeks of data collection was complete, a detailed evaluation of progress toward these targets was conducted as well as comparisons to statewide demographic profiles. A number of adjustments were made to the study administration based on this evaluation. This evaluation and the implemented adjustments are discussed in more detail in Section 3.6.

In addition to the administrative modifications, an adjustment was made to the invitation list. One of the findings in the evaluation was that the response rates from the "Oversample, High Response" sample segment and from Fairfield County were notably lower than initially predicted (1.5 and 0.3 percentage points, respectively). Projected through the end of the project, it was estimated that these rates would result in slightly fewer responses (approximately 80) than the 360 targeted in the "Oversample, High Response" segment (78% of target), and also fewer responses (approximately 150) than the 2,136 responses targeted in Fairfield County (93% of target). Note that there was significant overlap between Fairfield County and the "Oversample, High Response" segment (as can be seen in the distribution of light blue block groups in Figure 11). This is largely due to the fact that the "Oversample, High Response" segment could generally be characterized as higher income transit riders, such as residents who ride commuter rail into New York City.

[38] This table reflects the number of invites at the start of the study (after processing/excluding duplicates and households that moved out of state), not including "extra" sample added later in the study (discussed below). Also, in the table, short form HHs is used to denote households.

Given the importance of this segment of travelers in helping planners understand and model travel behavior, and given the high density of travelers, transportation facilities, and potential future investments in Fairfield County, the study team decided to add more invitations in Fairfield County and in the "Oversample, High Response" segments in order to ensure that the targets in these areas would be met. The final number of invitations by segment and by county (including the added invitations) is shown in Table 10 and Table 11 respectively.

Table 11 reflects the number of invites at the end of the study (after processing/excluding duplicates and households that moved out of state), including "extra" sample added later in the study (discussed below). It must be noted that final response rate estimates were adjusted (sample size target divided by final invites sent), however, sample size and sample rate targets were not modified.

Table 10: Characteristics, Assumed Response Rates, and Target Responses for the Main Study Segments[39]

Sample Segment Description	Target Sample Size[40]	Sampling Rate[41]	# HHs[42]	Final Response Rate[43]	Final Invites, # HHs[44]	Final Invites, % of HHs[45]
1-Oversample, Low response	1,367	1.10%	124,269	2.9%	46,771	37.6%
2-Oversample, Medium response	685	1.10%	62,256	3.9%	17,704	28.4%
3-Oversample, High response	361	1.10%	32,816	5.1%	7,101	21.6%
4-Regular sample, Low response	411	0.45%	91,414	3.4%	12,100	13.2%
5-Regular sample, Medium response	1,967	0.45%	437,164	5.8%	34,135	7.8%
6-Regular sample, High response	2,736	0.45%	607,930	7.6%	35,858	5.9%
Total	**7,500**	**0.56%**	**1,355,849**	**4.9%**	**153,669**	**11.3%**

[39] In the table, the short form HHs is used to denote households.
[40] Target sample size is the number of households who have completed the entire survey (including the recruit survey and travel diary survey).
[41] The sampling rate is the percent of total households who have completed the survey (i.e. number of responses / total number of households).
[42] This is the estimated total number of households within the corresponding block groups based on ACS 5-year estimates (2009-2013).
[43] In the CSTS, a complete household is defined as one where every person in the household answers every question (no missing responses). The predicted survey completion rates are based on demographics, incentives offered, and recent similar studies. Actual completion rates for the pilot were used to design the main study sampling plan.
[44] Number of households invited is determined by the desired sample size and predicted completion rate (sample size / completion rate).
[45] Percent of households invited is the percent of all households expected to receive study information.

Table 11: Main Sample Plan, Targets and Initial Invitation Counts by County[46]

County	# HHs	Sampling Rate	Target Sample Size	Initial Response Rate	Initial Invites, # HHs
Fairfield County	332,655	0.64%	2,136	4.6%	46,265
Hartford County	347,874	0.55%	1,919	4.8%	39,812
Litchfield County	75,755	0.44%	332	6.3%	5,257
Middlesex County	66,141	0.48%	315	6.0%	5,230
New Haven County	328,013	0.56%	1,837	4.7%	39,075
New London County	107,066	0.50%	531	5.3%	10,090
Tolland County	54,327	0.46%	248	6.3%	3,950
Windham County	44,018	0.48%	210	5.3%	3,990
Total	**1,355,849**	**0.56%**	**7,527**	**4.9%**	**153,669**

3.1.4 Travel Date Assignments

The households invited to the survey were assigned to one of 30 weekday "travel dates", spread over ten weeks in March, April and May of 2016. One week in the middle was skipped to allow time for review and adjustment after the first few weeks of data collection. Similar to the pilot study, all travel dates were on a Tuesday, Wednesday, or Thursday due to the focus on typical weekday travel of residents.

Travel dates were pre-assigned to households and invitations were evenly distributed over all the dates so that the recruitment and survey retrieval process could be easily managed. As the survey progressed, this made it more feasible to allow for adjustments due to possible impacts such as travel patterns being disrupted by unusual weather and other events or for variations in response over time. Distributing the sample evenly over all the travel dates also improves the final dataset as it contains a sufficient sample of each of the three weekdays and includes data for different seasons.

Similar to the pilot study, one of the reasons for pre-assigning travel dates was to minimize response bias and increase the ability of the dataset to describe a typical day for the region even if it is not a typical day for a given individual.

3.2 Incentive Plan

For the CSTS main data collection effort, the incentive plan was re-designed after the pilot based on feedback from CTDOT and other stakeholders. The guidelines below were followed in the main study for incentives:

- All households were offered $10, contingent upon completion of the entire study. Differential incentives (e.g. higher incentive values for hard-to-reach households) were not offered.
- All incentives offered were in the form of Visa or MasterCard gift cards (incentives from a neutral vendor) as opposed to gift cards from specific retail establishments.

[46] In the table, the short form HHs is used to denote households.

A raffle was not used, as the pilot study results demonstrated that the response rate for participants offered a guaranteed gift card was approximately double the response rate of participants offered the raffle. For more information on the incentive plan re-design process (i.e. effects of variable incentives on response rate, and vendor selection) please see Appendix D.

3.3 Questionnaire Design

Only minor changes were made between the pilot study and the main study. As a result, please reference Section 2.3 for information about the questionnaire design and also for an overview of the various components of the questionnaire. Major changes to the recruit and travel diary portions of the survey are referenced in the remaining section below.

- In the recruit survey, driving-age respondents are asked to report the following travel behavior details about their assigned travel day:
  - whether they traveled on a toll road
  - whether they traveled in an HOV lane
  - whether they paid for parking at any location

  These details were collected prior to the set of questions asked about each individual trip. Subsequently, this information was used to reduce survey burden. More specifically, respondents were not asked related questions if they confirmed that they did not engage in these behaviors any time on their travel day.
- Question text~~,~~ and responses were modified for a number of questions in an effort to enhance the presentation and avoid any misunderstandings.
- Responses to some of the travel diary items are auto populated based on day-level and previous trip travel behaviors.
  - At the day level, if HOV is not used then the question about use of HOV for a particular trip is not posed.
  - At the trip level, if the previous trip used a household vehicle and the specific household vehicle was identified, the same household vehicle was auto populated.

Also, some administrative changes were made which are described in Section 3.6. See Appendix E for a final copy of the questionnaire for the main study.

3.4 Survey Implementation

No changes were made in the approach to the survey implementation between the pilot study and the main study. The survey was still programmed as an online survey instrument using RSG's proprietary survey software – rSurvey™. While no new data validation checks were implemented, minor enhancements were made to the data validation implementation between the pilot and main study. As a result, please see Section 2.4 for additional details about the survey instrument development and data validation. Screenshots of the various portions from the online survey instrument are included at the end of the report in Appendix F.

3.5 Branding and Survey Material

Only small changes were made to the branding and survey material between the pilot and main study. Consistent visual elements were used across all print and online materials, with the intent

of connecting all invitations, reminders, and other notices concerning the project in order to maximize response rates. All materials (both online and print) included a toll-free telephone number, the website URL, the study email address, and the unique password assigned to each household. Please see Section 2.5 for more details regarding the approach to design and implementation. A summary of the changes are described below.

Minor edits were made to the survey material and the website in response to final choice of modes, incentives, and feedback from respondents and stakeholders. Additionally, the biggest difference between the pilot and main study was with regard to the updates to the survey website. Throughout the data collection period, the study team updated the website on a bi-weekly basis. Mainly these updates consisted of additions to the "News" page of the website that listed all references to the study by any news outlet and provided links to each article. A study video was added to the website for the main study which provides a brief description of its purpose and importance in regards to transportation planning and modeling throughout the state. Links to the study information web pages on the CTDOT and UCONN websites were also provided with information about the study sponsors and partners.

A copy of the print materials from the main study is included in Appendix G.

3.6 Survey Administration

Given the similarity in the survey administration, only a summary of the procedures and protocols implemented in the main study are highlighted. Similar to the gift card segments of the pilot study, survey administration comprised of the following key steps:

- All respondents were recruited by using four main types of mailings: pre-notice postcard, invitation packet, and two reminder postcards. All mailings were sent through USPS First-Class Mail.
- Selected households with a matching landline phone number that did not self-recruit within the first few days were also called and invited to participate.
- Once households completed the recruit survey, they received email or telephone reminders before and after their assigned travel date until they completed the diary (up to one week after the travel date).

3.6.1 Participation Methods

Participants could complete the study online, over the phone, or through a combination of both modes.

3.6.2 Communication

Depending on the preference, inbound and outbound phone calls were carried out as noted below:

- Telephone calls were placed to recruit households after the materials were mailed. Recruitment calls were made until a day before the travel date. Partway through the main data collection efforts lower response rates for certain segments and counties prompted the study team to adjust the recruitment process. Recruitment calls were

prioritized so that those segments and counties where response was below target were called first. The criteria for the prioritized call list were the following:

- Over sample, high response (segment three) households
- Fairfield County households
- Over sample, medium response (segment two) households
- Litchfield County households
- All remaining households

Prioritized recruitment call lists were implemented for those households with travel dates of April 19th (travel week five) and later.

- ❑ A telephone reminder call was placed a day before their travel date to remind the household. Additional calls were placed (for up to seven days after the travel day) to the households to remind them to complete the survey online or over the telephone. Partway through the main data collection efforts, lower response rates for certain segments and counties prompted the study team to adjust the reminder process also. Beginning travel week five (travel dates beginning April 19th), reminder calls 3 and 4 were removed for households where the householder age was 65 or older and the household size was less than or equal to two. These criteria were implemented because older and smaller households responded at higher rates than other households without prompting, and ETC's efforts were prioritized for contacting hard-to-reach households.
- ❑ Additionally, ETC fielded inbound telephone calls from invitees and others interested in participating in the study or in learning more about the study.
- ❑ Overall, call prioritization was based on the following criteria: 1) inbound calls, 2) reminder calls, 3) recruitment calls.

In addition to phone calls, inbound and outbound communications were carried out over email as noted below:

- ❑ Up to five email reminder messages were sent up to a week after the travel day had passed. The first four followed the same schedule as the pilot study. However, a fifth reminder was added in the main study. The intention was to improve response rates by encouraging those who already finished the recruit survey to complete the travel diary survey. The fifth reminder email was sent six days after the travel date.
- ❑ Emails from invitees and others were monitored and responded to within one business day. Similar to the pilot study, inquiries sent via email typically involved questions about gift cards, requests for help with a specific part of the survey (such as how to use the map), requests to volunteer, or general comments or questions about the survey. Occasionally, households e-mailed comments about regional transportation issues. Emails from households with substantive comments regarding regional transportation or the study have been included in the Appendix L.

3.6.3 Incentives

As noted in Section 3.2, for the main study, a $10 gift card was offered to all households (except volunteers) as incentive for completing the survey. The $10 amount was printed on the invitation materials and included in the email text of outbound reminder emails. Households could choose

between a virtual or physical Visa gift card (sent via email or USPS mail). Alternatively, households could opt not to receive any gift card for participation.

3.6.4 Response Monitoring

Similar to the pilot study, an online dashboard was used to monitor progress and also to assess project responses for the remaining travel dates on a weekly basis. The dashboard provided real-time counts of recruited and completed households and persons. The page also provided overall counts as well as counts by county, sample segment, and several household, person, and trip-level variables. The page allowed the study team to monitor responses throughout data collection to ensure that a representative sample of the state was collected.

Bi-weekly response evaluations helped in guiding what adjustments were made to survey protocols. The biweekly reports also included a selection of maps and cross-classification tables to provide details beyond the online dashboard page. The bi-weekly report served as a formal method of response monitoring and enabled the study team to look at the response rates for certain target groups (e.g., young households, zero-vehicle households, and large households). In addition the bi-weekly evaluations, a somewhat more in-depth evaluation was conducted as part of "mid-point review". While minor changes were accommodated after each bi-weekly evaluation, higher-cost adjustments were only considered once during the "mid-point review".

Review of Database

The study team performed internal monitoring of the survey database throughout the data collection period. Key data checks included:

- ❑ Reviewing the dropout page frequency to confirm that respondents were not dropping out on a particular survey page due to an error
- ❑ Conducting spot checks to confirm that all variables were recording correctly (e.g. text strings were not truncated and values were cleared or overwritten if a survey response was changed)
- ❑ Comparing county demographics to ACS data to ensure that a representative sample of the region was collected

Mid-Point Review

At the mid-point review meeting, some segments were projected slightly over or under target. A larger gap was identified in the "Oversample, High Response" sample segment and in Fairfield County. The "Oversample, High Response" segment was largely made up of higher income households in transit-rich areas, such as the New York City commute-shed in southwestern Fairfield County, so there was significant overlap between these two targets (shown in the distribution of light blue block groups in Figure 11). Projected through the end of the project, it was estimated that these response rates would result in approximately 80 fewer responses than the 360 targeted in the "Oversample, High Response" segment (78% of target), and approximately 150 fewer responses than the 2,136 responses targeted in Fairfield County (93% of target).

In order to increase completes from these segments, the study team first implemented small adjustments that could be made in the administration process (prioritizing telephone reminders

and adding a fifth email reminder) with the goal of reducing deviation from the targets. Given that significant transportation investments are planned over time in the densely populated areas of Fairfield County, and that one of the sampling goals was to oversample transit riders, it was important to achieve or exceed the sampling targets for these segments. Therefore, the study team developed and implemented a plan to increase the number of invitations in Fairfield County and in the "Oversample, High Response" segment. The requirements for this additional sample were calculated in late April, and an additional 3,646 addresses were obtained and incorporated into the mailing list for the last study week (Week 10 travel dates of May 24-26). Half of the added sample addresses ordered were from block groups in the "Oversample, High Response" segment and the other half from other segments in Fairfield County. After processing, the resulting sample included:

- ❑ 1,820 additional addresses in the "Oversample, High Response" segment (the majority in Fairfield County, but a small number in other counties)
- ❑ 1,826 additional addresses in the rest of Fairfield County

Table 12 and Table 13 below summarize the additional invitations by sample segment and by county.

Table 12: County level Distribution of Additional Sample Invites for "Oversample, High Response" Segment

Sample Segment	County[47]	Added Sample
3-Oversample, High response	Fairfield County	1,621
	Hartford County	102
	Litchfield County	13
	Middlesex County	21
	New Haven County	63
Total Added Sample, Segment 3 (Oversample, High Response)		**1,820**

Table 13: Segment level Distribution of Additional Sample Invites for Fairfield County

County	Sample Segment	Added Sample
Fairfield County	1-Oversample, Low response	122
	2-Oversample, Medium response	171
	4-Regular sample, Low response	104
	5-Regular sample, Medium response	575
	6-Regular sample, High response	854
Total Added Sample, Fairfield County (excluding Segment 3)		**1,826**

3.6.5 Public Outreach

The study team pursued an elaborate public outreach strategy within the available resources to encourage participation of invited households and supplement the pre-notice postcard, invitation packet, and reminder postcards that were sent directly by mail. Overall, public outreach aimed to:

[47] No "Oversample, High Response" block groups exist in New London, Tolland or Windham Counties

- ❑ Ensure that residents recognized and opened invitations to participate in the survey by informing potential participants when the study was occurring and that it was a legitimate study sponsored by CTDOT in partnership with UConn.
- ❑ Encourage invited households to complete the survey by instilling confidence that the study benefitted their household as well as all residents of the state.
- ❑ Minimize voluntary (uninvited) participation in the survey by explaining the importance of collecting information from a random sample of households and by targeting most outreach to invited households rather than the general public.
- ❑ Prepare local officials and information-providers to answer questions by providing transparent information and inviting dialogue with local municipalities and regional entities.

The study team and CTDOT conducted a number of outreach efforts to local and statewide media before and during the main study effort, such as distributing press releases and conducting interviews.

3.7 Data Processing and Preparation

During and after data collection, responses must be reviewed and cleaned to assure the quality of the final data. This includes reviewing response frequencies for consistency; mapping location data; flagging, correcting or excluding records with survey errors; and deriving key variables for downstream data uses. This section discusses the data processing and preparation carried out in the CSTS and summarizes steps taken to prepare the final datasets.

3.7.1 Real-time Quality Control and Data Checks

An important first step in collecting high-quality survey data is to ensure that respondents provide accurate data as they take the survey. RSG's proprietary software (rSurvey™) that was used to build the online survey instrument includes capabilities for built-in data checks that verify response completeness and consistency, facilitate dataset preparation, and reduce the amount of data cleaning and up-coding required. A few examples of these real-time built-in data checks include the following:

- ❑ Validation logic required that respondents answered all questions on a page before continuing the survey (preventing skipped questions).
- ❑ Logic checking, such as hiding/skipping questions or answer choices that are not relevant (e.g. not asking employment questions for children); this also helps reduce respondent burden.
- ❑ Filters to automatically show or hide certain questions based on previous responses helped reduce respondent burden (e.g., if someone did not use HOV on travel day then the trip level HOV usage question was skipped).
- ❑ Metadata collection (passive collection of data such as survey duration and browser type) was used to help troubleshoot survey errors and assist households that call or email for help. These metadata also helped determine improvements to the survey design between the pilot and main data collection periods.
- ❑ The copy trips feature allowed a household member to select and copy information about joint trips already reported by another household member. This feature

ensures that jointly made household trips were reported with the same locations, modes, and trip times.

- ❑ Reported trip sequences were required to be spatially and temporally logical (i.e., one trip's start and end location cannot be the same, and a trip's starting time could not be before the previous trip ended).

In addition to the real-time quality controls used during data collection, a number of additional quality checks and cleaning procedures were conducted after data collection was completed. This was done 1) to confirm that the real-time controls worked correctly and consistently, and 2) to evaluate any data quality issues that were not implemented using real-time checks in the online survey instrument.

3.7.2 Manual Quality Control and Data Cleaning

Additional checks were carried out to assess quality and validity. Based on the findings from these manual checks, data cleaning (described in Section 3.7.3) was carried out. The quality control and data checks can be categorized into three groups described below: Uniformity Checks, Consistency Checks, and Logical Checks.

- ❑ *Uniformity Checks*: The purpose of these checks was to ensure that the variables, and values contained in the different data files followed assumed notations for variable names, variable description, variable values, and value descriptions among others. One example is ensuring the values match the responses enumerated in the questionnaire document. Furthermore, the steps also ensure that all data files and the information contained in them are uniformly organized. For example, a value of -99 is used throughout to represent a "not applicable" and -999 is used to represent a "missing" value.
- ❑ *Consistency Checks*: The purpose of these checks was to ensure that the values reported for a given variable are consistent with information contained in another related variable in the same or different data files. For example, school type (schooltype) is only asked of adults (age >= 18) who are currently students (student=1 or 2). As can be seen, school type and student status provide different items of information but they are related, thus can be compared to evaluate the information contained in the variables. No consistency checks were performed for the vehicle information as there was no information in the dataset to compare against.
- ❑ *Logical Checks*: Unlike the consistency checks where the responses are assumed valid, the purpose of the logical checks was to evaluate responses for validity by using information contained in variables in the same data file or across other data files. For example, starting location type on assigned travel date (diary_st_loc) and ending location type on assigned travel date (diary_end_loc) are reported in the person file. This information can be matched against the origin and destination purpose of the first and last trip reported in the trip file respectively. The focus of the logical checks is mainly on the travel responses.

Details regarding the specific uniformity, consistency and logical checks performed are enumerated in Appendix H.

3.7.3 Data Cleaning

Discarded Records

Household record exclusions implemented in this dataset included the following:

- ❑ Reviewer households (any records from UConn, RSG, DOT, or COG reviewers)
- ❑ 18 Households with reported home locations outside of the study area
- ❑ 34 Duplicate household responses (identified by phone and email)
- ❑ One household with multiple identified reporting errors

Trip record exclusions from this dataset included the following:

- ❑ 150 trips where the origin and destination place descriptions were identical and Google distance or duration were zero
- ❑ 63 trips where Google distance was zero and origin and destination place descriptions were both home
- ❑ 6 trips where the open ended response to the variable "d_purpose_other" clearly indicated that these were dummy trips[48]

Some trips with zero distance were left in the dataset, as participants could have intended to enter valid trips that started and ended in the same place (such as walking the dog or going for a bike ride). These trips may require additional inspection.

Deleting records requires making changes to other variables in the same file as well as to other files to ensure consistency across files. In response to household record exclusions, all person-, vehicle- and trip-records associated with excluded households were also removed. The total of 8,403 households is the sample size after removal of the problematic households. Similarly, deleting trips necessitates capturing the cascading impacts so that the information within a data file and across data files are consistent. In response to trip removals, all household-, person- and trip-variables were revised. Where appropriate, new variables with appropriately labeled variable names and descriptions were created to allow comparisons with original data.

Variable Exclusions

Variable exclusions from the dataset included the following:

- ❑ Sample mailing address information (purchased from the sample provider)
- ❑ Email addresses and phone numbers (collected for survey administration only. Personally identifiable information data are not provided.)

[48] These trips may have resulted because of two potential causes. First, the individual incorrectly reported that they made trips at the beginning of the travel diary and this caused the survey instrument to start collecting trip responses. The individual instead of going back and changing their earlier response about the trips just continued to report dummy trips with a note in the "Other" purpose description in an effort to just complete the survey in the way they thought was most appropriate. Second, the way copy trip feature was implemented sometimes resulted in incorrect trips when the household had complex intra-household trip interactions. Individuals in this case again made a note in the "Other" purpose description to indicate that these are not valid trips and proceeded to complete the travel diary.

- Passwords (associated with the sample mailing address information, replaced with ID numbers)

Purpose Cleaning

The list of locations reported by each individual on the assigned travel date comprises of a starting location (i.e. origin of the first trip) and a series of activity locations (i.e. destinations of the trips). For each location, individuals were required to provide a "name" that describes the location. The name information in turn was used by the online survey instrument to construct/present follow up questions in a way that was more meaningful and relatable to the respondents. The location name often contained information that could be used to confirm data that was collected about the location (e.g. purpose, or mode).

The name information was used to carry out two data cleaning tasks. First, the name information as used to confirm and clean the purpose of the starting location at the beginning of the day and the purpose of the primary activity at all trip destinations. The purpose cleaning was limited to only fixed activity locations (including home, work, and school) and took the form of series of programmable heuristics. The purpose corrections regarding fixed activity locations could be ascertained with a high degree of confidence using heuristics. Furthermore, different criterion were applied based on whether the location was the starting location or the destination for the trips on the travel day. Appendix I provides a description of the steps for purpose cleaning for different activity locations.

Second, the name information was used to check and confirm the purpose for all trips including the fixed activity locations. The cleaning of all purposes requires manual checks and corrections on a trip-by-trip basis. In an effort to overcome interpretation biases, a number of data quality procedures were applied. Two analysts first independently recoded potential trip purposes utilizing the name information. The recoded information was then reconciled by two senior members of the study team. The consistency of the recodes was also evaluated further by looking at all trips together using a visualization tool developed for this project. The tool allowed the analysts to confirm the initial recodes. Also, the tool allowed for consistency assessments in the recoded trip purposes across household members on joint trips. Heuristics applied for the initial recodes, and the visualization tool used to perform the joint trip checks are described in Appendix I.

Recoding the purpose of the trips necessitates performing changes to other variables due to the cascading impacts. For example, if the destination purpose of a trip is modified, it also means that the origin purpose of the next trip should also be modified. Cascading changes were applied in response to recoding the activity purpose at the location. Where applicable, cascading changes made are recorded under new variables with appropriately labeled variable names and descriptions to allow comparisons with original data.

3.7.4 Data Preparation: Imputation

In surveys, valid values for some data items are missing because a respondent may not have provided a response – this is also referred to as item nonresponse or missing data. Data is often missing for sensitive items (e.g. income, race). Even in survey instruments that force respondents

to provide responses, a valid skip is offered for such sensitive data items so as to avoid respondent drop-out and potentially risk not collecting responses for all other data items for which the respondent may be willing to provide an answer. Missing data are problematic and affect analyses with the survey data including the sample bias correction procedures discussed later.

In the CSTS, respondents were generally forced to provide a valid response for all but three data items, namely, exact age, income, and ownership status. For these three data items, respondents were offered "prefer not to answer" as a response (not a valid value that can be used for subsequent analyses). For the age question, respondents were required to answer a follow up question with coarser categories, therefore valid age information is available (not missing) for all respondents. For income, respondents were offered a follow up question where they were asked to respond to the same question on a coarser scale in the hope that those hesitant to provide a response on a detailed level may respond when the options were consolidated. The presence of these follow ups did improve valid responses. However, they were still offered the "prefer not to answer", as a result, there were still missing values for the income variable. For the ownership status no follow up option was available so there are observations with missing home ownership status information. The focus of the imputation analysis presented below is on the income variable which is critical for correcting sample bias (described in Section 3.7.5).

In order to impute the income, two different techniques were explored: stochastic regression technique and multiple imputation technique. In the stochastic regression approach, a multinomial logistic (MNL) model form was assumed to impute income. The MNL model formulation is appropriate for imputing income because responses were collected on a discrete scale in the CSTS (as opposed to continuous scale). For the multiple imputation technique, the Markov Chain Monte Carlo (MCMC) approach was applied. Unlike the MNL model, income was treated as a continuous variable. Comprehensive validation analysis was conducted to evaluate the two methods. Missing income observations were created artificially from valid records in the CSTS and the two methods were then used to make predictions for the artificially missing observations. Disaggregate and aggregate comparisons between the predicted values and actual values were performed to evaluate the two methods. It was found that the MNL model based stochastic regression imputation provided comparable results to the MCMC based multiple imputation. Additionally, the MNL model did not require making strong assumptions or manipulating the income variable to conform to the underlying model formulation. As a result, the MNL based approach was preferred owing to the comparable performance and limited number of assumptions involved.

A MNL based stochastic regression technique was used to impute detailed income information for the households with missing income information. To impute the income value a Monte Carlo procedure was applied. There are a number of questions in the literature on the best approach to prediction. In order to address this issue, an iterative stochastic regression approach is applied (Gold et al. 2000[49]). In this approach, a multinomial logit (MNL) model is estimated and applied

[49] Gold, M.S., and Bentler, P.M. (2000). Treatments of Missing Data: A Monte Carlo Comparison of RBHDI, Iterative Stochastic Regression Imputation, and Expectation-Maximization. Structural Equation Modeling, 7(3), pp. 319 – 355.

iteratively to impute the income information until convergence is achieved. The process begins by estimating the MNL model first using the observations with valid income information. These first set of MNL model coefficient estimates are then used to stochastically impute the missing income values. In the second step, the observations with imputed income information are combined with observations with valid income information. The MNL model is re-estimated using this combined dataset (including observed and imputed income values). The income values are imputed again using the new coefficient estimates. This second step is repeated until convergence is achieved. In this project, stability in the parameter estimates (i.e. no change in parameter estimates across iterations) was used as the convergence criterion.

Results from Imputation Analysis

Table 14 provides a summary of the income imputation. The missing values in the original dataset are denoted by "Prefer not to answer" category. As can be seen, all the valid income values in the original variable were retained in the imputed income variable whereas the missing income values (i.e. "Prefer not to answer") are assigned a valid income value in the imputed variable. The highest counts of imputed income fall in the income category "$100,000 - $149,999". This is also the category with the highest number of observations in the original income variable. The least counts of imputed income are for the lowest income category i.e. "less than $10,000". Additional details regarding the model estimation and imputation are presented in Appendix J.

Table 14: Comparison between Values for the Original and imputed Income Variables

		Imputed Household Income												Total
		Less than $10,000	**$10,000-$14,999**	**$15,000-$24,999**	**$25,000-$34,999**	**$35,000-$49,999**	**$50,000-$59,999**	**$60,000-$74,999**	**$75,000-$99,999**	**$100,000-$149,999**	**$150,000-$199,999**	**$200,000-$249,999**	**$250,000 or more**	
Original Household Income	**Less than $10,000**	310	0	0	0	0	0	0	0	0	0	0	0	**310**
	$10,000-$14,999	0	291	0	0	0	0	0	0	0	0	0	0	**291**
	$15,000-$24,999	0	0	478	0	0	0	0	0	0	0	0	0	**478**
	$25,000-$34,999	0	0	0	487	0	0	0	0	0	0	0	0	**487**
	$35,000-$49,999	0	0	0	0	656	0	0	0	0	0	0	0	**656**
	$50,000-$59,999	0	0	0	0	0	560	0	0	0	0	0	0	**560**
	$60,000-$74,999	0	0	0	0	0	0	683	0	0	0	0	0	**683**
	$75,000-$99,999	0	0	0	0	0	0	0	986	0	0	0	0	**986**
	$100,000-$149,999	0	0	0	0	0	0	0	0	1294	0	0	0	**1294**
	$150,000-$199,999	0	0	0	0	0	0	0	0	0	556	0	0	**556**
	$200,000-$249,999	0	0	0	0	0	0	0	0	0	0	264	0	**264**
	$250,000 or more	0	0	0	0	0	0	0	0	0	0	0	395	**395**
	Prefer not to answer	61	64	83	86	130	112	135	161	288	127	68	128	**1443**
Total		**371**	**355**	**561**	**573**	**786**	**672**	**818**	**1147**	**1582**	**683**	**332**	**523**	**8403**

3.7.5 Data Preparation: Weighting Analysis

In most survey studies, the sample data collected is often not perfectly representative of the underlying population owing to two primary reasons.

- First, different population groups respond at different rates. Some differences in response rates are accounted for in the sampling plan by categorizing geographies into segments based on demographic profiles of residents in each geography. Accordingly, assumptions are made about response rates consistent with the demographic profiles, and households are drawn randomly from the geography in quantities that account for the assumed response rate. However, even with a carefully designed sampling plan, the data collected may not be perfectly representative because the response rates are based on experiences (from a pilot, other regions, or a different time point) and may not closely match the response patterns at the time. Also, while efforts are made to define segments such that they consist of homogenous groups of respondents, small variations still exist across household types in a segment.
- Second, in travel analyses, some infrequent types of households are of interest (e.g. transit users, zero vehicle households). If the infrequent household types in the population are sampled at the same rate as the frequent household types, this will lead to a survey dataset that doesn't have enough sample observations to make any reasonable inferences about the infrequent household types. As a result, the infrequent household types are oversampled[50] to provide a count of sample observations that can be used to make reasonable inferences. As can be seen, this process also results in a sample data that is not representative.

These reasons result in differences between the sample data distribution and the underlying population distribution for attributes of interest. This in turn leads to biases when inferring travel behaviors from the sample data collected, also referred to as sample bias. Not correcting for sample bias can lead to travel behavior inferences that will be erroneous.

Approach to Expansion

In an effort to correct for sample bias, two steps are typically applied: expansion and weighting. In the expansion step, a weight is assigned to each sample observation based on the sampling plan parameters and data collection results. The weight assigned to sample households during the expansion step is also referred to as the expansion weight. Typically segments (representing population subgroups) are defined in the sampling plan. An expansion weight for each sample observation k is given by the equation below:

$$w_k = \frac{T_h}{t_h}$$

Where, T_h is the total count of households in the population belonging to segment h to which the sample household k belongs, and t_h is the total count of sample households belonging to segment h. All sample observations belonging to a particular segment are assigned the same expansion weight.

[50] Higher number of responses for these groups are targeted in the sampling plan compared to their shares in the population

Approach to Weighting

After the expansion step is complete, the weighting step is applied. In the weighting step, the expansion weights assigned to each sample household are readjusted such that weighted distributions of characteristics of interest match distributions of the characteristics in the population available from an external source (e.g. US Census). The most common approach to reweighting in the household travel surveys is the Iterative Proportional Fitting (IPF) procedure proposed by Deming and Stephan (1940)[51]. IPF is a heuristic procedure wherein the expansion weights are adjusted to match each of the marginal distribution of interest (from an external source) and the process is repeated ("iterated") until there is no further improvement in the match between the weighted distributions and known marginal distributions.

Typically in travel surveys, IPF procedure is applied separately at the household and person level to estimate household and person level weights respectively. Trip level weights are not generated separately by applying the IPF procedure because data about the trips made by the entire population in the region are often not readily available from an external source. Trip level weights are obtained by assigning the corresponding person weight to each trip. The independent approach to estimating household and person level weights has been adopted in most household travel surveys. However, this approach is problematic as this may introduce inconsistencies between travel characteristics implied by the households and that by persons. For example, for a given household, the person weights of members within the same household may not only be different but they may also not align with the household weight. Therefore, it is necessary to generate a single set of household level weights such that both the household and person level marginal distributions of interest are matched. This ensures that the travel characteristics derived at the household level are consistent with those derived at the person level.

Ye et al. (2009)[52] and Bar-Gera et al. (2009)[53] have developed algorithms (as part of synthetic population generation research efforts) that can be used to generate a single set of weights which match marginal distributions of both household and person level variables of interest. More recently Konduri et al. (2016)[54] proposed a new algorithm (again as part of synthetic population generation research) that can be used to control for marginal distributions of household and person variables at multiple spatial resolutions. In this study, the algorithm proposed by Konduri et al. (2016) was used to generate weights that match marginal distributions of household and person variables at two spatial resolutions.

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[51] Deming, W. and Stephan, F. (1940) On least square adjustment of sampled frequency tables when the expected marginal totals are known. Annals of Mathematical Statistics, 6, pp. 427–444.

[52] Ye, X., Konduri, K.C., Sana, B., and Pendyala, R.M. (2009). A Methodology to Match Distributions of Both Household and Person Attributes in the Generation of Synthetic Populations. Proceedings of the 88th Annual Meeting of the Transportation Research Board, Washington, DC.

[53] Bar-Gera, H., Konduri, K.C., Sana, B., Ye, X., and Pendyala, R.M. (2009). Estimating Survey Weights with Multiple Constraints Using Entropy Optimization Methods. Proceedings of the 88th Annual Meeting of the Transportation Research Board, Washington, DC.

[54] Konduri, K.C., You, D., Garikapati, V.M., and Pendyala, R.M. (2016). Enhanced Synthetic Population Generation that Accommodates Control Variables at Multiple Geographic Resolutions. Transportation Research Record: Journal of the Transportation Research Board, 2563, pp. 40-50.

In the CSTS, a single set of weights was generated so that both household and person level marginal distributions are simultaneously satisfied. In the next subsection, results from the application of the expansion step of the sample bias correction are presented. In the following subsection, the weighting step of the sample bias correction is discussed.

Results from Expansion Analysis

In the CSTS, an expansion factor was calculated for each of the six segments defined in the sample plan i.e., 1) Oversample Low Response, 2) Oversample Medium Response, 3) Oversample High Response, 4) Regular Sample Low Response, 5) Regular Sample Medium Response, and 6) Regular Sample High Response. The expansion factors were calculated for the state as a whole without further separating them based on regions or demographic characteristics. Where appropriate, data from the ACS 2009-2013 Census were used to obtain the counts of total population and counts of population subgroups. Expansion factors for the six segments are presented in Table 15.

The expansion weights were calculated using the equation presented previously. As expected, the expansion weight for the three oversample groups is smaller compared to the expansion weight for the three regular sample groups. This was anticipated because in the oversample groups, higher shares of these households were desired when compared to their shares in the population. As a result, the expansion weights are going to be smaller. For the three response groups within the oversample segments (low response, medium response, and high response), it is encouraging to see that the expansion weights are nearly equal, indicating that the assumed response rates capture the difference in the response patterns across these groups. There was a similar finding across the response groups for the regular sample segments, except for the regular sample, low response segment where the expansion weight is lower. This can be attributed to the large difference between the assumed response rate (3.4 percent) and the observed response rate for this group (4.7 percent). While there are differences between assumed response rate and observed response rate for other groups, the differences are smaller and more consistent across the groups, thus the similar trends in the weights.

Table 15: Expansion Factors for the Sampling Segments

Sample Segment	Total	Completed	Invited	Expansion Weight
1 – Oversample, Low Response Rate	124,269	1,547	46,774	80.33
2 – Oversample, Medium Response Rate	62,256	772	17,700	80.64
3 – Oversample, High Response Rate	32,816	423	7,093	77.58
4 – Regular Sample, Low Response Rate	91,414	565	12,099	161.79
5 – Regular Sample, Medium Response Rate	437,164	2,175	34,130	200.99
6 – Regular Sample, High Response Rate	607,930	2,921	35,853	208.12
Total	**1,355,849**	**8,403**	**153,649**	**161.35**

Results from Weighting Analysis

The expansion weight estimation step is followed by the weighting step wherein the expansion weights are modified to match known distributions of variables of interest obtained from an external source (e.g. US Census). As noted above, in the CSTS, a single set of household weights

are generated such that the household and person level marginal distributions of interest are matched. Subsequently, the person weights and trip weights are simply the weights assigned to the household to which the person/trip belongs.

IPU methodology proposed by Konduri et al. (2016) was used in the weighting step. Unlike Konduri et al. (2016) that starts with unit weights for households, the expansion weights estimated in the previous step are used as initial weights. The list of variables used in the weighting step were identified based on four considerations, namely, account for variables that define household structures (important determinants of travel behaviors), review of four recent household travel surveys (including PSRC 2015[55], MassDOT 2012[56], CMAP 2010[57], DVRPC 2013[58]), availability of data from the 2009-2013 ACS Summary Files, and performance considerations of the weighting procedure.

In the weighting step, weights were readjusted at the region level. In other words, the weights of all sample households belonging to a region are adjusted such that region-level and state-level marginal distributions are matched[59]. Regions are defined by utilizing Metropolitan Planning Organization (MPO) and Council of Governments (COG) boundaries used by CTDOT. A total of 11 regions were identified as shown in Figure 12. Marginal distributions were obtained at the Census Tract level from the 2009-2013 ACS for variables of interest. The tract-level marginal distributions are then aggregated to obtain region-level and state-level control totals.

[55] PSRC (2015). 2015 Household Travel Survey Report. Puget Sound Regional Council. (Link: http://www.psrc.org/assets/14106/2015-Household-Survey-Tech-Report.pdf, Accessed: June 1, 2015)

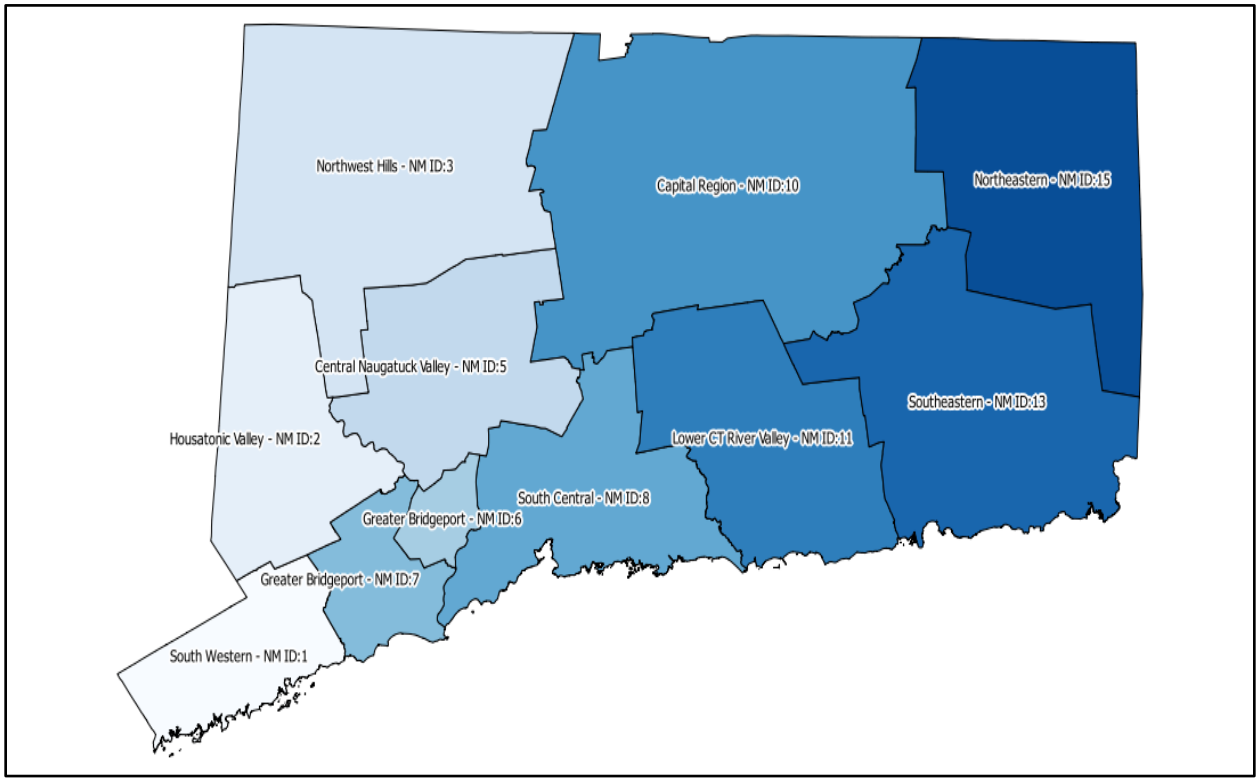
[56] MassDOT (2012) 2012 Massachusetts Travel Survey: Report. Massachusetts Department of Transportation. (Link: http://www.massdot.state.ma.us/Portals/17/docs/TravelSurvey/MTSFinalReport.pdf, Accessed: June 1, 2015)

[57] CMAP (2010). 2010 Chicago Regional Household Travel Inventory: Final Report. Chicago Metropolitan Agency for Planning. (Link: https://datahub.cmap.illinois.gov/dataset/1f424666-3885-493d-8774-81ba7ac625f2/resource/22eb7767-b143-416f-bb0f-37e6755231fd/download/methodsfinal3111.pdf, Accessed: June 1, 2015)

[58] DVRPC (2013). 2012-2013 Household Travel Survey: Report. Delaware Valley Region Planning Commission. (Link: http://www.dvrpc.org/reports/14033.pdf, Accessed: June 1, 2015)

[59] The matching of state level marginal distributions is also a new feature of the weights generated in the CSTS compared to other household travel surveys.

Figure 12: Map Showing Definitions of Regions Used in the Weighting Step



The marginal distributions for variables shown in the Table 16 were matched when adjusting the expansion weights. The table also shows the definitions of the values for each variable[60]. Only household income, household size, number of workers are controlled at the individual region level (i.e. marginal distributions for these variables will be perfectly matched at the region level) whereas the presence of children, household type, and number of vehicles was controlled only at the state level (i.e. marginal distributions for these variables will be matched but only closely). All person level variables are controlled at the state level[61].

[60] While data may have been available at a more disaggregate level in CSTS/2009-2013 ACS, it was consolidated to conform to the corresponding inputs or to address considerations of sparsity when applying the IPU procedure.

[61] A common problem with the weights generated using raking procedure (or any variant thereof) is that it can potentially generate extreme weights. The problem is even more magnified in the CSTS, as we not only attempt to match the given household marginal distributions but also person marginal distributions. Additionally, the choice of generating weights at the region level in the CSTS (as opposed to higher levels of spatial aggregation) potentially exacerbates the problem. In the CSTS, when all variables were controlled at the region level, it was observed that in an effort to match the marginal distributions of the household and person variables of interest, the Iterative Proportional Updating (IPU) algorithm assigned extreme weight values to many sample observations. Though the weights match the given marginal distributions (and thus rectify the sample bias), the extreme weights could lead to large variability when drawing population inferences. Two strategies were explored to rectify the extreme weight issue in the CSTS. First, trimming procedures were explored wherein adjusted weights during the raking procedure are limited to a valid range. Second, various configurations of the control variables were explored for the raking procedure (including altering the spatial resolution at which a control variable(s) are controlled, consolidating categories for control variables, and using subsets of control variables) in an effort to reduce the sparsity – an

Table 16: List of Household and Person Level Control Variables Used in the Weighting Step

Type of Variable	Variable Name	Category Value – Category Definition	
Household	Presence of children	1 – Children under age 18 present 0 – Children under age 18 not present	
	Household type	1 – Family households: Married-couple family 2 – Family households: Other family 3 – Nonfamily households	
	Household income	1 – Less than $25,000 2 –$25,000-$49,999 3 – $50,000-$74,999 4 – $75,000-$99,999 5 – $100,000- or more	
	Number of vehicles	0 – 0 vehicles 1 – 1 vehicle 2 – 2 vehicles 3 – 3 vehicles 4 – 4 or more vehicles	
	Number of workers	0 – 0 workers 1 – 1 worker 2 – 2 workers 3 – 3 or more workers	
	Household size	1 – 1 person 2 – 2 persons 3 – 3 persons	4 – 4 persons 5 – 5 persons 6 – 6 or more persons
Person	Age	1 – Under 5 years old 2 – 5-17 years 3 – 18-24 years 4 – 25-34 years	5 – 35-44 years 6 – 45-54 years 7 – 55-64 years 8 – 65 years or older
	Gender	1 – Male 2 – Female	
	Employment	1 – Employed (including armed forces) 2 – Not employed (unemployed, not in labor force) 3 – Age less than 16	

Table 17 and Table 18 provide the match between the given marginal distributions and the weighted totals from the CSTS for the household and person variables that were controlled. As noted in Table 16 presence of children, household type, and number of vehicles were controlled at the state level whereas the household income, number of workers and household size were controlled at the region level. While attempts were made to include all variables at the region level, this was not pursued further as it affected the extreme weight issue negatively. It can be seen from Table 17 that the match with the marginal distributions for household control variables

important consideration that affects the performance of the raking procedure. The trimming procedure was found to be ineffective. While it limited the maximum weight values to a valid range, it was causing other problems (including causing extreme weights at the lower end, affecting the performance in matching the marginal distributions, and skewing the weights towards the higher end of the valid range). On the other hand, trying various combinations of control variables was found to be more effective in addressing the extreme weight issue. Therefore, the latter approach was adopted in CSTS.

at the region level is perfect. On the other hand, the match for household control variables that were specified at the state level is close with small deviations ranging from -3.0% to 3.3%.

The match for the marginal distributions for the person control variables is also close with deviations ranging from -8.6% to -3.6% (see Table 18). It must be noted that the deviations at the person level are owing to two reasons. First, the person totals include those residing in group quarters, however, we do not consider group quarter residents in the weighting. Second, the marginal distributions for person variables may not be consistent with marginal distributions for household variables. The IPU procedure tries to match marginal distributions of household variables (perfectly at the region level and closely at the state level) at the expense of person marginal distribution mismatch. Both these reasons contribute to the differences for person level marginal distributions. Nonetheless, the match with the marginal distributions is reasonable.

In addition to assessing the performance of the weights by comparing the match with marginal distributions for controlled variables (and controlled categories), it is desirable for the weights to also be evaluated against marginal distributions for uncontrolled variables (and uncontrolled categories). This ensures that all critical variables are included in the weighting and that no biases exist for key uncontrolled variables of interest. If there is observable differences against uncontrolled variables (and uncontrolled categories), then this calls for including these variables (and/or categories) in the weighting. Table 19 provides a comparison of the weights for one uncontrolled variable (namely commute mode to work) and for uncontrolled categories (namely unconsolidated age, and unconsolidated income). As expected there are deviations against both the uncontrolled variables and uncontrolled categories. The magnitude of the deviations are larger than that for the controlled variables. Attempts were made to include these variables (and categories) in the weighting analysis, but the extreme value issue was negatively impacted. As a result, the commute mode to work was completely excluded from the weighting and the age and income were specified in a consolidated form in the weighting analysis. The final choice of controlled variables attempted to strike a balance between minimizing the extreme weight issue while also matching the marginal distributions for critical variables of interest.

Table 17: Comparison of Weighted Distributions and Marginal Distributions from 2009-2013 ACS for Controlled Household Variables

Variable Name	Variable Category[62]	Given Totals from ACS 2009-2013	Weighted Total from CSTS	Difference	Percent Difference
Presence of children	0	913,487	926,552	13,065	1.4%
	1	442,362	429,297	-13,065	-3.0%
	Total	1,355,849	1,355,849	0	0.0%
Household Type	1	669,883	656,527	-13,356	-2.0%
	2	233,694	231,994	-1,700	-0.7%
	3	452,272	467,328	15,056	3.3%
	Total	1,355,849	1,355,849	0	0.0%
Household Income	1	243,901	240,168	-3,733	-1.5%
	2	254,982	252,550	-2,432	-1.0%
	3	223,674	226,459	2,785	1.2%
	4	178,175	179,841	1,666	0.9%
	5	455,117	456,831	1,714	0.4%
	Total	1,355,849	1,355,849	0	0.0%
Number of Vehicles	0	121,597	121,597	0	0.0%
	1	442,638	442,638	0	0.0%
	2	518,022	518,022	0	0.0%
	3	192,985	192,985	0	0.0%
	4	80,607	80,607	0	0.0%
	Total	1,355,849	1,355,849	0	0.0%
Number of Workers	0	339,644	339,644	0	0.0%
	1	515,182	515,182	0	0.0%
	2	401,798	401,798	0	0.0%
	3	99,225	99,225	0	0.0%
	Total	1,355,849	1,355,849	0	0.0%
Household Size	1	374,214	374,214	0	0.0%
	2	446,464	446,464	0	0.0%
	3	221,469	221,469	0	0.0%
	4	196,253	196,253	0	0.0%
	5	81,221	81,221	0	0.0%
	6	36,228	36,228	0	0.0%
	Total	1,355,849	1,355,849	0	0.0%

[62] Please see Table 14 for category definitions.

Table 18: Comparison of Weighted Distributions and Marginal Distributions from 2009-2013 ACS for Controlled Person Variables

Variable Name	Variable Category	Given Totals from ACS 2009-2013	Weighted Total from CSTS	Difference	Percent Difference
Age	1	197,395	180,590	-16,805	-8.5%
	2	606,650	556,234	-50,416	-8.3%
	3	335,755	306,887	-28,868	-8.6%
	4	428,258	399,942	-28,316	-6.6%
	5	469,746	440,649	-29,097	-6.2%
	6	568,510	534,997	-33,513	-5.9%
	7	456,963	433,136	-23,827	-5.2%
	8	520,284	501,771	-18,513	-3.6%
	Total	3,583,561	3,354,206	-229,355	-6.4%
Gender	1	1,745,364	1,597,341	-148,023	-8.5%
	2	1,838,197	1,756,865	-81,332	-4.4%
	Total	3,583,561	3,354,206	-229,355	-6.4%
Employment	1	1,768,014	1,643,217	-124,798	-7.1%
	2	1,111,136	1,064,989	-46,147	-4.2%
	3	704,411	646,000	-58,411	-8.3%
	Total	3,583,561	3,354,206	-229,355	-6.4%

Table 20 provides a variety of measures that were used to evaluate the degree of the extreme weights. The “Weights” column contains values for the various measures based on the final weighting analysis. It was also posited that the extreme weights may be resulting from specification of additional household and person level control variables. Results from a reference run wherein only three key household level control variables were used in the weighting analysis are also included in the table (see column “Reference Weights”). It can be seen that the degree of extreme weights is higher for the final weighting analysis compared to the reference weighting analysis. However, the differences are not that pronounced considering the fact that the revised weighting analysis addresses biases for additional household and person level variables of interest. It is interesting to note that the contribution of the top 5 percentile of weights towards the population is nearly 22.8% in the final analysis. While the percentage is smaller in the reference analysis, the value is still relatively large at 14.4%. This suggests that the sample is underrepresenting some household types that are present in the population but missing from the survey. As a result, even when a small number of variables are used to avoid extreme value issues, there are still considerable amount of large weights.

Table 19: Comparison of Weighted Distributions and Marginal Distributions for Household and Person Uncontrolled Variables and Uncontrolled Categories

Variable Name	Variable Category	Given Totals from ACS 2009-2013	Weighted Total from CSTS	Difference	Percent Difference
Age (Finer Categories)	Under 5 years old	197,395	180,590	-16,805	-8.5%
	5-17 years	606,650	556,234	-50,416	-8.3%
	18-24 years	335,755	306,887	-28,868	-8.6%
	25-34 years	428,258	399,942	-28,316	-6.6%
	35-44 years	469,746	440,649	-29,097	-6.2%
	45-54 years	568,510	534,997	-33,513	-5.9%
	55-64 years	456,963	433,136	-23,827	-5.2%
	65-74 years	269,422	327,537	58,115	21.6%
	75-84 years	164,260	121,463	-42,797	-26.1%
	85 years or older	86,602	52,770	-33,832	-39.1%
	Total	3,583,561	3,354,206	-229,355	-6.4%
Commute Mode to Work	Drove alone/Carpool or Vanpool	1,503,547	1,353,820	-149,727	-10.0%
	Bus or trolley bus/ Subway or elevated, Railroad	79,958	108,721	28,763	36.0%
	Taxicab/ Motorcycle/ Other means	15,778	13,417	-2,361	-15.0%
	Bicycle/ Walked	56,948	50,535	-6,413	-11.3%
	Worked at home	71,055	116,724	45,669	64.3%
	Unemployed	1,111,136	1,064,989	-46,147	-4.2%
	Age less than 16	704,411	646,000	-58,411	-8.3%
	Total	3,542,833	3,354,206	-188,627	-5.3%
Household Income (Finer Categories)	1 – Less than $10,000	76,257	72,550	-3,707	-4.9%
	2 – $10,000-$14,999	54,030	58,623	4,593	8.5%
	3 – $15,000-$24,999	113,614	108,995	-4,619	-4.1%
	4 – $25,000-$34,999	106,176	103,197	-2,979	-2.8%
	5 – $35,000-$49,999	148,806	149,353	547	0.4%
	6 – $50,000-$59,999	97,266	105,089	7,823	8.0%
	7 – $60,000-$74,999	126,408	121,370	-5,038	-4.0%
	8 – $75,000-$99,999	178,175	179,841	1,666	0.9%
	9 – $100,000-$149,999	227,122	236,243	9,121	4.0%
	10 – $150,000-$199,999	105,201	110,512	5,311	5.0%
	11 – $200,000 or more	122,794	110,076	-12,718	-10.4%
	Total	1,355,849	1,355,849	0	0.0%

Table 20: Measures for evaluating degree of extreme values in the revised weighting analysis

Measure	Weights	Reference Weights
Minimum weight value	0.1	23.0
Maximum weight value	2,216.4	1,188.6
Number of weights with value less than 1	2	0
Standard deviation of the weights	174.5	101.4
Weight value corresponding to 5th percentile	25.1	48.5
Weight value corresponding to 25th percentile	66.4	93.7
Median weight value	114.6	140.2
Weight value corresponding to 75th percentile	191.0	202.6
Weight value corresponding to 95th percentile	447.4	338.9
Sum of weights less than the 5th percentile	6637.7	17,405.6
Sum of weights less than the 25th percentile	85,880.8	136,500.8
Sum of weights less than the median value	279,546.5	386,111.2
Sum of weights greater than the 75th percentile	768,212.1	618,473.2
Sum of weights greater than the 95th percentile	308,770.5	195,248.3
Proportion of weights less than the 5th percentile	0.5%	1.3%
Proportion of weights less than the 25th percentile	6.3%	10.1%
Proportion of weights less than the median value	20.6%	28.5%
Proportion of weights greater than the 75th percentile	56.7%	45.6%
Proportion of weights greater than the 95th percentile	22.8%	14.4%

3.7.6 Data Preparation: Trip Linking

In the CSTS, individual legs of the travel occurrence were sometimes broken and reported as separate trips for multimodal journeys. For example, an individual going back home from office may have reported walking to the parking lot to get in his/her car and driving home as two separate trips when in fact they should have been reported as a single trip taken using the auto mode. The process of identifying these trip legs and consolidating them into a single trip is referred to as trip linking. Without linking trips, the trip rates will be inflated and subsequent travel analyses will be erroneous. For the above example, the trip count would be two when in fact it should be one.

In the final dataset, two types of trip linking efforts were carried out. First, trip legs were linked when purpose of intermediate trip legs (i.e. all trip legs except the last one) was reported as "Change Mode" (i.e. d_purpose_2 = 18). While it was desired that trip legs should be consolidated and reported as a single travel episode, it was also acknowledged that some individuals may want to report trip legs separately. In an effort to accommodate such instances, a destination purpose of "change mode" was included in the purpose options for the CSTS. This is the correct way of reporting trip legs, which allows trip legs to be identified and consolidated into a single travel

journey in a more straightforward manner. The following steps were used to identify a linked trip:

1) The trip records for each individual were sorted chronologically and considered for trip linking.
2) The first leg of a potential linked trip was identified by scanning for a record with reported destination purpose (d_purpose_recode_2) value of 18.
3) All intermediate trip legs of the multimodal travel episode were then identified by scanning for subsequent records with values of destination purpose value of 18. Subsequently, all these trip records were identified to be part of the same linked trip group.
4) The last trip leg of the linked trip group was then identified as the record following the last change mode trip record.
5) Efforts were also made to identify and group trips together where the destination purpose was reported erroneously. For example, a person traveling between home and work by "walking to the car – driving the car to the parking lot – walking to work from the parking lot" may have reported the destination purpose as "change mode – work – work" instead of reporting it as "change mode – change mode – work". In such instances, additional heuristics were applied to include all three trips and not terminate the trip at the second record. The heuristics proceed by identifying all consecutive trip records that have the same purpose as the trip identified in step (4) above. These trip records are then included as part of the linked trip group. The scanning for additional trip records was only limited to a subset of activity types where there is a small likelihood of consecutive trips for the same activity purpose occurring. For example, there is a small likelihood of back-to-back trips with the purpose of "Go Home". On the other hand, there is a higher likelihood that there are back-to-back shopping trips. Consequently the following set of rules were applied to scan for additional trip records that are part of the same linked trip group:
    - Identify additional trips that occur consecutively after and have the same purpose as the trip record identified in step (4).
    - Further, consider the additional trip records of the same purpose only if the purpose of trip identified in step (4) is home (i.e., d_purpose_recode_2 value 1), work (i.e., d_purpose_recode_2 value 2), exercise (i.e., d_purpose_recode_2 value 11), and vacation (i.e., d_purpose_recode_2 value 17).
    - Lastly, if the purpose of the trip record in step (4) is school (i.e., d_purpose_recode_2 value 3) or school related (i.e., d_purpose_recode_2 value 4) only consider additional trip records of the same purpose that have a dwell time that is within 10 minutes.
6) Once all trip legs of a linked trip were identified, the remaining trip records are scanned for the next potential linked trip by employing steps (2) through (5) on the remaining trips.

Second, trip legs were linked when the purpose of intermediate trip legs was not reported as "Change Mode". The identification of trip legs here requires heuristics because no direct

information is available. Potential trip legs can be inferred by analyzing purpose, mode, and dwell time information. Following steps were used to identify a linked trip:

1) The trip records for each individual are sorted chronologically and considered for trip linking.
2) Only those trip records that were not already linked in the previous trip linking task are included.
3) A set of consecutive trip records are compared to see if they share the same purpose and satisfy criteria for modes and dwell time thresholds across trips. In particular, for each pair of consequent trips:
    - The mode value changes and the dwell time at the destination of the preceding trip is not more than 10 minutes or
    - The mode of the subsequent trip is transit (i.e., mode_category value 6) and the dwell time at the destination of the preceding trip is not more than 40 minutes or
    - The mode of the preceding trip is transit (i.e., mode_category value 6) and the dwell time at the preceding activity location is not more than 25 minutes.
    - The purposes that were considered were limited to a small set based on manual confirmation of the linked trips.
        - For trips where at least one transit trip was involved, the trip purpose was limited to home (i.e., d_purpose_recode_3 value 1), work (i.e., d_purpose_recode_3 value 2), work related (i.e., d_purpose_recode_3 value 3), school (i.e., d_purpose_recode_3 value 4), school related (i.e., d_purpose_recode_3 value 5), Go to restaurant/bar/take-out (i.e., d_purpose_recode_3 value 9), exercise (i.e., d_purpose_recode_3 value 11), medical visit (i.e., d_purpose_recode_3 value 13), leisure/entertainment (i.e., d_purpose_recode_3 value 15) and vacation (i.e., d_purpose_recode_3 value 17).
        - For trips where a transit trip was not involved, the trip purpose was limited to home (i.e., d_purpose_recode_3 value 1), work (i.e., d_purpose_recode_3 value 2), work related (i.e., d_purpose_recode_3 value 3), school (i.e., d_purpose_recode_3 value 4), school related (i.e., d_purpose_recode_3 value 5), vacation (i.e., d_purpose_recode_3 value 17) and other (i.e., d_purpose_recode_3 value 97).
4) If they satisfy all conditions in step (3) then the subsequent trip is included as part of an active linked trip group. If a linked trip group is not currently active then a new linked trip group is created and the trip pair is added. When a pair of trips does not satisfy the conditions listed in step (3), the active linked trip group is terminated.
5) Steps (3) and (4) are repeated iteratively until all trip records for the individual have been scanned and potential linked trips identified.

Following the identification of linked trips, all linked trips were manually checked for validity. Subsequently, a new linked trip file was created wherein the trip legs were consolidated so that each record in the file represents a single travel episode between two activity locations, including

for multimodal trips. Section 3.7.8 and Appendix K provide information about the variables that are included in the linked trip file and how they were created.

3.7.7 Data Preparation: Tour Generation

As part of the data preparation, the study team also carried out the task of extracting tours from the trip file. Tours were generated to support the development of a disaggregate travel demand model (e.g. tour-based model) in the future. The tour extraction and tour variable generation were carried out in close consultation with CS and CTDOT. A tour file reporting the different tour episodes pursued by respondent households during the assigned travel date was generated.

During the tour extraction stage, two types of tours were extracted. First, home based tours were identified as a series of trips that begin and end at home. The specific steps applied to identify home based tours are as follows:

1) Identify the first trip for which the origin purpose is home (i.e., o_purpose_recode_3_linked value 1)
2) Identify the next trip for which the destination is home (i.e., d_purpose_recode_3_linked value 1)
3) Mark all the trips between origin as home identified in step (1) and destination as home identified in step (2), including the end trips, as belonging to the same home based tour with a unique tour id
4) Beginning with the trip following the last trip of the tour identified in step (3), repeat steps (1) through (3) until all trips reported by an individual on the assigned travel date have been scanned

Next, work based sub-tours were extracted. Work based sub-tours are identified only within a valid home based tour. A work based sub-tour identification is not carried out for the trips that are not included in any home based tour. The specific steps applied to identify work based sub-tours are described below:

1) Identify the first trip for which the origin purpose is primary workplace (i.e., o_purpose_recode_3_linked value 2)
2) Identify the next trip for which the destination is primary workplace (i.e., d_purpose_recode_3_linked value 2)
3) Mark all the trips between origin as primary work identified in step (1) and destination as primary work as identified in step (2), including the end trips, as belonging to the same work based sub-tour
4) Beginning with the trip following the last trip of the tour identified in step (3), repeat steps (1) through (3) until all trips within the home-based tour have been scanned

Following the identification of tours, they were randomly spot checked for validity. Subsequently, a new tour file was created wherein each record in the file represents a single tour or sub-tour episode. Additionally, tour level attributes were derived or calculated. Section 3.7.8 and Appendix K provide information about the variables that were included in the final tour file.

3.7.8 Data Preparation: Derived and Calculated Variables

The household travel survey dataset includes a combination of variables that were collected (asked directly of respondents), implicitly assigned (administrative variables such as id numbers), derived (calculated from directly collected variables) or recoded (modified from original values based on other information). Variables collected directly in the survey can be reviewed in the questionnaire. Implicitly assigned, derived, and recoded variables typically seek to calculate, combine, or reconfigure collected variables in order to provide a richer dataset with additional variables for analytical convenience. A summary of the implicitly assigned, derived, and recoded variables is provided below. A detailed listing of the variables in each file along with some metadata is provided in Appendix K.

Household Variables

- ❑ Household income category, aggregated from 2 questions (follow-up prompt if "prefer not to answer")
- ❑ Number of household adults, children, licensed drivers, students, workers, and travel day trips
- ❑ Household flag if any members of the household made transit trips on the travel day (public bus, train, paratransit, commuter rail, subway, intercity bus)
- ❑ Householder age (based on the person who responded to the recruit survey)
- ❑ Home location block group, town, county
- ❑ Implicit or passively collected data about the recruit survey (e.g. response mode, foreign language indicators, incentives offered, survey duration, etc.)

Person Variables

- ❑ Person age category, aggregated from 2 questions (follow-up prompt if "prefer not to answer")
- ❑ Number of person trips on travel day
- ❑ Travel day start and end locations (derived for members who began or ended their day at a copied trip location)
- ❑ Implicit or passively collected data about the diary survey (e.g. response mode, foreign language indicators, survey duration, etc.)

Unlinked Trip Variables

- ❑ Trip departure and arrival times, recoded into one-hour bins (for convenience)
- ❑ Reported trip duration
- ❑ Implied trip speed (reported duration / estimated distance)
- ❑ Household and total travel party size (from detailed list of household members and count of non-household members on trip)
- ❑ Number of transit transfers
- ❑ Trip origin purpose and overall trip purpose
- ❑ Passengers on trips copied from drivers
- ❑ Aggregate mode variable (e.g. group detailed modes into broader categories, including carpool and drive alone based on travel party)

Linked Trip Variables

- All variables in this file are derived from the unlinked trip file

Tour Variables

- All variables in this file are derived from the linked trip file

Vehicle Variables

- All variables in this file are collected

3.8 Results

After completing the data processing and preparation described in Section 3.7, valid and complete responses were collected from a total of 8,403 invited households. An invited household qualified as a valid complete when they filled out the recruit survey and every travel diary for all household members. Volunteer households and responses from student team members or other stakeholders are not included in the final count as they cannot be accounted for in weighting process. Also, records for incomplete households, those that completed recruit survey but not travel diary survey, are not included in these results.

Table 21 shows the final count of survey responses at each of the four different levels of data collected, including household, person, vehicle, and trip-level data. All of the data can be linked to individual households (the highest level), and trip data can be linked to individual people, providing the context for reported travel behaviors.

Table 21: Summary of Survey Responses

Data Type	Count
Households	8,403
Persons	17,481
Vehicles	14,540
Unlinked Trips	66,175
Linked Trips	65,103

3.8.1 Response pattern analysis

It can be seen from Table 22 that the sample target of 7,500 households was exceeded. This may be partly attributable to the higher observed response rates than the assumed response rates. It may also in part be driven by the addition of invitations at the mid-point review stage as discussed in Section 3.1. Targets for complete households were exceeded in all segments and counties as shown in Table 22 and Table 23. As can be seen from Table 22, observed response rates were higher than estimated response rates in all segments except “Oversample, High response” segment. The mid-point adjustment to add targeted invitations in the last week of data collection resulted in 228 completions overall. 117 of the 228 were in “Oversample, High response” bringing the total completes in this segment to 228. Of the 228 extra completes received, 219 were in Fairfield county. Thus the mid-point adjustments appear to have achieved the sampling objectives of adding more completes for two of the deficient areas identified at the time, namely “Oversample, High response” segment and Fairfield county.

Table 22: Distribution of Complete Responses by Segment

Sample Segment Description	# HHs[63]	Final Invites, # HHs[64]	Target Sample Size	Target Response Rate	Observed Completes, # HHs	Observed Complete Rate[65]	Observed Sample Rate
1-Oversample, Low response	124,269	46,771	1,367	2.9%	1,547	3.3%	1.24%
2-Oversample, Medium response	62,256	17,704	685	3.9%	772	4.4%	1.24%
3-Oversample, High response	32,816	7,101	361	5.1%	423	6.0%	1.29%
4-Regular sample, Low response	91,414	12,100	411	3.4%	565	4.7%	0.62%
5-Regular sample, Medium response	437,164	34,135	1,967	5.8%	2,175	6.4%	0.50%
6-Regular sample, High response	607,930	35,858	2,736	7.6%	2,921	8.1%	0.48%
Total	**1,355,849**	**153,649**	**7,527**	**4.9%**	**8,403**	**5.5%**	**0.62%**

Table 23: Distribution of Complete Responses by County

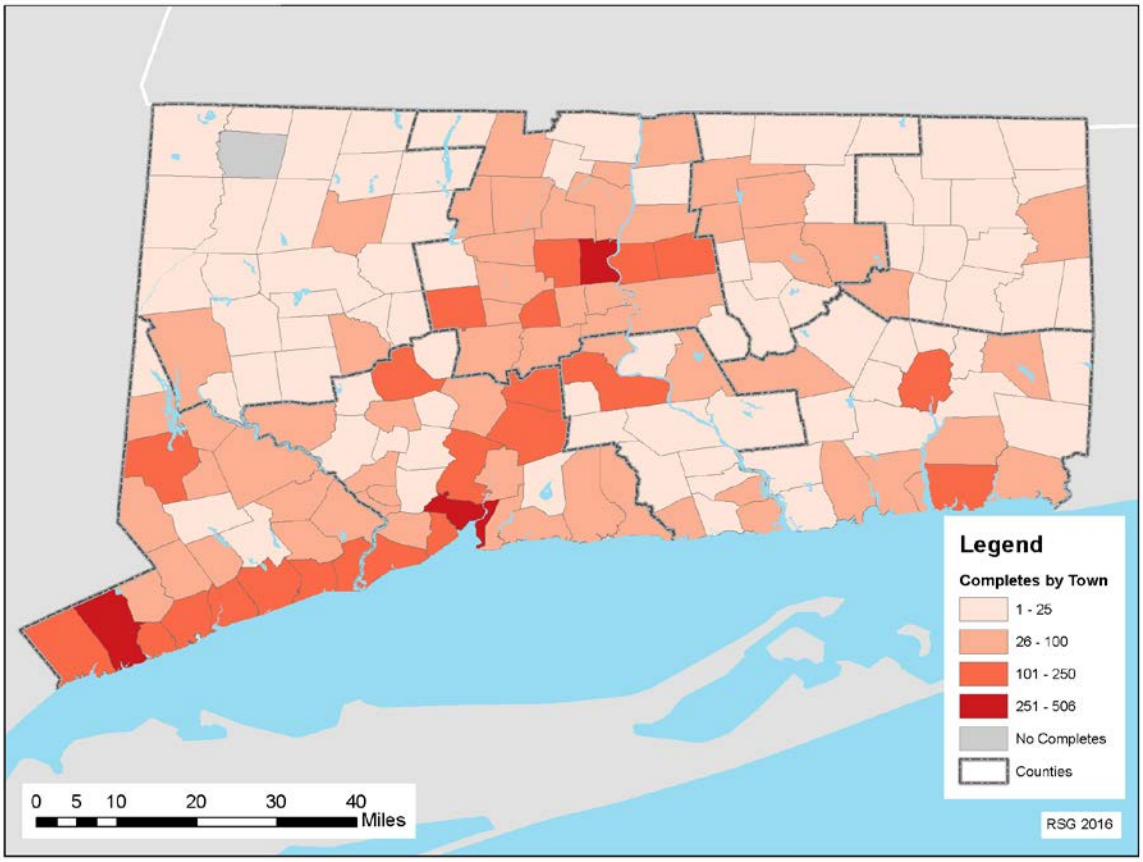
County	# HHs[66]	Final Invites, # HHs[67]	Target Sample Size	Target Response Rate	Observed Completes, # HHs	Observed Complete Rate[68]	Observed Sample Rate
Fairfield County	332,655	46,245	2,136	4.6%	2,289	4.9%	0.69%
Hartford County	347,874	39,812	1,919	4.8%	2,082	5.2%	0.60%
Litchfield County	75,755	5,256	332	6.3%	352	6.7%	0.46%
Middlesex County	66,141	5,229	315	6.0%	431	8.2%	0.65%
New Haven County	328,013	39,080	1,837	4.7%	2,086	5.3%	0.64%
New London County	107,066	10,089	531	5.3%	627	6.2%	0.59%
Tolland County	54,327	3,949	248	6.3%	325	8.2%	0.60%
Windham County	44,018	3,989	210	5.3%	211	5.3%	0.48%
Total	**1,355,849**	**153,649**	**7,527**	**4.9%**	**8,403**	**5.5%**	**0.62%**

The final dataset only includes responses from households that lived in Connecticut at the time of the study. As shown in Figure 13, responses are distributed across the entire state, with higher concentrations (in darker red) generally collected in the more densely populated areas of the state. This provides a relatively representative sample coverage across the state when evaluating the sample as a proportion of the population in an area (as noted in Table 23). Some rural areas only have a few responses per town and one town in the northwest corner of the state, Canaan,

[63] This is the estimated total number of households within the corresponding block groups based on ACS 5-year estimates (2009-2013).
[64] This represents the final count of invites after the mid-point review adjustment
[65] This is defined as the ratio of number of complete responses observed to the total number of invites.
[66] This is the estimated total number of households within the corresponding block groups based on ACS 5-year estimates (2009-2013).
[67] This represents the final count of invites after the mid-point review adjustment
[68] This is defined as the ratio of number of complete responses observed to the total number of invites.

had no responses. This is expected given the population densities in these towns. It must be noted that, while there are no observations for Canaan town, the weighting analysis does account for households and persons living in the town.

Figure 13: Distribution of Respondents' Home Location at the Town Level



While the survey only includes households that live in the state of Connecticut, it did not restrict trip destinations to be limited to the state. Information about trip destination of CT residents outside the state was also collected. While the majority of survey respondents reported work locations and school locations in the state (Figure 14 and Figure 15), some respondents work or attend school out of state. Given the density and complexity of the greater New England region, it is important that planners in Connecticut and the surrounding states understand travel between and through the states in the region as well as travel within the state.

As shown in Figure 14, the majority of workplaces are concentrated in the southwestern and central part of the state (corresponding with the residential densities in these areas). However, 554 survey respondents (8% of employed persons) reported work locations out of state. The majority of these out-of-state job locations are in the neighboring states of New York, Massachusetts and Rhode Island, but a few people reported job locations as far as Maryland and Ontario, Canada. The vast majority of the out-of-state workplaces, however, are in nearby New York County (Manhattan) and Westchester County.

Similar to workplaces, school locations are primarily concentrated in the state (see Figure 15). Out-of-state school locations make up a smaller portion of responses (2.7% of surveyed adults and children who travel to school). Again, the majority of out-of-state school locations are in neighboring states, but reported school locations are somewhat more dispersed including locations as far away as California and Texas. The majority of out-of-state students are likely college students, who were either home on break or were reported as household members by a parent even though they may have been away at school.

Figure 14: Distribution of Respondents' Work Location at the Town Level

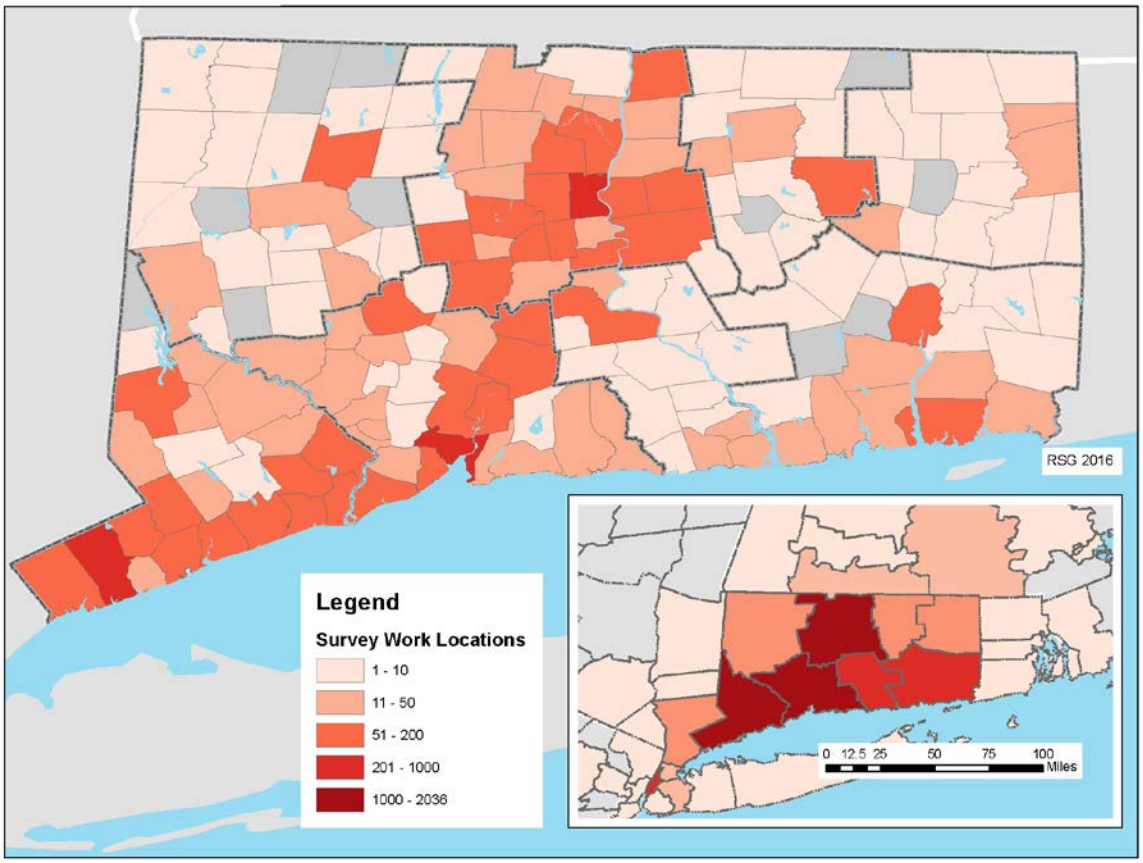
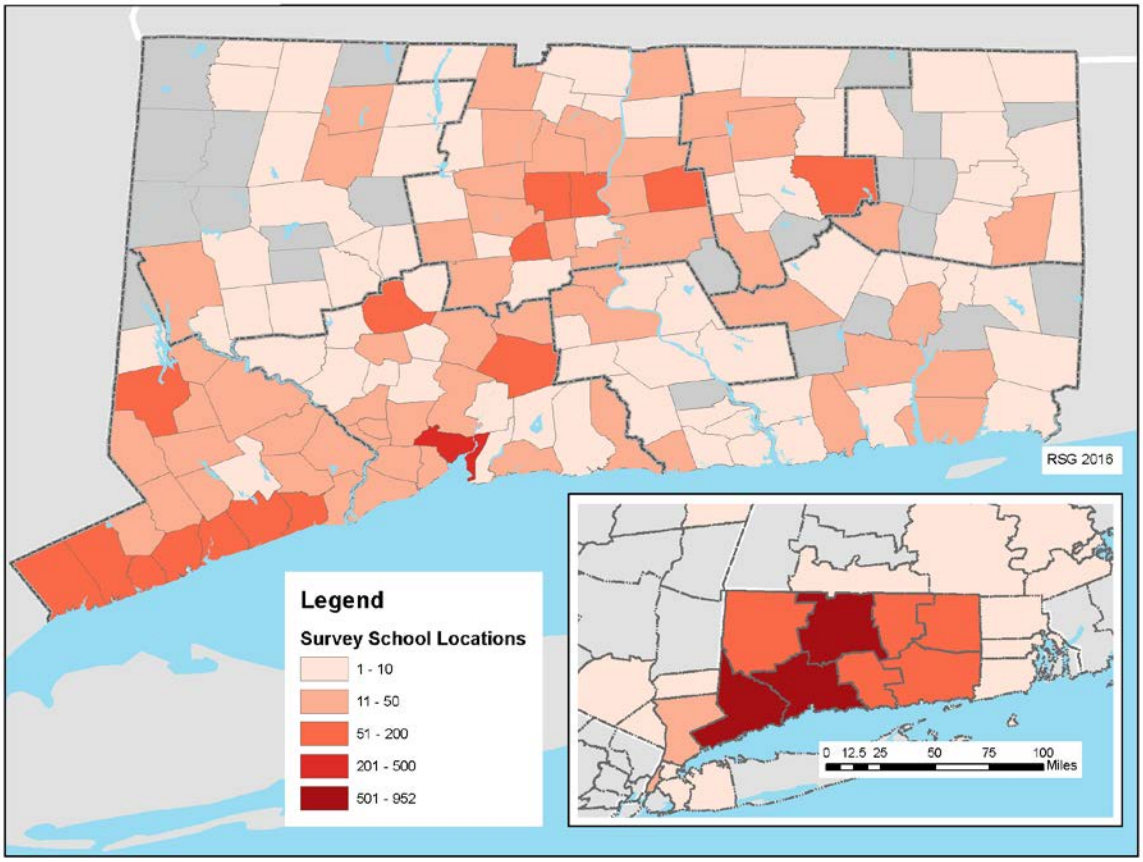


Figure 15: Distribution of Respondents' School Location at the Town Level



3.8.2 Survey Incentives

For the main study, a $10 gift card was offered to all households (except volunteers) as incentive for completing the survey. The $10 amount notice was printed on the invitation materials and included in the email text of outbound reminder emails. Households could choose between virtual or physical Visa gift cards (sent via email or USPS mail). Alternatively, households could opt not to receive any gift card for participation. Table 24 shows the distribution of incentive types chosen by completed households. Most household preferred the physical Visa gift card and received their incentive via mail (approximately 67%).

Table 24: Distribution of Complete Households by Incentive Type

Households by Incentive Type	Complete	Percent
Virtual Visa (by email)	2,432	29%
Physical Visa (by mail)	5,601	67%
Elected no incentive	370	4%
Total	**8,403**	**100%**

3.8.3 Respondent Communication

A summary of the respondent communication using phone and email during the main study are provided below:

- Approximately 36% of all invited households had a landline telephone number associated with the address. After printed invitation materials were sent, households with known telephone numbers received calls encouraging them to participate in the survey. For households that preferred receiving reminders via telephone, ETC conducted reminder calls. Throughout the main study, a total of 24,000 outbound calls were placed by ETC, including recruitment calls and reminder calls.
- Depending on when a household was recruited and when they completed the last part of the survey, they received up to five reminder emails. Approximately 53% of all recruited households received one or more email reminders during the main survey.
- The study team received over 600 emails during the main survey. Inquiries sent via email typically involved questions about gift cards, requests for help with a specific part of the survey (such as how to use the map), requests to volunteer, or general comments or questions about the survey. Occasionally households e-mailed comments about regional transportation issues. Table 25 provides a distribution of topics of the inbound email and redacted content of emails from households with substantive comments regarding regional transportation or the study has been included in Appendix L.
- Sixty households asked to volunteer and were provided with passwords, travel dates and survey instructions. 21 of these volunteer households completed the entire study. Volunteer data has been excluded from the final dataset.

Table 25: Distribution of Inbound Emails by Topic[69]

Inbound Emails by Topic	Count	Percent
General	165	24.6%
Incentive	157	23.4%
Volunteers	137	20.4%
Errors (self-reported, user)	111	16.5%
Survey administration	53	7.9%
Unsubscribe requests	37	5.5%
Privacy concerns	8	1.2%
Study concerns	3	0.4%
Total	**671**	**100.0%**

3.8.4 Survey Results

This section of the report summarizes the survey responses at household-, person-, vehicle-, and trip-levels. The results presented and discussed in this section summarize the dataset after going through the data processing and preparation steps outlined in Section 3.7. Both weighted and unweighted results, only from invited households who have provided complete and valid information, are included. The survey measurements may be compared to demographic profiles of the population to assess representativeness and to identify biases. The ACS 2009–2013 five-year estimates were used for comparison because the sampling plan drew upon population data from this source (which at the time of executing the study was the most current five-year

[69] These only concern emails received by the study team on the study email address received as of August 15, 2016. A small number of emails were also fielded by UConn and also by CTDOT. The topics of these emails are similar to those received by the study email. These are however not included in this table.

estimates available). For the household and person variables, the results in the tables below include both unweighted and weighted results to show how the raw survey data compared to the region's population. This also is done to show that the after applying the weights (described in Section 3.7.5), the biases for important household and person variables have been addressed. Also, below only a small set of household-, person-, and trip-level variables are analyzed. Unweighted and weighted distributions of all variables are provided in Appendix P and Appendix Q respectively.

Comparison of Household Variables

In this subsection, distributions of key household level variables from the survey are compared against the population estimates from the 2009-2013 ACS. Income, household size, and vehicle ownership are three elements that typically play a significant role in household travel behavior analysis. The survey results and ACS estimates for these data items are shown below in Table 26, Table 27, and Table 28. As can be seen from the unweighted distributions, the household characteristics of the survey sample are relatively close to the regional characteristics with some observable differences. The observable differences can be attributed to typical non-response patterns seen in household travel surveys. There are fewer low-income and larger households in the sample as compared to the population. While only a small difference is observed, there are fewer zero vehicle households. These trends are reasonable and consistent with expectations and experiences of the study team. Low-income households are frequently underrepresented in many surveys, and larger households can be difficult to recruit and retain due to the additional burden per respondent for the household overall. The trend in zero vehicle households can partly be attributed to the underrepresentation of the low income demographic segment. Due in part to the sample design and recruitment and retention strategies (described previously), the differences between the unweighted responses and the state population are smaller than they might have been in the pilot study. Also, over the weeks of data collection, the differences improved owing to study administration adjustments.

There were higher proportions of one or two person households in the survey compared to distributions of the same types of households in the population, as shown in Table 26. To the extent possible, the sampling plan targeted more invitations for areas with higher proportions of large households, but after recruitment it was more difficult to retain larger households due to the additional burden per household member. Also, additional incentives that are typically offered to compensate for their higher burden of larger households could not be pursued in the study. However, efforts were made to decrease respondent burden by offering copy trip features to help ease reporting when joint trips are pursued. Targeted recruitment and retention strategies were also pursued as described in Section 3.6 to improve response rates of larger households.

Table 27 provides the distribution of household income. It must be noted that distribution shown is for the imputed income variable. Out of the 8,403 households 1,020 households (12.1%) selected "Prefer not to answer", thus opting not to report their household income category at any level. As noted, low-income households typically participate in surveys at lower than average rates, therefore the sampling plan targeted more invitations in low-income areas. Due to this plan, a larger sample of low-income households was achieved, though it was still slightly lower

than the statewide proportion of low-income households. Overall 15.3% of survey belonged to the incomes lower than $25,000 category, and 37.1% belonged to the incomes above $100,000 category.

The travel behavior of zero-vehicle households is important for policy analysis and modeling. However, due to the relatively small percentage of zero-vehicle households in the state, it was important to target these households to obtain a sufficient sample to analyze the behaviors of car-free households. Additionally, zero-vehicle households are often correlated with low incomes, as a result they are also more difficult to recruit. Table 28 shows the differences between household vehicle counts and the ACS household vehicle estimates. Compared to the low income households, the underrepresentation in zero vehicle households is relatively small.

As can be seen, there are sample biases due to both design choices (e.g. oversampling) and survey variability (e.g. anticipated response rates being different from observed response rates). Therefore, it is important to correct for these sample biases so that the inferences drawn are accurate. Weighting described in Section 3.7.5 rectifies the sample biases. Additionally, applying weights allows the survey results to be expanded to the entire population. As can be seen from the "Weighted Survey" portion of Table 26, Table 27, and Table 28, the distributions perfectly match the population distributions from the ACS and the sample biases have been rectified.

Table 26: Comparison of Household Size Distribution

Household Size Category	ACS Population Estimates		Unweighted Survey		Weighted Survey	
	Count	Percent	Count	Percent	Count	Percent
1 person	374,214	27.6%	2,929	34.9%	374,214	27.6%
2 people	446,464	32.9%	3,361	40.0%	446,464	32.9%
3 people	221,469	16.3%	1,046	12.4%	221,469	16.3%
4 people	196,253	14.5%	742	8.8%	196,253	14.5%
5 or more people	117,449	8.7%	325	3.9%	117,449	8.7%
Total	**1,355,849**	**100.0%**	**8,403**	**100.0%**	**1,355,849**	**100.0%**

Table 27: Comparison of Household Income Distribution

Income Category	ACS Population Estimates		Unweighted Survey		Weighted Survey	
	Count	Percent	Count	Percent	Count	Percent
Under $25,000	243,901	18.0%	1,287	15.3%	243,901	18.0%
$25,000–$49,999	254,982	18.8%	1,359	16.2%	254,982	18.8%
$50,000–$74,999	223,674	16.5%	1,490	17.7%	223,674	16.5%
$75,000–$99,999	178,175	13.1%	1,147	13.6%	178,175	13.1%
$100,000 or more	455,117	33.6%	3,120	37.1%	455,117	33.6%
Total	**1,355,849**	**100.0%**	8,403	100.0%	1,355,849	100.0%

Table 28: Comparison of Household Vehicle Ownership

Vehicle Count Category	ACS Population Estimates		Unweighted Survey		Weighted Survey	
	Count	Percent	Count	Percent	Count	Percent
0 vehicle	121,597	9.0%	639	7.6%	121,597	9.0%
1 vehicle	442,638	32.6%	3,100	36.9%	442,638	32.6%
2 vehicles	518,022	38.2%	3,147	37.5%	518,022	38.2%
3 or more vehicles	273,592	20.2%	1,517	18.1%	273,592	20.2%
Total	**1,355,849**	**100.0%**	**8,403**	**100.0%**	**1,355,849**	**100.0%**

Comparison of Peron Variables

Unweighted person-level results from the survey were also compared to ACS demographic estimates. As seen in Table 29, individuals under age 18 and between ages 18-34 participated at a fairly low rate compared to the ACS percentage of people in these age groups. For individuals under age 18, this is potentially due to increased survey burden for larger households (i.e. households with children). For individuals between ages 18-34, lower survey response rates may be a result of adults in this age group being more transient, less likely to have a permanent address, and possibly away at school, which leads to difficulty in achieving a representative sample of 18-34-year-olds. Residents aged 55-74 actively participated in the survey (35.9% of the total). Higher response rates within the 55-74 age group may be related to the high percentage of retired individuals within this age group who are easier to reach at home and who often have more time and interest in completing surveys.

From the unweighted results for gender as shown in Table 30, it can be seen that there is a slight overrepresentation of females in the survey and a small amount of underrepresentation of males. As shown in unweighted results in Table 31, 51% of respondents over the age of 16 reported being employed, meaning they were full/part-time or self-employed. Nearly 35.4% are unemployed (also includes not in the labor force).

Employed respondents who reported having a regular workplace (or who reported regularly commuting to different jobsites) also provided their “typical” commute mode as shown in the unweighted results of Table 32. The table excludes approximately 10% of employed respondents who work from home or drive for a living and do not typically commute to a fixed workplace. Not surprisingly, the most common way for commuters to get to work is by driving alone. Transit commuters were targeted for “oversampling” as noted in Section 3.1. Collecting data from transit users was deemed important for policy analysis and modeling by the study team, and the sampling plan set a high final target for transit commuters, which is reflected in the results, where 7.8% of survey participants reported transit as their typical commute mode in comparison to the 4.9% ACS estimates of the population.

Similar to the household variables, the sample contains biases as can be observed from the differences in the distributions between unweighted survey results and the ACS estimates. In the weighting procedure that was applied in the study, both household and person variables were controlled. As a result, the weighted distributions rectify the bias and match the population distributions from ACS very closely. It must be noted that unlike the household variables, the

distribution of person variable counts from the weighted survey results still show small differences when compared with ACS estimates. However, when the percentage distributions are compared they mirror ACS estimates very closely. This can be attributed to two reasons. First, the ACS estimates of person variables include those living in group quarters, whereas in the study only household units are considered (i.e. group quarters are excluded). Second, the weighting approach applied attempts to match distributions of household and person control variables of interest. However, in most real world data, there are always discrepancies between household and person control variables. As a result, it is not possible to generate weights that satisfy the household and person control variable distributions perfectly. In the weighting approach used in this study, the weights are generated so that distributions of household control variables are perfectly matched whereas person control variables are matched closely.

Table 29: Comparison of Person Age

Age Category	ACS Population Estimates		Unweighted Survey		Weighted Survey	
	Count	Percent	Count	Percent	Count	Percent
Under 18 years	804,045	22.4%	2,791	16.0%	736,824	22.0%
18–34 years	764,013	21.3%	2,659	15.2%	706,829	21.1%
35–54 years	1,038,256	29.0%	4,301	24.6%	975,646	29.1%
55–74 years	726,385	20.3%	6,274	35.9%	760,673	22.7%
75 or more years	250,862	7.0%	1,456	8.3%	174,233	5.2%
Total	**3,583,561**	**100.0%**	**17,481**	**100.0%**	**3,354,205**	**100.0%**

Table 30: Comparison of Gender

Gender Category	ACS Population Estimates		Unweighted Survey		Weighted Survey	
	Count	Percent	Count	Percent	Count	Percent
Female	1,838,197	51.3%	9,259	53.0%	1,756,865	52.4%
Male	1,745,364	48.7%	8,222	47.0%	1,597,341	47.6%
Total	**3,583,561**	**100.0%**	**17,481**	**100.00%**	**3,354,206**	**100.0%**

Table 31: Comparison of Employment Status of Individuals

Employment Status Category	ACS Population Estimates		Unweighted Survey		Weighted Survey	
	Count	Percent	Count	Percent	Count	Percent
Employed	1,768,014	49.3%	8,883	50.8%	1,643,217	49.0%
Not employed	1,111,136	31.0%	6,194	35.4%	1,064,989	31.8%
Age less than 16	704,411	19.7%	2,404	13.8%	646,000	19.3%
Total	**3,583,561**	**100.0%**	**17,481**	**100.0%**	**3,354,206**	**100.0%**

Table 32: Comparison of Typical Commute Mode

Typical Commute Mode Category	ACS Population Estimates		Unweighted Survey		Weighted Survey	
	Count	Percent	Count	Percent	Count	Percent
Drive Alone/Motorcycle	1,360,635	82.2%	6,404	79.3%	1,178,894	78.0%
Carpool	144,497	8.7%	688	8.5%	154,821	10.2%
Transit	80,574	4.9%	630	7.8%	114,703	7.6%
Walk/Bike	56,948	3.4%	295	3.7%	51,367	3.4%
Taxi/Rideshare	1,381	0.1%	10	0.1%	2,856	0.2%
Other	12,196	0.7%	53	0.7%	9,358	0.6%
Total Commuters[1]	**1,656,231**	**100.0%**	**8,080**	**100.0%**	**1,511,999**	**100.0%**

Analysis of Trip Variables

In this subsection, an overview of the travel characteristics of Connecticut residents is provided based on the linked trip file.

Overall Trends

There were 65,103 valid linked trips were identified in the travel diary portion of the study. After weighting, the total number of valid trips is nearly 11.8 million. The 11.8 million trips are made by approximately 3.4 million Connecticut residents, residing in 1.4 million households. The average trip rate is 3.51 per person and 8.68 per household. Trip rates increase with household income, presence of children and household size. Women have lower work trip rates, but higher total trip rates than men. Persons 35-54 years of age have higher trip rates than other age groups.

Trip Purpose

Table 33 shows weighted and unweighted distributions of trip purpose. In the weighted and unweighted analysis, the two most common trip purposes is the same: go home, followed by trips to work. However, the order of the remaining purposes is different between the weighted and unweighted analysis. The next three common categories were run errands, pick-up/drop-off/accompany, and other shopping (e.g. mall, hardware store) in the unweighted analysis. Whereas in the weighted analysis, the next three common categories were pick-up/drop-off/accompany, run errands, and attending school/class. This appears plausible because from the comparison of the person demographics, there was underrepresentation of younger individuals who are also presumably school-going. After accounting for the underrepresentation of younger individuals and subsequently related trips, school trips jumped to one of the common purposes.

Trip Mode

Table 34 shows summary of travel modes. There are, again, differences between weighted and unweighted results. Corresponding with the trip purpose differences, there is a slightly higher share of school bus trips in the weighted results. In the weighted analysis, driving trips comprise approximately 82.8% of the total trips in the dataset. These trips can be split further in the following manner: 48.2% of trips are made by Single Occupant Vehicle (SOV) mode, with the remaining 34.6% of trips involve some form of carpooling. Walk/bike is the next most popular mode accounting for 9.2% of all trips. Public transit serves 3.2% of all weekday trips in Connecticut.

Figure 16 shows distribution of the trip mode categories for different types of trips. The analysis in the figure is only limited to weighted data. SOV is the most popular mode for all types of trips except for school trips and escorting trips. 76.5% of work trips are made by SOV mode. About 50% of shopping, personal business and home trips are made by SOV mode as well. 28.4% of school trips are made by family carpool and 27.6% are made using school bus.

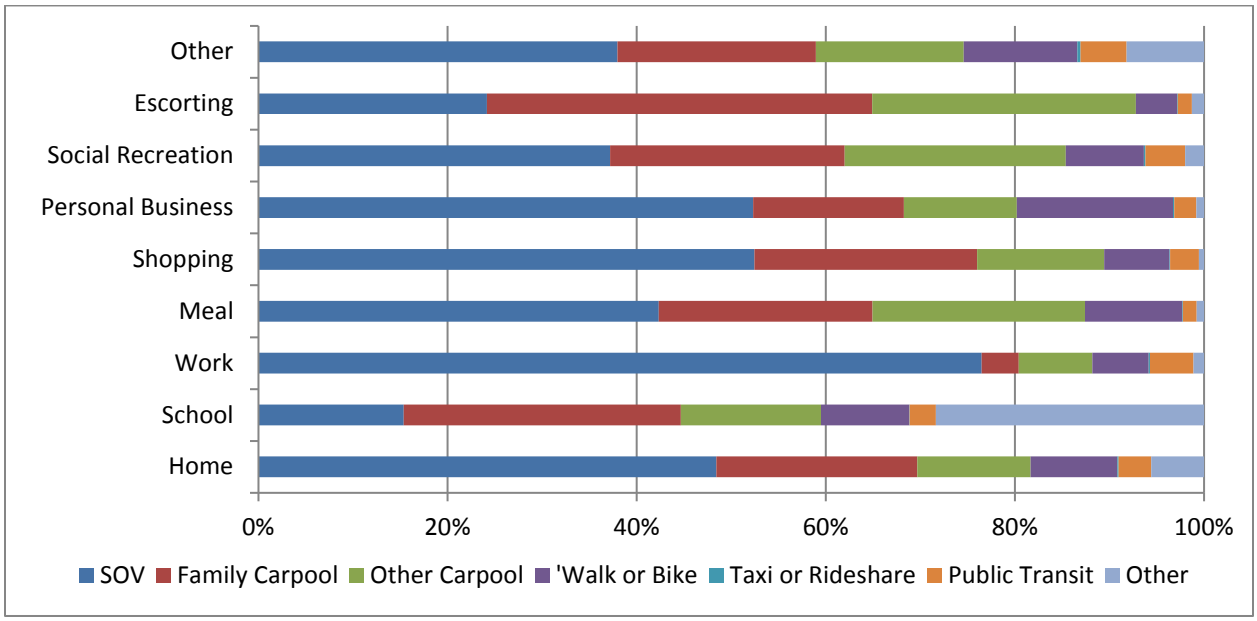
Table 33: Weighted and Unweighted Frequency Distribution of Trip Purpose

Purpose Category	Unweighted Survey		Weighted Survey	
	Count	Percent	Count	Percent
Go home	21,943	33.7%	4,031,531	34.2%
Go to primary workplace	7,843	12.0%	1,385,468	11.8%
Go to other work-related place	2,081	3.2%	362,410	3.1%
Attend school/class	2,503	3.8%	664,923	5.6%
Other school-related activity	996	1.5%	210,097	1.8%
Grocery shopping	3,574	5.5%	601,176	5.1%
Do other shopping (e.g. mall, hardware store)	3,702	5.7%	619,111	5.3%
Run errands (e.g. bank, haircut)	4,647	7.1%	719,348	6.1%
Go to restaurant/bar/get take-out	3,649	5.6%	605,205	5.1%
Drop off/pick up/accompany other person	4,018	6.2%	871,347	7.4%
Exercise (e.g. gym, walk, jog/run)	2,947	4.5%	475,319	4.0%
Family activity (e.g. child's game)	700	1.1%	144,870	1.2%
Medical visit (e.g. doctor, dentist)	1,550	2.4%	251,184	2.1%
Social (e.g. visit friends/relatives)	1,763	2.7%	309,697	2.6%
Leisure/entertainment (e.g. movies)	927	1.4%	154,870	1.3%
Religious/civic/volunteer	1,143	1.8%	170,250	1.4%
Vacation/holiday/traveling (e.g. hotel)	166	0.3%	23,577	0.2%
Change travel mode (e.g. wait for bus, change planes)	66	0.1%	13,794	0.1%
Home other	460	0.7%	89,675	0.8%
Go to airport/switch airport	63	0.1%	11,550	0.1%
Other	362	0.6%	55,583	0.5%
Total	65,103	100.0%	11,770,987	100.0%

Table 34: Weighted and Unweighted Frequency Distribution of Mode Choice

Mode Category	Unweighted Survey		Weighted Survey	
	Count	Percent	Count	Percent
Walk/jog/wheelchair	5,721	8.8%	999,486	8.5%
Bicycle	422	0.6%	80,108	0.7%
Vehicle in household	52,314	80.4%	9,252,911	78.6%
Other vehicle (e.g. rental, friend's car)	2,322	3.6%	494,431	4.2%
Regular taxi or hired car service	69	0.1%	9,498	0.1%
Ride-share taxi/car service (e.g. Uber, Lyft)	35	0.1%	4,244	0.0%
Vanpool	55	0.1%	6,398	0.1%
School bus	1,789	2.7%	471,483	4.0%
Public (city) bus	1,226	1.9%	279,509	2.4%
Train (e.g. Amtrak)	86	0.1%	9,498	0.1%
Shuttle (e.g. a hotel's, an airport's)	100	0.2%	18,404	0.2%
Paratransit	59	0.1%	10,175	0.1%
Commuter Rail (e.g. Metro North)	536	0.8%	69,341	0.6%
Subway	40	0.1%	3,285	0.0%
Intercity bus (e.g. Greyhound)	19	0.0%	3,312	0.0%
Ferry/water taxi/boat	4	0.0%	376	0.0%
Airplane/helicopter	61	0.1%	11,194	0.1%
Other	245	0.4%	47,333	0.4%
Total	**65,103**	**100.0%**	**11,770,987**	**100.0%**

Figure 16: Distribution Trip Mode Category by Purpose



Spatial Distribution of Trips

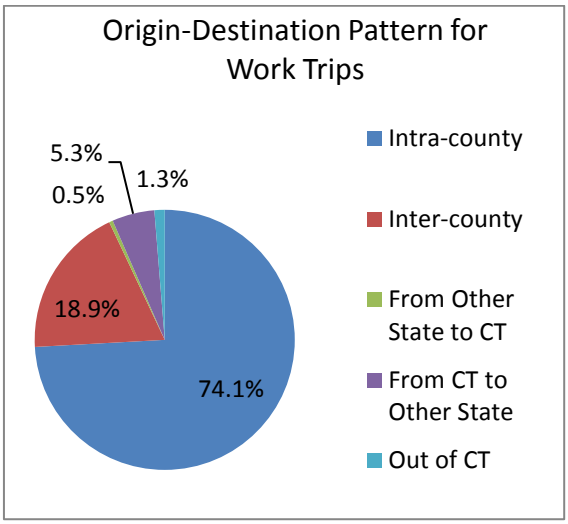
Table 35 shows the average trip distance and duration obtained by trip purpose. The discussion below is limited to weighted data. Trip duration is based on the start time of the first leg and the end time of the last leg of the trip. The distance is obtained by aggregating the distance across all legs of a linked trip obtained using the Google Maps API. There are small differences between the weighted analysis and unweighted analysis. This can be attributed to the fact that average values are being reported. The average reported travel duration for all types of trips is 22.90 minutes. Work trips on average are longer than other trips with an average reported work travel duration of 29.66 minutes versus 21.71 minutes for non-work travel. When the travel durations are explored by employment status, it was found that the average reported travel duration of trips by employed persons is 24.47 minutes whereas average travel duration of trips by unemployed persons is 20.09 minutes. It was also interesting to note that the average travel duration of children (age less than 16 years old) is slightly higher than the average duration for unemployed individuals.

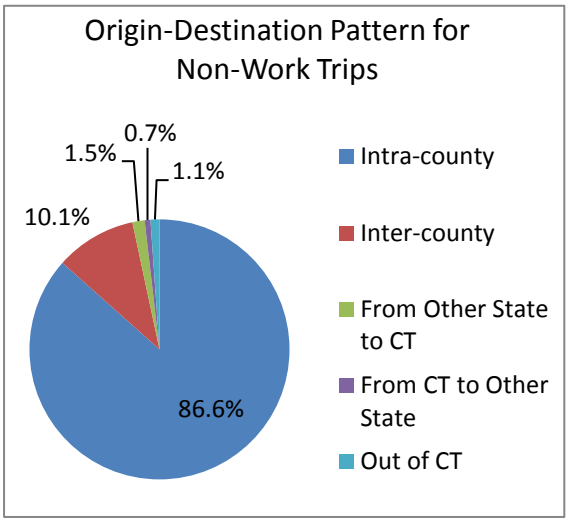
Table 35: Weighted and Unweighted Trip Distance Summary by Purpose

Purpose Category	Unweighted Survey		Weighted Survey	
	Average Duration	Average Distance	Average Duration	Average Distance
Go home	22.83	8.53	22.98	7.80
Go to primary workplace	29.27	12.57	29.66	12.50
Go to other work-related place	30.72	18.44	29.88	18.55
Attend school/class	23.18	5.18	24.99	5.13
Other school-related activity	23.44	6.80	24.25	7.41
Grocery shopping	17.02	5.52	17.98	5.12
Do other shopping (e.g. mall)	16.99	5.94	17.40	5.87
Run errands (e.g. bank, haircut)	16.42	6.73	16.61	6.02
Go to restaurant/bar/get take-out	18.27	7.81	18.10	8.09
Drop off/pick up/accompany other person	19.56	8.51	19.83	6.33
Exercise (e.g. gym, walk, jog/run)	20.79	3.88	21.21	4.05
Family activity (e.g. child's game)	24.04	12.76	22.22	8.97
Medical visit (e.g. doctor, dentist)	25.01	13.79	25.09	11.64
Social (e.g. visit friends/relatives)	25.92	11.67	25.45	9.35
Leisure/entertainment (e.g. movies)	23.58	9.85	21.44	8.44
Religious/civic/volunteer	19.25	5.84	19.5	6.29
Vacation/holiday/traveling (e.g. hotel)	88.71	147.11	85.16	156.24
Change travel mode (e.g. wait for bus, change planes)	33.71	11.48	22.74	5.91
Home other	28.53	13.90	24.70	9.57
Go to airport/switch airport	137.28	649.70	134.17	699.79
Other	32.33	15.22	27.42	11.65
Total	**22.68**	**9.76**	**22.9**	**9.05**

Figure 17 shows distribution of work and non-work trips by starting and ending locations. The analysis here is limited to weighted data and locations are characterized using definitions of counties in the state. A majority of trips made are within Connecticut. 84.7% of trips are intra-county and 11.4% of trips are inter-county of Connecticut. Only about 1% of trips are made from/to a location outside Connecticut. Intra-county trips account for the greatest proportion of both work trips and non-work trips.

Figure 17: Distribution of Trip Ends





Travel Accompaniment

Table 36 shows the 57.6% of all trips were made by individuals alone, while 43.4% of trips were made with others. Majority of work trips (85.1%) and personal business (65.7%) trips are made alone. Escorting trips, school trips and social recreation trips are more likely to be made along with others.

Profile of Transit Travelers

Below socioeconomic and demographic characteristics of transit travelers are provided:

- 89% of the transit trips were made by residents of Hartford, Fairfield, and New Haven counties
- Majority of the trips were made by females (53%) and by those who were in the 45 to 54 age group (20%)
- 48% of the trips were made by those who were employed
- 13% of the trips were made by students who were either enrolled fulltime or part time
- 49% of the trips were made by those with a driver's license
- Most common trip purposes were "Go home" (37%) and "Go to primary workplace" (19%)

Table 36: Weighted and Unweighted Travel Accompaniment Summary by Purpose

Purpose Category	Unweighted Survey			Weighted Survey		
	Trip Count	% Traveling Alone	% Traveling with Others	Trip Count	% Traveling Alone	% Traveling with Others
Go home	21,943	63.8%	36.2%	4,031,531	58.4%	41.6%
Go to primary workplace	7,843	88.2%	11.8%	1,385,468	86.7%	13.3%
Go to other work-related place	2,081	82.8%	17.2%	362,410	79.1%	20.9%
Attend school/class	2,503	24.4%	75.6%	664,923	27.0%	73.0%
Other school-related activity	996	36.3%	63.7%	210,098	34.9%	65.1%
Grocery shopping	3,574	69.3%	30.7%	601,177	62.7%	37.3%
Do other shopping (e.g. mall, hardware store)	3,702	65.3%	34.7%	619,111	56.5%	43.5%
Run errands (e.g. bank, haircut)	4,647	74.8%	25.2%	719,348	71.1%	28.9%
Go to restaurant/bar/get take-out	3,649	53.8%	46.2%	605,205	49.0%	51.0%
Drop off/pick up/accompany other person	4,018	29.0%	71.0%	871,347	26.0%	74.0%
Exercise (e.g. gym, walk, jog/run)	2,947	69.4%	30.6%	475,319	65.9%	34.1%
Family activity (e.g. child's game)	700	33.6%	66.4%	144,870	27.8%	72.2%
Medical visit (e.g. doctor, dentist)	1,550	58.1%	41.9%	251,184	53.6%	46.4%
Social (e.g. visit friends/relatives)	1,763	61.5%	38.5%	309,697	54.0%	46.0%
Leisure/entertainment (e.g. movies)	927	50.3%	49.7%	154,870	43.7%	56.3%
Religious/civic/volunteer	1,143	67.5%	32.5%	170,250	60.7%	39.3%
Vacation/holiday/traveling (e.g. hotel)	166	16.3%	83.7%	23,577	16.1%	83.9%
Change travel mode (e.g. wait for bus, change planes)	66	66.7%	33.3%	13,794	49.4%	50.6%
Home other	460	60.0%	40.0%	89,675	62.8%	37.2%
Go to airport/switch airport	63	49.2%	50.8%	11,550	48.0%	52.0%
Other	362	45.9%	54.1%	55,583	39.2%	60.8%
Total	**65,103**	**63.2%**	**36.8%**	**11,770,987**	**57.6%**	**42.4%**

Profile of Bike and walk Travelers

Below socioeconomic and demographic characteristics of bike and walk travelers from the survey dataset are provided:

- ❑ 81% of the bike/walk trips were made by residents of Hartford, Fairfield, and New Haven counties

- Majority of the trips were made by females (51%) and by those who were in the 25-34 age group (18%)
- 40% of the trips were made by those who were employed
- 14% of the trips were made by students who were either enrolled fulltime or part time
- 67% of the trips were made by those with a driver's license
- Most common trip purpose was "Go home" (34%) and "Exercise" (19%)

3.8.5 Survey Validity Analysis

In order to assess validity of the results from the CSTS, results were compared against two other household travel surveys, namely, the 2009 National Household Travel Survey (NHTS) and the 2010/2011 Regional Household Travel Survey (RHTS). The focus of the comparison with the 2009 NHTS was to assess reasonableness of the survey results by comparing with a nationally representative household travel survey. On the other hand, focus of the comparison with the 2010/2011 RHTS was to conduct a more localized analysis to assess accuracy. While weighted and unweighted results were compiled, only the weighted results that rectify the sample biases are relevant and considered in the comparison analysis. A summary of the findings are included below, detailed tables and discussion of results along each dimension considered are presented in Appendix M.

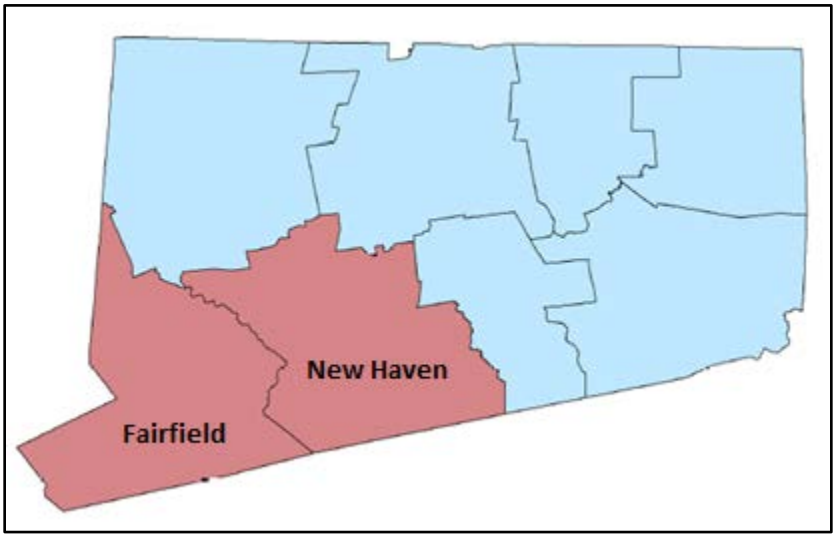
Summary of the Comparison between 2016 CSTS and 2009 NHTS

Similar to the CSTS, the 2009 NHTS data is organized into four files including a household file, a person file, a trip file and a vehicle file. The study team compared results from the CSTS with NHTS along key household-, person- and trip-level attributes. Based on the comparison, it was found that the weighting process rectifies the bias in the survey sample. The weighted household attributes and person attributes from the two surveys are comparable, except for the household income, which does show some differences. The average person and household daily trip rates from the two surveys are also very close. When comparing trip purposes and travel mode distributions, differences were observed. These differences are reasonable because NHTS comprises of travel behaviors of a very diverse population across all of the US whereas CSTS provides information of only CT residents. Overall, the results were found to be plausible and consistent with expectations.

Summary of the Comparison between 2016 CSTS and 2010/2011 RHTS

In an effort to further evaluate the accuracy of the CSTS data, a more localized analysis was conducted by comparing results for only those households residing in the study areas that are common to both the 2016 CSTS and 2010/2011 RHTS. The 2010/2011 RHTS survey was sponsored by New York Metropolitan Transportation Council (NYMTC) and North Jersey Transportation Planning Authority (NJTPA). It was conducted between September 2010 and November 2011, and covered 28 counties across three states: New York, New Jersey, and Connecticut. The two counties in Connecticut were Fairfield County and New Haven County (as highlighted in brown color in Figure 18). In the RHTS, demographic and trip data were collected from 18,800 households, including a GPS sub–sample of 1,880 households. Respondents in the GPS sub-sample provided additional travel data using wearable global positioning system (GPS) devices. The reason for including the GPS subsample was to improve accounting for short, non-motorized trips.

Figure 18: Overlapping Study Areas between 2016 CSTS and 2010/2011 RHTS



The localized comparison also involved a comparison of household-, person- and trip-level attributes of interest. The comparisons of household and person level attributes indicate that the weighting factor rectifies sample bias in the CSTS. The localized comparison of trip attributes indicates that the overall travel patterns from CSTS are similar to that from the 2010/2011 RHTS. This also provides evidence in support of the accuracy of the results. However, after comparing the GPS corrected results from the 2010/2011 RHTS, it was found that the 2016 CSTS may also be suffering from potential under-reporting of short trips. This is not unexpected, and is one of the primary reasons why more and more household travel surveys include a GPS sub-sample to account for potential underreporting of short trips. Therefore, in future editions of the CSTS, GPS sub-sample or smart-phone based survey approaches may need to be considered.

APPENDICES

Appendix A

Pilot Study Questionnaire

Notes for reviewers

This questionnaire lays out the text that survey participants will see, including study information, survey instructions, questions, and answer choices.

A few tips and notes to keep in mind while reviewing this document:

- Each slide represents one page in the survey. Typically there is one question per page, though in some cases a few shorter questions may be asked of respondents on a single page.
- In the comments section below each slide, each question or page name is shown between [ ] square brackets (e.g., [intro]). Reviewers should use these page names to help provide feedback for the survey.
- Text between < > angle brackets indicate information displayed dynamically for each respondent (e.g., a household's travel date or the nickname of the person answering a survey)
- Slides with a gray background (such as this one) include notes, instructions for programming the survey, or longer lists of answer choices, but are not shown to survey respondents. We try to "over provide" this information for reviewer convenience.
    - Other notes for programming the survey such as survey logic (e.g., who should see or skip certain questions) are written in **red**. These notes will not be shown to respondents.
- Other colored text indicates items that are highlighted for respondents – these items will be displayed to respondents in these colors
    - Text written in **orange** indicates words that are highlighted onscreen to emphasize different questions or instructions
    - Text written in **blue** indicates words or phrases that are hyperlinks (pop-up descriptions, survey information pages, contact links, etc.)

Please contact Chloe (chloe.ritter@rsginc.com) with any questions or comments about this survey.

Environment & Administration

Live/Main
Website – https://cttransportationstudy.org
Survey url - https://cttransportationstudy.org/start

Internal Database name
- Pilot db: ctstatewidepilot
- Main db: ctstatewidemain
- These databases are internal to RSG; copies of the final datasets will be exported after the survey

Pilot survey unique ID passwords
- Unique passwords will be created with different prefixes reflecting the sampling segments
    - There are 6 cross-sectional segments for the pilot survey
    - One “extra” segment is created for reviewers (e.g. staff “test” passwords for RSG, UConn, CT DOT, COG representatives, etc.)
- Typical password format = A12345xy
    - Different password prefixes (A, B, C, etc.) help monitor responses from each sample segment

Pilot sample segments
4 pilot sample segments with pre-assigned travel dates in early December:
1. “Hard-to-reach”, gift card incentive
2. “Regular”, gift card incentive
3. “Hard-to-reach”, raffle incentive
4. “Regular”, raffle incentive

2 pilot sample segments with pre-assigned travel dates in early January – they will still recruit in December, then UConn will mail these respondents a paper diary (though they will still have the option to go online or call):
5. “Hard-to-reach” paper sample
6. “Regular” paper sample

Environment & Administration

Contact information:
Website: https://cttransportationstudy.org
Email: help@cttransportationstudy.org
Phone (toll-free): 1-844-872-2562
- Phone hours (when operators are available): Mon-Fri 9AM-8PM ET, Sat 10AM-4PM ET

Study Sponsor information:
Connecticut Department of Transportation: http://www.ct.gov/dot/site/default.asp
Connecticut Transportation Institute at UCONN: https://www.cti.uconn.edu/

Environment & Administration

Survey activity	NON-PAPER and Reviewer Sample (segs 1-4, 99)	PAPER Sample (segs 5-6)
Recruit survey opens	12:01AM 30 November, 2015	
Recruit survey expires	11:59PM December 18, 2015	
Diary travel dates	Tue-Thu, Dec 8-10, 2015	Tue-Thu Jan 12-14, 2016
Diary opens	Dynamic: Diary available the day AFTER assigned travel date	
Diary expires (all pilot TDs expire the same day)	11:59PM Dec 18, 2015	11:59PM Jan 22, 2015

1. Handling Expired/ Closed Surveys:
   a. If respondent has **not started the recruit survey and the recruit and/or diary has expired**, the intro page will detect that the survey has expired, display an expiration message, and hide the 'Next' button.
   b. If respondent is **in-progress in the recruit survey and the diary has expired**, the respondent will see the expired message upon reaching the dashboard.
   c. If respondent has **completed the recruit survey and the diary has expired**, the respondent will see expiration message upon reaching the dashboard.
   d. Travel date re-assignment will not occur for the pilot survey. If a respondent misses the pilot deadline, they can be re-invited to volunteer for the full survey

2. PAPER sample participants may choose to complete the survey online (in which case they are subject to the above travel dates). UConn may set different expectations for the deadline to mail back paper diaries (if that option is chosen) – no impact on primary online survey, as mailed-back paper diaries will be entered into a separate form

Environment & Administration

Metadata

Background data collected (not explicitly asked) in the survey. The majority of this data is not included in the dataset (to protect participant privacy), but it can be used to help troubleshoot if a participant has a problem

- Web Browser / browser version
- Mobile device manufacturer
- Mobile device model
- Is mobile device
- Platform
- IP address
- Screen Resolution
- Browser default language

Response value coding

The majority of categorical question responses are recorded with a numeric code matching the order that they are displayed, unless a different value or display order is specified. The values are not shown to respondents.

Additionally, value codes for a few common responses are used for consistency, including:

96. “Not applicable”
97. “Other"
98. “Don't know"
99. “Prefer not to answer"

Entry page

Entry page will display the entry page image and include the 'Privacy' and 'Contact us' links in the footer.
Entry page image will be 800x600px

Until 12:01 AM November 30, 2015, the password box and 'begin' button will be hidden and a message will be displayed informing people that the study will start soon and inviting them to check back or email with questions. After the survey is open, the message will be removed and the password box and "begin" button will be visible.

Survey Entry Page to be designed after photo or image is selected. Will incorporate the final study logo:

Previous Next

Footer

(content shown at the bottom of every page in the survey)

Privacy Contact us Travel Log Study Sponsor Study FAQs

- Privacy – clicking ‘Privacy’ will open a new tab. See following slides for text.
- Contact us – clicking ‘Contact us’ will open an email to the help address with subject “User:” + <password>
- Travel Log – clicking ‘Travel Log’ will open a new tab displaying the travel log pdf.
- Study Team – clicking ‘Study Team’ will link to the page on the study website, which will list and link to sponsors/ partners including Connecticut DOT (http://www.ct.gov/dot/site/default.asp) and Connecticut Transportation Institute at UCONN (https://www.cti.uconn.edu/)
- Study FAQs – clicking ‘Study FAQs’ will link to the FAQs page on the study website

Copyright in footer:

- © 2015, RSG, Inc. for CTDOT and the Connecticut Transportation Institute at UCONN

Resource Systems Group, Inc. Privacy Statement

SUMMARY

© Resource Systems Group, Inc. 2015 is conducting this study for CTDOT and the Connecticut Transportation Institute at UCONN.

Resource Systems Group (RSG) will never sell, trade or otherwise share any personal information collected in its surveys with any third party.

RSG will never spam you, advertise to you or otherwise contact you outside of this survey without your explicit and direct permission.

Any and all information collected during this survey will only be presented to RSG's clients as part of an aggregate sample. At no time will individual responses be connected to survey takers' personal information.

During the study, we need your name and contact information in order to reach you, but at the conclusion of the study, this information will be destroyed. Your survey responses will never be sold or shared.

PRIVACY STATEMENT IN DEPTH

We are committed to your privacy and we take it very seriously. This statement is intended to provide you with information and understanding about how Resource Systems Group (RSG) collects and safeguards personal information that is used as part of the firm's market research studies.

ABOUT RSG'S MARKET RESEARCH WORK

RSG conducts market research on behalf of both public and private sector clients using Internet, stand-alone computer, and other data collection means. Ultimately, this research allows our clients to provide you with better products and services that you use on a daily basis. These products and services range from large infrastructure, like rail service and highways, to consumer products, like magazines and cell phones.

THE INFORMATION WE COLLECT AND WHAT WE DO WITH IT

Through independently commissioned surveys, RSG may collect information such as your email address, home or work location, and a variety of demographic information (e.g., gender, age, household income) that will allow us to qualify you for a current survey, tailor survey questions, or ensure we have collected a sample that provides representation across a variety of characteristics. Once you are qualified to participate in a survey, you may be asked to provide additional demographic data, express opinions, and register preferences. The information gathered is aggregated, analyzed, and summarized on behalf of RSG's clients. This information is always presented to clients in summary fashion and never contains any personally identifiable information. Participation in these surveys is completely voluntary, and you therefore have a choice whether or not to disclose this information requested.

INFORMATION COLLECTED TO MAKE YOUR SURVEY EXPERIENCE MORE PLEASANT

During the course of our surveys, we may passively collect information about your Internet browser and computer settings that makes your survey experience more pleasant. In addition to making your survey experience better, we use this information, which does not identify individual users, to analyze trends, to administer the site, and to track users' movements around the site. However, unlike many large companies, RSG does not use “cookie” technology for its Web surveys.

CHANGING OR DELETING PERSONAL INFORMATION

If your personal information changes, if you no longer desire to participate in this study, or if you have inquiries or complaints, please contact us via email at help@cttransportationstudy.org.

SECURITY

We follow generally accepted industry standards to protect the personal information submitted to us, both during transmission and once we receive it. No method of transmission over the Internet, or method of electronic storage, is 100% secure, however. Therefore, while we strive to use commercially acceptable means to protect your personal information, we cannot guarantee its absolute security.

If segnum in (3,4,5,6): **PARTICIPATING IN THE PRIZE DRAWING**

As thanks for participation, households that complete this study will automatically be entered into a prize drawing for an Apple iPad Air (valued at approximately $500). No purchase is necessary to enter or win. Odds of winning are estimated to be approximately 1 in 100. Winners will be notified after the study closes. RSG and the Connecticut Transportation Institute at UCONN will pay for shipping and handing, but winners will be responsible for any other applicable fees or taxes.

CHANGES IN THIS PRIVACY STATEMENT

RSG reserves the right to change its privacy policy. These changes will be posted clearly on the firm's websites and other places we deem appropriate so that you are aware of what information we collect, how we use it, and under what circumstances, if any, we disclose it.

LEGAL DISCLAIMER

We reserve the right to disclose your personally identifiable information as required by law, and when we believe that disclosure is necessary to protect our rights and/or to comply with a judicial proceeding, court order, or legal process served on our website.

CONTACT US

If you have any questions or suggestions regarding our privacy policy, please contact us at:
RSG
55 Railroad Row
White River Junction, VT 05001
Email: help@cttransportationstudy.org

Previous Next

Thank you for your participation!

The purpose of the Connecticut Statewide Transportation Study is to understand the travel patterns and travel needs of residents like you. Your participation is very important and your responses *will* have a significant impact on future transportation planning decisions throughout the region.

This study is conducted by © RSG 2015. The study is sponsored by the Connecticut Department of Transportation in partnership with the Connecticut Transportation Institute at UCONN.

Your privacy will be protected. Please click here to view our privacy policy. If you have questions, please email us at help@cttransportationstudy.org or call toll-free: 1-844-872-2562.

Previous Next

Here are some tips to help you complete the Connecticut Statewide Transportation Study.

How do I go from question to question?

Want to go forward? Use the “Next” button at the bottom of the screen to advance.

Want to back up? If you need to back up, click the “Previous” button. Please do not use your web browser’s “Back” button.

What if I need to stop taking the survey before I finish?

No problem. You can always return later and pick up from where you left off. All of your answers will automatically be saved for you.

Now, let’s get started!

Previous Next

Different versions of this graphic will be shown for gift card segment (segnums 1, 2), raffle segment (segnums 3, 4) and paper sample segment (segnums 5, 6)

Remember, your household's travel date is <traveldate>!

STUDY OVERVIEW

This study has 2 parts

	1	2
When do I take the survey?	As soon as convenient	After the day of your assigned travel
Who takes the survey?	You	All adults (an adult should also report trips for children under 18)
How long will the survey take?	About 15 minutes	About 5 minutes per person
What is the survey about?	We ask about your household and household members' typical travel behavior	Return to the website (or call) to report the trips you made on your assigned travel date (use your Travel Log to keep track!)

After completing both parts, your household will receive your choice of a Walmart or Amazon.com gift card

STUDY OVERVIEW

This study has 2 parts

	1	2
When do I take the survey?	As soon as convenient	After the day of your assigned travel
Who takes the survey?	You	All adults (an adult should also report trips for children under 18)
How long will the survey take?	About 15 minutes	About 5 minutes per person
What is the survey about?	We ask about your household and household members' typical travel behavior	Return to the website (or call) to report the trips you made on your assigned travel date (use your Travel Log to keep track!)

After completing both parts, your household will be entered into a drawing for an Apple iPad.

STUDY OVERVIEW

This study has 2 parts

	1	2
When do I take the survey?	As soon as convenient	After the day of your assigned travel
Who takes the survey?	You	All adults (an adult should also report trips for children under 18)
How long will the survey take?	About 15 minutes	About 5 minutes per person
What is the survey about?	We ask about your household and household members' typical travel behavior	Return to the website, call us, or mail back your survey(s) to report the trips you made on your assigned travel date

After completing both parts, your household will be

Previous Next

How many motor vehicles (in working order) are there in your household?

Please include all motor vehicles that your household regularly uses such as cars, trucks, SUVs, vans, RVs, & motorcycles (whether owned, leased, or a company vehicle).

Please do NOT include uninspected/unregistered motor vehicles or vehicles such as ATVs, snowmobiles, trailers, golf carts, or watercraft.

- o 0 (no vehicles)
- o 1
- o 2
- o 3
- o 4
- o 5
- o 6
- o 7
- o 8
- o 9
- o 10 or more vehicles

"household?" pop-up text:

Your household includes yourself, all other adults, all children, and all roommates who normally reside with you in your home. It does not include people who are currently living away at school or college.

Previous Next

This page is shown for each vehicle in the household.
This page is only shown if the household has 1 or more vehicle(s).

Please tell us about the vehicles in your household.

Viewing <x> of <n> vehicle(s)

Year

Make

Model

Does this vehicle have a toll transponder (e.g. EZPass)?

Previous Next

Vehicle details answer options

[vehicle_year]
Lists every year between 1980-2016, in reverse chronology.
"1980 or older" is listed as the last/bottom choice.

[vehicle_make]
Dynamic list of vehicle makes (e.g. Honda, Ford), including "Other" and "Motorcycle"
Dynamically populated based on selected vehicle year

[vehicle_model]
Dynamic list of vehicle models
Dynamically populated based on selected vehicle make

[vehicle_tollpass]
- o No
- o Yes

Previous Next

How many bicycles (in working order) are there in your household?

Please include all types of bicycles (adult and child, road, mountain, commuter, etc.)

- o 0 (no bicycles)
- o 1
- o 2
- o 3
- o 4
- o 5 or more bicycles

"household?" pop-up text:

Your household includes yourself, all other adults, all children, and all roommates who normally reside with you in your home. It does not include people who are currently living away at school or college.

Previous Next

How many total people (including yourself) currently live in your household?

Please include yourself, all other adults, all children, and all roommates who normally reside with you in your home. Please do not include people who are currently living away at school or college.

- o 1 (I am the only person)
- o 2 people
- o 3 people
- o 4 people
- o 5 people
- o 6 people
- o 7 people
- o 8 people
- o 9 people
- o 10 people
- o 11 people
- o 12 or more people

Previous Next

First hh member

Viewing <1> of <n> member(s)

Please tell us about yourself.

Initials or nickname [Text, unique for each person]

Gender [ ]

Age [ ]

[if prefers not to answer exact age] Age range [ ]

[if 16+] **Primary** type of employment [ ]

[*if employed full/part/self)*] Number of jobs [ ]

[*if employed full/part/self; add dynamic text if 2+ jobs*] Hours usually worked per week <at all jobs> [ ]

[if 18+] Currently a student? [ ]

[if <18 or (age 18+ and student)] **Primary** type of school [ ]

[if 18+] Highest level of education completed [ ]

[if 16+] Has a valid driver's license? [ ]

[if 16+] How often traveled on a toll road in the past month? [ ]

[if 16+] How often traveled in HOV lane in the past month? [ ]

[if 16+] How often paid for parking in the past month? [ ]

"HOV" pop-up text:

A HOV or high-occupancy vehicle lane is a restricted traffic lane reserved for the exclusive use of vehicles with a driver and one or more passengers.

Previous Next

Other hh members

Viewing <x> of <n> member(s)

Please tell about the other people in your household.

Initials or nickname	Text, unique for each person
Relationship to you	
Gender	
Age	
[if prefers not to answer exact age] Age range	
[if 16+] **Primary** type of employment	
[*if employed full/part/self)*] Number of jobs	
[*if employed full/part/self ; add dynamic text if 2+ jobs*] Hours usually worked per week <at all jobs>	
[if 18+] Currently a student?	
[if <18 or (age 18+ and student)] **Primary** type of school	
[if 18+] Highest level of education completed	
[if 16+] Has a valid driver's license?	
[if 16+] How often traveled on a toll road in the past month?	
[if 16+] How often traveled in HOV lane in the past month?	
[if 16+] How often paid for parking in the past month?	

Previous Next

member_details answer options

elationship]

- Husband/Wife/Partner
- Son/Daughter/In-law
- Mother/Father/In-law
- Brother/Sister/In-law
- Grandchild
- Other relative
- Roommate/Friend
- Household help
- 97 Other

ge]

- Less than 1
- 1
- 2
- …
- 99 or older
- 999 Prefer not to answer

ge_cat] if no answer to 1-year increments
nly show these ranges to hh members 2-n:

- Under 5 years old
- 5-11 years
- 12-15 years
- 16-17 years

how to all (including hh member 1):

- 18-24 years
- 25-34 years
- 35-44 years
- 45-54 years
- 55-64 years
- 65-74 years
- 75-84 years
- 85 or years older

[gender]

- o Male
- o Female

[employment]

- o Employed (full or part time)
- o Self-employed
- o Unpaid volunteer or intern
- o Homemaker
- o Retired
- o Not currently employed

[jobs_count]

- o 1 job
- o 2 jobs
- o 3 jobs
- o 4 jobs
- o 5 or more jobs

[hours_work]

- o 50 or more hours
- o 40–49 hours
- o 30–39 hours
- o 20–29 hours
- o 10–19 hours
- o Fewer than 10 hours
- o Hours vary greatly from week to week

[student]

- o No, not a student
- o Yes, full-time student
- o Yes, part-time student

School type:

See following slide

[education]

- o Less than high school
- o High school graduate/GED
- o Some college
- o Vocational/technical training
- o Associates degree
- o Bachelor degree
- o Graduate/post-graduate degree

[license]

- o Yes
- o No

[toll_freq]

- o 6-7 days a week
- o 5 days a week
- o 4 days a week
- o 2-3 days a week
- o 1 day a week
- o A few times per month
- o Less than monthly
- o Never

[HOV_freq]

- o 6-7 days a week
- o 5 days a week
- o 4 days a week
- o 2-3 days a week
- o 1 day a week
- o A few times per month
- o Less than monthly
- o Never

[park_pay_freq]

- o 6-7 days a week
- o 5 days a week
- o 4 days a week
- o 2-3 days a week
- o 1 day a week
- o A few times per month
- o Less than monthly
- o Never

School status/ type – Logic and response options

Person age	Student status	School type
Under 5 years old	Question not shown	Show Question: Answer choices are: - Daycare - In-house nanny/babysitter - House of friend/relative/babysitter - Preschool ~~- K-12 public or private school~~ ~~- K-12 home school (full-time or part-time)~~ ~~- College, graduate, or professional school~~ ~~- Vocational/technical school~~ - 97 Other - 95 None
5-11 years	Question not shown	Show Question: Answer choices are: ~~- Daycare~~ ~~- In-house nanny/babysitter~~ ~~- House of friend/relative/babysitter~~ - Preschool - K-12 public or private school - K-12 home school (full-time or part-time) ~~- College, graduate, or professional school~~ ~~- Vocational/technical school~~ - Other - None
12-15 years	Question not shown	Show Question: Answer choices are: ~~- Daycare~~ ~~- In-house nanny/babysitter~~ ~~- House of friend/relative/babysitter~~ ~~- Preschool~~ - K-12 public or private school - K-12 home school (full-time or part-time) ~~- College, graduate, or professional school~~ ~~- Vocational/technical school~~ - Other - None

Person age	Student status	School type
16-17 years	Question not shown	Show Question: Answer choices are: ~~- Daycare~~ ~~- In-house nanny/babysitter~~ ~~- House of friend/relative/babysitter~~ ~~- Preschool~~ - K-12 public or private school - K-12 home school (full-time or part-time) - College, graduate, or professional school - Vocational/technical school - Other - None
18-24 years	Show Question	Show Question IF answer is YES am a full or part-time student: Answer choices are: ~~- Daycare~~ ~~- In-house nanny/babysitter~~ ~~- House of friend/relative/babysitter~~ ~~- Preschool~~ - K-12 public or private school - K-12 home school (full-time or part-time) - College, graduate, or professional school - Vocational/technical school - Other ~~- None~~
25+	Show Question	Show Question: IF answer is YES am a full or part-time student: Answer choices are: ~~- Daycare~~ ~~- In-house nanny/babysitter~~ ~~- House of friend/relative/babysitter~~ ~~- Preschool~~ ~~- K-12 public or private school~~ ~~- K-12 home school (full-time or part-time)~~ - College, graduate, or professional school - Vocational/technical school - Other ~~- None~~

How often did <you / your household> use public transit in the past month?

Public transit may include any public bus, commuter rail, paratransit, or subway routes in Connecticut and the surrounding region.

If hhsize>1: Please answer for each person in the household.

Show for each HH member

<HH member 1 Name>:

How often used transit in the past month?	Select… ▼
[if uses transit 1+ days/week] How typically paid for transit fare?	Select… ▼
[if pays with pass] What type of transit pass was used most often?	Select… ▼
[if fare is not free] Eligible for discounted transit fares?	Select… ▼

Repeat sequence for each person on the same page

Previous Next

Transit details answer options

[transit_freq]

- o 6-7 days a week
- o 5 days a week
- o 4 days a week
- o 2-3 days a week
- o 1 day a week
- o A few times per month
- o Less than monthly
- o Never

[transit_fare]

- o Free (no cost)
- o Cash or ticket(s)
- o Stored value card
- o Used pass (any type)
- o 97 Other
- o 98 Don't know

[transit_pass]

- o 1 day pass(es)
- o 3 day pass(es)
- o 5 day pass(es)
- o 7 day pass
- o Monthly pass
- o 97 Other transit pass
- o 98 Don't know

[transit_discount]

- o No, pays regular fare
- o Yes, youth/student discount
- o Yes, senior/disability discount
- o Yes, other type of discount
- o 98 Don't know

Page/question only shown if HH member has student status.
Skip individuals if student status = "none" (adults) or if school type = in-home babysitter, homeschool, or none

Travel to/from school impacts many families' transportation decisions.

If HH size = 1: **How often do you travel to school to attend class or other events such as study group?**

If HH size = 2+ **How often does each person travel to their own daycare/school/college to attend class or other events such as study group?**

If HH size = 2+ Please answer for each person in your household who attends school.

<HH student 1 Name>:

[if student (not homeschool)] How often travels to school? Select… ▼

[if travels to school (not online only)] How usually travels to school? Select… ▼

Repeat sequence for each student in the household who is not homeschooled

Previous Next

School details answer options

Numbers in red indicate db values when different from display order – do not show numbers on screen

[school_freq]

- o 6-7 days a week
- o 5 days a week
- o 4 days a week
- o 2-3 days a week
- o 1 day a week
- o A few times per month
- o Less than monthly
- o <if age 5+> Never, only takes online classes

[school_mode]

- o 1 Walk/jog/wheelchair
- o 2 Bicycle
- o 3 Drive alone <show if person has a drivers license>
- o 4 Carpool with ONLY family/ household member(s)
- o 5 Carpool with at least one person NOT in household
- o 6 Motorcycle/moped/scooter
- o 7 Vanpool
- o 8 School bus <show if person is under age 25>
- o 9 Bus (public transit)
- o 10 Train (any rail, subway, monorail)
- o 11 Private shuttle bus
- o 12 Paratransit
- o 13 Taxi or other hired car service (e.g. Lyft, Uber)
- o 97 Other

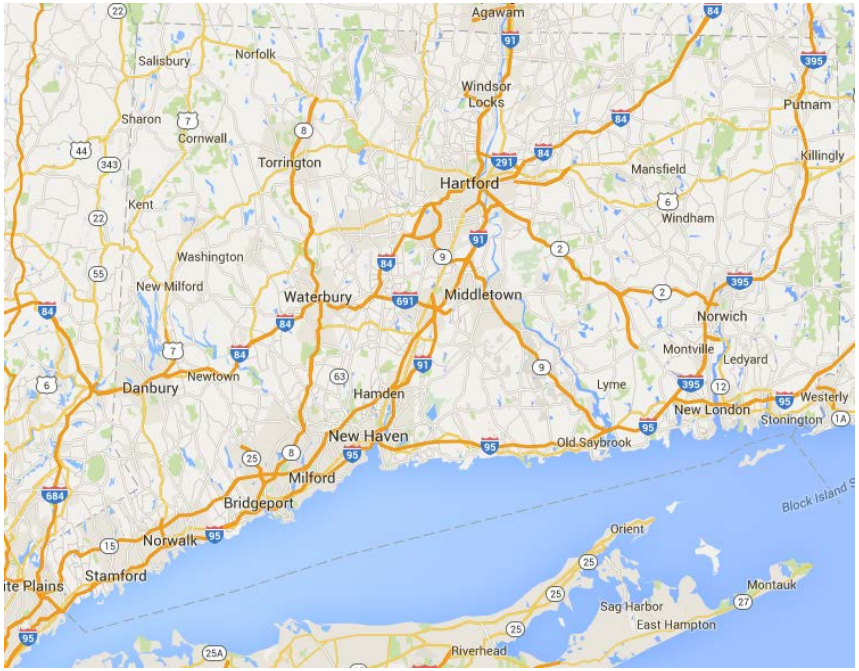
Use same mode list for school/work commute (same values/options, but may be displayed in a different order or different display logic)

Mode list for travel diary is slightly different because more details are collected (e.g. vehicle used, driver/passenger, etc.)

Cycle this page/question for each HH member who travels to school. People who only take online classes, are home-schooled, or are not students do not see this question.

Please share where <name>'s usual daycare/school/college is located.
If attends school/classes/daycare in more than one place, please locate the primary school location (where goes most often).

Locate by address | Locate on the map



<if locate by address>

To search by address or business name:

1. Enter a street address, nearest intersection, or business name in the box below
2. Click on the blue search button to the right of the box
3. Click on the correct address from the list of search results that appear
4. Click "Next" to continue

- Example: 100 Main Street, New Milford, CT
- Example: W Cedar St and Richards Ave, Norwalk, CT
- Example: Connecticut Science Center, Hartford, CT

<if locate by map>

Map instructions

1. Click on the map to zoom in.
2. When zoomed in close enough, clicking the map will place a 'marker.'
3. Continue clicking until you have located the correct place.

Previous **Next**

Page/question only shown if HH member has employment status (= full-time/part-time/self/volunteer).

For many people, going to/from their job is a major part of their travel each week.
Next, we will ask a few questions in order to better understand commuting across the region.

If HH size = 1: **Please describe your job.**

If HH size = 2+ **Please describe each person's job.**

If HH size = 2+ Please answer for each person who is employed or is a volunteer. For anyone with more than one job, please answer for the **primary** job (where works most hours per week).

<HH worker/volunteer 1 Name>:

[employed full/part/self or volunteer] Primary type of workplace? Select… ▼

[employed full/part/self or volunteer] Primary occupation? Select… ▼

[employed full/part/self or volunteer] Primary employment industry? Select… ▼

Repeat sequence for each employed/volunteer member in the household

"Occupation" pop-up text:

Occupation describes the type of work performed by a person for his or her job (e.g., primary activities or duties)

"Industry" pop-up text:

Industry describes what kind of business is conducted by a person's employer or company

Previous Next

Job_type answer options

[workplace]

- o Usually the same location (outside home)
- o Workplace regularly varies (different offices or jobsites)
- o At home (telecommute or self-employed)
- o Drives for a living (e.g. bus driver, salesman)

[occupation]

- o Computer, Engineering, & Science
- o Construction & Extraction
- o Education, Legal, Community Service, Arts, & Media
- o Farming, Fishing, & Forestry
- o Healthcare Practitioners & Technical
- o Installation, Maintenance, & Repair
- o Management, Business, & Financial
- o Military
- o Office & Administrative Support
- o Production
- o Sales/ Sales-related
- o Service
- o Transportation & Material Moving
- o 97 Other
- o 98 Don't Know

[industry]

- o Accommodation & Food Services
- o Administrative, Support, & Waste Management Services
- o Agriculture, Forestry, Fishing, & Hunting
- o Arts, Entertainment, & Recreation
- o Construction
- o Education Services
- o Finance & Insurance
- o Health Care & Social Assistance
- o Information
- o Management of Companies & Enterprises
- o Manufacturing
- o Military
- o Mining, Quarrying, & Oil/Gas Extraction
- o Other Services
- o Professional, Scientific, & Technical Services
- o Public Administration
- o Real Estate, Rental, & Leasing
- o Retail Trade
- o Transportation & Warehousing
- o Utilities
- o Wholesale Trade
- o 97 Other
- o 98 Don't Know

Page/question only shown if HH member has employment status (= full-time/part-time/self/volunteer).

If HH size = 1: **In a typical week, how do you commute to work?**

If HH size = 2+: **In a typical week, how does each person commute to work?**

If HH size = 2+: Please answer for each person who is employed or is a volunteer. For anyone who with more than one job or workplace, please describe travel to the **primary** job or workplace (i.e. place where works most hours per week).

<HH worker/volunteer Name>:

[workplace type = fixed or varied (not telecommute / driver] How often (in total) commutes to work each week? Select… ▼

[workplace type = fixed or varied (not telecommute or driver] How usually commutes to primary workplace? Select… ▼

[employed full/part/self or volunteer] Amount of flexibility in primary work schedule? Select… ▼

Repeat sequence for each employed/volunteer member in the household

Previous Next

Work_details answer options

Numbers in red indicate db values when different from display order – do not show numbers on screen

[days_work]

- o 6-7 days a week
- o 5 days a week
- o 4 days a week
- o 3 days a week
- o 2 days a week
- o 1 day a week
- o Less than weekly

[work_flex]

- o No flexibility (always have to arrive at a fixed time)
- o Some flexibility (e.g. can start 15-30 minutes earlier/later)
- o Complete flexibility (e.g. can set own schedule)

[work_mode]

- o 1 Walk/jog/wheelchair
- o 2 Bicycle
- o 3 Drive alone <show if person has a drivers license>
- o 4 Carpool with only family/ household member(s)
- o 5 Carpool with at least one person not in household
- o 6 Motorcycle/moped/scooter
- o 7 Vanpool
- ~~o 8 School bus~~ <don't show school bus for work_mode>
- o 9 Bus (public transit)
- o 10 Train (any rail, subway, monorail)
- o 11 Private shuttle bus
- o 12 Paratransit
- o 13 Taxi or other hired car service (e.g. Lyft, Uber)
- o 97 Other

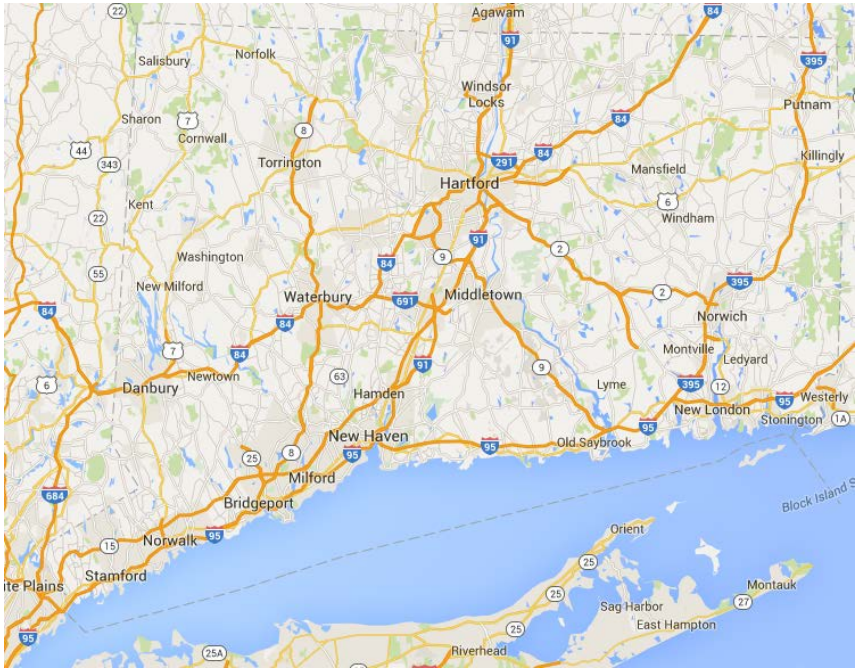
Use same mode list for school/work commute (same values/options, but may be displayed in a different order)

Mode list for travel diary is slightly different because more details are collected (e.g. vehicle used, driver/passenger, etc.)

*Cycle this page/question for each HH member who commutes to a **fixed** workplace. People who work at home, drive for a living, or have varied workplaces skip this question.*

Please share where <name>'s primary workplace is located.

Locate by address | Locate on the map



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- Example: 100 Main Street, New Milford, CT
- Example: W Cedar St and Richards Ave, Norwalk, CT
- Example: Connecticut Science Center, Hartford, CT

<if locate by map>

Map instructions

1. Click on the map to zoom in.
2. When zoomed in close enough, clicking the map will place a 'marker.'
3. Continue clicking until you have located the correct place.

Previous | Next

For the next few questions, please think about your current residence (the place where you received the invitation for this study). If you received the study invitation in a PO Box, please answer for your primary residence closest to the Post Office where you collect your mail.

Do you rent or own your current residence?

- o Own/buying (paying mortgage)
- o Rent
- o Provided by job or military
- o 97 Other
- o 99 Prefer not to answer

What type of place is your current residence?

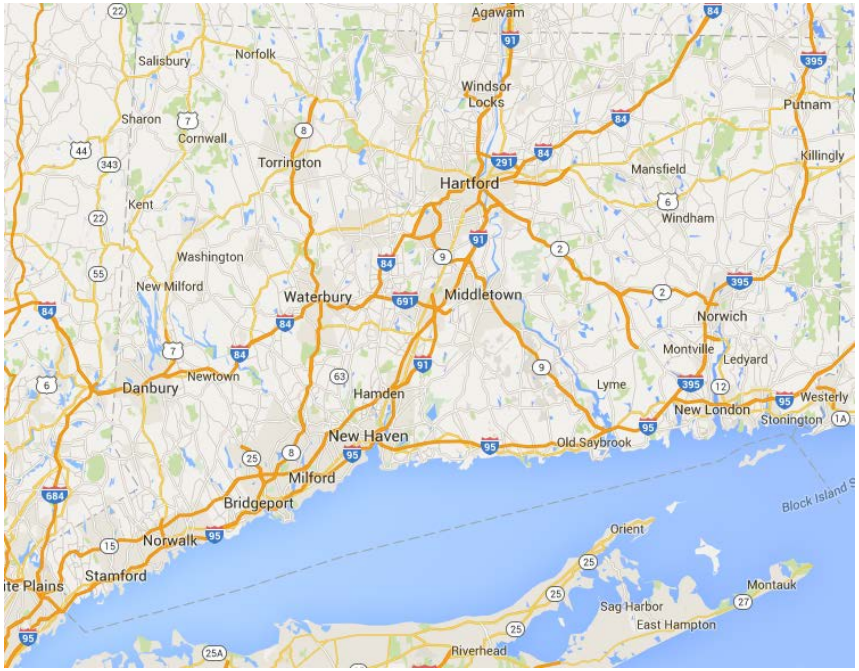
- o Single-family house (detached house)
- o Duplex or Townhouse (attached house)
- o Multi-family house (3 or fewer apartments)
- o Building with 3 or fewer apartments/condos
- o Building with 4 or more apartments/condos
- o Mobile home/trailer
- o Dorm or institutional housing
- o 97 Other (including boat, RV, van, etc.)

Previous Next

Please share where your current residence is located.

This information is *only* used to make sure a representative sample participates in the study. Please click here to view our privacy policy.

Locate by address | Locate on the map



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<if locate by map>

Map instructions

1. Click on the map to zoom in.
2. When zoomed in close enough, clicking the map will place a 'marker.'
3. Continue clicking until you have located the correct place.

Previous | Next

In 2014, what was your household's total annual income (from all sources) before taxes or other deductions from pay?

This information is only used to make sure a representative sample participates in this study. Please click here to view our privacy policy.

- o Less than $10,000
- o $10,000–$14,999
- o $15,000–$24,999
- o $25,000–$34,999
- o $35,000–$49,999
- o $50,000–$59,999
- o $60,000–$74,999
- o $75,000–$99,999
- o $100,000–$149,999
- o $150,000–$199,999
- o $200,000–$249,999
- o $250,000 or more
- o 99 Prefer not to answer

Previous Next

If prefers not to answer detailed income.

Would you be willing to tell us more generally about your household's 2014 income?

We ask to help understand how closely the people who participate in this study represent the region's true population. It also helps understand how residents are impacted by different transportation projects, policies, and costs.

Your answers will be kept strictly anonymous and will be grouped with answers from all other participating households. Please see our privacy policy for more information.

- o Under $25,000
- o $25,000–$49,999
- o $50,000–$74,999
- o $75,000–$99,999
- o $100,000 or more
- o 99 Prefer not to answer

Previous Next

Show page to everyone. Don't show any incentive info to volunteers (seg 99), and only show relevant incentive info to the specified sample segments.

Show this incentive type QUESTION if HH is in gift card incentive segments (segnums 1, 2)

If hhsize <5 AND hhincome >= $25,000 or no answer: After your household completes Part #2 of the study, we will send a $10 gift card as thanks.

If hhsize >=5 OR hhincome < $25,000: Congratulations! Approximately 1 in 10 participating households are being chosen to receive a $20 gift card. Your household has been selected! This means you will receive a $20 gift card after completing the survey instead of a $10 gift card.

What type of gift card would your household like to receive after participating in Part #2 of the study?

- o Amazon.com e-gift card
- o Walmart e-gift card
- o Walmart mailed gift card
- o None – prefer not to get a gift card

Show this raffle incentive SENTENCE if HH is in raffle or paper segments (segnums 3, 4, 5, 6)

After your household completes Part #2 of the study, you will automatically be entered into a drawing for an Apple iPad (valued at approximately $500). Participating households are expected to have a 1 in 100 chance of winning. Winners will be notified by email or telephone.

Email is required if chose e-gift card. Email is optional if chose mailed or no gift card, if in raffle segment (segnums 3, 4), or if paper sample/volunteer/reviewer (segnum 5, 6, 99). Show relevant incentive text

Please provide an email address where we can <send your gift card and / notify you about the prize drawing and> send you reminders about the study.

You will only be contacted for this study and your information will never be shared or linked to your responses. Please see our privacy policy for more information.

Email text box entry: 200 characters; validate format

Previous Next

Show to all; only require one phone number if no email was provided

We offer user support and assistance during Part #2 of the study.

Please provide one phone number that, if needed, we could use to reach you during Part #2 of the study.

As part of our privacy policy, you will only be contacted for this study and your information will NEVER be shared.

Landline:

Cell:

Previous Next

Only show if provided both an email address and a phone number

How would you prefer to be contacted for the remainder of this study?

We will send you reminders to keep track of your travel on **<traveldate>**. You will be contacted for this study only and your personal information will NEVER be shared. Please click here to view our privacy policy.

Please select all that apply.

- ❑ By email
- ❑ By telephone

Previous Next

Would your household be interested in participating in future transportation studies in your region?

The study team may conduct additional surveys or studies about other transportation or regional planning issues in the future. If you are interested, you may be contacted with more information. This would not affect your participation in this study.

o Yes
o No

Study team pop-up text:

This study is sponsored by the Connecticut Department of Transportation in partnership with the Connecticut Transportation Institute at UCONN. .

Previous Next

Next steps and thank you again for your participation!

We will remind you: We will <mail you a travel diary form with questions / remind you to tell us> about the trips each person makes on **<traveldate>**.

Keep track of your trips: Please remember to ask EACH adult in your household to keep track of all the trips they make on **<traveldate>**. In addition, adults should log trips for children. Please use the <Travel Log / travel diary form> to keep track of your trip details.

Segnums 1-4, 99: **Return to the website to report your trips:** Starting on <traveldate + 1>, each adult in your household should return to this website to record the trips made on **<traveldate>**. Your household's survey will be available for one week after your travel date.

Segnums 1-4, 99: **OR call in to report your trips:** You may also call toll-free 1-844-872-2562 to complete the survey over the telephone.

Segnums 5-6: **Return to this website, call, or mail your travel diary forms back to us:** Starting on <traveldate + 1>, please report your household's travel back to us. You can return to this website, call toll-free 1-844-872-2562, or mail your completed travel diary forms back using the pre-paid return envelope.

And you're done! *[Do not show this sentence to volunteers/reviewers (segnum = 99)]* Once each person in your household has answered their survey, we will <send your gift card within 10 business days / automatically enter you in the prize drawing for an Apple iPad>.

Members	Status
Adult 1	Available after travel day
Adult 2	Let's get started!
Teen	In progress
Child	Completed

LOGIC:

1. *ALL HH members are listed and required (including children under age 5)*
2. *Surveys become available at midnight AFTER the travel date is over. E.g. If travel date = January 1st then survey is available at 12:01AM on January 2nd*
3. *Surveys expire ("Closed") 8 full days AFTER travel date. E.g. if travel date = January 1st then survey expires at 11:59PM on January 9th*

If Hhsize >= 2: Show to everyone who is age 18 or older

(Assume proxy=3 for children, assume proxy=1 where hhsize=1)

To better understand how households are completing the study, we would like to know if someone other than <NAME> is filling out this portion of the survey.

Are you <NAME> or are you filling out this survey on <NAME's> behalf?

- o I am <Name> and I am answering this survey
- o I am answering this survey for <Name> and <Name> *IS* here with me to provide answers
- o I am answering this survey for <Name> and <Name> is *NOT* here with me to provide answers

Previous Next

Where was <Name> at 3AM on <traveldate> (when the travel day BEGAN)?

If traveling between places (in a car, on a bus/plane, etc.), please provide the last place stopped BEFORE 3AM (even if it was a short stop such as to get gas).

- o Home
- o *<Show if reported fixed workplace>* Work
- o Another place, please specify: e.g. at friend's house

Where was <Name> at 3AM on <traveldate + 1> (when the travel day ENDED)?

If traveling between places (in a car, on a bus/plane, etc.), please answer with the first place stopped AFTER 3AM (even if it was a short stop such as to get gas).

- o Home
- o *<Show if reported fixed workplace >* Work
- o Another place, please specify: e.g. at friend's house

Previous Next

This question is asked if the respondent started and ended their assigned travel date at the same location (e.g. home). This is to confirm they traveled.

<Name>'s day began at <startloc> and ended at <endloc>.

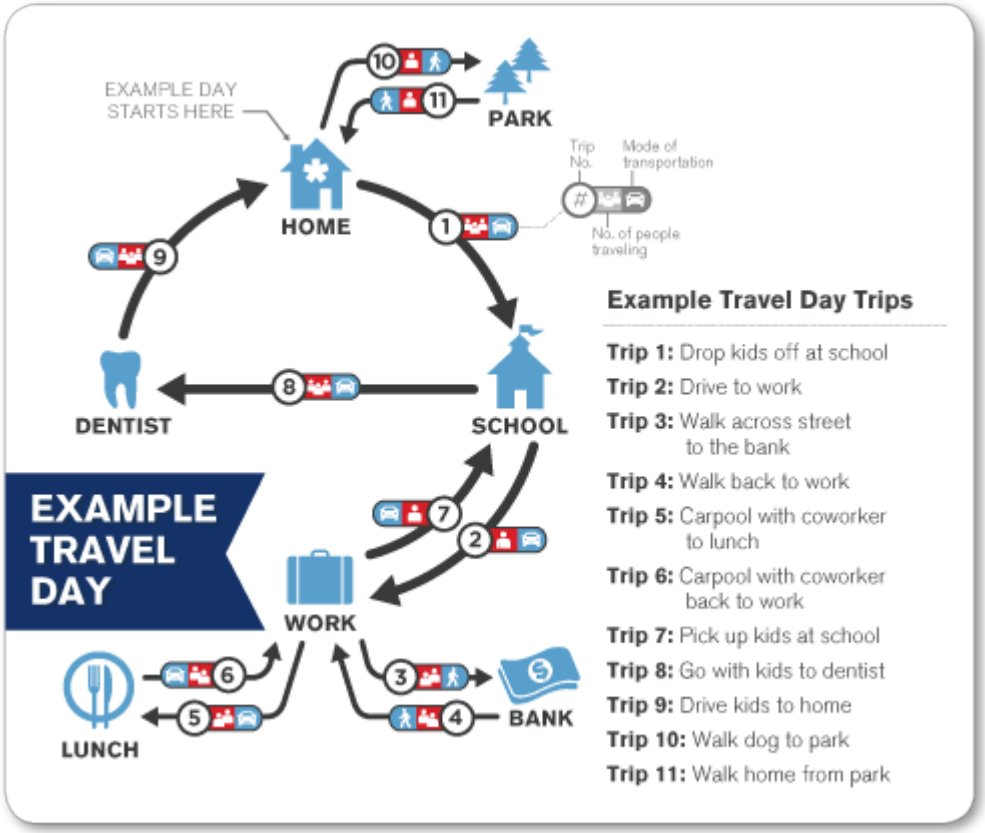
Did <Name> go anywhere on <traveldate>, even if it was just a short trip such as a walk or bike ride?

o Yes
o No

What is a trip?
A trip is anytime you travel from one location and stop at a new location. Even if you briefly stop for gas, at an ATM, or to drop a child off at school, travel to each stop counts as 1 trip.

What are some example trips?
- Drive to work
- Drop your child off at school
- Walk the dog
- Walk your child to a neighbor's
- Bike to the grocery store
- Ride the bus to the bank
- Carpool to a meeting in New York

What If I go out, but return to the same place without stopping (e.g. a jog, bike ride, or leisurely drive)?
If you go out and return to the same place without stopping, this counts as **2 trips**: from the starting location to the furthest point you reach, and the trip back to your starting point. Please report the furthest point you reach as your "destination".



Previous Next

Only show this screen if the respondent started and ended their assigned travel date in different places or if copied 1+ trips from previous hh member (b/c we know they traveled over the course of the day)

Thank you. Now, we will ask to provide details about the trips <Name> made on <traveldate>.

Please review the definition of a "trip" below, then click "Next" to continue.

What is a trip?
A trip is anytime you travel from one location and stop at a new location. Even if you briefly stop for gas, at an ATM, or to drop a child off at school, travel to each stop counts as 1 trip.

What are some example trips?
- Drive to work
- Drop your child off at school
- Walk the dog
- Walk your child to a neighbor's
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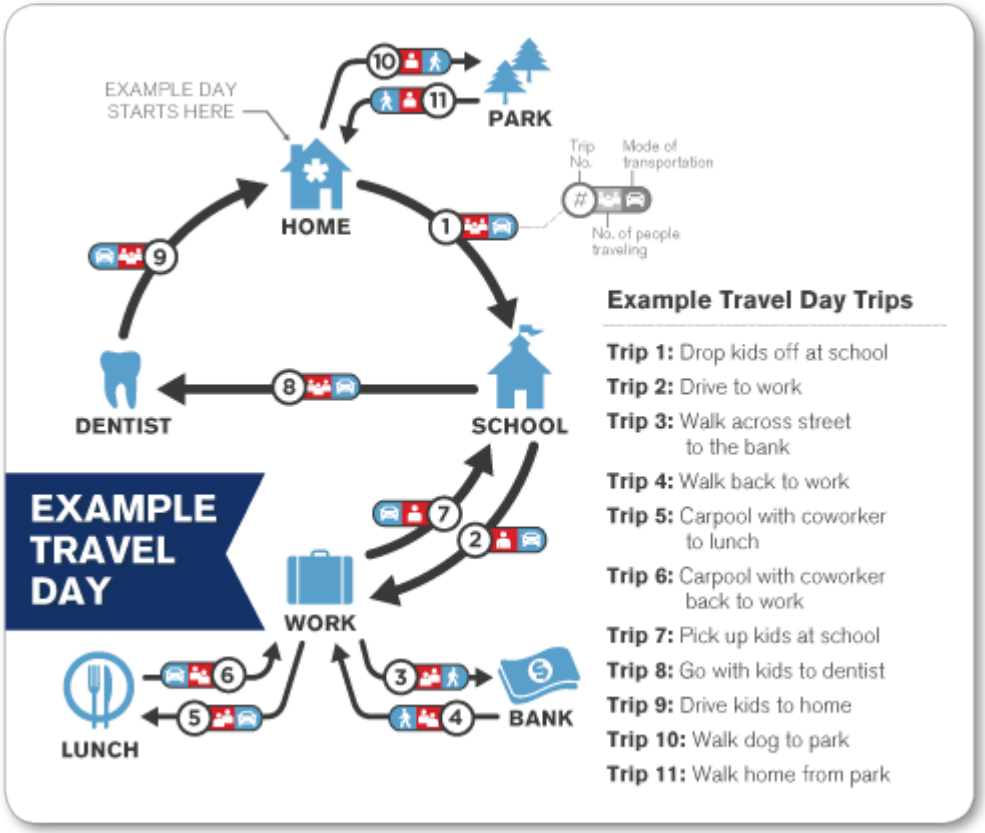


Previous Next

If the respondent said they made NO trips on travel day

What is the reason <Name> did not make any trips on <traveldate>?

Please select all that apply.

- ❑ *<if employed>* Was not scheduled to work or took a vacation/personal day
- ❑ *<if employed>* Worked from home for pay (e.g. telecommuted or home-based job)
- ❑ Worked around the home (not for pay)
- ❑ The kids were on school vacation/break
- ❑ Did not have available transportation (no car, no way to get to bus, etc.)
- ❑ Was sick or caring another person (child or family member) at home
- ❑ Was waiting for a delivery or visitor (e.g. cable installation)
- ❑ Other

Previous Next

Prepopulate text boxes and geocoder with previously typed locations and locations geocoded in recruit survey: Home, Work, School – List/prepopulate ALL locations geocoded in recruit with person nickname attached to each person-place (e.g. "Person 1's work", "Person 2's work")

Please list, in order, all the places <Name> went between 3AM on <traveldate> and 3AM on <traveldate +1>.

Please give a short description for each unique/different place. If you drive, get a ride, or ride a bike to/from a transit stop, include the transit stop as a place below. The places where **<Name>** started and ended the day are already filled in. When all places are listed, click "Next" to continue.

Click and drag a place to re-order the list. Click the icon next to a place to add a new one below. Click the icon to remove a place.

<Name> started the day at:	<loc_start>
Then went to:	<place 1>
Then went to:	<place 2>
Then went to:	Enter a name for this place
<Name> ended the day at:	<loc_end>

Example Travel Day	
Started day at:	Home
Then went to:	Kids' school
Then went to:	Work
Then went to:	Lunch
Then went to:	Work
Then went to:	Off-site meeting
Then went to:	Work
Then went to:	Kids' school
Then went to:	Dentist
Then went to:	Home
Then went to:	Park
Ended day at:	Home

Previous Next

Listed to the right are all the places <Name> reported going on <traveldate>.

Are there any places to add for <Name>'s travel on <traveldate> that aren't already listed?

Please select all that apply.

<Name>'s Travel Day	
Started day at:	<3AM start loc>
Then went to:	<first location>
Then went to:	<second location>
Then went to:	Etc.
Ended day at:	<3AM end loc>

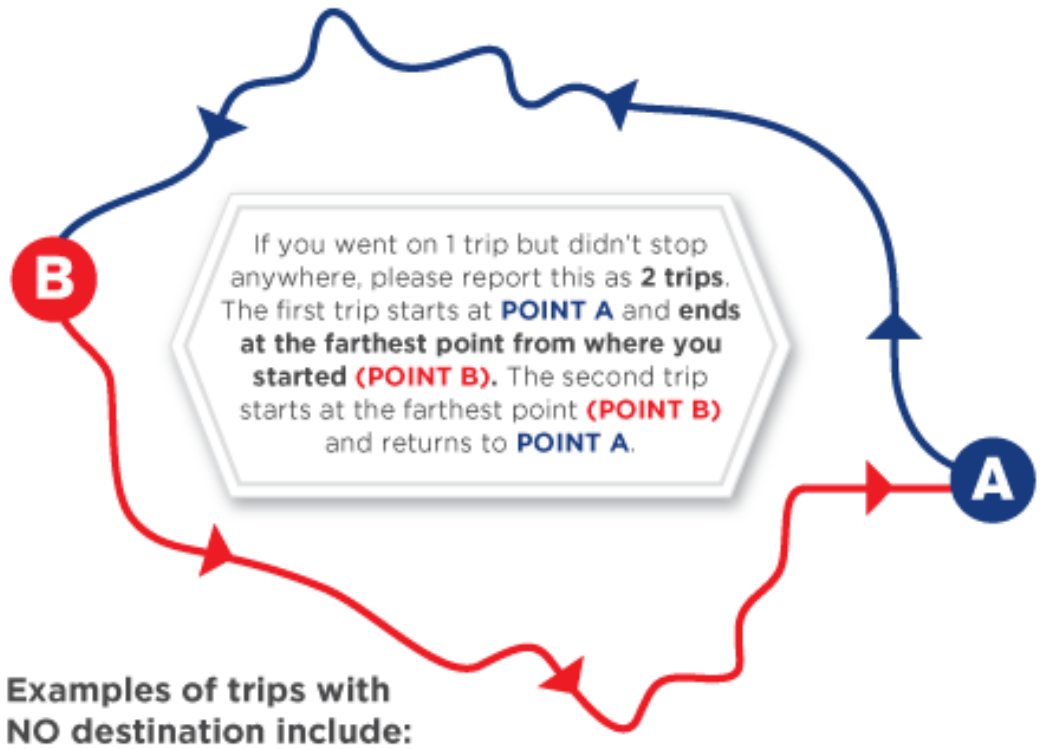
- ❑ Yes, went out but didn't stop anywhere (e.g. for jog/bike ride, to walk dog, go for Sunday drive, etc.)
  <pop-up example graphic on blue text – see next slide>
- ❑ Yes, made 1+ short trips in middle of other activities (e.g. quick trip for lunch)
- ❑ Yes, stopped briefly on way to somewhere else (e.g. for gas, at ATM, at drive-thru)
- ❑ Yes, dropped someone off on way to somewhere else (e.g. spouse at a park & ride lot, child at friend's house)
- ❑ Yes, walked to/from a parking garage or transit stop
- ❑ Yes, forgot to include another type of trip
- ❑ No, listed all of <Name>'s trips on <traveldate>

It is important to share all trips, including short stops. This will help better understand transportation needs in the region. Some trips (e.g. walks, bike rides, or short stops on way somewhere else) are easy to forget!

If the respondent selected any "Yes" answers, branch back to locs; the 2nd time they see this page, the "No" box will automatically be checked but their original answers will be saved in the DB

Previous Next

How do I record a trip if I didn't stop anywhere?



Examples of trips with NO destination include:

- A walk, jog or bike ride where you don't stop anywhere
- A drive to see sites but you don't stop anywhere

These types of trips are very important to transportation planners to understand how, where, and when people make recreational trips.

If respondent added trips on previous page, they return to the roster to add them.

Please list, in order, all the places <Name> went between 3AM on <traveldate> and 3AM on <traveldate +1>.

Please give a short description for each unique/different place. If you drive, get a ride, or ride a bike to/from a transit stop, include the transit stop as a place below. The places where **<Name>** started and ended the day are already filled in. When all places are listed, click "Next" to continue.

Add this sentence if person loops back to roster after locs_confirm:

Please insert any places you want to add. Remember you can drag the places to reorder the list.

Click and drag a place to re-order the list. Click the icon next to a place to add a new one below. Click the icon to remove a place.

<Name> started the day at:	<loc_start>
Then went to:	<place 1>
Then went to:	<place 2>
Then went to:	Enter a name for this place
<Name> ended the day at:	<loc_end>

Example Travel Day	
Started day at:	Home
Then went to:	Kids' school
Then went to:	Work
Then went to:	Lunch
Then went to:	Work
Then went to:	Off-site meeting
Then went to:	Work
Then went to:	Kids' school
Then went to:	Dentist
Then went to:	Home
Then went to:	Park
Ended day at:	Home

Previous Next

Locate by Ad

- Example: 500 Ma
- Example: Market
- Example: Conne

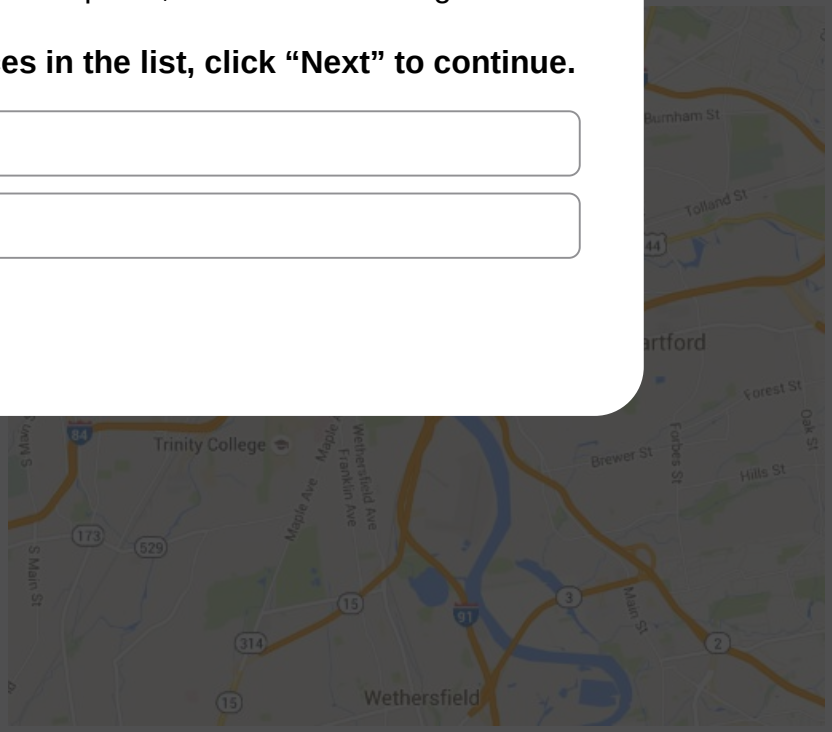
We'll now ask you to locate each place you went. Click a place below to begin locating it on the map. Once you've located a place, its button will turn green.

Once you have located all of the places in the list, click "Next" to continue.

Place 1:

Place 2:

< Previous Next >



Previous Next

Locations are cycled through in sequential order from the roster; places visited more than once (with the same name) only have to be geocoded once. Locations that were geocoded in the recruit survey (home, work, school) will be shown with a prepopulated location that respondents can confirm or change.

Please locate: **<place name>**

<two buttons/ options>

Locate by address | Locate on the map

<if locate by address>

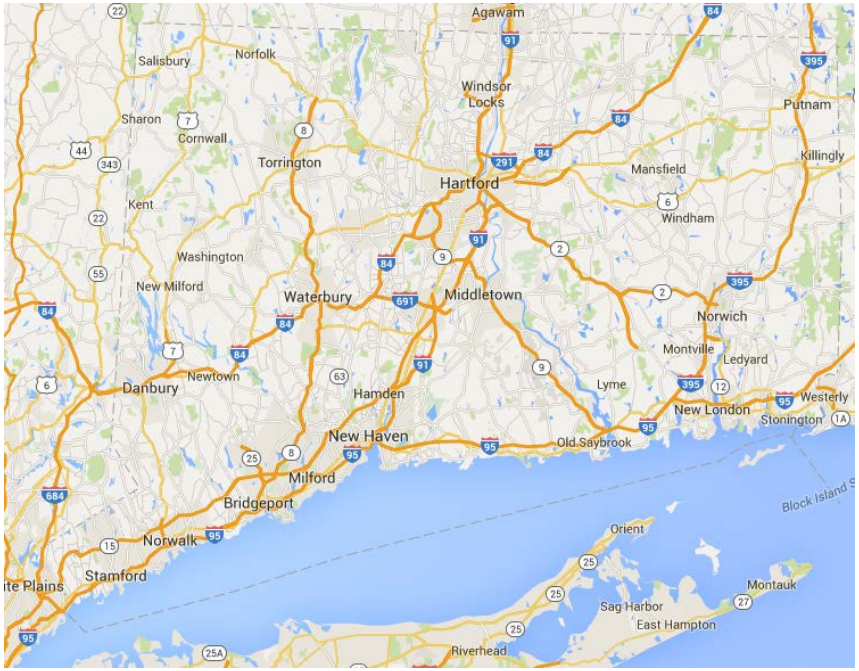
To locate by address, please enter a *street number* or the *nearest intersection* – or you can enter a business name.

- Example: 100 Main Street, New Milford, CT
- Example: W Cedar St and Richards Ave, Norwalk, CT
- Example: Connecticut Science Center, Hartford, CT

<if locate by map>

Map instructions

1. Click on the map to zoom in.
2. When zoomed in close enough, clicking the map will place a 'marker.'
3. Continue clicking until you have located the correct place.



Previous | Next

Locate by Ad

- Example: 500 Ma
- Example: Market
- Example: Conne

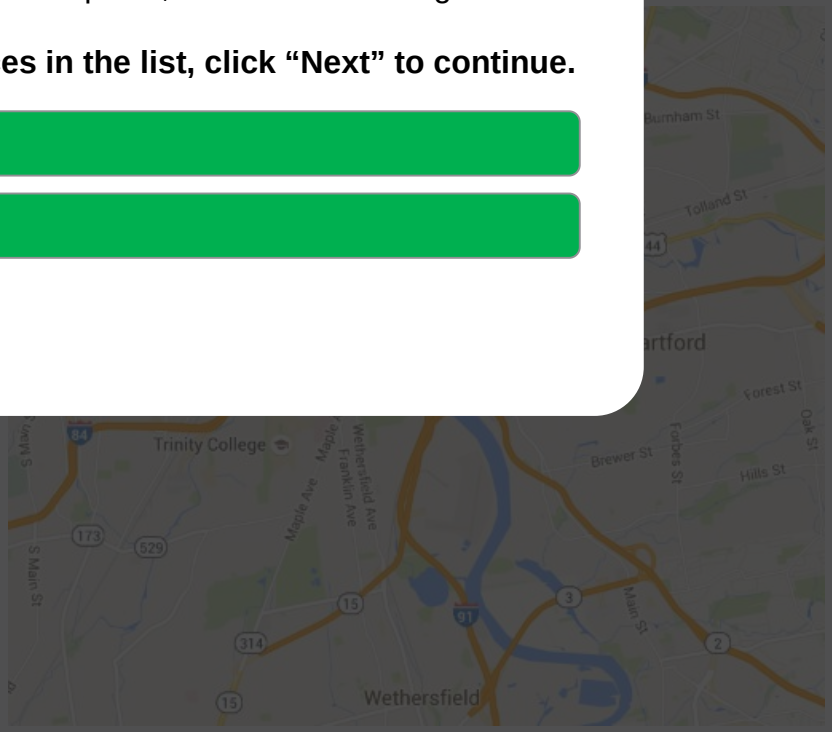
We'll now ask you to locate each place you went. Click a place below to begin locating it on the map. Once you've located a place, its button will turn green.

Once you have located all of the places in the list, click "Next" to continue.

Place 1: address details displayed

Place 2: address details displayed

< Previous Next >

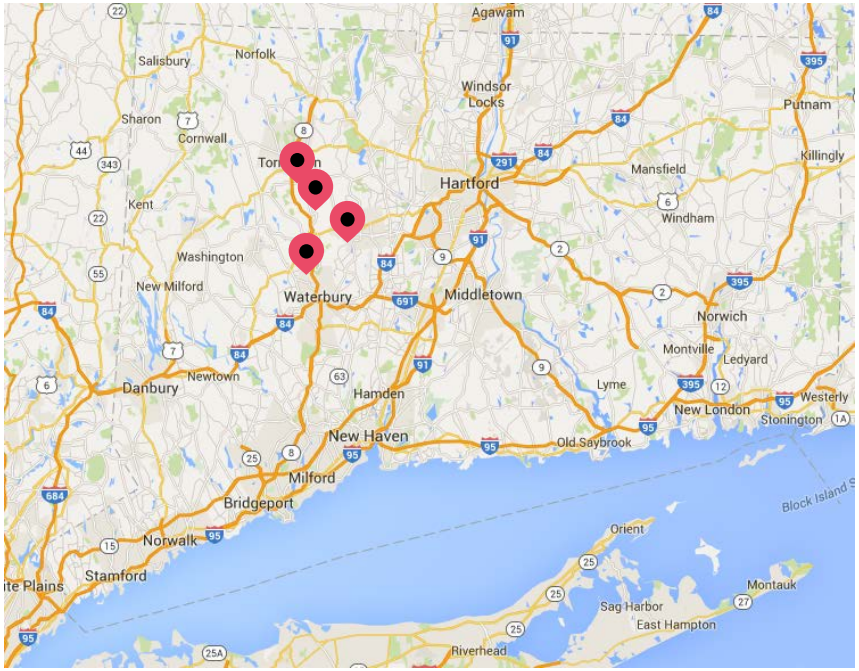


Previous Next

The list below should include all the trips <Name> made on <traveldate>.

If you need to add or remove trips, please click "Previous" to go back and edit your places.
If all trips from <day of week><traveldate> are shown, please click "Next" to continue.

Trip #	Start	End	Approx. Distance
1	<3am start loc>	<first location>	<miles>
2	<first location>	<second location>	
3	<second location>	Etc.	
4	Etc.	<3am end loc>	



If Google returns trip distances, show Appx distance. If Google fails to return driving distances due to flight or ferry trip , hide that column

Previous Next

General layout for trip detail questions. See following pages for mode-specific questions

Please tell us about <Name>'s trip from <trip origin> to <trip destination>.

Viewing trip <x> of <n> total trip(s).

<Name>'s Travel Day
Trip #1: <3am start loc> to <place 2>
Trip #2: <place 2> to <place 3>
Trip #3: <Etc.>
Trip #n: <last location> to <3am end loc>

Time departed from <origin> — Select… ▼

Time arrived at <destination> — Select… ▼

If hhsize > 1: Other household members who traveled on trip (select all that apply)

- ☐ <Member 1>
- ☐ <Member 2>
- ☐ Just <Name> (no other household members)

Number of other people (e.g. friends or co-workers) who specifically traveled with <Name> on trip — Select… ▼

Main way traveled on trip — Select… ▼

Main purpose of trip to <destination> — Select… ▼

If purpose= Other: Can you tell us more about the purpose of this trip? — Optional text

"Time" pop-up text:

Please round trip times to the nearest 5 minutes

Previous | Next

List of Answer Options: Trip Detail Questions: ALL TRIPS

Numbers in red indicate response codes (particularly when in a different display order) but will not be shown to respondents

[departure_time]
5 minute increments
Range from "Before 3am" to "2:55 am (next day)"
Never show "3am or later (next day)" for trip start time

Trip start must be the same as or later than the end time of the previous trip

[arrival_time]
5 minute increments
Range from "3:00 am" to "3am or later (next day)
Never show "Before 3am" for trip end time

Trip end time must be later than trip start time

[hhmember1– hhmember(max)]:
All HH members are listed.

[nonhh]
0. Nobody (0 people)
1. 1 person
2. 2 people
3. 3 people
4. 4 people
5. 5 or more people

[mode]
3 Vehicle in household
4 Other vehicle (e.g. rental, friend's car)
1 Walk/jog/wheelchair
2 Bicycle
9 Public (city) bus
13 Commuter Rail (e.g. Metro North)
14 Subway
5 Regular taxi or hired car service
6 Ride-share taxi/car service (e.g. Uber, Lyft)
7 Vanpool
11 Shuttle (e.g. a hotel's, an airport's)
8 School bus
12 Paratransit
15 Intercity bus (e.g. Greyhound)
10 Train (e.g. Amtrak)
16 Ferry/water taxi/boat
17 Airplane/helicopter
97 Other

[purpose]
1 Go home
2 Go to primary workplace
3 Go to other work-related place
4 Attend school/class
5 Other school-related activity
6 Grocery shopping
7 Do other shopping (e.g. mall, hardware store)
8 Run errands (e.g. bank, haircut)
9 Go to restaurant/bar/get take-out
10 Drop off/pick up/accompany other person
11 Exercise (e.g. gym, walk, jog/run)
12 Family activity (e.g. child's game)
13 Medical visit (e.g. doctor, dentist)
14 Social (e.g. visit friends/relatives)
15 Leisure/entertainment (e.g. movies)
16 Religious/civic/volunteer
17 Vacation/holiday/traveling (e.g. hotel)
18 Change travel mode (e.g. wait for bus, change planes)
97 Other

AUTO follow-up questions: Shown if mode = hh vehicle, other vehicle, regular/ride-share taxi, vanpool

Please tell us about <Name>'s trip from <origin> to <destination>.

Viewing trip <x> of <n> total trip(s).

Time, travel party, purpose & mode questions asked of everyone (see previous slides) — Select… ▼

If hhvehicle or othvehicle: What vehicle was used? — Select… ▼

If age 16+ AND travel party = 2+ AND mode <> taxi (regular or shared)
Was <Name> the driver or passenger? — Select… ▼

If travel party = 2+ AND used HOV at least 1x in past month
Was an HOV lane used for any part of this trip? — Select… ▼

If used toll road at least 1x in past month : Did <Name> travel on a toll road for any part of this trip? — Select… ▼

If used toll road for this trip: How much was the toll? — $ Numeric entry: 1-99

☐ Not sure/don't remember

If age 16+ Where was the vehicle parked at/near <destination>? — Select… ▼

If paid for parking at least 1x in past month AND park_loc= lot/garage, on-street, park/ride Did <Name> pay for parking? — Select… ▼

If paid for parking with cash/tickets How much did parking cost? — $ Numeric entry: 1-99

☐ Not sure/don't remember

If taxi (reg/ rideshare): How much (total) was paid to the taxi driver for this trip? — $ Numeric entry: 1-99

☐ Not sure/don't remember

Previous | Next

List of Answer Options: Trip Detail Questions: AUTO FOLLOW-UPs

[vehicle_used]
List of household vehicles by name (year make model)
Rental car
Car from work
Friend/relative's car
Carshare vehicle (e.g. Car2Go)
Motorcycle/moped/scooter

[driver]
Driver
Passenger
Both (switched drivers during trip)

[HOV_lane]
Yes
No

[toll_road]
Yes
No

[toll_cost]
Participant entry

[park_loc]
Own driveway/garage
Someone else's driveway
Parking lot/garage at destination (within 2 blocks)
Parking lot/garage 2+ blocks away from destination
On street parking at destination (within 2 blocks)
On street parking 2+ blocks away from destination
Park & ride lot
Didn't park (waited, drop-off, drive-thru)
Other

[park_pay]
No, parking was free
Yes, with cash/tickets
Yes, with parking pass
No, another person paid or was reimbursed
Not sure/don't remember

[park_cost]
Participant entry

[taxi_cost]
Participant entry

TRANSIT follow-up questions: Shown if mode = public bus, commuter rail, subway, train, intercity bus

Please tell us about <Name>'s trip from <origin> to <destination>.

Viewing trip <x> of <n> total trip(s).

Time, travel party, purpose & mode questions asked of everyone (see previous slides) Select… ▼

How did <Name> travel from <origin> to the first transit stop/station? Select… ▼

How did <Name> travel from the last transit stop/station to <destination>? Select… ▼

How did <Name> pay the fare? Select… ▼

If paid with cash/tickets or stored value card: How much did the fare cost? $ Numeric entry: 1-999

☐ Not sure/don't remember

Previous Next

List of Answer Options: Trip Detail Questions: TRANSIT FOLLOW-UPs

[transit_access]
Walked or jogged
Rode a bike
Drove and parked a car
Got dropped off
Took a taxi/ride-share (e.g. Uber, Lyft)
Transferred from other transit
Was already at the stop
Other

[transit_egress]
Walked or jogged
Rode a bike
Drove a parked car
Got picked up
Took a taxi /ride-share (e.g. Uber, Lyft)
Transferred to other transit
Was already at the stop
Other

[transit_pay]
Free (no cost)
Cash or ticket(s)
Stored value card
Used pass (any type)
Not sure/don't remember
Other

[transit_cost]
Participant entry

If Travel Mode on Trip = Public Bus, Commuter Rail, Subway

Travel Day Table shown on the right of the screen

<Name>'s Travel Day
Trip #1: <3am start loc> to <place 2>
Trip #2: <place 2> to <place 3>
Trip #3: <Etc.>
Trip #n: <last location> to <3am end loc>

Please list, IN ORDER, the different types of transit that you used on your trip from <origin> to <destination>.

Please list all **transfers** separately. To add a transfer, click "Add Transit" and select the correct transit system from the dropdown. Select the transit route from the second dropdown menu. To remove a system, click the "X" next to that row.

Add Transit ▼

1st transit system	1st transit route ▼	X
2nd transit system	2nd transit route ▼	X

Can add up to 5 transit legs, but only one is required

"transfer" pop-up text:

Example transfers:
1 transfer = you switch from 1 bus to another bus
1 transfer = you get off a bus and board a train

Previous Next

List of TRANSIT systems for transit route builder

1	CT Transit: Hartford area
2	CT Transit: Stamford area
3	CT Transit: New Britain area
4	CT Transit: New Haven area
5	CT Transit: Waterbury area
6	CT Transit: Bristol area
7	CT Transit: Meriden area
8	CT Transit: Wallingford area
9	CT Transit: CTFastrak
10	CT Transit: Hartford Express
11	Norwalk Transit District
12	Greater Bridgeport Transit
13	Housatonic Area Regional Transit
14	Northwestern CT Transit District
15	Valley Transit District
16	Milford Transit District
17	Middletown Area Transit
18	Estuary Transit District
19	Southeast Area Transit (SEAT)
20	Windham Region Transit District
21	Northeastern Connecticut Transit District
22	iBUS Express
23	Post Road Stages (Operated by Collins Bus Services)
24	Greyhound
25	Peter Pan
26	Dattco
27	Kelley Transit
28	CT Rides
29	Dial -A –Ride
30	Amtrak
31	Metro North
32	Shore Line East
33	Long Island Rail Road
34	MTA Subway
35	NJ Transit Rail
97	Other

[transit_route]
See Excel spreadsheet in project folder

Previous Next

“Copy Trips” Feature

The following slides show the alternate questions that ask/allow household members to copy trips described by members who have already completed their diary

First page shown after "proxy" if person was reported on a previous HH member's trips

Below is a list of trips that other household members reported making with <name>. To make things easier, we can use the information they already provided if <name> made these trips together.

Please confirm the trips that you made.

Trip 1st Reported by	Start location	End location	Start time	End time	Traveled on Trip	Confirm
Mom	Home	School	7:40 AM	7:55 AM	Adult 1, Child 2	☐
Mom	School	Piano Lesson	2:55 PM	3:25 PM	Child 2	☐
Mom	Piano Lesson	Gas Station	4:35 PM	4:50 PM	Adult 1	☐
Mom	Gas Station	Home	5:00 PM	5:45 PM	Adult 1	☐
None of the above						☐

Previous Next

Page shown if person was reported on and confirms a previous HH member's trips. If person was not reported on previous trips or chose not to confirm any of the trips, they will continue as normal from the "location start" question and enter a new roster

The "travel day" began at 3AM on <assigned travel date> and ended at 3AM on <assigned travel date + 1 day>.

Was the following trip the first trip <name> made on <assigned travel date>**?**

Home to School, from <time> to <time>

1. Yes
2. No

Was the following trip the last trip <name> made on <assigned travel date>**?**

Gas Station to Home, from <time> to <time>

1. Yes
2. No

If person confirms previous trips, but says they started or ended at a different location (i.e. they say "no" to one or both of the above questions), they will answer the location start and/or end questions before proceeding to the next page.

Previous Next

Show "trips_yesno2" if person confirmed 1+ copied trips

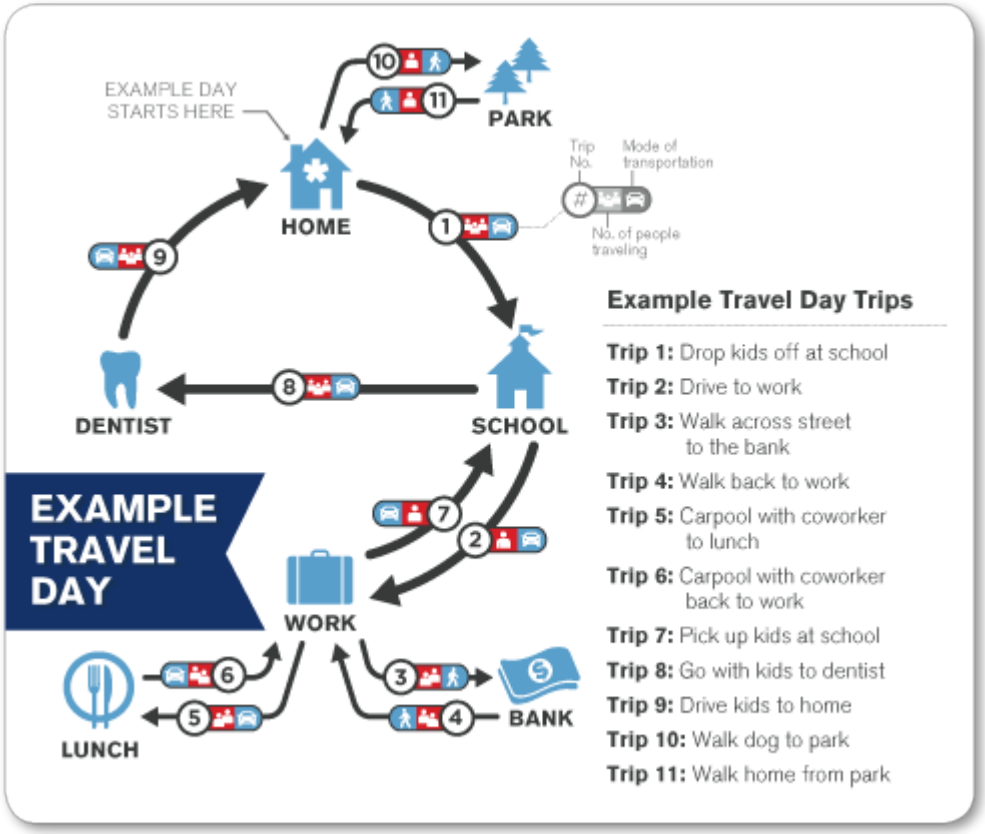
Thank you for your answers so far. Now, we'll ask you to provide **details about the trips** you made on your travel day.

Please review the definition of a "trip" below, then click "Next" to continue.

What is a trip?
A trip is anytime you travel from one location and stop at a new location. Even if you briefly stop for gas, at an ATM, or to drop a child off at school, travel to each stop counts as 1 trip.

What are some example trips?
- Drive to work
- Drop your child off at school
- Walk the dog
- Walk your child to a neighbor's
- Bike to the grocery store
- Ride the bus to the bank
- Carpool to a meeting in New York

What If I go out, but return to the same place without stopping (e.g. a jog, bike ride, or leisurely drive)?
If you go out and return to the same place without stopping, this counts as **2 trips**: from the starting location to the furthest point you reach, and the trip back to your starting point. Please report the furthest point you reach as your "destination".



Previous Next

Page shown after person confirms start and end location of the travel day for people who were reported on and confirmed being on previous HH members' trips.

Please list, in order, all the places <Name> went between 3AM on <assigned travel date> and 3AM on <assigned travel date +1>.

Please provide a unique name or short description for each unique/different place. If you drive, get a ride, or ride a bike to/from a transit stop, include this stop as a place below. When all your places are listed below, click "Next" to continue.

Click and drag a place to re-order the list. Click the icon next to a place to add a new one below. Click the icon to remove a place.

<Name> started the day at:	HOME
Then went to:	SCHOOL
Then went to:	PIANO LESSON
Then went to:	Enter a name for this place
<Name> ended the day at:	HOME

Example Travel Day	
Started day at:	Home
Then went to:	Kids' school
Then went to:	Work
Then went to:	Lunch
Then went to:	Work
Then went to:	Off-site meeting
Then went to:	Work
Then went to:	Kids' school
Then went to:	Dentist
Then went to:	Home
Then went to:	Park
Ended day at:	Home

Copied trips are shown, new trip destinations can be inserted between
Multi-location geocoder will ask person to locate any NEW places, but not copied trips

Previous **Next**

Page shown for any previously reported trips that the person confirmed. (Respondent will report the **trip purpose** for all copied trips; all other trip details are automatically copied behind the scenes)

Here are the details for <name's> trip from Home to School that were reported by another member of your household:

- Departed: <origin>at <time>
- Arrived: <destination> at <time>

Main purpose of trip to <destination> Select… ▼

For all NEW trips each person adds, they will go through the normal trip details pages

Previous Next

End of the “Copy Trips” Section

The rest of the survey is the same for all participants, whether they copied trips or not

Previous Next

Only shown to Pilot respondents age 18+

Thank you for your participation – you are almost finished!

You are one of the first people to complete this study before we invite many other households throughout the state. We would like to hear your thoughts on how we could improve the survey and study materials.

Your feedback will remain anonymous and will only be used to help improve the study. Please see our privacy policy for more information.

Were there any instructions or questions that were confusing or unclear?

If so, please tell us which instructions were confusing and why.

Optional text box

Do you have any general recommendations for how we can further improve this study?

If so, please tell us your ideas and suggestions.

Optional text box

Previous Next

All respondents, all segments:

Thank you for your participation.

If you have any general comments that you would like to share with the study team, please enter them below and then click “Finish.”

Any feedback you wish to share will remain anonymous. Please see our privacy policy for more information.

Otherwise, please click the “Finish” button to submit your survey.

<If HHsize = 2+> If any household members still need to complete this survey, you will return to your household’s dashboard where you can start the next person’s survey.

Answering the text box is optional.

Previous Finish

Show this page when all HH members have completed the diary

Congratulations, your household has completed the Connecticut Statewide Transportation Study!

Thank you very much for your participation in this important research.

If gift card sample segment (seg 1, 2): Your household's gift certificate will be sent to you within the next 10 business days.

If raffle sample segment (seg 3, 4, 5, 6): Your household has been automatically entered into the study prize drawing. The drawing will be held after the study closes (no later than January 31), and winners will be notified via email or telephone.

Do not show any incentive text to volunteer/review HHs (segnum = 99) as they do not get an incentive

You may now close your browser.

Previous Finish

Appendix B

Pilot Study Branding and Print Materials

The copies of the pilot study print materials are organized as follows:

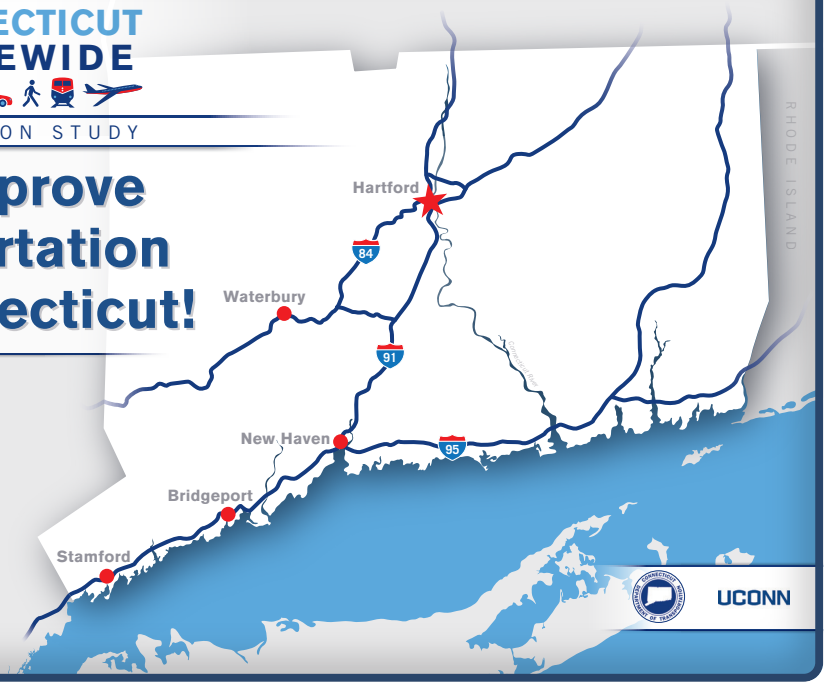
- ❑ Gift Card Segment – Pre-notice Postcard (2 Pages)
- ❑ Gift Card Segment – Invitation Packet Envelope (1 Page)
- ❑ Gift Card Segment – Invitation Letter (2 Pages)
- ❑ Gift Card Segment – Travel Log (2 Pages)
- ❑ Paper Segment – Reminder Postcard (2 Pages)
- ❑ Paper Segment – Pre-notice Postcard (2 Pages)
- ❑ Paper Segment – Invitation Packet Envelope (1 Page)
- ❑ Paper Segment – Invitation Letter (2 Pages)
- ❑ Paper Segment – Travel Log (2 Pages)
- ❑ Paper Segment – Diary Log Mailing Packet Envelope (1 Page)
- ❑ Paper Segment – Diary Log Cover Letter (2 Pages)
- ❑ Paper Segment – Diary Log (10 Pages)
- ❑ Raffle Segment – Reminder Postcard (2 Pages)
- ❑ Raffle Segment – Pre-notice Postcard (2 Pages)
- ❑ Raffle Segment – Invitation Packet Envelope (1 Page)
- ❑ Raffle Segment – Invitation Letter (2 Pages)
- ❑ Raffle Segment – Travel Log (2 Pages)
- ❑ Raffle Segment – Reminder Postcard (2 Pages)

CT15162_Postcard_PreNotice_151104.pdf 1 11/4/15 11:30 AM

CONNECTICUT STATEWIDE

TRANSPORTATION STUDY

Help improve transportation in Connecticut!



UCONN

CT15162_Postcard_PreNotice_151104.pdf 2 11/4/15 11:30 AM

CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Connecticut Transportation Institute
270 Middle Turnpike, Unit 5202, Storrs, CT 06269-5202

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
STORRS, CT
PERMIT NO 36

In a few days, you will receive an invitation packet in the mail to participate in an important transportation study.

The Connecticut Department of Transportation and the Connecticut Transportation Institute at UCONN are performing this study to better understand the travel behaviors and transportation needs of Connecticut residents. The information collected in this study will help improve the transportation system and prioritize future transportation improvements in the state of Connecticut.

You are one of the few households randomly selected to participate in the study and your participation will have a significant impact. The information you provide will be kept confidential and will only be used for transportation planning purposes without disclosing identifiable information. **As thanks for your participation, your household will receive a $10 gift card from your choice of either Walmart or Amazon.com after completing the survey.**

To start now, go to the secure study website with your password: https://cttransportationstudy.org

<password>

Or call toll-free: 1-844-872-2562

Questions? Email: help@cttransportationstudy.org

Lo invitamos a compartir sus experiencias de traslado en su región.
Para participar, llame sin costo: 1-844-872-2562

CT15162_Envelope_151104.pdf 1 11/4/15 2:32 PM

CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CONNECTICUT
TRANSPORTATION
INSTITUTE
270 Middle Turnpike, Unit 5202
Storrs, CT 06269-5202

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
STORRS, CT
PERMIT NO 36

Help improve the future of transportation in Connecticut by participating in this important study!

CT15162_GCSLetterFAQ_151109.pdf 1 11/9/15 2:07 PM

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546

<Letter Date>

<First and last name/City name resident
Street Address 1
Street Address 2
City, CT #####>

Dear <First and last name/City name resident>

I'm asking you to help us improve our state's transportation system by participating in the Connecticut Statewide Transportation Study. Your input will help the Connecticut Department of Transportation to better plan and prioritize future transportation improvements. Yours is one of the few households randomly selected to participate in this study. The information you provide will have a significant impact on transportation planning in the state and in your community. As thanks for your time, your household will receive a **$10 gift card from your choice of either Walmart or Amazon.com** after completing the survey.

PARTICIPATION IN THE STUDY IS A SIMPLE THREE STEP PROCESS:

STEP 1: Briefly tell us about your household. You can do this now.

Log on to the secure website using your password:

Study website: https://cttransportationstudy.org

Password: <password>

Or, participate over the phone by calling toll-free:
1-844-872-2562

- **Monday-Friday: 9AM – 8PM EST**
- **Saturday: 10AM – 4PM EST**

Or leave us a message with the best time and number for us to call you.

STEP 2: Track your trips on <travel date>. We ask that each member of your household keep track of every trip they make that day, using the enclosed Travel Logs to help remember the details of each trip.

STEP 3: Tell us about your travels. Just like Step 1, return to the survey website with your password or call us to report the trips you made on <travel date>. We will also ask a few questions about your household's typical travel habits.

That's all it takes to help us with this critical study!

Your privacy will be protected and your name and address will never be linked to the survey form. All information will be kept confidential and will only be used for transportation planning purposes without disclosing identifiable information. Please refer to the study website for our privacy policy.

For more details about this study, please see the back of this letter for answers to Frequently Asked Questions. You can also email **help@cttransportationstudy.org** or call **1-844-872-2562**.

Thank you in advance for your important contribution to improving transportation in Connecticut.

Sincerely,

Thomas J Maziarz

Thomas Maziarz
Bureau Chief, Bureau of Policy and Planning
Connecticut Department of Transportation

Lo invitamos a compartir sus experiencias de traslado en su región. Para participar, llame sin costo: 1-844-872-2562

UCONN

CT15162_GCSLetterFAQ_151109.pdf 2 11/9/15 2:07 PM

CONNECTICUT STATEWIDE TRANSPORTATION STUDY

FREQUENTLY ASKED QUESTIONS

SECURE STUDY WEBSITE: **https://cttransportationstudy.org**
EMAIL: **help@cttransportationstudy.org**
TOLL-FREE TELEPHONE: **1-844-872-2562**

Lo invitamos a compartir sus experiencias de traslado en su región. Para participar, llame sin costo: 1-844-872-2562

GENERAL INFORMATION

What is the Connecticut Statewide Transportation Study all about? The study is collecting information about everyday travel behavior of residents in the state of Connecticut including how we travel, where we go, why we travel, how long it takes, etc.

How was I selected to participate? Invited households (like yours) were randomly selected from all the residential addresses in the state. The random approach helps us understand the travel needs of all types of households from different regions in the state.

Why should I participate? Current data about residents' travel characteristics helps the state understand and plan for current and future transportation needs. It also helps local agencies plan for transportation improvements in your communities. Your responses have a large impact because yours is one of a small number of households invited to participate in the study.

My travel on the date assigned to me isn't "typical" – should I still participate? Yes. This study aims to collect travel information on the date assigned to you even if it is not a "typical" travel day. We will separately ask you a few questions about your usual travel habits.

I don't travel very much – should I still participate? Yes. Whether you make a lot of trips or don't go anywhere at all, please report what actually happens on your assigned travel date. In addition to driving, we also want to know about any trips you make by walking, biking, riding transit, or any other mode of transportation.

Who is sponsoring this study? This study is sponsored by Connecticut Department of Transportation in partnership with Connecticut Transportation Institute at UCONN.

What are my rights as a participant? You do not have to be in this study if you do not want to. If you agree to be in the study, but later change your mind, you may drop out at any time. There are no penalties or consequences of any kind if you decide that you do not want to participate, though you will not receive compensation. We will be happy to answer any questions you have about this study. If you have further questions about this project or if you have a research-related problem, you may contact the principal investigator, Dr. Karthik Charan Konduri at kkonduri@engr.uconn.edu. If you have any questions concerning your rights as a research subject, you may contact the University of Connecticut Institutional Review Board (IRB) at 860-486-8802. The IRB is a group of people who review research studies to protect the rights and welfare of research participants. This protocol has been approved by the UConn IRB, Protocol #H15-307.

What will I get for participating? As thanks for your time, your household will receive a $10 gift card from your choice of either Amazon.com or Walmart within 10 business days after every person in your household completes the survey.

TAKING THE SURVEY

What do I use the "Travel Log" for? The "Travel Log" can be used to keep track of the details of your trips on the assigned travel date.

Why is my household assigned a specific travel date? We are asking for information about the travel made by each person in your household on one chosen weekday. We call this your "travel day" or "travel date". This helps us develop a full picture of all the travel that happens across the region and the state on each weekday (even if it is not a "typical" travel day).

What is a trip? A trip is any time you travel from one location and stop at a new location. Even if you stop briefly for gas, at an ATM, or to drop a child off at school, travel to that stop counts as one trip, and travel from that stop to the next place counts as a separate trip. If you go out and return to the same place without stopping (such as a jog, bike ride, or leisurely drive) then this counts as two trips: from the starting location to the furthest point you reach, and the trip back to your starting point.

What are some examples of trips? See below for some common trips that people make:

- Drive to work
- Drop your child off at school
- Walk the dog
- Bike to the grocery store
- Walk to the bus stop and then ride the bus to the bank
- Carpool to a meeting in New York

Often what we think of as one trip may actually be a chain of several trips. For example, "I picked up my child and stopped to buy gas on my way home from work" counts as three trips: 1) a trip from work to your child's activity, 2) a trip from your child's activity to the gas station, and 3) the trip home.

Should my children participate? Yes, trips to and from school, sports practice, play dates, and other activities help us understand the full nature of how the transportation system is used, and how it can be improved.

Who should be counted as a member of my household? Everyone who lives in your dwelling unit and shares the kitchen is a part of your household, including family and non-family members.

STUDY OVERVIEW

This study has 2 parts

	1 HOUSEHOLD INFO SURVEY	2 TRAVEL DIARY SURVEY
When do I take the survey?	As soon as convenient	After the day of your assigned travel
Who takes the survey?	You	All adults (an adult should also report trips for children under 18)
How long will the survey take?	About 15 minutes	About 5 minutes per person
What is the survey about?	We ask about your household and household members' typical travel behavior	Return to the website (or call) to report the trips you made on your assigned travel date (use your Travel Log to keep track!)

After completing both parts, your household will receive your choice of a Walmart or Amazon.com gift card

CT15162_TravelLog8.5x11_151028.pdf 1 10/28/15 10:26 PM

CONNECTICUT STATEWIDE TRANSPORTATION STUDY

TRAVEL LOG INSTRUCTIONS

SECURE STUDY WEBSITE: **https://cttransportationstudy.org**
TOLL-FREE TELEPHONE: **1-844-872-2562**

STEP 1: On your assigned travel day:
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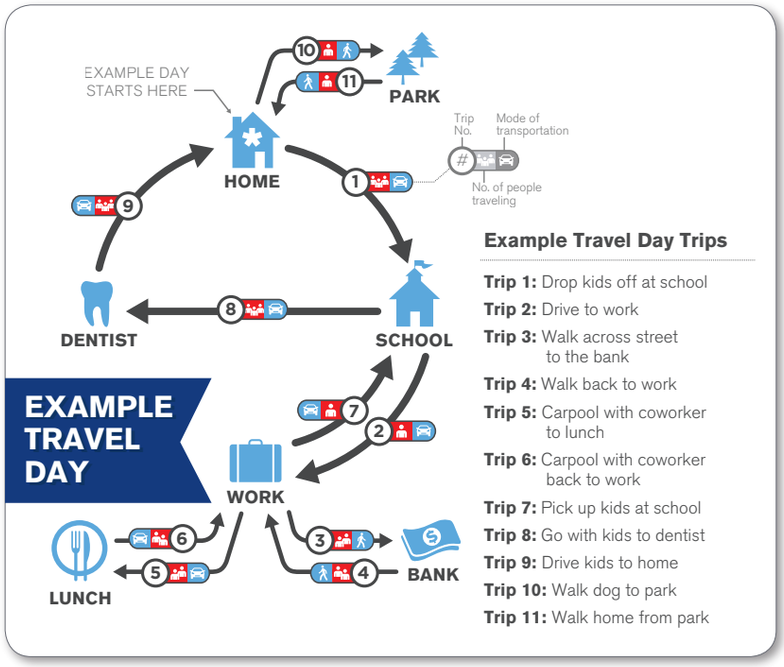

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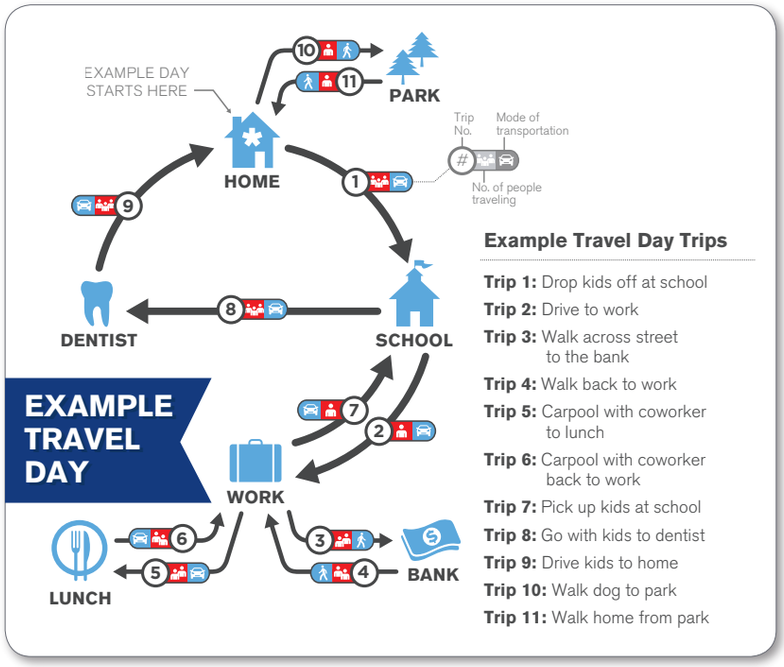

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

TRAVEL LOG

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TOLL-FREE TELEPHONE:
1-844-872-2562

Name

Travel Date mm / dd / yy

Password

	When did your trip...		Where did you go?		Traveled by:	Traveled with:
	Start	End	Description	Address, Intersection, or Business Name		
Example	*7:05AM*	*7:20AM*	*Drop kids at school*	*West Middle Elementary School, Hartford*	*Car*	*Grace, Sophie*
Example	*7:25AM*	*7:45AM*	*Drive to work*	*550 Main St, Hartford*	*Car*	*N/A*
1st Trip						
2nd Trip						
3rd Trip						
4th Trip						
5th Trip						
6th Trip						
7th Trip						
8th Trip						
9th Trip						
10th Trip						

- **Include ALL trips you made on your travel day, even short stops such as stopping for gas or picking up coffee**
- **Include only the time spent traveling when listing your 'start' and 'end' times. Do not include any time spent at the location**

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EMAIL:
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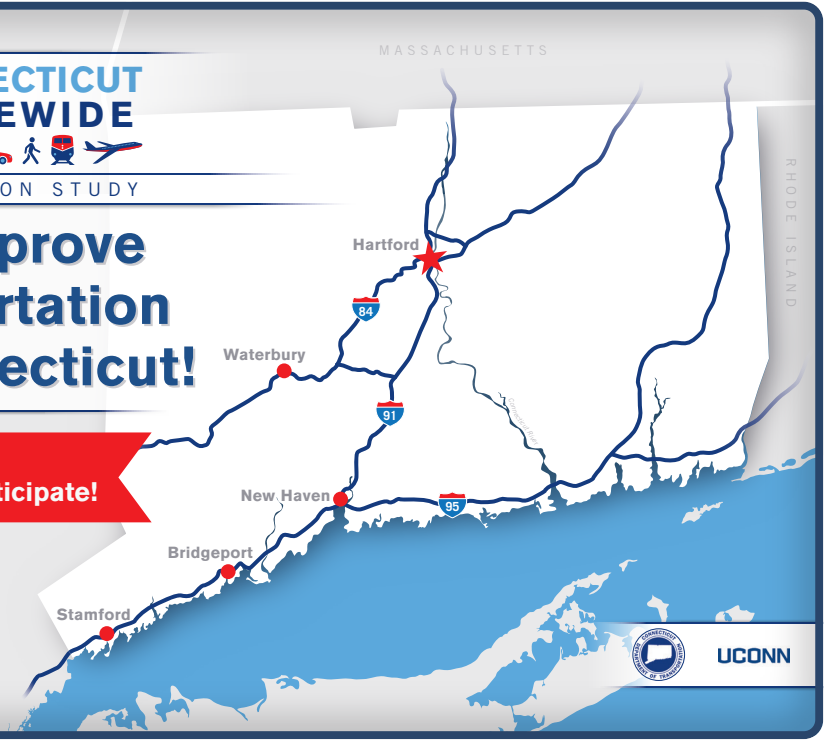
CONNECTICUT STATEWIDE

TRANSPORTATION STUDY

Help improve transportation in Connecticut!

REMINDER:
You can still participate!



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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Connecticut Transportation Institute
270 Middle Turnpike, Unit 5202, Storrs, CT 06269-5202

We recently mailed you an invitation to participate in the Connecticut Statewide Transportation Study.

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
STORRS, CT
PERMIT NO 36

If you have already started completing the survey, **thank you!**
If not, you still have time and participation is easy – please see the instructions below to get started.

Please tell us about your travels on: **<travel date>**

To participate, go online and enter your password: https://cttransportationstudy.org

<password>

Or call toll-free: 1-844-872-2562

Remember, your input is important! Your participation will help the Connecticut Department of Transportation plan and prioritize future transportation improvements in the state.

As thanks for your participation, your household will receive a $10 gift card from your choice of either Walmart or Amazon.com after completing the survey.

Questions? Email: help@cttransportationstudy.org

Lo invitamos a compartir sus experiencias de traslado en su región.
Para participar, llame sin costo: 1-844-872-2562

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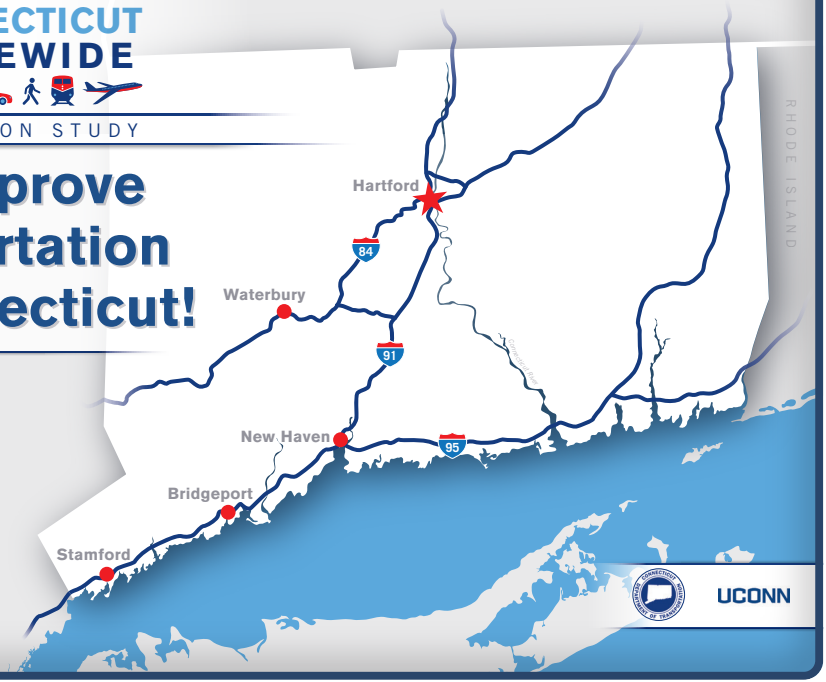
CONNECTICUT STATEWIDE

TRANSPORTATION STUDY

Help improve transportation in Connecticut!



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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Connecticut Transportation Institute
270 Middle Turnpike, Unit 5202, Storrs, CT 06269-5202

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
STORRS, CT
PERMIT NO 36

In a few days, you will receive an invitation packet in the mail to participate in an important transportation study.

The Connecticut Department of Transportation and the Connecticut Transportation Institute at UCONN are performing this study to better understand the travel behaviors and transportation needs of Connecticut residents. The information collected in this study will help improve the transportation system and prioritize future transportation improvements in the state of Connecticut.

You are one of the few households randomly selected to participate in the study and your participation will have a significant impact. The information you provide will be kept confidential and will only be used for transportation planning purposes without disclosing identifiable information. **As thanks for your participation, your household will be entered into a drawing for an Apple iPad after completing the survey.**

To start now, go to the secure study website with your password: https://cttransportationstudy.org

<password>

Or call toll-free: 1-844-872-2562

Questions? Email: help@cttransportationstudy.org

Lo invitamos a compartir sus experiencias de traslado en su región.
Para participar, llame sin costo: 1-844-872-2562

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CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CONNECTICUT
TRANSPORTATION
INSTITUTE
270 Middle Turnpike, Unit 5202
Storrs, CT 06269-5202

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
STORRS, CT
PERMIT NO 36

Help improve the future of transportation in Connecticut by participating in this important study!

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STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546

<Letter Date>

<First and last name/City name resident
Street Address 1
Street Address 2
City, CT #####>

Dear <First and last name/City name resident>

I'm asking you to help us improve our state's transportation system by participating in the Connecticut Statewide Transportation Study. Your input will help the Connecticut Department of Transportation to better plan and prioritize future transportation improvements. Yours is one of the few households randomly selected to participate in this study. The information you provide will have a significant impact on transportation planning in the state and in your community. As thanks for your time, **your household will be entered into a drawing for an Apple iPad** after completing the survey.

PARTICIPATION IN THE STUDY IS A SIMPLE THREE STEP PROCESS:

STEP 1: Briefly tell us about your household. You can do this now.

Log on to the secure website using your password:

Study website: https://cttransportationstudy.org

Password: <password>

Or, participate over the phone by calling toll-free:
1-844-872-2562
- **Monday-Friday: 9AM – 8PM EST**
- **Saturday: 10AM – 4PM EST**

Or leave us a message with the best time and number for us to call you.

STEP 2: Track your trips on <travel date>. We ask that each member of your household keep track of every trip they make that day.

STEP 3: Tell us about your travels. We will mail you a travel survey for you to report your trips on your assigned travel date. To report the trips you made on <travel date>, you can return the survey to us by mail, you can return to the survey website with your password, or call us. We will also ask a few questions about your household's typical travel habits.

That's all it takes to help us with this critical study!

Your privacy will be protected and your name and address will never be linked to the survey form. All information will be kept confidential and will only be used for transportation planning purposes without disclosing identifiable information. Please refer to the study website for our privacy policy.

For more details about this study, please see the back of this letter for answers to Frequently Asked Questions. You can also email **help@cttransportationstudy.org** or call **1-844-872-2562**.

Thank you in advance for your important contribution to improving transportation in Connecticut.

Sincerely,

Thomas Maziarz
Bureau Chief, Bureau of Policy and Planning
Connecticut Department of Transportation

Lo invitamos a compartir sus experiencias de traslado en su región. Para participar, llame sin costo: 1-844-872-2562

UCONN

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

FREQUENTLY ASKED QUESTIONS

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GENERAL INFORMATION

What is the Connecticut Statewide Transportation Study all about? The study is collecting information about everyday travel behavior of residents in the state of Connecticut including how we travel, where we go, why we travel, how long it takes, etc.

How was I selected to participate? Invited households (like yours) were randomly selected from all the residential addresses in the state. The random approach helps us understand the travel needs of all types of households from different regions in the state.

Why should I participate? Current data about residents' travel characteristics helps the state understand and plan for current and future transportation needs. It also helps local agencies plan for transportation improvements in your communities. Your responses have a large impact because yours is one of a small number of households invited to participate in the study.

My travel on the date assigned to me isn't "typical" – should I still participate? Yes. This study aims to collect travel information on the date assigned to you even if it is not a "typical" travel day. We will separately ask you a few questions about your usual travel habits.

I don't travel very much – should I still participate? Yes. Whether you make a lot of trips or don't go anywhere at all, please report what actually happens on your assigned travel date. In addition to driving, we also want to know about any trips you make by walking, biking, riding transit, or any other mode of transportation.

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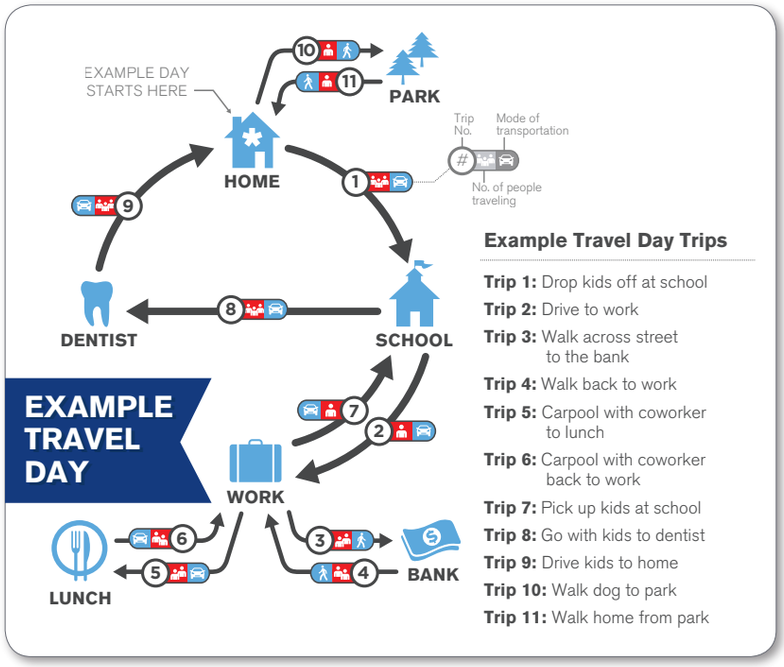

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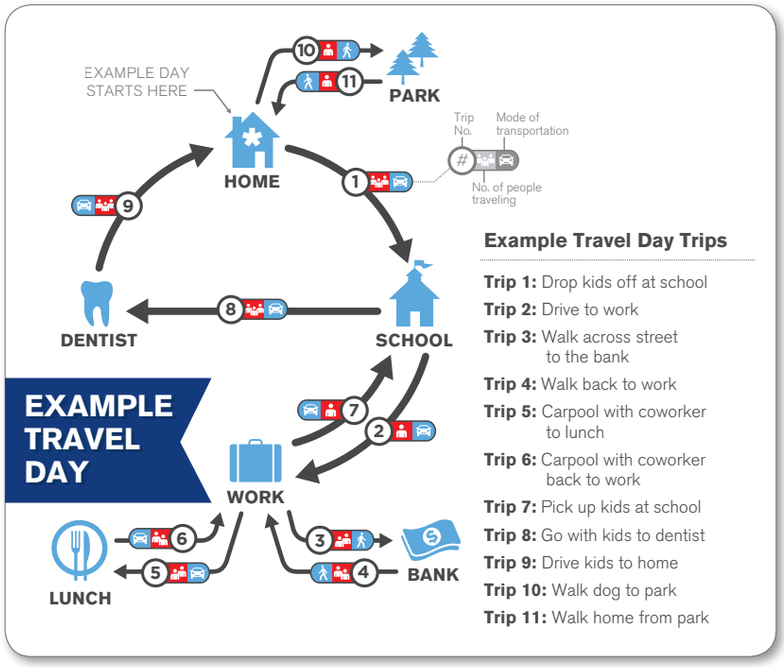

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TRANSPORTATION STUDY

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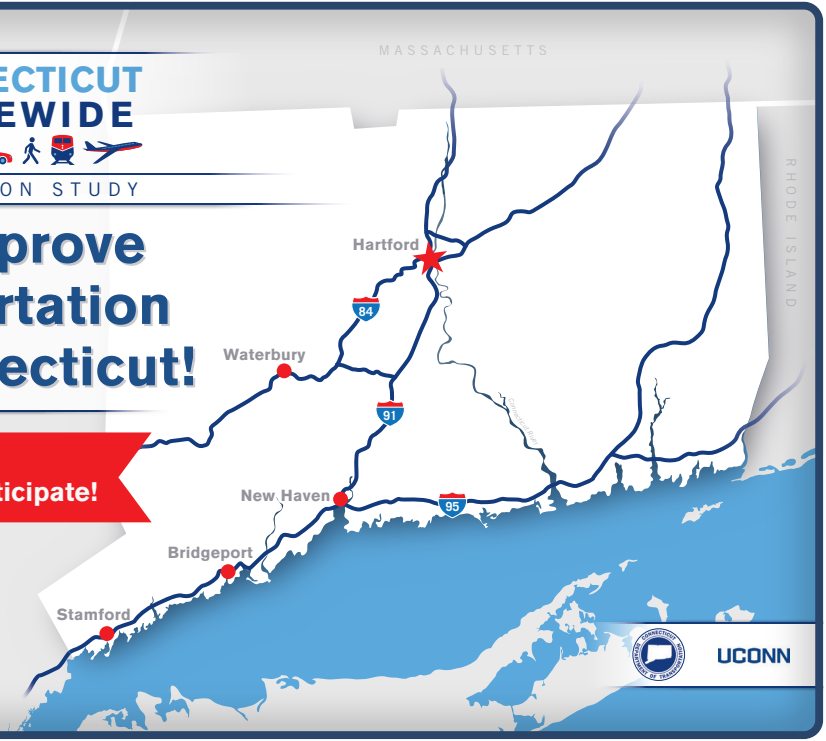

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PERMIT NO 36

If you have already started completing the survey, **thank you!**
If not, you still have time and participation is easy – please see the instructions below to get started.

Please complete Part 1 of the study before **December 18**

To participate, go online and enter your password: https://cttransportationstudy.org

<password>

Or call toll-free: 1-844-872-2562

Remember, your input is important! Your participation will help the Connecticut Department of Transportation plan and prioritize future transportation improvements in the state.

As thanks for your participation, your household will be entered into a drawing for an Apple iPad after completing the survey.

Questions? Email: help@cttransportationstudy.org

Lo invitamos a compartir sus experiencias de traslado en su región.
Para participar, llame sin costo: 1-844-872-2562

CONNECTICUT STATEWIDE TRANSPORTATION STUDY

CONNECTICUT TRANSPORTATION INSTITUTE
270 Middle Turnpike, Unit 5202
Storrs, CT 06269-5202

Help improve the future of transportation in Connecticut by participating in this important study!

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546

<Date>

<First and last name/City name resident
Street Address 1
Street Address 2 City, CT #####>

Dear <First and last name/City name resident>

Thank you for completing Part 1 of the Connecticut Statewide Transportation Study! The next step is to keep track of all the trips your household makes on <_____Travel Date_____> (your assigned travel day) and then report your trips.

Instructions for completing the travel diary:

Step 1: Each adult (age 18 or older) in your household should carry the travel diary included in this packet and record all trips made on <_Travel Date___>. Adults should also complete a separate diary for children (age less than 18) in the household.

Person 1:	Person 2:	Person 3:	Person 4:
Person 5:	Person 6:	Person 7:	Person 8:

Step 2: After <___Travel Date_>, tell us about all trips made by each member of your household. You can do this either by:

Mailing back the travel diaries using the prepaid return envelopes to:

Connecticut Transportation Institute
270 Middle Turnpike, Unit 5202
Storrs, CT 06269-5202

Logging onto the secure study website using your password:

https://cttransportationstudy.org
Password: <password>

Or calling the toll-free number:

1-844-872-2562
Monday – Friday: 9:00 AM – 8:00 PM EST
Saturday: 10 AM – 4:00 PM EST
Or leave us a message with the best time and number for us to call you.

That's all it takes to help us with this critical study! Please report your trip details no later than <return by date>. As thanks for your time, your household will be entered into a drawing for an Apple iPad after completing the travel diary. Your privacy will be protected and all information will be kept confidential. The information will only be used for transportation planning purposes without disclosing identifiable information. Please refer to the study website for our privacy policy.
For more details about this study, please see the back of this letter for answers to Frequently Asked Questions. You can also email help@cttransportationstudy.org or call 1-844-872-2562.

Thank you in advance for your important contribution to improving transportation in Connecticut.

Sincerely,

Thomas J Maziarz

Thomas Maziarz
Bureau Chief, Bureau of Policy and Planning
Connecticut Department of Transportation

Lo invitamos a compartir sus experiencias de traslado en su región. Para participar, llame sin costo: 1-844-872-2562

UCONN

CONNECTICUT STATEWIDE TRANSPORTATION STUDY

FREQUENTLY ASKED QUESTIONS

SECURE STUDY WEBSITE: **https://cttransportationstudy.org**
EMAIL: **help@cttransportationstudy.org**
TOLL-FREE TELEPHONE: **1-844-872-2562**

GENERAL INFORMATION

What is the Connecticut Statewide Transportation Study all about? The study is collecting information about everyday travel behavior of residents in the state of Connecticut including how we travel, where we go, why we travel, how long it takes, etc.

How was I selected to participate? Invited households (like yours) were randomly selected from all the residential addresses in the state. The random approach helps us understand the travel needs of all types of households from different regions in the state.

Why should I participate? Current data about residents' travel characteristics helps the state understand and plan for current and future transportation needs. It also helps local agencies plan for transportation improvements in your communities. Your responses have a large impact because yours is one of a small number of households invited to participate in the study.

My travel on the date assigned to me isn't "typical" – should I still participate? Yes. This study aims to collect travel information on the date assigned to you even if it is not a "typical" travel day. We will separately ask you a few questions about your usual travel habits.

I don't travel very much – should I still participate? Yes. Whether you make a lot of trips or don't go anywhere at all, please report what actually happens on your assigned travel date. In addition to driving, we also want to know about any trips you make by walking, biking, riding transit, or any other mode of transportation.

Who is sponsoring this study? This study is sponsored by Connecticut Department of Transportation in partnership with Connecticut Transportation Institute at UCONN.

What are my rights as a participant? You do not have to be in this study if you do not want to. If you agree to be in the study, but later change your mind, you may drop out at any time. There are no penalties or consequences of any kind if you decide that you do not want to participate, though you will not receive compensation. We will be happy to answer any questions you have about this study. If you have further questions about this project or if you have a research-related problem, you may contact the principal investigator, Dr. Karthik Charan Konduri at kkonduri@engr.uconn.edu. If you have any questions concerning your rights as a research subject, you may contact the University of Connecticut Institutional Review Board (IRB) at 860-486-8802. The IRB is a group of people who review research studies to protect the rights and welfare of research participants. This protocol has been approved by the UConn IRB, Protocol #H15-307.

What will I get for participating? As thanks for your time, your household will be entered into a drawing for an Apple iPad after every person in your household completes the survey.

TAKING THE SURVEY

Why is my household assigned a specific travel date? We are asking for information about the travel made by each person in your household on one chosen weekday. We call this your "travel day" or "travel date". This helps us develop a full picture of all the travel that happens across the region and the state on each weekday (even if it is not a "typical" travel day).

What is a trip? A trip is any time you travel from one location and stop at a new location. Even if you stop briefly for gas, at an ATM, or to drop a child off at school, travel to that stop counts as one trip, and travel from that stop to the next place counts as a separate trip. If you go out and return to the same place without stopping (such as a jog, bike ride, or leisurely drive) then this counts as two trips: from the starting location to the furthest point you reach, and the trip back to your starting point.

What are some examples of trips? See below for some common trips that people make:

- Drive to work
- Drop your child off at school
- Walk the dog
- Bike to the grocery store
- Walk to the bus stop and then ride the bus to the bank
- Carpool to a meeting in New York

Often what we think of as one trip may actually be a chain of several trips. For example, "I picked up my child and stopped to buy gas on my way home from work" counts as three trips: 1) a trip from work to your child's activity, 2) a trip from your child's activity to the gas station, and 3) the trip home.

Should my children participate? Yes, trips to and from school, sports practice, play dates, and other activities help us understand the full nature of how the transportation system is used, and how it can be improved.

Who should be counted as a member of my household? Everyone who lives in your dwelling unit and shares the kitchen is a part of your household, including family and non-family members.

STUDY OVERVIEW

This study has 2 parts	1 HOUSEHOLD INFO SURVEY	2 TRAVEL DIARY SURVEY
When do I take the survey?	As soon as convenient	After the day of your assigned travel
Who takes the survey?	You	All adults (an adult should also report trips for children under 18)
How long will the survey take?	About 15 minutes	About 5 minutes per person
What is the survey about?	We ask about your household and household members' typical travel behavior	Return to the website, call us, or mail back your survey(s) to report the trips you made on your assigned travel date.

After completing both parts, your household will be entered into a drawing for an Apple iPad

Thank you for your participation.

You are one of the first households to complete this study before we invite many others throughout the state. We would like to hear your thoughts on how we could improve the study.

Your feedback will remain anonymous and will only be used to help improve the study. Please see our privacy policy on the study website cttransportationstudy.org for more information.

Were any questions or instructions confusing or unclear? *If so, please tell us which instructions were confusing and why.*

Do you have any general recommendations for how we can further improve this study? *If so, please tell us your ideas and suggestions.*

This study is being conducted by the Connecticut Department of Transportation (CTDOT), in partnership with the Connecticut Transportation Institute at the University of Connecticut (Uconn).

UCONN

CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Travel Diary

Thank you for agreeing to participate in the Connecticut Statewide Transportation Study. Your input will help the Connecticut Department of Transportation better plan and prioritize future transportation improvements.

Please answer the questions in the pages that follow and report your responses either:

By calling the toll-free number: 1-844-872-2562

By logging onto the secure study website https://cttransportationstudy.org with the password below

By mailing the travel diaries using the return envelope to:

Connecticut Transportation Institute
270 Middle Turnpike, Unit 5202, Storrs, CT 06269-5202

Traveler Name:

Travel Date:

Password:

General Instructions

To complete your participation in the study, please fill out the travel diary for each person in your household and report the trips made on the assigned travel date. We have sent you a diary form for each household member you listed in Part 1 of the study.

Step 1 - On your assigned travel day:
Each adult (age 18 or older) in your household should carry this travel diary and note details about each trip made. Adults should complete a separate diary for each child (under age 18) in the household.

Step 2 - After you complete your travel for the day:
Report your trip information to us. In order to report trips, you can either *(a) call us or (b) log on to the secure study website or (c) mail us the travel diaries using the return envelope.*

Things to Remember

- Your travel day begins at 3AM on your assigned day and ends 24 hours later. For many people, the first trip begins when they leave home in the morning.
- Complete both Part A: General Information about Travel Day (Page 6) and Part B: Travel Diary (Pages 7 through 19)
- Report each trip you made on a separate page in Part B. See Page 5 for an example of a trip.
- For each trip you made on the assigned travel date, please provide information for Sections I, II, and III
- When providing information:
  - For multiple choice questions, check the correct option
  - For fill-in questions, use codes provided on Page 3 and Page 4 in the boxes provided
  - For each location visited, provide full street addresses or provide nearby intersection or cross-streets
  - For open-ended questions, provide as much details as possible in the space provided
  - When reporting fare/cost paid, please round to the nearest dollar.

Confidentiality
This survey is conducted in accordance with strict privacy provisions. For more information, please visit our privacy policy page on the study website at https://cttransportationstudy.org.

Provide information for any additional trips in the table below. Please provide as much info as you are able in the space provided.

	Time Arrived At	Time Departed From	Trip Details: Trip Purpose *(See list 1)*	Trip Details: Destination Name, Address, or Intersection	Traveled by Mode	Traveled With
Example	*2:00PM*	*2:20PM*	*Pick up Dan*	*Somers High School, Somers CT*	*Car*	*Jamie, daughter*
Place 13						
Place 14						
Place 15						
Place 16						
Place 17						
Place 18						
Place 19						
Place 20						
Place 21						
Place 22						

I

Where Did You Go?

Describe the type of location/business at Place 12:

Address:

City: State: Zip Code:

When did you arrive? : AM PM

What did you do there? *(See List 1)*

II

How Did You Get There?

Select mode of transportation below:

- ☐ Vehicle in household
- ☐ Other vehicle (rental, borrowed)
- ☐ Bicycle
- ☐ Walk/jog/wheelchair
- ☐ Public (city) bus
- ☐ Other *(See List 2)*

How many people were on the trip including yourself?

How many of these people were NOT members of your household?

If you used a vehicle (household or other), answer below questions:

Vehicle Make: Model: Year:

Were you the driver or passenger? ☐ Driver ☐ Passenger

Did you use a carpool/HOV lane on this trip? ☐ Yes ☐ No

Did you use a toll road on the trip? ☐ No ☐ Yes, and the toll was $

Where did you park? *(See List 3)*

How did you pay for parking? *(See List 4)* And the cost was $

If you took a taxi or car service how much did you pay? $

If you used public transit (e.g. Bus, Metro-North), answer below questions:

How did you travel to the first transit stop/station? *(See List 5)*

How did you travel from the last transit stop to Place 12? *(See List 6)*

How did you pay for fare? *(See List 7)* And the cost was $

How many transfers did you make?

List which system(s) you took. *(See List 8)* , , , , ,

III

When Did You Leave?

When did you leave Place 12? : AM PM

Was this the last place you went to on your travel day?

- ☐ No, please provide some limited details for all other places where you stopped at on the next page.
- ☐ Yes. **Thank you, you're done!**

Answer Codes

Codes for fill-in questions are below

List 1: What did you do at the place?

1. Go home
2. Go to primary workplace
3. Go to other work-related place
4. Attend school/class
5. Other school-related activity
6. Grocery shopping
7. Other shopping (mall, store)
8. Run errands (bank, haircut)
9. Go to restaurant/bar/get take-out
10. Drop off/pick up/accompany other person
11. Exercise (gym, walk, run)
12. Family activity (child's game)
13. Medical visit (doctor, dentist)
14. Social (visit friends/relatives)
15. Leisure/entertainment (movies)
16. Religious/civic/volunteer
17. Vacation/holiday/traveling (hotel)
18. Change travel mode (wait for bus, change planes)
19. Other

List 2: (Other) How did you get there?

1. Subway
2. Metro-North/Commuter Rail
3. Regular Taxi/hired car
4. School Bus
5. Vanpool
6. Intercity Bus (Greyhound, Peter Pan)
7. Dial-a-Ride/Paratransit
8. Airplane/helicopter
9. Shuttle (hotel /airport shuttle)
10. Train (Amtrak)
11. Ferry/boat
12. Ride Share (Uber, Lyft)
13. Other

List 3: Where did you park?

1. Own driveway/garage
2. Someone else's driveway
3. Parking lot/garage at destination (within 2 blocks)
4. Parking lot/garage 2+ blocks away from destination
5. On street parking at destination (within 2 blocks)
6. On street parking 2+ blocks away from destination
7. Park & ride lot
8. Didn't park (waited, drop-off, drive-thru)
9. Other

List 4: Did you pay for parking?

1. No, parking was free
2. Yes, with cash/tickets
3. Yes, with parking pass
4. No, another person paid or was reimbursed
5. Not sure/don't remember

List 5: How did you get to the first transit stop/station?

1. Walked or jogged
2. Rode a bike
3. Drove and parked a car
4. Got dropped off
5. Took a taxi/ride-share (Uber, Lyft)
6. Transferred from other transit
7. Was already at the stop
8. Other

List 6: How did you go from transit stop to destination?

1. Walked or jogged
2. Rode a bike
3. Drove a parked car
4. Got picked up
5. Took a taxi /ride-share (Uber, Lyft)
6. Transferred to other transit
7. Was already at the destination
8. Other

List 7: How did you pay for fare?

1. Free (no cost)
2. Cash or ticket(s)
3. Stored value card
4. Used pass (any type)
5. Not sure/don't remember
6. Other

List 8: Which transit system(s) did you take?

1. CT Transit – Hartford
2. CT Transit – Stamford
3. CT Transit – New Haven
4. CT Transit – Meriden
5. CT Transit – Bristol
6. CT Transit – Waterbury
7. CT Transit – Wallingford
8. CTFastrak
9. I-Bus Express
10. Norwalk Transit District
11. Northwestern Ct Transit District
12. Middletown Ct Area Transit
13. Collins Bus Services
14. New Britain Transportation Company
15. Windham Region Transit District
16. North East Transportation
17. Greater Bridgeport
18. Estuary Transit District
19. Housatonic Area Regional Transit
20. Milford Transit District
21. Norwalk Transit District
22. Southeast Transit District SEAT
23. Valley Transit District
24. Metro North (MTA)
25. Amtrak
26. Shoreline East

I

Where Did You Go?

Describe the type of location/business at Place 11:

Address:

City: State: Zip Code:

When did you arrive? : AM PM

What did you do there? *(See List 1)*

II

How Did You Get There?

Select mode of transportation below:

- ☐ Vehicle in household
- ☐ Other vehicle (rental, borrowed)
- ☐ Bicycle
- ☐ Walk/jog/wheelchair
- ☐ Public (city) bus
- ☐ Other *(See List 2)*

How many people were on the trip including yourself?

How many of these people were NOT members of your household?

If you used a vehicle (household or other), answer below questions:

Vehicle Make: Model: Year:

Were you the driver or passenger? ☐ Driver ☐ Passenger

Did you use a carpool/HOV lane on this trip? ☐ Yes ☐ No

Did you use a toll road on the trip? ☐ No ☐ Yes, and the toll was $

Where did you park? *(See List 3)*

How did you pay for parking? *(See List 4)* And the cost was $

If you took a taxi or car service how much did you pay? $

If you used public transit (e.g. Bus, Metro-North), answer below questions:

How did you travel to the first transit stop/station? *(See List 5)*

How did you travel from the last transit stop to Place 11? *(See List 6)*

How did you pay for fare? *(See List 7)* And the cost was $

How many transfers did you make?

List which system(s) you took. *(See List 8)* , , , , ,

III

When Did You Leave?

When did you leave Place 11? : AM PM

Was this the last place you went to on your travel day?

- ☐ No, please provide details for Place 12 on the next page.
- ☐ Yes. **Thank you, you're done!**

Place 10

I Where Did You Go?

Describe the type of location/business at Place 10:

Address:

City: State: Zip Code:

When did you arrive? : AM PM

What did you do there? *(See List 1)*

II How Did You Get There?

Select mode of transportation below:

- ☐ Vehicle in household
- ☐ Other vehicle (rental, borrowed)
- ☐ Bicycle
- ☐ Walk/jog/wheelchair
- ☐ Public (city) bus
- ☐ Other *(See List 2)*

How many people were on the trip including yourself?

How many of these people were NOT members of your household?

If you used a vehicle (household or other), answer below questions:

Vehicle Make: Model: Year:

Were you the driver or passenger? ☐ Driver ☐ Passenger

Did you use a carpool/HOV lane on this trip? ☐ Yes ☐ No

Did you use a toll road on the trip? ☐ No ☐ Yes, and the toll was $

Where did you park? *(See List 3)*

How did you pay for parking? *(See List 4)* And the cost was $

If you took a taxi or car service how much did you pay? $

If you used public transit (e.g. Bus, Metro-North), answer below questions:

How did you travel to the first transit stop/station? *(See List 5)*

How did you travel from the last transit stop to Place 10? *(See List 6)*

How did you pay for fare? *(See List 7)* And the cost was $

How many transfers did you make?

List which system(s) you took. *(See List 8)* , , , , ,

III When Did You Leave?

When did you leave Place 10? : AM PM

Was this the last place you went to on your travel day?

- ☐ No, please provide details for Place 11 on the next page.
- ☐ Yes. **Thank you, you're done!**

Sample Travel Diary

I Where Did You Go?

Describe the type of location/business at Place1: *"Stop and Shop" supermarket*

Address: *50 Windsorville Road*

City: *Vernon* State: *CT* Zip Code: *06066*

When did you arrive? *1 0* : *0 0* (AM) PM

What did you do there? *(See List 1)* *0 6*

II How Did You Get There?

Select mode of transportation below:

- ☒ Vehicle in household
- ☐ Other vehicle (rental, borrowed)
- ☐ Bicycle
- ☐ Walk/jog/wheelchair
- ☐ Public (city) bus
- ☐ Other *(See List 2)*

How many people were on the trip including yourself? *0 3*

How many of these people were NOT members of your household? *0 1*

If you used a vehicle (household or other), answer below questions:

Vehicle Make: *Toyota* Model: *Sequoia* Year: *2 0 0 3*

Were you the driver or passenger? ☒ Driver ☐ Passenger

Did you use a carpool/HOV lane on this trip? ☒ Yes ☐ No

Did you use a toll road on the trip? ☐ No ☒ Yes, and the toll was $ *0 2*

Where did you park? *(See List 3)* *0 3*

How did you pay for parking? *(See List 4)* *0 2* And the cost was $ *0 4*

If you took a taxi or car service how much did you pay? $

If you used public transit (e.g. Bus, Metro-North), answer below questions:

How did you travel to the first transit stop/station? *(See List 5)*

How did you travel from the last transit stop to Place 1? *(See List 6)*

How did you pay for fare? *(See List 7)* And the cost was $

How many transfers did you make?

List which system(s) you took. *(See List 8)* , , , , ,

III When Did You Leave?

When did you leave Place 1? *1 1* : *0 0* (AM) PM

Was this the last place you went to on your travel day?

- ☐ No, please provide details for Place 2 on the next page.
- ☒ Yes. **Thank you, you're done!**

Begin Filling Your Travel Diary Here

Part A: General information about travel day

Where were you at 3 AM when the travel day began?

- ☐ Home
- ☐ Work (Primary)
- ☐ Another place, please specify address below:

Address:

City: State: Zip Code:

If traveling between places, please provide the last place you stopped at before 3AM (even if it was a short stop such as to get gas).

Did you go anywhere on your travel day, even if it was a short trip such as a walk or bike ride? ☐ Yes ☐ No

If you made trips, at what time did you leave the starting location?

: AM PM *(Enter hour and minute and circle AM or PM)*

If you did not go anywhere, what were the reason(s)? Check all that apply.

- ☐ Was not scheduled to work or took a vacation/personal day
- ☐ Worked from home for pay (e.g. telecommuted or home-based job)
- ☐ Worked around the home (not for pay)
- ☐ The kids were on school vacation/break
- ☐ Did not have available transportation (no car, no way to get to bus, etc.)
- ☐ Was sick or caring for another person (child or family member) at home
- ☐ Was waiting for a delivery or visitor (e.g. cable installation)
- ☐ Other, please specify:

If you made trips, proceed to Part B on next page to report details about your first trip.

If you did not go anywhere, your travel diary is complete.

I

Where Did You Go?

Describe the type of location/business at Place 9:

Address:

City: State: Zip Code:

When did you arrive? : AM PM

What did you do there? *(See List 1)*

II

How Did You Get There?

Select mode of transportation below:

- ☐ Vehicle in household
- ☐ Other vehicle (rental, borrowed)
- ☐ Bicycle
- ☐ Walk/jog/wheelchair
- ☐ Public (city) bus
- ☐ Other *(See List 2)*

How many people were on the trip including yourself?

How many of these people were NOT members of your household?

If you used a vehicle (household or other), answer below questions:

Vehicle Make: Model: Year:

Were you the driver or passenger? ☐ Driver ☐ Passenger

Did you use a carpool/HOV lane on this trip? ☐ Yes ☐ No

Did you use a toll road on the trip? ☐ No ☐ Yes, and the toll was $

Where did you park? *(See List 3)*

How did you pay for parking? *(See List 4)* And the cost was $

If you took a taxi or car service how much did you pay? $

If you used public transit (e.g. Bus, Metro-North), answer below questions:

How did you travel to the first transit stop/station? *(See List 5)*

How did you travel from the last transit stop to Place 9? *(See List 6)*

How did you pay for fare? *(See List 7)* And the cost was $

How many transfers did you make?

List which system(s) you took. *(See List 8)* , , , , ,

III

When Did You Leave?

When did you leave Place 9? : AM PM

Was this the last place you went to on your travel day?

- ☐ No, please provide details for Place 10 on the next page.
- ☐ Yes. **Thank you, you're done!**

I

Where Did You Go?

Describe the type of location/business at Place 8:

Address:

City: State: Zip Code:

When did you arrive? : AM PM

What did you do there? *(See List 1)*

II

How Did You Get There?

Select mode of transportation below:

- ☐ Vehicle in household
- ☐ Other vehicle (rental, borrowed)
- ☐ Bicycle
- ☐ Walk/jog/wheelchair
- ☐ Public (city) bus
- ☐ Other *(See List 2)*

How many people were on the trip including yourself?

How many of these people were NOT members of your household?

If you used a vehicle (household or other), answer below questions:

Vehicle Make: Model: Year:

Were you the driver or passenger? ☐ Driver ☐ Passenger

Did you use a carpool/HOV lane on this trip? ☐ Yes ☐ No

Did you use a toll road on the trip? ☐ No ☐ Yes, and the toll was $

Where did you park? *(See List 3)*

How did you pay for parking? *(See List 4)* And the cost was $

If you took a taxi or car service how much did you pay? $

If you used public transit (e.g. Bus, Metro-North), answer below questions:

How did you travel to the first transit stop/station? *(See List 5)*

How did you travel from the last transit stop to Place 8? *(See List 6)*

How did you pay for fare? *(See List 7)* And the cost was $

How many transfers did you make?

List which system(s) you took. *(See List 8)* , , , , ,

III

When Did You Leave?

When did you leave Place 8? : AM PM

Was this the last place you went to on your travel day?

- ☐ No, please provide details for Place 9 on the next page.
- ☐ Yes. **Thank you, you're done!**

Part B: Travel Diary

I

Where Did You Go?

Describe the type of location/business at Place 1:

Address:

City: State: Zip Code:

When did you arrive? : AM PM

What did you do there? *(See List 1)*

II

How Did You Get There?

Select mode of transportation below:

- ☐ Vehicle in household
- ☐ Other vehicle (rental, borrowed)
- ☐ Bicycle
- ☐ Walk/jog/wheelchair
- ☐ Public (city) bus
- ☐ Other *(See List 2)*

How many people were on the trip including yourself?

How many of these people were NOT members of your household?

If you used a vehicle (household or other), answer below questions:

Vehicle Make: Model: Year:

Were you the driver or passenger? ☐ Driver ☐ Passenger

Did you use a carpool/HOV lane on this trip? ☐ Yes ☐ No

Did you use a toll road on the trip? ☐ No ☐ Yes, and the toll was $

Where did you park? *(See List 3)*

How did you pay for parking? *(See List 4)* And the cost was $

If you took a taxi or car service how much did you pay? $

If you used public transit (e.g. Bus, Metro-North), answer below questions:

How did you travel to the first transit stop/station? *(See List 5)*

How did you travel from the last transit stop to Place 1? *(See List 6)*

How did you pay for fare? *(See List 7)* And the cost was $

How many transfers did you make?

List which system(s) you took. *(See List 8)* , , , , ,

III

When Did You Leave?

When did you leave Place 1? : AM PM

Was this the last place you went to on your travel day?

- ☐ No, please provide details for Place 2 on the next page.
- ☐ Yes. **Thank you, you're done!**

I

Where Did You Go?

Describe the type of location/business at Place 2:

Address:

City: State: Zip Code:

When did you arrive? : AM PM

What did you do there? *(See List 1)*

II

How Did You Get There?

Select mode of transportation below:

- ☐ Vehicle in household
- ☐ Other vehicle (rental, borrowed)
- ☐ Bicycle
- ☐ Walk/jog/wheelchair
- ☐ Public (city) bus
- ☐ Other *(See List 2)*

How many people were on the trip including yourself?

How many of these people were NOT members of your household?

If you used a vehicle (household or other), answer below questions:

Vehicle Make: Model: Year:

Were you the driver or passenger? ☐ Driver ☐ Passenger

Did you use a carpool/HOV lane on this trip? ☐ Yes ☐ No

Did you use a toll road on the trip? ☐ No ☐ Yes, and the toll was $

Where did you park? *(See List 3)*

How did you pay for parking? *(See List 4)* And the cost was $

If you took a taxi or car service how much did you pay? $

If you used public transit (e.g. Bus, Metro-North), answer below questions:

How did you travel to the first transit stop/station? *(See List 5)*

How did you travel from the last transit stop to Place 2? *(See List 6)*

How did you pay for fare? *(See List 7)* And the cost was $

How many transfers did you make?

List which system(s) you took. *(See List 8)* , , , , ,

III

When Did You Leave?

When did you leave Place 2? : AM PM

Was this the last place you went to on your travel day?

- ☐ No, please provide details for Place 3 on the next page.
- ☐ Yes. **Thank you, you're done!**

I

Where Did You Go?

Describe the type of location/business at Place 7:

Address:

City: State: Zip Code:

When did you arrive? : AM PM

What did you do there? *(See List 1)*

II

How Did You Get There?

Select mode of transportation below:

- ☐ Vehicle in household
- ☐ Other vehicle (rental, borrowed)
- ☐ Bicycle
- ☐ Walk/jog/wheelchair
- ☐ Public (city) bus
- ☐ Other *(See List 2)*

How many people were on the trip including yourself?

How many of these people were NOT members of your household?

If you used a vehicle (household or other), answer below questions:

Vehicle Make: Model: Year:

Were you the driver or passenger? ☐ Driver ☐ Passenger

Did you use a carpool/HOV lane on this trip? ☐ Yes ☐ No

Did you use a toll road on the trip? ☐ No ☐ Yes, and the toll was $

Where did you park? *(See List 3)*

How did you pay for parking? *(See List 4)* And the cost was $

If you took a taxi or car service how much did you pay? $

If you used public transit (e.g. Bus, Metro-North), answer below questions:

How did you travel to the first transit stop/station? *(See List 5)*

How did you travel from the last transit stop to Place 7? *(See List 6)*

How did you pay for fare? *(See List 7)* And the cost was $

How many transfers did you make?

List which system(s) you took. *(See List 8)* , , , , ,

III

When Did You Leave?

When did you leave Place 7? : AM PM

Was this the last place you went to on your travel day?

- ☐ No, please provide details for Place 8 on the next page.
- ☐ Yes. **Thank you, you're done!**

I

Where Did You Go?

Describe the type of location/business at Place 6:

Address:

City: State: Zip Code:

When did you arrive? : AM PM

What did you do there? *(See List 1)*

II

How Did You Get There?

Select mode of transportation below:

- ☐ Vehicle in household
- ☐ Other vehicle (rental, borrowed)
- ☐ Bicycle
- ☐ Walk/jog/wheelchair
- ☐ Public (city) bus
- ☐ Other *(See List 2)*

How many people were on the trip including yourself?

How many of these people were NOT members of your household?

If you used a vehicle (household or other), answer below questions:

Vehicle Make: Model: Year:

Were you the driver or passenger? ☐ Driver ☐ Passenger

Did you use a carpool/HOV lane on this trip? ☐ Yes ☐ No

Did you use a toll road on the trip? ☐ No ☐ Yes, and the toll was $

Where did you park? *(See List 3)*

How did you pay for parking? *(See List 4)* And the cost was $

If you took a taxi or car service how much did you pay? $

If you used public transit (e.g. Bus, Metro-North), answer below questions:

How did you travel to the first transit stop/station? *(See List 5)*

How did you travel from the last transit stop to Place 6? *(See List 6)*

How did you pay for fare? *(See List 7)* And the cost was $

How many transfers did you make?

List which system(s) you took. *(See List 8)* , , , , ,

III

When Did You Leave?

When did you leave Place 6? : AM PM

Was this the last place you went to on your travel day?

- ☐ No, please provide details for Place 7 on the next page.
- ☐ Yes. **Thank you, you're done!**

I

Where Did You Go?

Describe the type of location/business at Place 3:

Address:

City: State: Zip Code:

When did you arrive? : AM PM

What did you do there? *(See List 1)*

II

How Did You Get There?

Select mode of transportation below:

- ☐ Vehicle in household
- ☐ Other vehicle (rental, borrowed)
- ☐ Bicycle
- ☐ Walk/jog/wheelchair
- ☐ Public (city) bus
- ☐ Other *(See List 2)*

How many people were on the trip including yourself?

How many of these people were NOT members of your household?

If you used a vehicle (household or other), answer below questions:

Vehicle Make: Model: Year:

Were you the driver or passenger? ☐ Driver ☐ Passenger

Did you use a carpool/HOV lane on this trip? ☐ Yes ☐ No

Did you use a toll road on the trip? ☐ No ☐ Yes, and the toll was $

Where did you park? *(See List 3)*

How did you pay for parking? *(See List 4)* And the cost was $

If you took a taxi or car service how much did you pay? $

If you used public transit (e.g. Bus, Metro-North), answer below questions:

How did you travel to the first transit stop/station? *(See List 5)*

How did you travel from the last transit stop to Place 3? *(See List 6)*

How did you pay for fare? *(See List 7)* And the cost was $

How many transfers did you make?

List which system(s) you took. *(See List 8)* , , , , ,

III

When Did You Leave?

When did you leave Place 3? : AM PM

Was this the last place you went to on your travel day?

- ☐ No, please provide details for Place 4 on the next page.
- ☐ Yes. **Thank you, you're done!**

I

Where Did You Go?

Describe the type of location/business at Place 4:

Address:

City: State: Zip Code:

When did you arrive? : AM PM

What did you do there? *(See List 1)*

II

How Did You Get There?

Select mode of transportation below:

- ☐ Vehicle in household
- ☐ Other vehicle (rental, borrowed)
- ☐ Bicycle
- ☐ Walk/jog/wheelchair
- ☐ Public (city) bus
- ☐ Other *(See List 2)*

How many people were on the trip including yourself?

How many of these people were NOT members of your household?

If you used a vehicle (household or other), answer below questions:

Vehicle Make: Model: Year:

Were you the driver or passenger? ☐ Driver ☐ Passenger

Did you use a carpool/HOV lane on this trip? ☐ Yes ☐ No

Did you use a toll road on the trip? ☐ No ☐ Yes, and the toll was $

Where did you park? *(See List 3)*

How did you pay for parking? *(See List 4)* And the cost was $

If you took a taxi or car service how much did you pay? $

If you used public transit (e.g. Bus, Metro-North), answer below questions:

How did you travel to the first transit stop/station? *(See List 5)*

How did you travel from the last transit stop to Place 4? *(See List 6)*

How did you pay for fare? *(See List 7)* And the cost was $

How many transfers did you make?

List which system(s) you took. *(See List 8)* , , , , ,

III

When Did You Leave?

When did you leave Place 4? : AM PM

Was this the last place you went to on your travel day?

- ☐ No, please provide details for Place 5 on the next page.
- ☐ Yes. **Thank you, you're done!**

I

Where Did You Go?

Describe the type of location/business at Place 5:

Address:

City: State: Zip Code:

When did you arrive? : AM PM

What did you do there? *(See List 1)*

II

How Did You Get There?

Select mode of transportation below:

- ☐ Vehicle in household
- ☐ Other vehicle (rental, borrowed)
- ☐ Bicycle
- ☐ Walk/jog/wheelchair
- ☐ Public (city) bus
- ☐ Other *(See List 2)*

How many people were on the trip including yourself?

How many of these people were NOT members of your household?

If you used a vehicle (household or other), answer below questions:

Vehicle Make: Model: Year:

Were you the driver or passenger? ☐ Driver ☐ Passenger

Did you use a carpool/HOV lane on this trip? ☐ Yes ☐ No

Did you use a toll road on the trip? ☐ No ☐ Yes, and the toll was $

Where did you park? *(See List 3)*

How did you pay for parking? *(See List 4)* And the cost was $

If you took a taxi or car service how much did you pay? $

If you used public transit (e.g. Bus, Metro-North), answer below questions:

How did you travel to the first transit stop/station? *(See List 5)*

How did you travel from the last transit stop to Place 5? *(See List 6)*

How did you pay for fare? *(See List 7)* And the cost was $

How many transfers did you make?

List which system(s) you took. *(See List 8)* , , , , ,

III

When Did You Leave?

When did you leave Place 5? : AM PM

Was this the last place you went to on your travel day?

- ☐ No, please provide details for Place 6 on the next page.
- ☐ Yes. **Thank you, you're done!**

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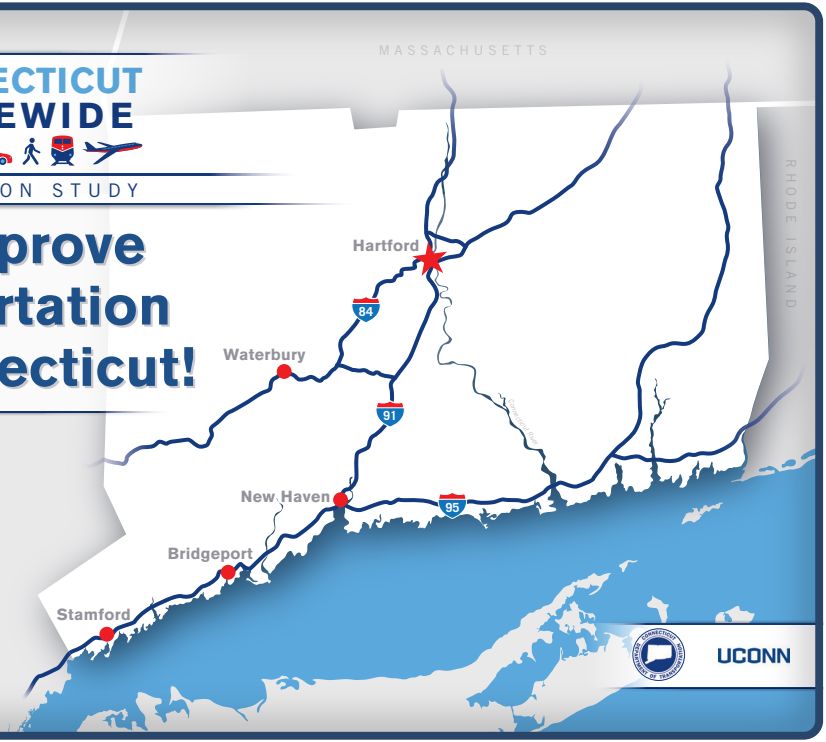
CONNECTICUT STATEWIDE

TRANSPORTATION STUDY

Help improve transportation in Connecticut!



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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Connecticut Transportation Institute
270 Middle Turnpike, Unit 5202, Storrs, CT 06269-5202

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STORRS, CT
PERMIT NO 36

In a few days, you will receive an invitation packet in the mail to participate in an important transportation study.

The Connecticut Department of Transportation and the Connecticut Transportation Institute at UCONN are performing this study to better understand the travel behaviors and transportation needs of Connecticut residents. The information collected in this study will help improve the transportation system and prioritize future transportation improvements in the state of Connecticut.

You are one of the few households randomly selected to participate in the study and your participation will have a significant impact. The information you provide will be kept confidential and will only be used for transportation planning purposes without disclosing identifiable information. **As thanks for your participation, your household will be entered into a drawing for an Apple iPad after completing the survey.**

To start now, go to the secure study website with your password: https://cttransportationstudy.org

<password>

Or call toll-free: 1-844-872-2562

Questions? Email: help@cttransportationstudy.org

Lo invitamos a compartir sus experiencias de traslado en su región.
Para participar, llame sin costo: 1-844-872-2562

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CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CONNECTICUT
TRANSPORTATION
INSTITUTE
270 Middle Turnpike, Unit 5202
Storrs, CT 06269-5202

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Help improve the future of transportation in Connecticut by participating in this important study!

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STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546

<Letter Date>

<First and last name/City name resident
Street Address 1
Street Address 2
City, CT #####>

Dear <First and last name/City name resident>

I'm asking you to help us improve our state's transportation system by participating in the Connecticut Statewide Transportation Study. Your input will help the Connecticut Department of Transportation to better plan and prioritize future transportation improvements. Yours is one of the few households randomly selected to participate in this study. The information you provide will have a significant impact on transportation planning in the state and in your community. As thanks for your time, **your household will be entered into a drawing for an Apple iPad** after completing the survey.

PARTICIPATION IN THE STUDY IS A SIMPLE THREE STEP PROCESS:

STEP 1: Briefly tell us about your household. You can do this now.

Log on to the secure website using your password:

Study website: https://cttransportationstudy.org

Password: <password>

Or, participate over the phone by calling toll-free:
1-844-872-2562
- **Monday-Friday: 9AM – 8PM EST**
- **Saturday: 10AM – 4PM EST**

Or leave us a message with the best time and number for us to call you.

STEP 2: Track your trips on <travel date>. We ask that each member of your household keep track of every trip they make that day, using the enclosed Travel Logs to help remember the details of each trip.

STEP 3: Tell us about your travels. Just like Step 1, return to the survey website with your password or call us to report the trips you made on <travel date>. We will also ask a few questions about your household's typical travel habits.

That's all it takes to help us with this critical study!

Your privacy will be protected and your name and address will never be linked to the survey form. All information will be kept confidential and will only be used for transportation planning purposes without disclosing identifiable information. Please refer to the study website for our privacy policy.

For more details about this study, please see the back of this letter for answers to Frequently Asked Questions. You can also email **help@cttransportationstudy.org** or call **1-844-872-2562**.

Thank you in advance for your important contribution to improving transportation in Connecticut.

Sincerely,

Thomas J Maziarz

Thomas Maziarz
Bureau Chief, Bureau of Policy and Planning
Connecticut Department of Transportation

Lo invitamos a compartir sus experiencias de traslado en su región. Para participar, llame sin costo: 1-844-872-2562

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

FREQUENTLY ASKED QUESTIONS

SECURE STUDY WEBSITE: **https://cttransportationstudy.org**
EMAIL: **help@cttransportationstudy.org**
TOLL-FREE TELEPHONE: **1-844-872-2562**

Lo invitamos a compartir sus experiencias de traslado en su región. Para participar, llame sin costo: 1-844-872-2562

GENERAL INFORMATION

What is the Connecticut Statewide Transportation Study all about? The study is collecting information about everyday travel behavior of residents in the state of Connecticut including how we travel, where we go, why we travel, how long it takes, etc.

How was I selected to participate? Invited households (like yours) were randomly selected from all the residential addresses in the state. The random approach helps us understand the travel needs of all types of households from different regions in the state.

Why should I participate? Current data about residents' travel characteristics helps the state understand and plan for current and future transportation needs. It also helps local agencies plan for transportation improvements in your communities. Your responses have a large impact because yours is one of a small number of households invited to participate in the study.

My travel on the date assigned to me isn't "typical" – should I still participate? Yes. This study aims to collect travel information on the date assigned to you even if it is not a "typical" travel day. We will separately ask you a few questions about your usual travel habits.

I don't travel very much – should I still participate? Yes. Whether you make a lot of trips or don't go anywhere at all, please report what actually happens on your assigned travel date. In addition to driving, we also want to know about any trips you make by walking, biking, riding transit, or any other mode of transportation.

Who is sponsoring this study? This study is sponsored by Connecticut Department of Transportation in partnership with Connecticut Transportation Institute at UCONN.

What are my rights as a participant? You do not have to be in this study if you do not want to. If you agree to be in the study, but later change your mind, you may drop out at any time. There are no penalties or consequences of any kind if you decide that you do not want to participate, though you will not receive compensation. We will be happy to answer any questions you have about this study. If you have further questions about this project or if you have a research-related problem, you may contact the principal investigator, Dr. Karthik Charan Konduri at kkonduri@engr.uconn.edu. If you have any questions concerning your rights as a research subject, you may contact the University of Connecticut Institutional Review Board (IRB) at 860-486-8802. The IRB is a group of people who review research studies to protect the rights and welfare of research participants. This protocol has been approved by the UConn IRB, Protocol #H15-307.

What will I get for participating? As thanks for your time, your household will be entered into a drawing for an Apple iPad after every person in your household completes the survey.

TAKING THE SURVEY

What do I use the "Travel Log" for? The "Travel Log" can be used to keep track of the details of your trips on the assigned travel date.

Why is my household assigned a specific travel date? We are asking for information about the travel made by each person in your household on one chosen weekday. We call this your "travel day" or "travel date". This helps us develop a full picture of all the travel that happens across the region and the state on each weekday (even if it is not a "typical" travel day).

What is a trip? A trip is any time you travel from one location and stop at a new location. Even if you stop briefly for gas, at an ATM, or to drop a child off at school, travel to that stop counts as one trip, and travel from that stop to the next place counts as a separate trip. If you go out and return to the same place without stopping (such as a jog, bike ride, or leisurely drive) then this counts as two trips: from the starting location to the furthest point you reach, and the trip back to your starting point.

What are some examples of trips? See below for some common trips that people make:

- Drive to work
- Drop your child off at school
- Walk the dog
- Bike to the grocery store
- Walk to the bus stop and then ride the bus to the bank
- Carpool to a meeting in New York

Often what we think of as one trip may actually be a chain of several trips. For example, "I picked up my child and stopped to buy gas on my way home from work" counts as three trips: 1) a trip from work to your child's activity, 2) a trip from your child's activity to the gas station, and 3) the trip home.

Should my children participate? Yes, trips to and from school, sports practice, play dates, and other activities help us understand the full nature of how the transportation system is used, and how it can be improved.

Who should be counted as a member of my household? Everyone who lives in your dwelling unit and shares the kitchen is a part of your household, including family and non-family members.

STUDY OVERVIEW

This study has 2 parts	1 HOUSEHOLD INFO SURVEY	2 TRAVEL DIARY SURVEY
When do I take the survey?	As soon as convenient	After the day of your assigned travel
Who takes the survey?	You	All adults (an adult should also report trips for children under 18)
How long will the survey take?	About 15 minutes	About 5 minutes per person
What is the survey about?	We ask about your household and household members' typical travel behavior	Return to the website (or call) to report the trips you made on your assigned travel date (use your Travel Log to keep track!)

After completing both parts, your household will be entered into a drawing for an Apple iPad

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

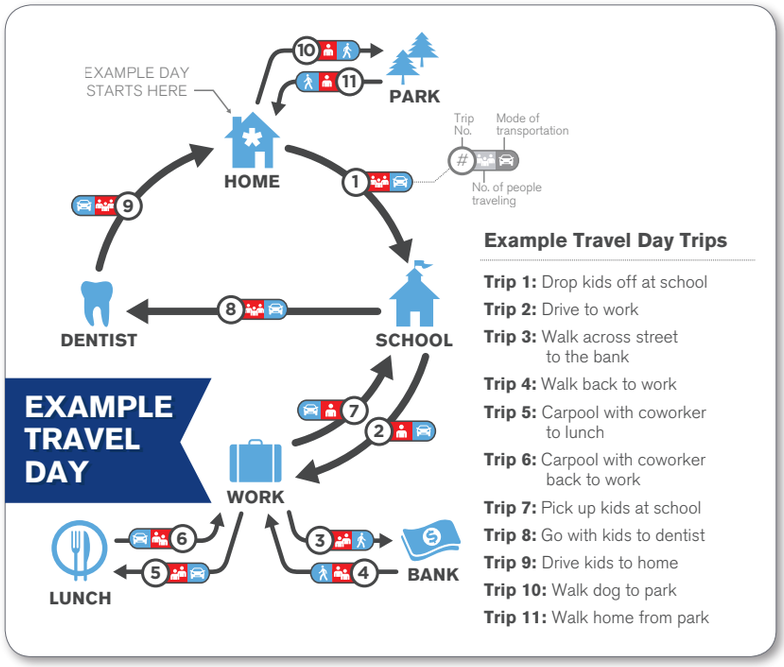
TRAVEL LOG INSTRUCTIONS

SECURE STUDY WEBSITE: **https://cttransportationstudy.org**
TOLL-FREE TELEPHONE: **1-844-872-2562**

STEP 1: On your assigned travel day:
Each adult (age 18 or older) in your household should take this Travel Log with them and note each trip made. Note: Your travel day begins at 3AM on your assigned day and ends 24 hours later. For many people, the first trip begins when they leave home in the morning.

STEP 2: After you complete your travel for the day:
Have your password ready (from the invitation letter) and call us or log on to the secure study website to record all your logged trips. Adults should also report all trips for children (under age 18) in the household.

What is a trip? A trip is any time you travel from one location and stop at a new location. Even if you stop briefly for gas, at an ATM, or to drop a child off at school, travel to that stop counts as one trip, and travel from that stop to the next place counts as a separate trip. If you go out and return to the same place without stopping (such as a jog, bike ride, or leisurely drive) then this counts as two trips: from the starting location to the furthest point you reach, and the trip back to your starting point.



CONNECTICUT STATEWIDE TRANSPORTATION STUDY

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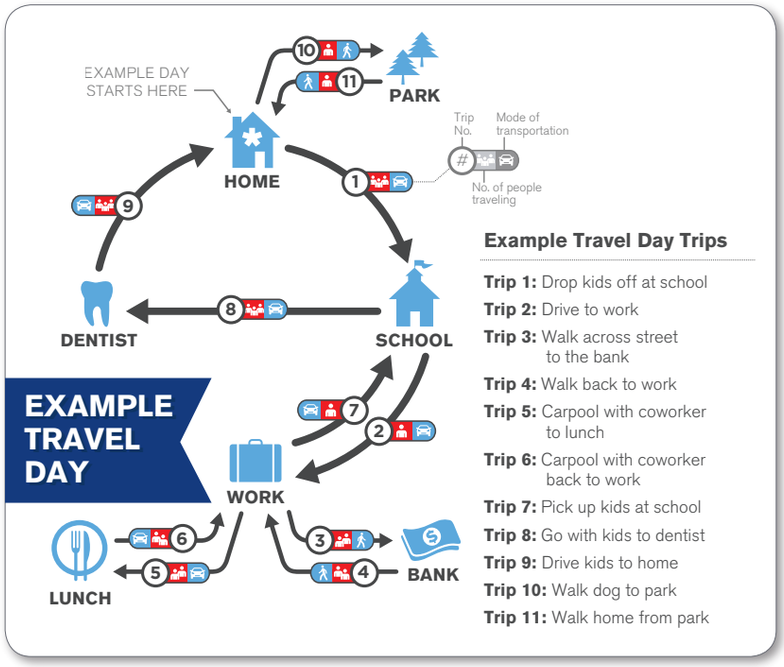
STEP 2: After you complete your travel for the day:
Have your password ready (from the invitation letter) and call us or log on to the secure study website to record all your logged trips. Adults should also report all trips for children (under age 18) in the household.

What is a trip? A trip is any time you travel from one location and stop at a new location. Even if you stop briefly for gas, at an ATM, or to drop a child off at school, travel to that stop counts as one trip, and travel from that stop to the next place counts as a separate trip. If you go out and return to the same place without stopping (such as a jog, bike ride, or leisurely drive) then this counts as two trips: from the starting location to the furthest point you reach, and the trip back to your starting point.



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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

TRAVEL LOG

SECURE STUDY WEBSITE:
https://cttransportationstudy.org
TOLL-FREE TELEPHONE:
1-844-872-2562

Name

Travel Date mm / dd / yy

Password

	When did your trip...		Where did you go?		Traveled by:	Traveled with:
	Start	End	Description	Address, Intersection, or Business Name		
Example	*7:05AM*	*7:20AM*	*Drop kids at school*	*West Middle Elementary School, Hartford*	*Car*	*Grace, Sophie*
Example	*7:25AM*	*7:45AM*	*Drive to work*	*550 Main St, Hartford*	*Car*	*N/A*
1st Trip						
2nd Trip						
3rd Trip						
4th Trip						
5th Trip						
6th Trip						
7th Trip						
8th Trip						
9th Trip						
10th Trip						

- **Include ALL trips you made on your travel day, even short stops such as stopping for gas or picking up coffee**
- **Include only the time spent traveling when listing your 'start' and 'end' times. Do not include any time spent at the location**

Questions?
TOLL-FREE TELEPHONE:
1-844-872-2562
EMAIL:
help@cttransportationstudy.org

This sheet is for your use only. We do not need you to return this form.
If you have questions, please email: help@cttransportationstudy.org

CONNECTICUT STATEWIDE TRANSPORTATION STUDY

TRAVEL LOG

SECURE STUDY WEBSITE:
https://cttransportationstudy.org
TOLL-FREE TELEPHONE:
1-844-872-2562

Name

Travel Date mm / dd / yy

Password

	When did your trip...		Where did you go?		Traveled by:	Traveled with:
	Start	End	Description	Address, Intersection, or Business Name		
Example	*7:05AM*	*7:20AM*	*Drop kids at school*	*West Middle Elementary School, Hartford*	*Car*	*Grace, Sophie*
Example	*7:25AM*	*7:45AM*	*Drive to work*	*550 Main St, Hartford*	*Car*	*N/A*
1st Trip						
2nd Trip						
3rd Trip						
4th Trip						
5th Trip						
6th Trip						
7th Trip						
8th Trip						
9th Trip						
10th Trip						

- Include ALL trips you made on your travel day, even short stops such as stopping for gas or picking up coffee
- Include only the time spent traveling when listing your 'start' and 'end' times. Do not include any time spent at the location

Questions?
TOLL-FREE TELEPHONE:
1-844-872-2562
EMAIL:
help@cttransportationstudy.org

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If you have questions, please email: help@cttransportationstudy.org

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CONNECTICUT STATEWIDE

TRANSPORTATION STUDY

Help improve transportation in Connecticut!

REMINDER:
You can still participate!

UCONN

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Connecticut Transportation Institute
270 Middle Turnpike, Unit 5202, Storrs, CT 06269-5202

We recently mailed you an invitation to participate in the Connecticut Statewide Transportation Study.

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STORRS, CT
PERMIT NO 36

If you have already started completing the survey, **thank you!**
If not, you still have time and participation is easy – please see the instructions below to get started.

Please tell us about your travels on: **<travel date>**

To participate, go online and enter your password: https://cttransportationstudy.org

<password>

Or call toll-free: 1-844-872-2562

Remember, your input is important! Your participation will help the Connecticut Department of Transportation plan and prioritize future transportation improvements in the state.

As thanks for your participation, your household will be entered into a drawing for an Apple iPad after completing the survey.

Questions? Email: help@cttransportationstudy.org

Lo invitamos a compartir sus experiencias de traslado en su región.
Para participar, llame sin costo: 1-844-872-2562

Appendix C

Comparison of Pilot Survey Respondent Characteristics to Population Characteristics

It must be noted that the below summaries of pilot survey respondent characteristics are from the gift card segment alone. Also, the distributions reported from the ACS 2009-2013 only correspond to town of Hartford, town of Norwalk and New London County. Comparisons are limited to only those demographic variables (household size, household income, householder age, and age of individuals) that are of interest in the sampling plan.

TABLE A.1: Comparison of household size distribution of pilot study respondents

Category	CTHTS		ACS 2009-2013	
	Frequency	Percentage	Frequency	Percentage
1 person	41	28.5%	58377	30.9%
2 persons	69	47.9%	61243	32.4%
3 persons	11	7.6%	29949	15.8%
4 persons	16	11.1%	23420	12.4%
5 persons	4	2.8%	10625	5.6%
6 persons	2	1.4%	3572	1.9%
7 or more persons	1	0.7%	1924	1.0%
Total	**144**	**100.0%**	**189110**	**100.0%**

TABLE A.2: Comparison of household income distribution of pilot study respondents

Category	CTHTS[1]		ACS 2009-2013	
	Frequency	Percentage	Frequency	Percentage
Under $25,000	17	13.8%	43548	23.0%
$25,000-$49,999	21	17.1%	40835	21.6%
$50,000-$74,999	20	16.3%	31819	16.8%
$75,000-$99,999	18	14.6%	23184	12.3%
$100,000 or more	47	38.2%	49724	26.3%
Total	123	100.0%	189110	100.0%

[1] 21 respondents out of the 144 preferred not to answer this question. Thus, distribution of income for only those respondents who provided valid response are shown.

TABLE A.3: Comparison of distribution of householder age of pilot study respondents

Category	CTHTS		ACS 2009-2013	
	Frequency	Percentage	Frequency	Percentage
18-24	0	0.0%	7296	3.9%
25-34	22	15.3%	29829	15.8%
35-44	17	11.8%	34545	18.3%
45-54	24	16.7%	41885	22.1%
55-64	32	22.2%	34980	18.5%
65-74	33	22.9%	21740	11.5%
75-84	13	9.0%	13310	7.0%
85 years or older	3	2.1%	5525	2.9%
Total	144	100.0%	189110	100.0%

TABLE A.4: Comparison of age distribution of pilot study respondents

Category	CTHTS		ACS 2009-2013	
	Frequency	Percentage	Frequency	Percentage
< 5 years	15	4.8%	28224	5.8%
5-17	36	11.4%	78927	16.2%
18-24	11	3.5%	53070	10.9%
25-34	38	12.1%	65871	13.6%
35-44	40	12.7%	63206	13.0%
45-54	44	14.0%	72463	14.9%
55-64	57	18.1%	59403	12.2%
65-74	55	17.5%	35098	7.2%
75-84	16	5.1%	20518	4.2%
85+ years	3	1.0%	8939	1.8%
Total	315	100.0%	485719	100.0%

Appendix D

Main Study Incentive Plan

INTRODUCTION

This appendix describes the revised incentive plan that was implemented in the main study phase of the Connecticut Statewide Transportation Study (CSTS). Revisions were made to incorporate direction from Federal Highway Administration (FHWA) to provide a vendor-neutral incentive for the main data collection effort. The appendix reviews the following aspects of the revised incentive plan:

1. Factors considered when revising the incentive plan and identifying potential vendors
2. Overview of the incentive plan for the CSTS main data collection effort

FACTORS INFLUENCING SURVEY INCENTIVE PLAN REVISIONS

For the CSTS main data collection effort the incentive plan was re-designed after the pilot study, based on feedback received from FHWA. For the main study, FHWA required that the incentive plan follow below guidelines:

- Differential incentives (e.g. higher incentive values for hard-to-reach households) will not be offered i.e. all households are offered $10, contingent upon completion of the entire study.
- All incentives offered will be in the form of Visa or MasterCard gift cards (incentives from a perceived neutral vendor) as opposed to gift cards from specific retail establishments (e.g. Walmart, Amazon).

In the re-design of the incentive plan, the study team reviewed a number of vendors offering Visa or MasterCard gift cards. The following factors were considered:

- Fees (fee per card, delivery fee, services/processing fees)
- Method of distribution (e.g. vendor offers both virtual and physical gift cards)
- Efficiency of distribution (purchasing, tracking, re-issuing)
- Ease of access/use for participants

Visa or MasterCard gift cards provide participants with flexibility in spending their incentive money, but many vendors have per card fees that add to the cost (or detract from the real value of the incentive given to the participant). The primary factor in vendor selection was identifying a vendor that had the lowest per card fees (i.e. processing fees and delivery fees).

Second, identifying a vendor offering both physical and virtual card options was important in order to lower costs (by purchasing in bulk) and maximize efficiency in the purchasing process. When offered a choice of distribution method (physical or virtual) for incentives, majority of households currently ask for virtual gift cards (much faster for the participant to receive the gift card AND lower cost). However, some households (usually lower income or older households) still request that their gift card be mailed to them. This is slower and may add a small additional cost, but it helps encourage participation from households with limited interest in or access to the internet.

Vendors specializing in bulk incentives often provide services that make it efficient to purchase, distribute, track, and re-issue (if requested) large orders of gift cards. The services offered by bulk incentive vendors will also improve the participant's overall experience by decreasing the distribution time (delivering within 1-2 weeks of survey completion) and providing a customer service hotline for participants should, they have any questions regarding use of their gift card.

REVISED INCENTIVE PLAN FOR MAIN STUDY

The study team recommended using the vendor, Virtual Incentives (http://www.virtualincentives.com/), for the main data collection effort. Virtual Incentives (VI) offered the lowest per card fees, delivered both virtual and physical Visa gift cards, and specialized in bulk orders providing a number of services to maximize efficiency in the distribution process.

- VI provided a delivery portal to manage the upload of individual mailing or email addresses, track shipment of gift cards, and re-issue cards as needed
- Customer service was included with each program at no additional cost
- Visa® cards were issued by Citibank, N.A. pursuant to a license from Visa U.S.A. Inc. and managed by Citi® Prepaid Services. Cards could be used at any location where Visa debit cards were accepted within the United States.

Table D.1 below summarizes the cost of the virtual and physical cards, including all fees. The cost for VI to deliver the physical gift cards is included in the "fee per card" row.

Table D.1: Breakdown of costs for each virtual and physical gift card

Cost Category	Virtual	Physical
Amount received by each respondent household	$10.00	$10.00
Fee per card	$0.00	$1.25
Total costs	**$10.00**	**$11.25**

Physical Visa Card Features

For the physical visa card program, once the study team had a list of physical gift card recipients, they were uploaded to the VI's delivery portal and VI was able to ship the cards to each household. Additionally, VI was able to re-issue cards (e.g., due to delivery failure) for no additional charge. An example card is displayed below:

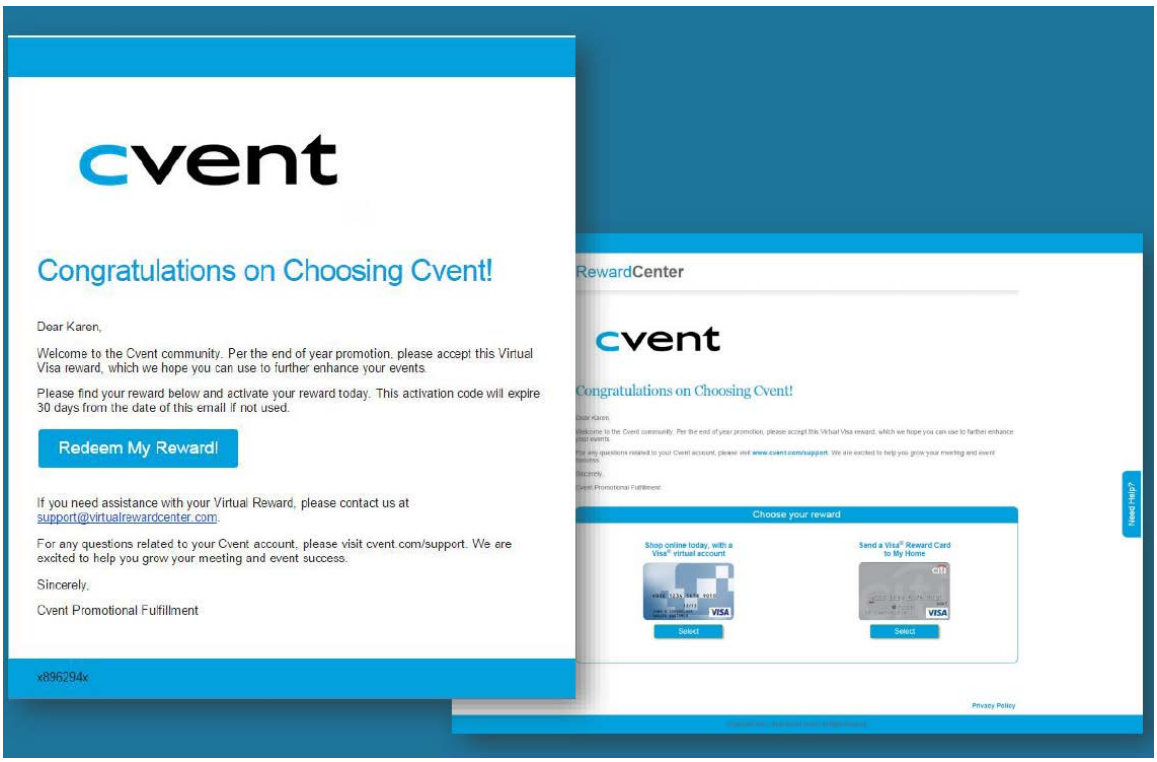
Figure D.1: Sample image of the physical visa card

Virtual Visa Card Features

For the virtual gift card program, once study team uploaded the list of virtual gift card recipients, VI sent a customized email with a secure link to the recipient (see vendor example below). The email message was customized with a short "thank you" message from the study team. The secure link allowed recipients to utilize the money online "now" or request a card in the mail. If a participant decided to utilize the money using "now" option, the recipient was directed to register their Visa virtual account and were able

to immediately use their reward online. On the other hand, if a participant choose to receive a card in the mail, they received a card in the mail similar to the “Physical Visa Card” described above. It must be noted that there was no added fee for delivery of the card.

Figure D.2: Sample email message that was received by those who chose the virtual visa card option



Appendix E

Main Study Questionnaire

Notes for reviewers

This questionnaire lays out the text that survey participants will see, including study information, survey instructions, questions, and answer choices.

A few tips and notes to keep in mind while reviewing this document:

- Each slide represents one page in the survey. Typically there is one question per page, though in some cases a few shorter questions may be asked of respondents on a single page.
- In the comments section below each slide, each question or page name is shown between [ ] square brackets (e.g., [intro]). Reviewers should use these page names to help provide feedback for the survey.
- Text between < > angle brackets indicate information displayed dynamically for each respondent (e.g., a household's travel date or the nickname of the person answering a survey)
- Slides with a gray background (such as this one) include notes, instructions for programming the survey, or longer lists of answer choices, but are not shown to survey respondents. We try to "over provide" this information for reviewer convenience.
    - Other notes for programming the survey such as survey logic (e.g., who should see or skip certain questions) are written in **red**. These notes will not be shown to respondents.
    - Text written in **green** are highlighted additions or changes for the main survey.
- Other colored text indicates items that are highlighted for respondents – these items will be displayed to respondents in these colors
    - Text written in **orange** or **green** indicates words that are highlighted onscreen to emphasize different questions or instructions
    - Text written in **blue** indicates words or phrases that are hyperlinks (pop-up descriptions, survey information pages, contact links, etc.)

Please contact Chloe (chloe.ritter@rsginc.com) with any questions or comments about this survey.

Environment & Administration

Live/Main
Website – https://cttransportationstudy.org
Survey url - https://cttransportationstudy.org/start

Internal Database name
- Pilot db: CTHTS_PilotAzure
- Main db: CTHTS_MainAzure
- These databases are internal to RSG; copies of the final datasets will be exported after the survey

Pilot survey unique ID passwords
- Unique passwords will be created with different prefixes reflecting the sampling segments
  - There are 6 cross-sectional segments for the pilot survey
  - One “extra” segment is created for reviewers (e.g. staff “test” passwords for RSG, UConn, CT DOT, COG representatives, etc.)
- Typical password format = A12345xy
  - Different password prefixes (A, B, C, etc.) help monitor responses from each sample segment

Environment & Administration

Contact information:
Website: https://cttransportationstudy.org
Email: help@cttransportationstudy.org
Phone (toll-free): 1-844-872-2562
- Phone hours (when operators are available): Mon-Fri 9AM-8PM ET, Sat 10AM-4PM ET

Study Sponsor information:
Connecticut Department of Transportation: http://www.ct.gov/dot/site/default.asp
Connecticut Transportation Institute at UCONN: https://www.cti.uconn.edu/

Environment & Administration

Survey activity	Main Survey
Recruit survey opens	March 7, 2016
Recruit survey expires	11:59PM June 3, 2016
Diary travel dates	Tue-Thu, March 15 – May 26, 2016
Diary opens	Dynamic: Diary available the day AFTER assigned travel date
Diary expires	Dynamic: expires at end of day on TD + 9 days (note, the TD is counted as one of the 9 days)
Last TD Diary expires	11:59PM June 3, 2016

1. Handling Expired/ Closed Surveys:
   a. If respondent has **not started the recruit survey and the recruit and/or diary has expired**, the intro page will detect that the survey has expired, display an expiration message, and hide the 'Next' button.
   b. If respondent is **in-progress in the recruit survey and the diary has expired**, the respondent will see the expired message upon reaching the dashboard.
   c. If respondent has **completed the recruit survey and the diary has expired**, the respondent will see expiration message upon reaching the dashboard.
   d. Travel date re-assignment will not occur for the pilot survey. If a respondent misses the pilot deadline, they can be re-invited to volunteer for the full survey

2. PAPER sample participants may choose to complete the survey online (in which case they are subject to the above travel dates). UConn may set different expectations for the deadline to mail back paper diaries (if that option is chosen) – no impact on primary online survey, as mailed-back paper diaries will be entered into a separate form

Environment & Administration

Metadata

Background data collected (not explicitly asked) in the survey. The majority of this data is not included in the dataset (to protect participant privacy), but it can be used to help troubleshoot if a participant has a problem

- Web Browser / browser version
- Mobile device manufacturer
- Mobile device model
- Is mobile device
- Platform
- IP address
- Screen Resolution
- Browser default language

Response value coding

The majority of categorical question responses are recorded with a numeric code matching the order that they are displayed, unless a different value or display order is specified. The values are not shown to respondents.

Additionally, value codes for a few common responses are used for consistency, including:

96. “Not applicable”
97. “Other"
98. “Don't know"
99. “Prefer not to answer"

Entry page

Entry page will display the entry page image and include the 'Privacy' and 'Contact us' links in the footer.
Entry page image will be 800x600px

Until 12:01 AM March 7, 2016, the password box and 'begin' button will be hidden and a message will be displayed informing people that the study will start soon and inviting them to check back or email with questions. After the survey is open, the message will be removed and the password box and "begin" button will be visible.

Survey Entry Page to be designed after photo or image is selected. Will incorporate the final study logo:

Previous Next

Footer

(content shown at the bottom of every page in the survey)

Privacy Contact us Travel Log Study Sponsor Study FAQs

- Privacy – clicking ‘Privacy’ will open the Privacy page on the study website in a new tab. Contact us – clicking ‘Contact us’ will open an email to the help address with subject “User:” + <password>
- Travel Log – clicking ‘Travel Log’ will open a new tab displaying the travel log pdf.
- Study Team – clicking ‘Study Team’ will link to the page on the study website, which will list and link to sponsors/ partners including Connecticut DOT (http://www.ct.gov/dot/site/default.asp) and Connecticut Transportation Institute at UCONN (https://www.cti.uconn.edu/)
- Study FAQs – clicking ‘Study FAQs’ will link to the FAQs page on the study website

Copyright in footer:

- © 2016, RSG, Inc. for CTDOT and the Connecticut Transportation Institute at UCONN

Thank you for your participation!

The purpose of the Connecticut Statewide Transportation Study is to understand the travel patterns and travel needs of residents like you, regardless of how often you travel or what mode you use to get around. Your participation is very important and your responses *will* have a significant impact on future transportation planning decisions throughout the region.

This study is conducted by © RSG 2016. The study is sponsored by the Connecticut Department of Transportation in partnership with the Connecticut Transportation Institute at UCONN.

Your privacy will be protected. Please click here to view our privacy policy. If you have questions, please email us at help@cttransportationstudy.org or call toll-free: 1-844-872-2562.

Previous Next

Here are some tips to help you complete the Connecticut Statewide Transportation Study.

How do I go from question to question?

Want to go forward? Use the “Next” button at the bottom of the screen to advance.

Want to back up? If you need to back up, click the “Previous” button. Please do not use your web browser’s “Back” button.

What if I need to stop taking the survey before I finish?

No problem. You can always return later and pick up from where you left off. All of your answers will automatically be saved for you.

Now, let’s get started!

Previous Next

Remember, your household's travel date is <traveldate>!

STUDY OVERVIEW

This study has 2 parts	1	2
When do I take the survey?	As soon as convenient	After the day of your assigned travel
Who takes the survey?	You	All adults (an adult should also report trips for children under 18)
How long will the survey take?	About 15 minutes	About 5 minutes per person
What is the survey about?	We ask about your household and household members' typical travel behavior	Return to the website (or call) to report the trips you made on your assigned travel date (use your Travel Log to keep track!)

After completing both parts, your household will receive your choice of a Walmart or Amazon.com gift card

How many motor vehicles (in working order) are there in your household?

Please include all motor vehicles that your household regularly uses such as cars, trucks, SUVs, vans, RVs, & motorcycles (whether owned, leased, or a company vehicle).

Please do NOT include uninspected/unregistered motor vehicles or vehicles such as ATVs, snowmobiles, trailers, golf carts, or watercraft.

- o 0 (no vehicles)
- o 1
- o 2
- o 3
- o 4
- o 5
- o 6
- o 7
- o 8
- o 9
- o 10 or more vehicles

"household?" pop-up text:

Your household includes yourself, all other adults, all children, and all roommates who normally reside with you in your home. It does not include people who are currently living away at school or college.

Previous Next

This page is shown for each vehicle in the household.
This page is only shown if the household has 1 or more vehicle(s).

Please tell us about the vehicles in your household.

Viewing <x> of <n> vehicle(s)

Year

Make

Model

Does this vehicle have a toll transponder (e.g. EZPass)?

Previous Next

Vehicle details answer options

[vehicle_year]
Lists every year between 1980-2016, in reverse chronology.
"1980 or older" is listed as the last/bottom choice.

[vehicle_make]
Dynamic list of vehicle makes (e.g. Honda, Ford), including "Other" and "Motorcycle"
Dynamically populated based on selected vehicle year

[vehicle_model]
Dynamic list of vehicle models
Dynamically populated based on selected vehicle make

[vehicle_tollpass]
- o No
- o Yes

Previous Next

How many bicycles (in working order) are there in your household?

Please include all types of bicycles (adult and child, road, mountain, commuter, etc.)

- o 0 (no bicycles)
- o 1
- o 2
- o 3
- o 4
- o 5 or more bicycles

"household?" pop-up text:

Your household includes yourself, all other adults, all children, and all roommates who normally reside with you in your home. It does not include people who are currently living away at school or college.

Previous Next

How many total people (including yourself) currently live in your household?

Please include yourself, all other adults, all children, and all roommates who normally reside with you in your home. Please do not include people who are currently living away at school or college.

- o 1 (I am the only person)
- o 2 people
- o 3 people
- o 4 people
- o 5 people
- o 6 people
- o 7 people
- o 8 people
- o 9 people
- o 10 people
- o 11 people
- o 12 or more people

Previous Next

First hh member

Viewing <1> of <n> member(s)

Please tell us about yourself.

Initials or nickname [Text, unique for each person]

Gender [ ]

Age [ ]

[if prefers not to answer exact age] Age range [ ]

[if 16+] **Primary** type of employment [ ]

[*if employed full/part/self)*] Number of jobs [ ]

[*if employed full/part/self; add dynamic text if 2+ jobs*] Hours usually worked per week <at all jobs> [ ]

[if 18+] Currently a student? [ ]

[if <18 or (age 18+ and student)] **Primary** type of school [ ]

[if 18+] Highest level of education completed [ ]

[if 16+] Has a valid driver's license? [ ]

Questions removed: toll_freq, hov_freq, parkpay_freq

Previous Next

Other hh members

Viewing <x> of <n> member(s)

Please tell about the other people in your household.

Initials or nickname — Text, unique for each person

Relationship to you

Gender

Age

[if prefers not to answer exact age] Age range

[if 16+] **Primary** type of employment

[*if employed full/part/self)*] Number of jobs

[*if employed full/part/self ; add dynamic text if 2+ jobs*] Hours usually worked per week <at all jobs>

[if 18+] Currently a student?

[if <18 or (age 18+ and student)] **Primary** type of school

[if 18+] Highest level of education completed

[if 16+] Has a valid driver's license?

Questions removed: toll_freq, hov_freq, parkpay_freq

Previous Next

member_details answer options

elationship]

- Husband/Wife/Partner
- Son/Daughter/In-law
- Mother/Father/In-law
- Brother/Sister/In-law
- Grandchild
- Other relative
- Roommate/Friend
- Household help
- 97 Other

ge]

- Less than 1
- 1
- 2
- …
- 99 or older
- 999 Prefer not to answer

ge_cat] if no answer to 1-year increments
nly show these ranges to hh members 2-n:

- Under 5 years old
- 5-11 years
- 12-15 years
- 16-17 years

how to all (including hh member 1):

- 18-24 years
- 25-34 years
- 35-44 years
- 45-54 years
- 55-64 years
- 65-74 years
- 75-84 years
- 85 or years older

[gender]

- o Male
- o Female

[employment]

- o Employed (full or part time)
- o Self-employed
- o Unpaid volunteer or intern
- o Homemaker
- o Retired
- o Not currently employed

[jobs_count]

- o 1 job
- o 2 jobs
- o 3 jobs
- o 4 jobs
- o 5 or more jobs

[hours_work]

- o 50 or more hours
- o 40–49 hours
- o 30–39 hours
- o 20–29 hours
- o 10–19 hours
- o Fewer than 10 hours
- o Hours vary greatly from week to week

[student]

- o No, not a student
- o Yes, full-time student
- o Yes, part-time student

School type:

See following slide

[education]

- o Less than high school
- o High school graduate/GED
- o Some college
- o Vocational/technical training
- o Associates degree
- o Bachelor degree
- o Graduate/post-graduate degree

[license]

- o Yes
- o No

School status/ type – Logic and response options

Person age	Student status	School type
Under 5 years old	Question not shown	Show Question: Answer choices are: - Daycare - In-house nanny/babysitter - House of friend/relative/babysitter - Preschool ~~- K-12 public or private school~~ ~~- K-12 home school (full-time or part-time)~~ ~~- College, graduate, or professional school~~ ~~- Vocational/technical school~~ - 97 Other - 95 None
5-11 years	Question not shown	Show Question: Answer choices are: ~~- Daycare~~ ~~- In-house nanny/babysitter~~ ~~- House of friend/relative/babysitter~~ - Preschool - K-12 public or private school - K-12 home school (full-time or part-time) ~~- College, graduate, or professional school~~ ~~- Vocational/technical school~~ - Other - None
12-15 years	Question not shown	Show Question: Answer choices are: ~~- Daycare~~ ~~- In-house nanny/babysitter~~ ~~- House of friend/relative/babysitter~~ ~~- Preschool~~ - K-12 public or private school - K-12 home school (full-time or part-time) ~~- College, graduate, or professional school~~ ~~- Vocational/technical school~~ - Other - None

Person age	Student status	School type
16-17 years	Question not shown	Show Question: Answer choices are: ~~- Daycare~~ ~~- In-house nanny/babysitter~~ ~~- House of friend/relative/babysitter~~ ~~- Preschool~~ - K-12 public or private school - K-12 home school (full-time or part-time) - College, graduate, or professional school - Vocational/technical school - Other - None
18-24 years	Show Question	Show Question IF answer is YES am a full or part-time student: Answer choices are: ~~- Daycare~~ ~~- In-house nanny/babysitter~~ ~~- House of friend/relative/babysitter~~ ~~- Preschool~~ - K-12 public or private school - K-12 home school (full-time or part-time) - College, graduate, or professional school - Vocational/technical school - Other ~~- None~~
25+	Show Question	Show Question: IF answer is YES am a full or part-time student: Answer choices are: ~~- Daycare~~ ~~- In-house nanny/babysitter~~ ~~- House of friend/relative/babysitter~~ ~~- Preschool~~ ~~- K-12 public or private school~~ ~~- K-12 home school (full-time or part-time)~~ - College, graduate, or professional school - Vocational/technical school - Other ~~- None~~

How often did <you / your household> use public transit in the past month?

Public transit may include any public bus, commuter rail, paratransit, or subway routes in Connecticut and the surrounding region.

If hhsize>1: Please answer for each person in the household.

Show for each HH member

<HH member 1 Name>:

How often used transit in the past month?	Select… ▼
[if EVER uses transit] How typically paid for transit fare?	Select… ▼
[if pays with pass] What type of transit pass was used most often?	Select… ▼
[if fare is not free] Eligible for discounted transit fares?	Select… ▼

Repeat sequence for each person on the same page

Previous Next

Transit details answer options

[transit_freq]

- o 6-7 days a week
- o 5 days a week
- o 4 days a week
- o 2-3 days a week
- o 1 day a week
- o A few times per month
- o Less than monthly
- o Never

[transit_fare]

- o Free (no cost)
- o Cash or ticket(s)
- o Stored value card
- o Used pass (any type)
- o 97 Other
- o 98 Don't know

[transit_pass]

- o 1 day pass(es)
- o 3 day pass(es)
- o 5 day pass(es)
- o 7 day pass
- o Monthly pass
- o 97 Other transit pass
- o 98 Don't know

[transit_discount]

- o No, pays regular fare
- o Yes, youth/student discount
- o Yes, senior/disability discount
- o Yes, other type of discount
- o 98 Don't know

Page/question only shown if HH member has student status.
Skip individuals if student status = "none" (adults) or if school type = in-home babysitter, homeschool, or none

Travel to/from school impacts many families' transportation decisions.

If HH size = 1: **How often do you travel to school to attend class or other events such as study group?**

If HH size = 2+ **How often does each person travel to their own daycare/school/college to attend class or other events such as study group?**

If HH size = 2+ Please answer for each person in your household who attends school.

<HH student 1 Name>:

[if student (not homeschool)] How often travels to school? Select… ▼

[if travels to school (not online only)] How usually travels to school? Select… ▼

Repeat sequence for each student in the household who is not homeschooled

Previous Next

School details answer options

Numbers in red indicate db values when different from display order – do not show numbers on screen

[school_freq]

- o 6-7 days a week
- o 5 days a week
- o 4 days a week
- o 2-3 days a week
- o 1 day a week
- o A few times per month
- o Less than monthly
- o <if age 5+> Never, only takes online classes

[school_mode]

- o 8 School bus <show if person is under age 25>
- o 1 Walk/jog/wheelchair
- o 2 Bicycle
- o 3 Drive alone <show if person has a drivers license>
- o 4 Drive/Carpool with ONLY family/ household member(s)
- o 5 Carpool with at least one person NOT in household
- o 6 Motorcycle/moped/scooter
- o 7 Vanpool
- o 9 Bus (public transit)
- o 10 Train (any rail, subway, monorail)
- o 11 Private shuttle bus
- o 12 Paratransit
- o 13 Taxi or other hired car service (e.g. Lyft, Uber)
- o 97 Other

Use same mode list for school/work commute (same values/options, but may be displayed in a different order or different display logic)

Mode list for travel diary is slightly different because more details are collected (e.g. vehicle used, driver/passenger, etc.)

Cycle this page/question for each HH member who travels to school. People who only take online classes, are home-schooled, or are not students do not see this question.

Please share where <name>'s usual daycare/school/college is located.

If attends school/classes/daycare in more than one place, please locate the primary school location (where goes most often).

Locate by address | Locate on the map

<if locate by address>

To search by address or business name:

1. Enter a street address, nearest intersection, or business name in the box below
2. Click on the blue search button to the right of the box
3. Click on the correct address from the list of search results that appear
4. Click "Next" to continue

- Example: 100 Main Street, New Milford, CT
- Example: W Cedar St and Richards Ave, Norwalk, CT
- Example: Timothy Edwards Middle School, South Windsor, CT

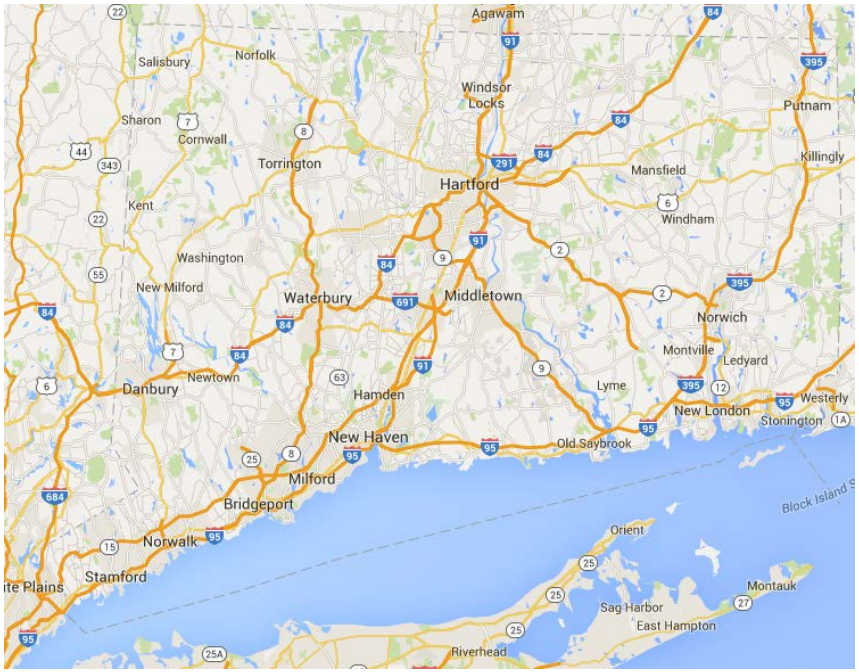
Need help locating the correct address?

<if locate by map>

Map instructions

1. Click on the map to zoom in. You can pan up, down, left, or right at any time by clicking and dragging the map.
2. When zoomed in close enough, clicking the map will place a 'marker.'
3. Continue clicking to adjust your marker until you have located the correct place.

Need help locating the correct address?



Pop up text:

Helpful tips for locating your address:

- If the address displayed doesn't match your intended address exactly that's ok, just select the closest available (e.g. "1-50 Main Street" can be used instead of "32 Main Street").
- If you're locating your address using the map and you're unable to click the building itself, click the road in front of the building and place the marker there instead.

Page/question only shown if HH member has employment status (= full-time/part-time/self/volunteer).

For many people, going to/from their job is a major part of their travel each week.
Next, we will ask a few questions in order to better understand commuting across the region.

If HH size = 1: **Please describe your job.**

If HH size = 2+ **Please describe each person's job.**

If HH size = 2+ Please answer for each person who is employed or is a volunteer. For anyone with more than one job, please answer for the **primary** job (where works most hours per week).

<HH worker/volunteer 1 Name>:

[employed full/part/self or volunteer] Primary type of workplace? Select… ▼

[employed full/part/self or volunteer] Primary occupation? Select… ▼

[employed full/part/self or volunteer] Primary employment industry? Select… ▼

Repeat sequence for each employed/volunteer member in the household

"Occupation" pop-up text:

Occupation describes the type of work performed by a person for his or her job (e.g., primary activities or duties)

"Industry" pop-up text:

Industry describes what kind of business is conducted by a person's employer or company

Previous Next

Job_type answer options

[workplace]

- o Usually the same location (outside home)
- o Workplace regularly varies (different offices or jobsites)
- o At home (telecommute or self-employed)
- o Drives for a living (e.g. bus driver, salesman)

[occupation]

- o Computer, Engineering, & Science
- o Construction & Extraction
- o Education, Legal, Community Service, Arts, & Media
- o Farming, Fishing, & Forestry
- o Healthcare Practitioners & Technical
- o Installation, Maintenance, & Repair
- o Management, Business, & Financial
- o Military
- o Office & Administrative Support
- o Production
- o Sales/ Sales-related
- o Service
- o Transportation & Material Moving
- o 97 Other
- o 98 Don't Know

[industry]

- o Accommodation & Food Services
- o Administrative, Support, & Waste Management Services
- o Agriculture, Forestry, Fishing, & Hunting
- o Arts, Entertainment, & Recreation
- o Construction
- o Education Services
- o Finance & Insurance
- o Health Care & Social Assistance
- o Information
- o Management of Companies & Enterprises
- o Manufacturing
- o Military
- o Mining, Quarrying, & Oil/Gas Extraction
- o Other Services
- o Professional, Scientific, & Technical Services
- o Public Administration
- o Real Estate, Rental, & Leasing
- o Retail Trade
- o Transportation & Warehousing
- o Utilities
- o Wholesale Trade
- o 97 Other
- o 98 Don't Know

Page/question only shown if HH member has employment status (= full-time/part-time/self/volunteer).

If HH size = 1: **In a typical week, how do you commute to work?**

If HH size = 2+: **In a typical week, how does each person commute to work?**

If HH size = 2+: Please answer for each person who is employed or is a volunteer. For anyone with more than one job or workplace, please describe travel to the **primary** job or workplace (i.e. place where works most hours per week).

<HH worker/volunteer Name>:

[workplace type = fixed or varied (not telecommute / driver] How often (in total) commutes to work each week? Select… ▼

[workplace type = fixed or varied (not telecommute or driver] How usually commutes to primary workplace? Select… ▼

[employed full/part/self or volunteer] Amount of flexibility in arrival time at workplace? Select… ▼

Repeat sequence for each employed/volunteer member in the household

Previous Next

Work_details answer options

Numbers in red indicate db values when different from display order – do not show numbers on screen

[days_work]

- o 6-7 days a week
- o 5 days a week
- o 4 days a week
- o 3 days a week
- o 2 days a week
- o 1 day a week
- o Less than weekly

[work_flex]

- o No flexibility (always start at a fixed time, though start time may vary depending on day or shift)
- o Some flexibility (e.g. can start up to 30 minutes earlier/later than scheduled)
- o Complete flexibility (e.g. can set own schedule)

[work_mode]

- o 1 Walk/jog/wheelchair
- o 2 Bicycle
- o 3 Drive alone <show if person has a drivers license>
- o 4 Drive/Carpool with <u>only</u> family/ household member(s)
- o 5 Carpool with at least one person <u>not</u> in household
- o 6 Motorcycle/moped/scooter
- o 7 Vanpool
- ~~o 8 School bus~~ <don't show school bus for work_mode>
- o 9 Bus (public transit)
- o 10 Train (any rail, subway, monorail)
- o 11 Private shuttle bus
- o 12 Paratransit
- o 13 Taxi or other hired car service (e.g. Lyft, Uber)
- o 97 Other

Use same mode list for school/work commute (same values/options, but may be displayed in a different order)

Mode list for travel diary is slightly different because more details are collected (e.g. vehicle used, driver/passenger, etc.)

*Cycle this page/question for each HH member who commutes to a **fixed** workplace. People who work at home, drive for a living, or have varied workplaces skip this question.*

Please share where <name>'s primary workplace is located.

Locate by address | Locate on the map

<if locate by address>

To search by address or business name:

1. Enter a street address, nearest intersection, or business name in the box below
2. Click on the blue search button to the right of the box
3. Click on the correct address from the list of search results that appear
4. Click "Next" to continue

-
- Example: W Cedar St and Richards Ave, Norwalk, CT
- Example: Connecticut Science Center, Hartford, CT

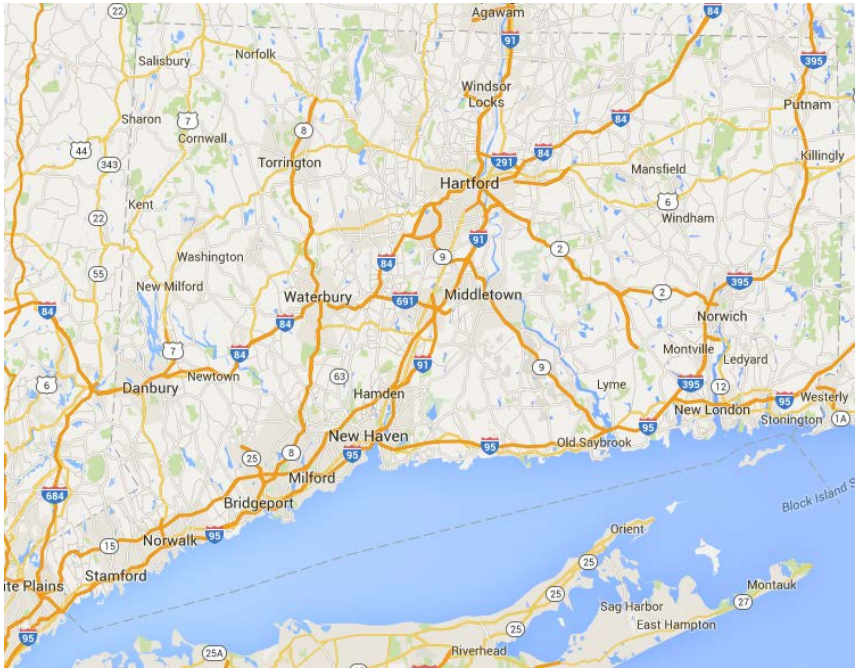
Need help locating the correct address?

<if locate by map>

Map instructions

1. Click on the map to zoom in. You can pan up, down, left, or right at any time by clicking and dragging the map.
2. When zoomed in close enough, clicking the map will place a 'marker.'
3. Continue clicking to adjust your marker until you have located the correct place.

Need help locating the correct address?



Pop up text:
Helpful tips for locating your address:

- If the address displayed doesn't match your intended address exactly that's ok, just select the closest available (e.g. "1-50 Main Street" can be used instead of "32 Main Street").
- If you're locating your address using the map and you're unable to click the building itself, click the road in front of the building and place the marker there instead.

For the next few questions, please think about your current residence (the place where you received the invitation for this study). If you received the study invitation in a PO Box, please answer for your primary residence closest to the Post Office where you collect your mail.

Do you rent or own your current residence?

- o Own/buying (paying mortgage)
- o Rent
- o Provided by job or military
- o 97 Other
- o 99 Prefer not to answer

What type of place is your current residence?

- o Single-family house (detached house)
- o Duplex or Townhouse (attached house)
- o Multi-family house (3 or fewer apartments)
- o Building with 3 or fewer apartments/condos
- o Building with 4 or more apartments/condos
- o Mobile home/trailer
- o Dorm or institutional housing
- o 97 Other (including boat, RV, van, etc.)

Previous Next

Please share where your current residence is located.

This information is *only* used to make sure a representative sample participates in the study. Please click here to view our privacy policy.

Locate by address | Locate on the map

<if locate by address>

To search by address or business name:

1. Enter a street address, nearest intersection, or business name in the box below
2. Click on the blue search button to the right of the box
3. Click on the correct address from the list of search results that appear
4. Click "Next" to continue

- Example: 100 Main Street, New Milford, CT
- Example: W Cedar St and Richards Ave, Norwalk, CT
- Example: 1620 Asylum Ave, Hartford, CT

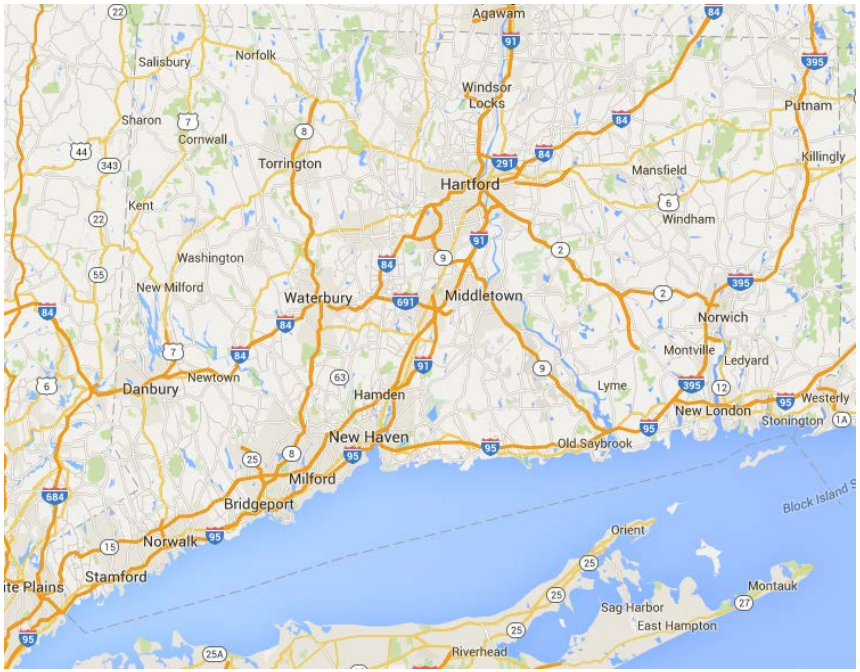
Need help locating the correct address?

<if locate by map>

Map instructions

1. Click on the map to zoom in. You can pan up, down, left, or right at any time by clicking and dragging the map.
2. When zoomed in close enough, clicking the map will place a 'marker.'
3. Continue clicking to adjust your marker until you have located the correct place.

Need help locating the correct address?



Pop up text:

Helpful tips for locating your address:

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- If you're locating your address using the map and you're unable to click the building itself, click the road in front of the building and place the marker there instead.

In 2014, what was your household's total annual income (from all sources) before taxes or other deductions from pay?

This information is only used to make sure a representative sample participates in this study. Please click here to view our privacy policy.

- o Less than $10,000
- o $10,000–$14,999
- o $15,000–$24,999
- o $25,000–$34,999
- o $35,000–$49,999
- o $50,000–$59,999
- o $60,000–$74,999
- o $75,000–$99,999
- o $100,000–$149,999
- o $150,000–$199,999
- o $200,000–$249,999
- o $250,000 or more
- o 99 Prefer not to answer

Previous Next

If prefers not to answer detailed income.

Would you be willing to tell us more generally about your household's 2014 income?

We ask to help understand how closely the people who participate in this study represent the region's true population. It also helps understand how residents are impacted by different transportation projects, policies, and costs.

Your answers will be kept strictly anonymous and will be grouped with answers from all other participating households. Please see our privacy policy for more information.

- o Under $25,000
- o $25,000–$49,999
- o $50,000–$74,999
- o $75,000–$99,999
- o $100,000 or more
- o 99 Prefer not to answer

Previous Next

Show page to everyone. Don't show any incentive info to volunteers (seg 99). Everyone gets the same amount ($10) - no extra incentives for hard-to-reach HHs.

After your household completes Part #2 of the study, we will send a $10 gift card as thanks.

What type of gift card would your household like to receive after participating in Part #2 of the study?

- o Visa virtual gift card (delivered by email)
- o Visa mailed gift card (I understand this may take longer to deliver)
- o None – prefer not to receive an incentive

Email asked of all. Email is required if chose e-gift card, show relevant incentive text only to those who select e-gift. Email is optional if chose mailed or no gift card or if in volunteer/reviewer (segnum 99).

Please provide an email address where we can <send your gift card and> send you reminders about the study.

You will only be contacted for this study and your information will never be shared or linked to your responses. Please see our privacy policy for more information.

Email text box entry: 200 characters; validate format

Previous Next

Show to all; only require one phone number if no email was provided. Custom validation message if email is skipped and phone is skipped, telling people to provide at least one (same as pilot).

We offer user support and assistance during Part #2 of the study.

Please provide one phone number that, if needed, we could use to reach you during Part #2 of the study.

As part of our privacy policy, you will only be contacted for this study and your information will NEVER be shared.

Landline:

Cell:

Previous Next

Only show if provided both an email address and a phone number

How would you prefer to be contacted for the remainder of this study?

We will send you reminders to keep track of your travel on **<traveldate>**. You will be contacted for this study only and your personal information will NEVER be shared. Please click here to view our privacy policy.

Please select all that apply.

- ❑ By email
- ❑ By telephone

Previous Next

Would your household be interested in participating in future transportation studies in your region?

The study team may conduct additional surveys or studies about other transportation or regional planning issues in the future. If you are interested, you may be contacted with more information. This would not affect your participation in this study.

o Yes
o No

Study team pop-up text:

This study is sponsored by the Connecticut Department of Transportation in partnership with the Connecticut Transportation Institute at UCONN. .

Previous Next

Next steps and thank you again for your participation!

We will remind you: We will remind you to tell us about the trips each person makes on **<traveldate>**.

Keep track of your trips: Please remember to ask EACH adult in your household to keep track of all the trips they make on **<traveldate>**. In addition, adults should log trips for children. Please use the Travel Log to keep track of your trip details.

Return to the website to report your trips: Starting on <traveldate + 1>, each adult in your household should return to this website to record the trips made on **<traveldate>**. Your household's survey will be available for one week after your travel date.

OR call in to report your trips: You may also call toll-free 1-844-872-2562 to complete the survey over the telephone.

And you're finished! *[Do not show this sentence to volunteers/reviewers (segnum = 99) or households that have selected no incentive]* Once each person in your household has answered their survey, we will <send your gift card within 10 business>.

Members	Status
Adult 1	Available after travel day
Adult 2	Let's get started!
Teen	In progress
Child	Completed

LOGIC:

1. *ALL HH members are listed and required (including children under age 5)*
2. *Surveys become available at midnight AFTER the travel date is over. E.g. If travel date = January 1st then survey is available at 12:01AM on January 2nd*
3. *Surveys expire ("Closed") 9 full days AFTER travel date. TD counts as 1 of those days. E.g. if travel date = January 1st then survey expires at 11:59PM on January 9th*

If Hhsize >= 2: Show to everyone who is age 18 or older

(Assume proxy=3 for children, assume proxy=1 where hhsize=1)

To better understand how households are completing the study, we would like to know if someone other than <NAME> is filling out this portion of the survey.

Are you <NAME> or are you filling out this survey on <NAME's> behalf?

- o I am <Name> and I am answering this survey
- o I am answering this survey for <Name> and <Name> *IS* here with me to provide answers
- o I am answering this survey for <Name> and <Name> is *NOT* here with me to provide answers

Previous Next

Where was <Name> at 3AM on <traveldate> (when the travel day BEGAN)?

If traveling between places (in a car, on a bus/plane, etc.), please provide the last place stopped BEFORE 3AM (even if it was a short stop such as to get gas).

- o Home
- o *<Show if reported fixed workplace>* Work
- o Another place, please specify: e.g. at friend's house

Where was <Name> at 3AM on <traveldate + 1> (when the travel day ENDED)?

If traveling between places (in a car, on a bus/plane, etc.), please answer with the first place stopped AFTER 3AM (even if it was a short stop such as to get gas).

- o Home
- o *<Show if reported fixed workplace >* Work
- o Another place, please specify: e.g. at friend's house

Previous Next

This question is asked if the respondent started and ended their assigned travel date at the same location (e.g. home). This is to confirm they traveled.

<Name>'s day began at <startloc> and ended at <endloc>.

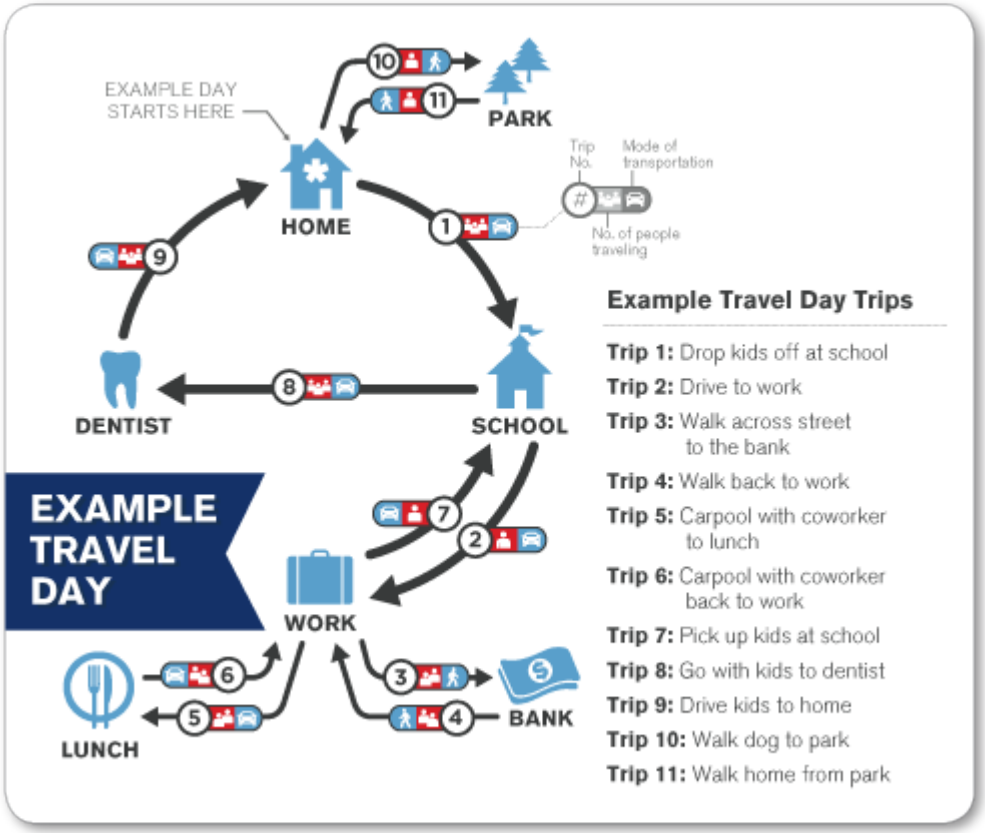
Did <Name> go anywhere on <traveldate>, even if it was just a short trip such as a walk or bike ride?

o Yes
o No

What is a trip?
A trip is anytime you travel from one location and stop at a new location. Even if you briefly stop for gas, at an ATM, or to drop a child off at school, travel to each stop counts as 1 trip.

What are some example trips?
- Drive to work
- Drop your child off at school
- Walk the dog
- Walk your child to a neighbor's
- Bike to the grocery store
- Walk to the bus stop and then ride the bus to the bank
- Carpool to a meeting in New York

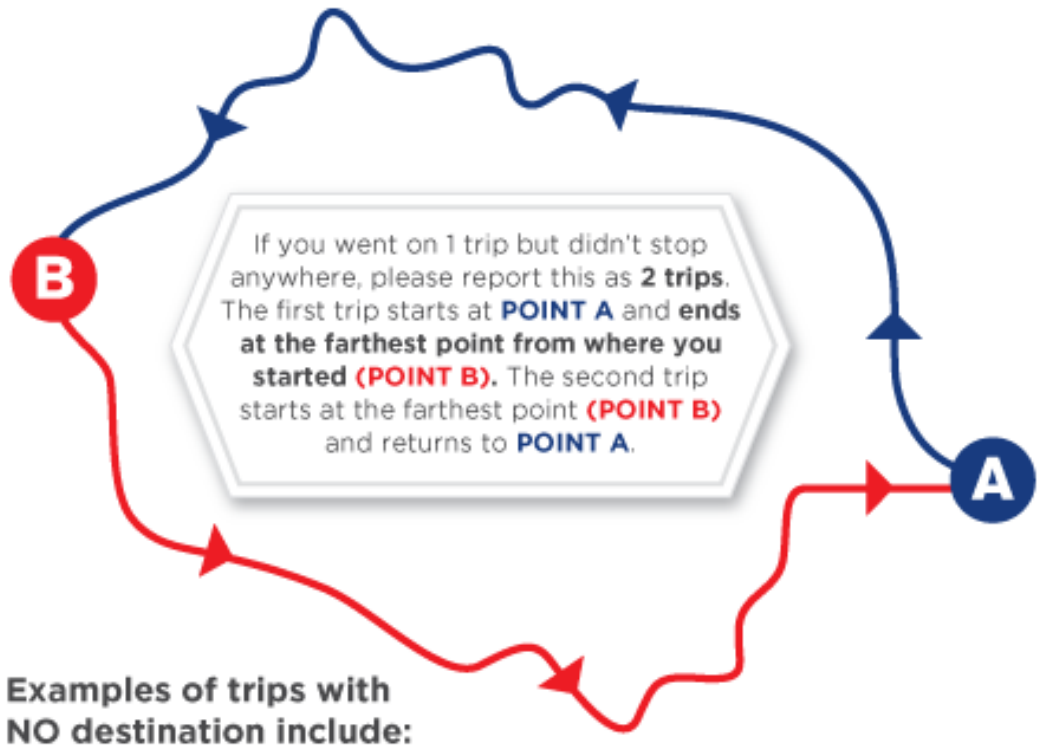
What If I go out, but return to the same place without stopping (e.g. a jog, bike ride, or leisurely drive)?
If you go out and return to the same place without stopping, this counts as **2 trips**: from the starting location to the furthest point you reach, and the trip back to your starting point. Please report the furthest point you reach as your "destination".



<pop-up example graphic on blue text – see next slide>

Previous Next

How do I record a trip if I didn't stop anywhere?



Examples of trips with NO destination include:

- A walk, jog or bike ride where you don't stop anywhere
- A drive to see sites but you don't stop anywhere

These types of trips are very important to transportation planners to understand how, where, and when people make recreational trips.

Only show this screen if the respondent started and ended their assigned travel date in different places or if copied 1+ trips from previous hh member (b/c we know they traveled over the course of the day)

Thank you. Now, we will ask to provide details about the trips <Name> made on <traveldate>.

Please review the definition of a "trip" below, then click "Next" to continue.

What is a trip?
A trip is anytime you travel from one location and stop at a new location. Even if you briefly stop for gas, at an ATM, or to drop a child off at school, travel to each stop counts as 1 trip.

What are some example trips?
- Drive to work
- Drop your child off at school
- Walk the dog
- Walk your child to a neighbor's
- Bike to the grocery store
- Walk to the bus stop and then ride the bus to the bank
- Carpool to a meeting in New York

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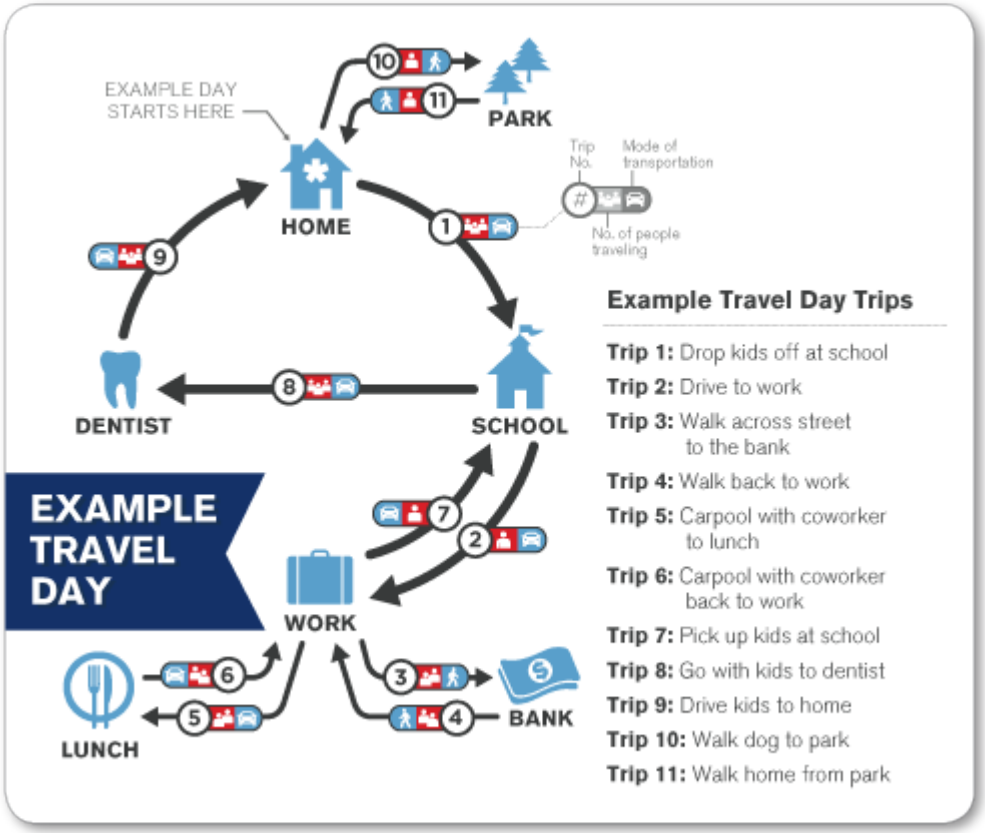


<pop-up example graphic on blue text – see previous slide>

Previous Next

<show page if made trips on travel day and are 16+>

Did <you / Name> make any of the following kinds of trips on <travel date>, either as a passenger or a driver of a vehicle?

Trips (or part of a trip) using a toll road? ☐

Trips (or part of a trip) using an HOV lane? ☐

Trips during which you paid to park the vehicle? ☐

"HOV" pop-up text:

A HOV or high-occupancy vehicle lane is a restricted traffic lane reserved for the exclusive use of vehicles with a driver and one or more passengers.

Previous Next

Travel_habits answer options

[toll_freq]

o Yes

o No

[HOV_freq]

o Yes

o No

[park_pay_freq]

o Yes

o No

If the respondent said they made NO trips on travel day

What is the reason <Name> did not make any trips on <traveldate>?

Please select all that apply.

- ❑ *<if employed>* Was not scheduled to work or took a vacation/personal day
- ❑ *<if employed>* Worked from home for pay (e.g. telecommuted or home-based job)
- ❑ Worked around the home (not for pay)
- ❑ The kids were on school vacation/break
- ❑ Did not have available transportation (no car, no way to get to bus, etc.)
- ❑ Was sick or caring another person (child or family member) at home
- ❑ Was waiting for a delivery or visitor (e.g. cable installation)
- ❑ Other

Previous Next

Prepopulate text boxes and geocoder with previously typed locations and locations geocoded in recruit survey: Home, Work, School – List/prepopulate ALL locations geocoded in recruit with person nickname attached to each person-place (e.g. "Person 1's work", "Person 2's work")

Please list, in order, all the places <Name> went between 3AM on <traveldate> and 3AM on <traveldate +1>.

Please give a short description for each unique/different place. The places where **<Name>** started and ended the day are already filled in. When all places are listed, click "Next" to continue. Remember if you go out and return to the same place without stopping, this counts as 2 trips.

<pop-up example graphic on blue text – see loop trip slide>

Click and drag a place to re-order the list. Click the icon next to a place to add a new one below. Click the icon to remove a place.

<Name> started the day at:	<loc_start>	
Then went to:	<place 1>	
Then went to:	<place 2>	
Then went to:	Enter a name for this place	
<Name> ended the day at:	<loc_end>	

Example Travel Day	
Started day at:	Home
Then went to:	Kids' school
Then went to:	Work
Then went to:	Lunch
Then went to:	Work
Then went to:	Off-site meeting
Then went to:	Work
Then went to:	Kids' school
Then went to:	Dentist
Then went to:	Home
Then went to:	Park
Ended day at:	Home

Previous Next

Listed to the right are all the places <Name> reported going on <traveldate>.

Are there any places to add for <Name>'s travel on <traveldate> that aren't already listed?

Please select all that apply.

<Name>'s Travel Day	
Started day at:	<3AM start loc>
Then went to:	<first location>
Then went to:	<second location>
Then went to:	Etc.
Ended day at:	<3AM end loc>

- ❑ Yes, went out but didn't stop anywhere (e.g. for jog/bike ride, to walk dog, go for Sunday drive, etc.)
  <pop-up example graphic on blue text – see loop trip slide>
- ❑ Yes, made 1+ short trips in middle of other activities (e.g. quick trip for lunch)
- ❑ Yes, stopped briefly on way to somewhere else (e.g. for gas, at ATM, at drive-thru)
- ❑ Yes, dropped someone off on way to somewhere else (e.g. spouse at a park & ride lot, child at friend's house)
- ❑ Yes, forgot to include another type of trip
- ❑ No, listed all of <Name>'s trips on <traveldate>

It is important to share all trips, including short stops. This will help better understand transportation needs in the region. Some trips (e.g. walks, bike rides, or short stops on way somewhere else) are easy to forget!

If the respondent selected any "Yes" answers, branch back to locs; the 2nd time they see this page, the "No" box will automatically be checked but their original answers will be saved in the DB

Previous Next

If respondent added trips on previous page, they return to the roster to add them.

Please list, in order, all the places <Name> went between 3AM on <traveldate> and 3AM on <traveldate +1>.

Please give a short description for each unique/different place. The places where **<Name>** started and ended the day are already filled in. When all places are listed, click "Next" to continue. Remember if you go out and return to the same place without stopping, this counts as 2 trips.

<pop-up example graphic on blue text – see loop trip slide>

Add this sentence if person loops back to roster after locs_confirm:

Please insert any places you want to add. Remember you can drag the places to reorder the list.

Click and drag a place to re-order the list. Click the icon next to a place to add a new one below. Click the icon to remove a place.

<Name> started the day at:	<loc_start>
Then went to:	<place 1>
Then went to:	<place 2>
Then went to:	Enter a name for this place
<Name> ended the day at:	<loc_end>

Example Travel Day	
Started day at:	Home
Then went to:	Kids' school
Then went to:	Work
Then went to:	Lunch
Then went to:	Work
Then went to:	Off-site meeting
Then went to:	Work
Then went to:	Kids' school
Then went to:	Dentist
Then went to:	Home
Then went to:	Park
Ended day at:	Home

Previous Next

Locate by Ad

- Example: 500 Ma
- Example: Market
- Example: Conne

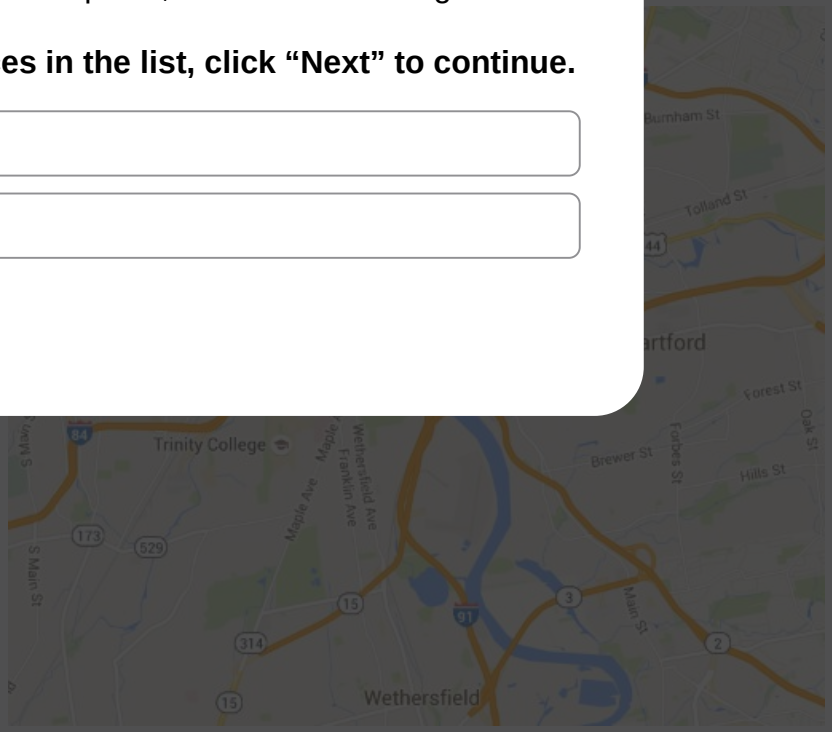
We'll now ask you to locate each place you went. Click a place below to begin locating it on the map. Once you've located a place, its button will turn green.

Once you have located all of the places in the list, click "Next" to continue.

Place 1:

Place 2:

< Previous Next >



Previous Next

Locations are cycled through in sequential order from the roster; places visited more than once (with the same name) only have to be geocoded once. Locations that were geocoded in the recruit survey (home, work, school) will be shown with a prepopulated location that respondents can confirm or change.

Please locate: **<place name>**

<two buttons/ options>

Locate by address | Locate on the map

<if locate by address>

To locate by address, please enter a *street number* or the *nearest intersection* – or you can enter a business name.

- Example: 100 Main Street, New Milford, CT
- Example: W Cedar St and Richards Ave, Norwalk, CT
- Example: Connecticut Science Center, Hartford, CT

Need help locating the correct address?

<if locate by map>

Map instructions

1. Click on the map to zoom in. You can pan up, down, left, or right at any time by clicking and dragging the map.
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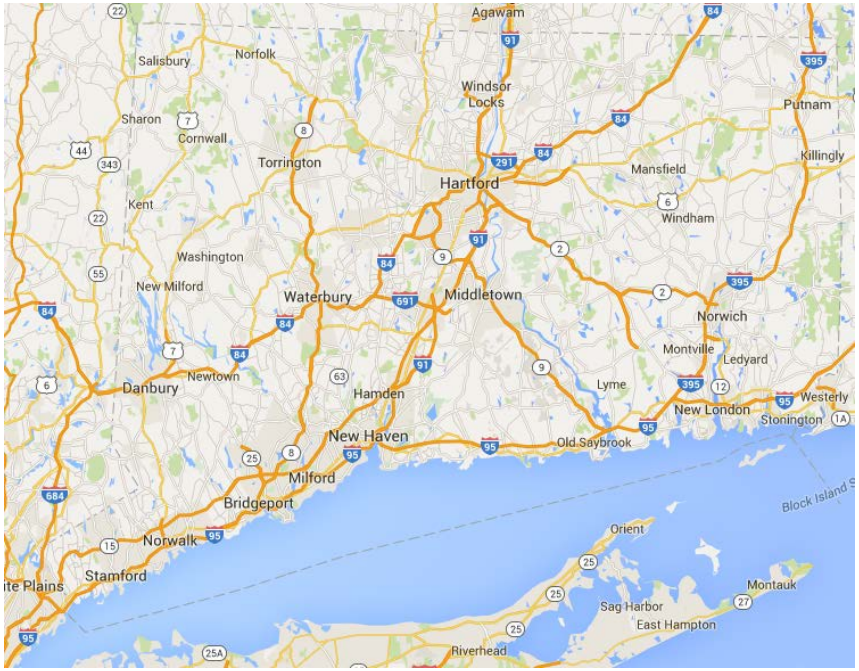
Need help locating the correct address?



Pop up text:
Helpful tips for locating your address:

- If the address displayed doesn't match your intended address exactly that's ok, just select the closest available (e.g. "1-50 Main Street" can be used instead of "32 Main Street").
- If you're locating your address using the map and you're unable to click the building itself, click the road in front of the building and place the marker there instead.

Locate by Ad

- Example: 500 Ma
- Example: Market
- Example: Conne

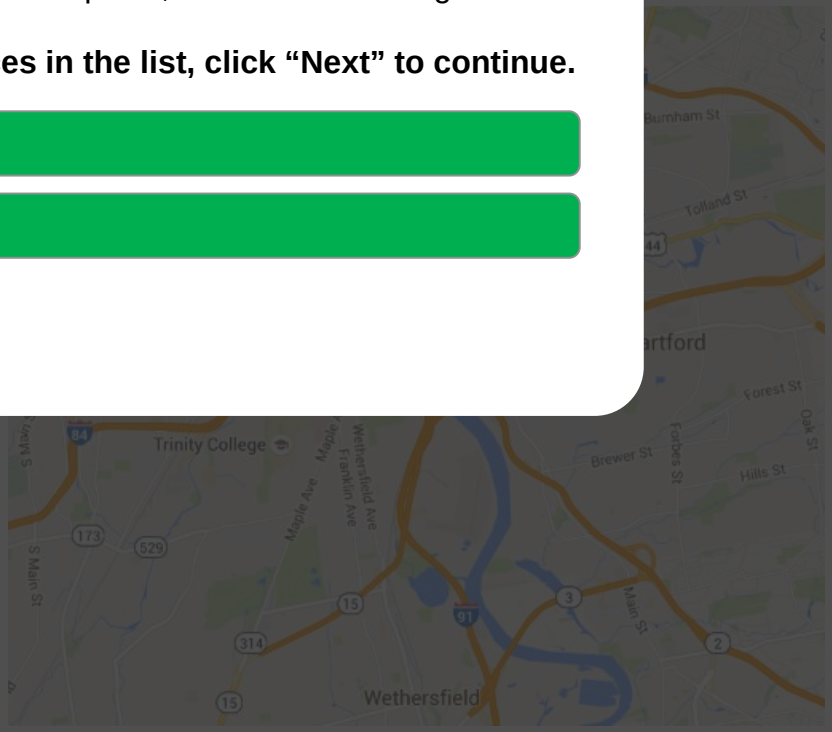
We'll now ask you to locate each place you went. Click a place below to begin locating it on the map. Once you've located a place, its button will turn green.

Once you have located all of the places in the list, click "Next" to continue.

Place 1: address details displayed

Place 2: address details displayed

< Previous Next >

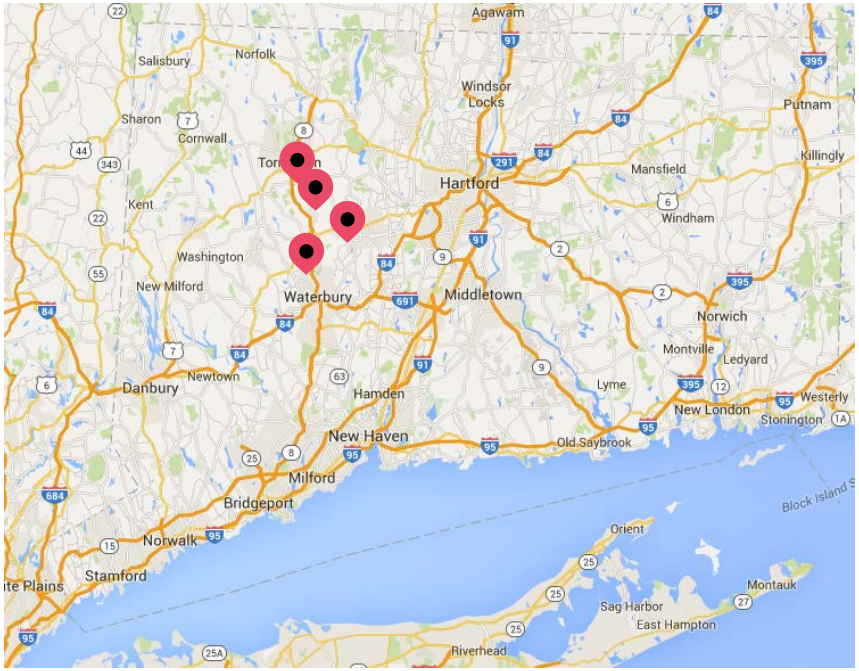


Previous Next

The list below should include all the trips <Name> made on <traveldate>.

If you need to add or remove trips, please click "Previous" to go back and edit your places.
If all trips from <day of week><traveldate> are shown, please click "Next" to continue.

Trip #	Start	End	Approx. Distance
1	<3am start loc>	<first location>	<miles, round to 1 decimal place>
2	<first location>	<second location>	
3	<second location>	Etc.	
4	Etc.	<3am end loc>	



If Google returns trip distances, show Appx distance. If Google fails to return driving distances due to flight or ferry trip , hide that column

Previous Next

General layout for trip detail questions. See following pages for mode-specific questions

Please tell us about <Name>'s trip from <trip origin> to <trip destination>.

Viewing trip <x> of <n> total trip(s).

<Name>'s Travel Day
Trip #1: <3am start loc> to <place 2>
Trip #2: <place 2> to <place 3>
Trip #3: <Etc.>
Trip #n: <last location> to <3am end loc>

Time departed from <origin> — Select… ▼

Time arrived at <destination> — Select… ▼

If hhsize > 1: Other household members who traveled on trip (select all that apply)

- ☐ <Member 1>
- ☐ <Member 2>
- ☐ Just <Name> (no other household members)

Number of other people (e.g. friends or co-workers) who specifically traveled with <Name> on trip — Select… ▼

Main way traveled on trip — Select… ▼

Main purpose of trip to <destination> — Select… ▼

If purpose= Other: Can you tell us more about the purpose of this trip? — Optional text

"Time" pop-up text:

Please round trip times to the nearest 5 minutes

Previous | Next

List of Answer Options: Trip Detail Questions: ALL TRIPS

Numbers in red indicate response codes (particularly when in a different display order) but will not be shown to respondents

[departure_time]
5 minute increments
Range from "Before 3am" to "2:55 am (next day)"
Never show "3am or later (next day)" for trip start time

Trip start must be the same as or later than the end time of the previous trip

[arrival_time]
5 minute increments
Range from "3:00 am" to "3am or later (next day)
Never show "Before 3am" for trip end time

Trip end time must be later than trip start time

[hhmember1– hhmember(max)]:
All HH members are listed.

[nonhh]
0. Nobody (0 people)
1. 1 person
2. 2 people
3. 3 people
4. 4 people
5. 5 or more people

[mode]
3 <Hide if 0 vehicle HH> Vehicle in household
4 Other vehicle (e.g. rental, friend's car)
1 Walk/jog/wheelchair
2 Bicycle
9 Public (city) bus
13 Commuter Rail (e.g. Metro North)
14 Subway
5 Regular taxi or hired car service
6 Ride-share taxi/car service (e.g. Uber, Lyft)
7 Vanpool
11 Shuttle (e.g. a hotel's, an airport's)
8 School bus
12 Paratransit
15 Intercity bus (e.g. Greyhound)
10 Train (e.g. Amtrak)
16 Ferry/water taxi/boat
17 Airplane/helicopter
97 Other

[purpose]
1 Go home
2 Go to primary workplace
3 Go to other work-related place
4 Attend school/class
5 Other school-related activity
6 Grocery shopping
7 Do other shopping (e.g. mall, hardware store)
8 Run errands (e.g. bank, haircut)
9 Go to restaurant/bar/get take-out
10 Drop off/pick up/accompany other person
11 Exercise (e.g. gym, walk, jog/run)
12 Family activity (e.g. child's game)
13 Medical visit (e.g. doctor, dentist)
14 Social (e.g. visit friends/relatives)
15 Leisure/entertainment (e.g. movies)
16 Religious/civic/volunteer
17 Vacation/holiday/traveling (e.g. hotel)
18 Change travel mode (e.g. wait for bus, change planes)
97 Other

AUTO follow-up questions: Shown if mode = hh vehicle, other vehicle, regular/ride-share taxi, vanpool

Please tell us about <Name>'s trip from <origin> to <destination>.

Viewing trip <x> of <n> total trip(s).

Time, travel party, purpose & mode questions asked of everyone (see previous slides) — Select… ▼

If hhvehicle or othvehicle: What vehicle was used? <prepopulate with answer from previous vehicle trip> — Select… ▼

If age 16+ AND travel party = 2+ AND mode <> taxi (regular or shared)
Was <Name> the driver or passenger? — Select… ▼

If travel party = 2+ AND used HOV used on TD
Was an HOV lane used for any part of this trip? — Select… ▼

If used toll road on TD: Did <Name> travel on a toll road for any part of this trip? — Select… ▼

If used toll road for this trip: How much was the toll? — $ Numeric entry: 1-99 ☐ Not sure/don't remember

If age 16+ and mode<> taxi/rideshare: Where was the vehicle parked at/near <destination>? — Select… ▼

If paid for parking on TD AND park_loc= lot/garage, on-street, park/ride Did <Name> pay for parking? — Select… ▼

If paid for parking with cash/tickets How much did parking cost? — $ Numeric entry: 1-99 ☐ Not sure/don't remember

If taxi (reg/ rideshare): How much (total) was paid to the taxi driver for this trip? — $ Numeric entry: 1-99 ☐ Not sure/don't remember

Previous Next

List of Answer Options: Trip Detail Questions: AUTO FOLLOW-UPs

[vehicle_used]
<Hide if "Other Vehicle" chosen in mode list">
List of household vehicles by name (year make model)
<Hide all non-HH vehicles if "Vehicle in household" chosen in mode list>
Rental car
Car from work
Friend/relative's car
Carshare vehicle (e.g. Car2Go)
Motorcycle/moped/scooter

[driver]
Driver
Passenger
Both (switched drivers during trip)

[HOV_lane]
2. No
1. Yes

[toll_road]
2. No
1. Yes

[toll_cost]
Participant entry

[park_loc]
<Hide if destination is not home> Own driveway/garage
Someone else's driveway
Parking lot/garage at destination (within 2 blocks)
Parking lot/garage 2+ blocks away from destination
On street parking at destination (within 2 blocks)
On street parking 2+ blocks away from destination
Park & ride lot
Didn't park (waited, drop-off, drive-thru)
Other

[park_pay]
No, parking was free
Yes, with cash/tickets
Yes, with parking pass
No, another person paid or was reimbursed
Not sure/don't remember

[park_cost]
Participant entry

[taxi_cost]
Participant entry

TRANSIT follow-up questions: Shown if mode = public bus, commuter rail, subway, train, intercity bus

Please tell us about <Name>'s trip from <origin> to <destination>.

Viewing trip <x> of <n> total trip(s).

Time, travel party, purpose & mode questions asked of everyone (see previous slides) Select… ▼

How did <Name> travel from <origin> to the first transit stop/station? Select… ▼

How did <Name> travel from the last transit stop/station to <destination>? Select… ▼

How did <Name> pay the fare? Select… ▼

If paid with cash/tickets or stored value card: How much did the fare cost? $ Numeric entry: 1-999

☐ Not sure/don't remember

Previous Next

List of Answer Options: Trip Detail Questions: TRANSIT FOLLOW-UPs

[transit_access]
Walked or jogged
Rode a bike
Drove and parked a car
Got dropped off
Took a taxi/ride-share (e.g. Uber, Lyft)
Transferred from other transit
Was already at the stop
Other

[transit_egress]
Walked or jogged
Rode a bike
Drove a parked car
Got picked up
Took a taxi /ride-share (e.g. Uber, Lyft)
Transferred to other transit
Was already at the destination
Other

[transit_pay]
Free (no cost)
Cash or ticket(s)
Stored value card
Used pass (any type)
Not sure/don't remember
Other

[transit_cost]
Participant entry

If Travel Mode on Trip = Public Bus, Commuter Rail, Subway, train, intercity bus

Travel Day Table shown on the right of the screen

<Name>'s Travel Day
Trip #1: <3am start loc> to <place 2>
Trip #2: <place 2> to <place 3>
Trip #3: <Etc.>
Trip #n: <last location> to <3am end loc>

Please list, IN ORDER, the different types of transit that you used on your trip from <origin> to <destination>.

Please list all **transfers** separately. To add a transfer, click "Add Transit" and select the correct transit system from the dropdown. Select the transit route from the second dropdown menu. To remove a system, click the "X" next to that row.

Add Transit ▼

1st transit system	1st transit route ▼	X
2nd transit system	2nd transit route ▼	X

Can add up to 5 transit legs, but only one is required

"transfer" pop-up text:

Example transfers:
1 transfer = you switch from 1 bus to another bus
1 transfer = you get off a bus and board a train

Previous Next

List of TRANSIT systems for transit route builder

1	CT Transit: Hartford area
2	CT Transit: Stamford area
3	CT Transit: New Britain area
4	CT Transit: New Haven area
5	CT Transit: Waterbury area
6	CT Transit: Bristol area
7	CT Transit: Meriden area
8	CT Transit: Wallingford area
9	CT Transit: CTFastrak
10	CT Transit: Hartford Express
11	Norwalk Transit District
12	Greater Bridgeport Transit
13	Housatonic Area Regional Transit
14	Northwestern CT Transit District
15	Valley Transit District
16	Milford Transit District
17	Middletown Area Transit
18	Estuary Transit District
19	Southeast Area Transit (SEAT)
20	Windham Region Transit District
21	Northeastern Connecticut Transit District
22	iBUS Express
23	Post Road Stages (Operated by Collins Bus Services)
24	Greyhound
25	Peter Pan
26	Dattco
27	Kelley Transit
28	CT Rides
29	Dial -A –Ride
30	Amtrak
31	Metro North
32	Shore Line East
33	Long Island Rail Road
34	MTA Subway
35	NJ Transit Rail
97	Other

[transit_route]
See Excel spreadsheet in project folder
Don’t ask transit route (or prepopulate) if system doesn’t have multiple routes

Previous Next

“Copy Trips” Feature

The following slides show the alternate questions that ask/allow household members to copy trips described by members who have already completed their diary

First page shown after "proxy" if person was reported on a previous HH member's trips

Below is a list of trips that other household members reported making with <name>. To make things easier, we can use the information they already provided if <name> made these trips together.

Please confirm the trips that you made.

Trip 1st Reported by	Start location	End location	Start time	End time	Traveled on Trip	Confirm
Mom	Home	School	7:40 AM	7:55 AM	Adult 1, Child 2	☐
Mom	School	Piano Lesson	2:55 PM	3:25 PM	Child 2	☐
Mom	Piano Lesson	Gas Station	4:35 PM	4:50 PM	Adult 1	☐
Mom	Gas Station	Home	5:00 PM	5:45 PM	Adult 1	☐
None of the above						☐

Previous Next

Page shown if person was reported on and confirms a previous HH member's trips. If person was not reported on previous trips or chose not to confirm any of the trips, they will continue as normal from the "location start" question and enter a new roster

The "travel day" began at 3AM on <assigned travel date> and ended at 3AM on <assigned travel date + 1 day>.

Was the following trip the first trip <name> made on <assigned travel date>**?**

Home to School, from <time> to <time>

1. Yes
2. No

Was the following trip the last trip <name> made on <assigned travel date>**?**

Gas Station to Home, from <time> to <time>

1. Yes
2. No

If person confirms previous trips, but says they started or ended at a different location (i.e. they say "no" to one or both of the above questions), they will answer the location start and/or end questions before proceeding to the next page.

Previous Next

Show "trips_yesno2" if person confirmed 1+ copied trips

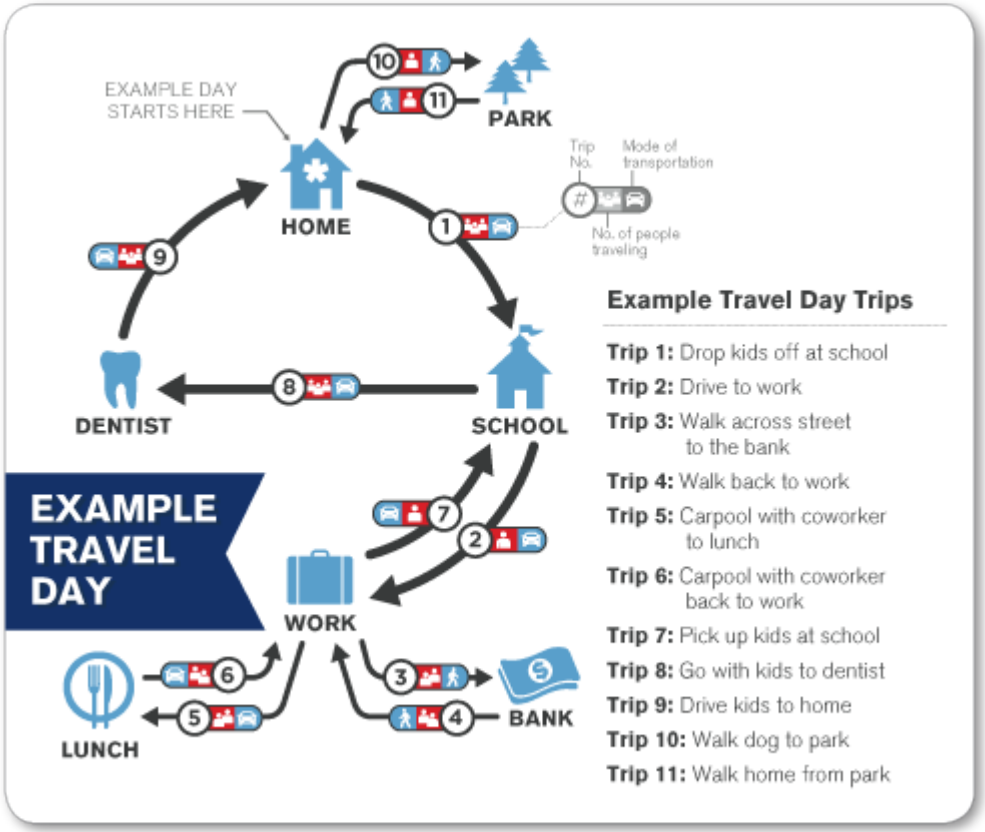
Thank you for your answers so far. Now, we'll ask you to provide **details about the trips** you made on your travel day.

Please review the definition of a "trip" below, then click "Next" to continue.

What is a trip?
A trip is anytime you travel from one location and stop at a new location. Even if you briefly stop for gas, at an ATM, or to drop a child off at school, travel to each stop counts as 1 trip.

What are some example trips?
- Drive to work
- Drop your child off at school
- Walk the dog
- Walk your child to a neighbor's
- Bike to the grocery store
- Walk to the bus stop and then ride the bus to the bank
- Carpool to a meeting in New York

What If I go out, but return to the same place without stopping (e.g. a jog, bike ride, or leisurely drive)?
If you go out and return to the same place without stopping, this counts as **2 trips**: from the starting location to the furthest point you reach, and the trip back to your starting point. Please report the furthest point you reach as your "destination".



<pop-up example graphic on blue text – see loop trip slide>

Previous Next

Page shown after person confirms start and end location of the travel day for people who were reported on and confirmed being on previous HH members' trips.

Please list, in order, all the places <Name> went between 3AM on <assigned travel date> and 3AM on <assigned travel date +1>.

Please provide a unique name or short description for each unique/different place. When all your places are listed below, click "Next" to continue. Remember if you go out and return to the same place without stopping, this counts as 2 trips.

<pop-up example graphic on blue text – see loop trip slide>

Click and drag a place to re-order the list. Click the icon next to a place to add a new one below. Click the icon to remove a place.

<Name> started the day at:	HOME
Then went to:	SCHOOL
Then went to:	PIANO LESSON
Then went to:	Enter a name for this place
<Name> ended the day at:	HOME

Example Travel Day	
Started day at:	Home
Then went to:	Kids' school
Then went to:	Work
Then went to:	Lunch
Then went to:	Work
Then went to:	Off-site meeting
Then went to:	Work
Then went to:	Kids' school
Then went to:	Dentist
Then went to:	Home
Then went to:	Park
Ended day at:	Home

Copied trips are shown, new trip destinations can be inserted between
Multi-location geocoder will ask person to locate any NEW places, but not copied trips
Validation: ensure that copied trips don't create trips to/from the same location (0-mile trips)

Previous Next

Page shown for any previously reported trips that the person confirmed. (Respondent will report the **trip purpose** for all copied trips; all other trip details are automatically copied behind the scenes)

Here are the details for <name's> trip from Home to School that were reported by another member of your household:

- Departed: <origin>at <time>
- Arrived: <destination> at <time>

Main purpose of trip to <destination> Select… ▼

For all NEW trips each person adds, they will go through the normal trip details pages

Previous Next

End of the “Copy Trips” Section

The rest of the survey is the same for all participants, whether they copied trips or not

Previous Next

<if made trips>
Was <Name>'s travel on <travel day> typical of a normal <travel day of week>?

<if did not make trips>
You said <Name> didn't make any trips on <travel date>.
Was that typical of a normal <travel day of week>?

- o Yes, it was a typical <travel day of week>
- o No, it was NOT a typical <travel day of week>, please specify reasons:

Previous Next

Page deleted: pilot questions (comments about survey and materials)

All respondents, all segments:

Thank you for your participation.

If you have any general comments that you would like to share with the study team, please enter them below and then click “Finish.”

Any feedback you wish to share will remain anonymous. Please see our privacy policy for more information.

Otherwise, please click the “Finish” button to submit your survey.

<If HHsize = 2+> If any household members still need to complete this survey, you will return to your household’s dashboard where you can start the next person’s survey.

Answering the text box is optional.

Previous Finish

Show this page when all HH members have completed the diary

Congratulations, your household has completed the Connecticut Statewide Transportation Study!

Thank you very much for your participation in this important research.

If gift card selected: Your household's thank you gift card will be sent to you within one month.

Do not show any incentive text to volunteer/review HHs (segnum = 99) or househoulds that selected no incentive

You may now close your browser.

Previous Finish

Appendix F

Main Study Online Survey Instrument

CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Thank you for your participation!

The purpose of the Connecticut Statewide Transportation Study is to understand the travel patterns and travel needs of residents like you, regardless of how often you travel or what mode you use to get around. Your participation is very important and your responses *will* have a significant impact on future transportation planning decisions throughout the region.

This study is conducted by © RSG 2016. The study is sponsored by the Connecticut Department of Transportation in partnership with the Connecticut Transportation Institute at UCONN.

Your privacy will be protected. Please click here to view our privacy policy. If you have questions, please email us at help@cttransportationstudy.org or call toll-free: 1-844-872-2562.

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Here are some tips to help you complete the Connecticut Statewide Transportation Study.

How do I go from question to question?

Want to go forward? Use the "Next" button at the bottom of the screen to advance.

Want to back up? If you need to back up, click the "Previous" button. Please do not use your web browser's "Back" button.

What if I need to stop taking the survey before I finish?

No problem. You can always return later and pick up from where you left off. All of your answers will automatically be saved for you.

Can I complete this survey on a mobile device?

We recommend taking the survey on a tablet or laptop/desktop, but the survey will also work on smartphones.

Now, let's get started!

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Remember, your household's travel date is Saturday, May 21, 2016!

STUDY OVERVIEW

This study has 2 parts

	1 HOUSEHOLD INFO SURVEY	2 TRAVEL DIARY SURVEY
When do I take the survey?	As soon as convenient	After the day of your assigned travel
Who takes the survey?	You	All adults (an adult should also report trips for children under 18)
How long will the survey take?	About 15 minutes	About 5 minutes per person
What is the survey about?	We ask about your household and household members' typical travel behavior	Return to the website (or call) to report the trips you made on your assigned travel date (use your Travel Log to keep track!)

After completing both parts, your household will receive a $10 Visa gift card

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

How many motor vehicles (in working order) are there in your household?

Please include all motor vehicles that your household regularly uses such as cars, trucks, SUVs, vans, RVs, & motorcycles (whether owned, leased, or a company vehicle).

Please do NOT include uninspected/unregistered motor vehicles or vehicles such as ATVs, snowmobiles, trailers, golf carts, or watercraft.

- 0 (no vehicles)
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 or more vehicles

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Please tell us about the vehicles in your household.

Viewing 1 of 3 vehicle(s).

Year: Please select...

Make: Select an Option

Model: Select an Option

Does this vehicle have a toll transponder (e.g. EZPass)? Please select...

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

How many bicycles (in working order) are there in your household?

Please include all types of bicycles (adult and child, road, mountain, commuter, etc.)

- 0 (no bicycles)
- 1
- 2
- 3
- 4
- 5 or more bicycles

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

How many people (including yourself) currently live in your household?

Please include yourself, all other adults, all children, and all roommates who normally reside with you in your home. Please do not include people who are currently living away at school or college.

- 1 (I am the only person)
- 2 people
- 3 people
- 4 people
- 5 people
- 6 people
- 7 people
- 8 people
- 9 people
- 10 people
- 11 people
- 12 or more people

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Please tell us about yourself.

Viewing 1 of 8 member(s).

Initials or nickname

Gender Please select...

Age Please select...

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Please tell us about yourself.

Viewing 1 of 2 member(s).

Initials or nickname	
Gender	Male
Age	26
Primary type of employment	Employed (full or part time)
Number of jobs	1 job
Hours usually worked per week	40–49 hours
Currently a student?	No, not a student
Highest level of education completed	Vocational/technical training
Has a valid driver's license?	Yes

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Please tell us about the other people in your household.

Viewing 2 of 2 member(s).

Initials or nickname	kid
Relationship to you	Son/Daughter/In-law
Gender	Male
Age	3
Primary type of school	Daycare

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

How often did your household use public transit in the past month?

Public transit may include any public bus, commuter rail, paratransit, or subway routes in Connecticut and the surrounding region.

Please answer for each person in the household.

adult

How often used transit in the past month? 2-3 days a week

How typically paid for transit fare? Stored value card

Eligible for discounted transit fares? No, pays regular fare

kid

How often used transit in the past month? Never

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Travel to/from school impacts many families' transportation decisions.

How often does each person travel to their own daycare/school/college to attend class or other events such as study group?

Please answer for each person in your household who attends school.

kid

How often travels to school? 5 days a week

How usually travels to school? Carpool with at least one person NOT in househ...

- Please select...
- School bus
- Walk/jog/wheelchair
- Bicycle
- Drive/Carpool with ONLY family/ household member(s)
- Carpool with at least one person NOT in household
- Motorcycle/moped/scooter
- Vanpool

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Please share where kid's usual daycare/school/college is located.

If attends school/classes/daycare in more than one place, please locate the primary school location (where goes most often).

Locate by address | Locate on the map

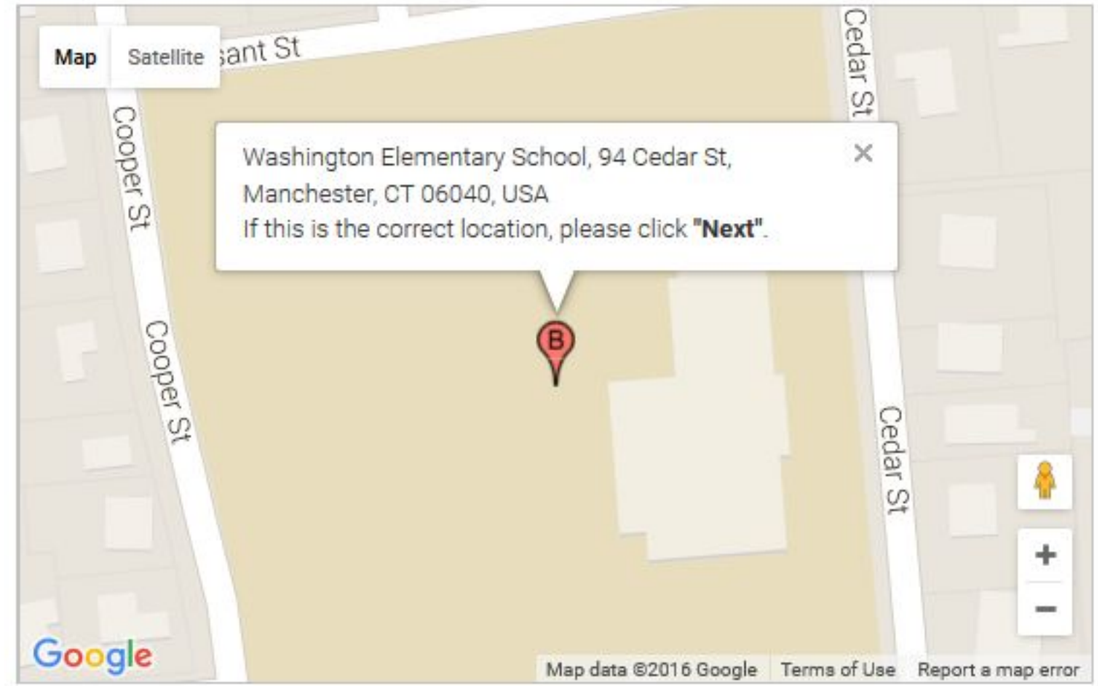
To search by address or business name:

1. Enter a street address, nearest intersection, or business name in the box below
2. Click on the **blue search button** to the right of the box
3. Click on the correct address from the list of results that appear
4. Click "Next" to continue

elementary school

- Example: 100 Main Street, New Milford, CT
- Example: W Cedar St and Richards Ave, Norwalk, CT
- Example: Timothy Edwards Middle School, South Windsor, CT

Need help locating the correct address?



Please choose the correct location from the list below, then click "Next" to continue.

If your location doesn't appear, please try searching again.

Number of results found: 2

- ○ Wenonah elementary school, Hudson Ave, Lake Grove, NY 11755, USA (A)
- ◉ Washington Elementary School, 94 Cedar St, Manchester, CT 06040, USA (B)

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

For many people, going to/from their job is a major part of their travel each week. Next, we will ask a few questions in order to better understand commuting across the region.

Please describe each person's job.

Please answer for each person who is employed or is a volunteer. For anyone with more than one job, please answer for the **primary** job (where works most hours per week).

adult

Primary type of workplace? Usually the same location (outside home)

Primary occupation? Healthcare Practitioners & Technical

Primary employment industry? Health Care & Social Assistance

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

In a typical week, how does each person commute to work?

Please answer for each person who is employed or is a volunteer. For anyone with more than one job or workplace, please describe travel to the **primary** job or workplace (i.e. place where works most hours per week).

adult

How often (in total) commutes to work each week? 5 days a week

How usually commutes to primary workplace? Carpool with at least one person not in household

Amount of flexibility in arrival time at workplace? No flexibility (always start at a fixed time, though start time may vary dep...

Please select...

No flexibility (always start at a fixed time, though start time may vary depending on day or shift)

Some flexibility (e.g. can start up to 30 minutes earlier/later than scheduled)

Complete flexibility (e.g. can set own schedule)

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Please share where adult's primary workplace is located.

Locate by address | Locate on the map

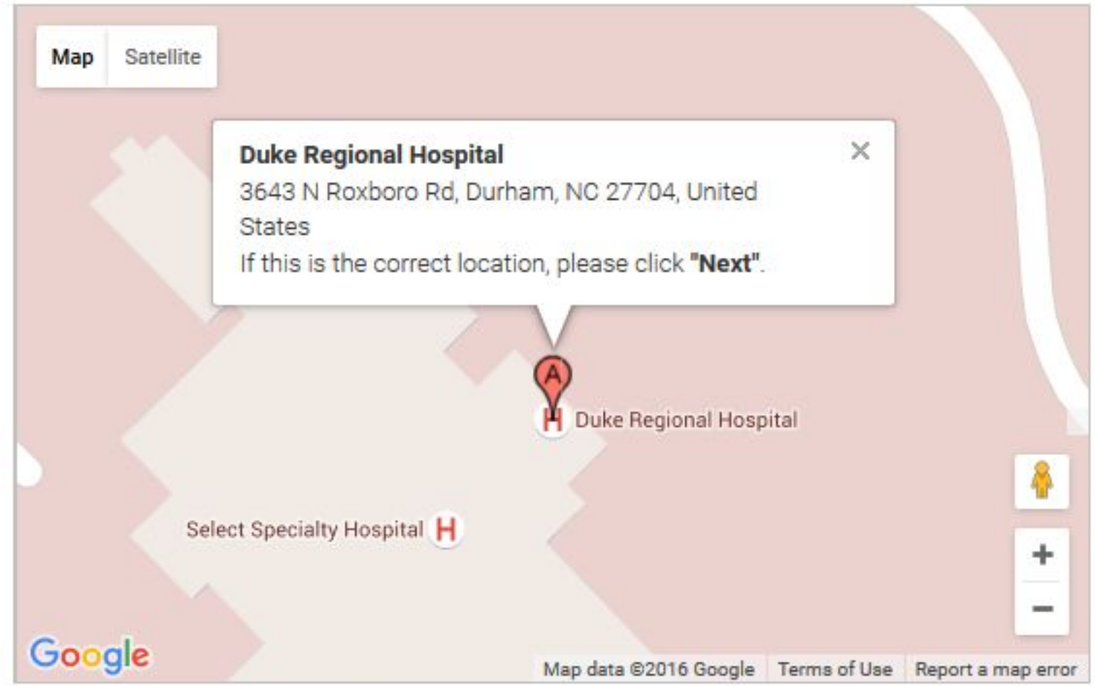
To search by address or business name:

1. Enter a street address, nearest intersection, or business name in the box below
2. Click on the **blue search button** to the right of the box
3. Click on the correct address from the list of results that appear
4. Click "Next" to continue

Duke Regional Hospital, Durham, NC

- Example: 100 Main Street, New Milford, CT
- Example: W Cedar St and Richards Ave, Norwalk, CT
- Example: Connecticut Science Center, Hartford, CT

Need help locating the correct address?



Please choose the correct location from the list below, then click "Next" to continue.

If your location doesn't appear, please try searching again.

Number of results found: 1

- (•) **Duke Regional Hospital** 3643 N Roxboro Rd, Durham, NC 27704, United States (A)

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

For the next few questions, please think about your current residence (the place where you received the invitation for this study). If you received the study invitation in a PO Box, please answer for your primary residence closest to the Post Office where you collect your mail.

Do you rent or own your current residence?

- Own/Buying (paying mortgage)
- Rent
- Provided by job or military
- Other
- Prefer not to answer

What type of place is your current residence?

- Single-family house (detached house)
- Duplex or Townhouse (attached house)
- Multi-family house (3 or fewer apartments)
- Building with 3 or fewer apartments/condos
- Building with 4 or more apartments/condos
- Mobile home/trailer
- Dorm or institutional housing
- Other (including boat, RV, van, etc.)

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Please share where your current residence is located.

This information is *only* used to make sure a representative sample participates in the study. Please click here to view our privacy policy.

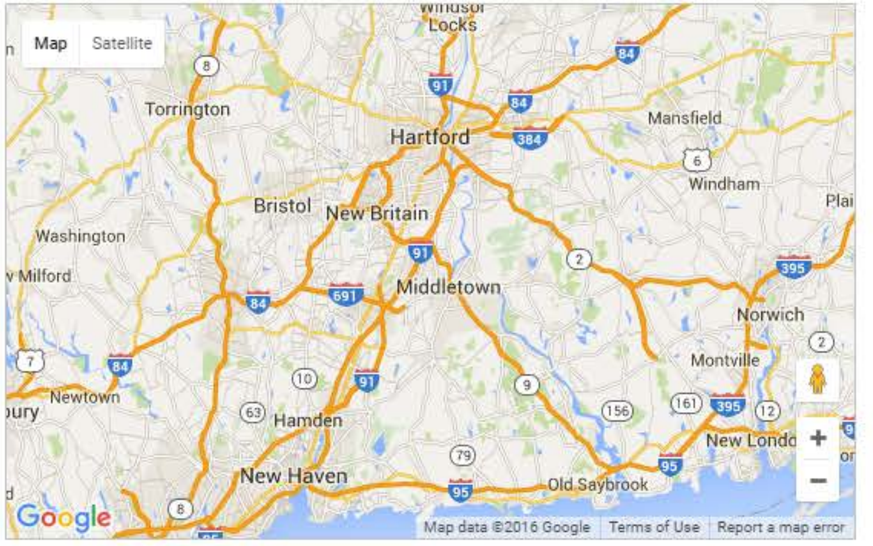
Locate by address | Locate on the map

To search by address or business name:

1. Enter a street address, nearest intersection, or business name in the box below
2. Click on the **blue search button** to the right of the box
3. Click on the correct address from the list of results that appear
4. Click "Next" to continue

- Example: 100 Main Street, New Milford, CT
- Example: W Cedar St and Richards Ave, Norwalk, CT
- Example: 1620 Asylum Ave, Hartford, CT

Need help locating the correct address?



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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

In 2015, what was your household's total annual income (from all sources) before taxes or other deductions from pay?

This information is only used to make sure a representative sample participates in this study. Please click here to view our privacy policy.

- Less than $10,000
- $10,000–$14,999
- $15,000–$24,999
- $25,000–$34,999
- $35,000–$49,999
- $50,000–$59,999
- $60,000–$74,999
- $75,000–$99,999
- $100,000–$149,999
- $150,000–$199,999
- $200,000–$249,999
- $250,000 or more
- Prefer not to answer

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

After your household completes Part #2 of the study, we will send a $10 gift card as thanks.

What type of gift card would your household like to receive after participating in Part #2 of the study?

- ○ Visa virtual gift card (delivered by email)
- ◉ Visa mailed gift card (I understand this may take longer to deliver)
- ○ None – prefer not to receive an incentive

Please provide an email address where we can send you reminders about the study.

You will only be contacted for this study and your information will never be shared or linked to your responses. Please see our privacy policy for more information.

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

We offer user support and assistance during Part #2 of the study.

Please provide one phone number that, if needed, we could use to reach you during Part #2 of the study.

As part of our privacy policy, you will only be contacted for this study and your information will NEVER be shared.

Landline:

Cell:

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

How would you prefer to be contacted for the remainder of this study?

We will send you reminders to keep track of your travel on **Saturday, May 21, 2016**. You will be contacted for this study only and your personal information will NEVER be shared. Please click here to view our privacy policy.

Please select all that apply.

- [ ] By email
- [ ] By telephone

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Would your household be interested in participating in future transportation studies in your region?

The study team may conduct additional surveys or studies about other transportation or regional planning issues in the future. If you are interested, you may be contacted with more information. This would not affect your participation in this study.

- Yes
- No

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Next steps and thank you again for your participation!

We will remind you: We will remind you to tell us about the trips each person makes on **Saturday, May 28, 2016**.

Keep track of your trips: Please remember to ask EACH adult in your household to keep track of all the trips they make on **Saturday, May 28, 2016**. In addition, adults will need to log trips for children. Please use the Travel Log to keep track of your trip details.

Return to the website to report your trips: Starting on **Sunday, May 29, 2016**, each adult in your household should return to this website to record the trips made on **Saturday, May 28, 2016**. Your household's survey will be available for one week after your travel date.

OR call in to report your trips: You may also call toll-free 1-844-872-2562 to complete the survey over the telephone.

And you're finished! Once each person in your household has answered their survey, your household will receive a $10 Visa gift card as thanks for your participation.

Members	Status
adult	Let's get started!
kid	Let's get started!

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

To better understand how households are completing the study, we would like to know if someone other than adult is filling out this portion of the survey.

Are you adult or are you filling out this survey on adult's behalf?

- ○ I am adult and I am answering this survey
- ○ I am answering this survey for adult and adult IS here with me to provide answers
- ○ I am answering this survey for adult and adult is NOT here with me to provide answers

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Where were you at 3AM on Saturday, May 28, 2016 (when the travel day BEGAN)?

If traveling between places (in a car, on a bus/plane, etc.), please provide the last place stopped BEFORE 3AM (even if it was a short stop such as to get gas).

- ○ Home
- ○ Work
- ○ Another place, please specify: Please specify...

Where were you at 3AM on Sunday, May 29, 2016 (when the travel day ENDED)?

If traveling between places (in a car, on a bus/plane, etc.), please answer with the first place stopped AFTER 3AM (even if it was a short stop such as to get gas).

- ○ Home
- ○ Work
- ○ Another place, please specify: Please specify...

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Your day began at HOME and ended at HOME.

Did you go anywhere on Saturday, May 28, 2016, even if it was just a short trip such as a walk or bike ride?

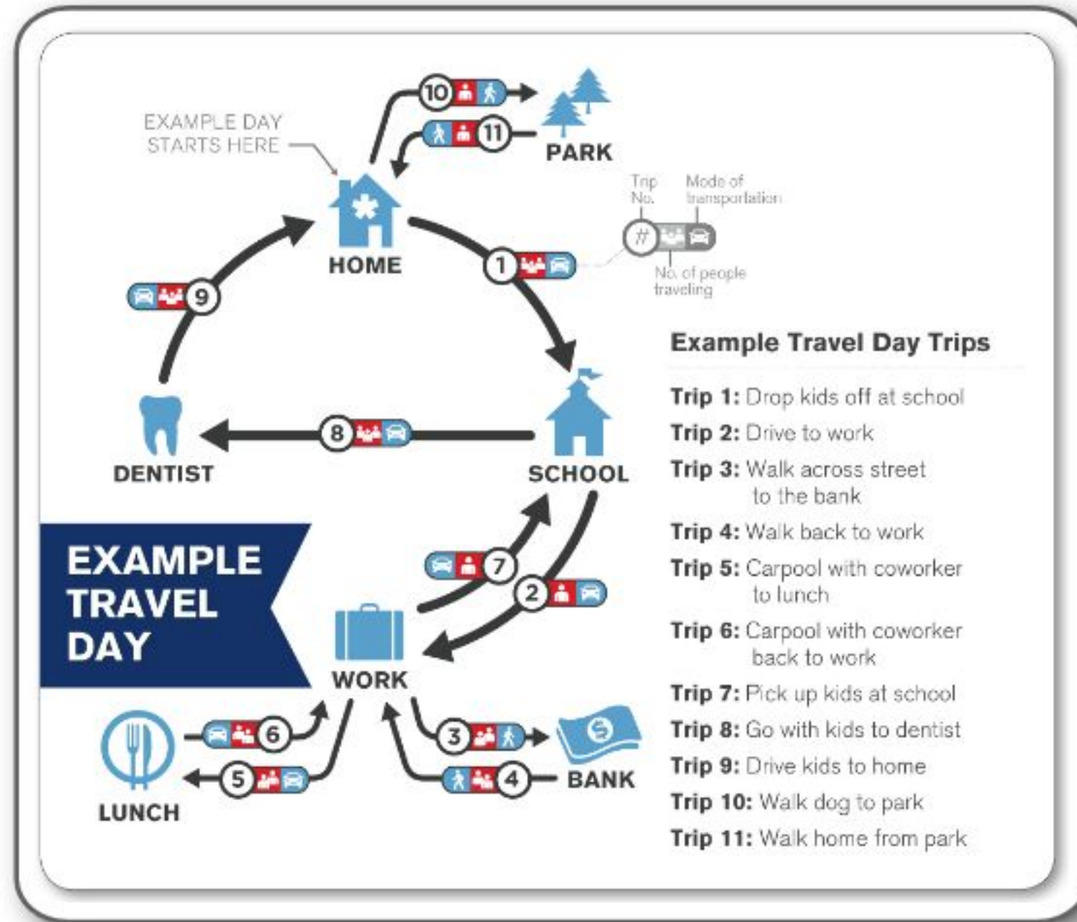
- ○ Yes
- ○ No

What is a trip?
A trip is anytime you travel from one location and stop at a new location. Even if you briefly stop for gas, at an ATM, or to drop a child off at school, travel to each stop counts as 1 trip.

What are some example trips?

- Drive to work
- Drop your child off at school
- Walk the dog
- Walk your child to a neighbor's
- Bike to the grocery store
- Walk to the bus stop and then ride the bus to the bank
- Carpool to a meeting in New York

What if I go out, but return to the same place without stopping (e.g. a jog, bike ride, or leisurely drive)?
If you go out and return to the same place without stopping, this counts as **2 trips**: from the starting location to the furthest point you reach, and the trip back to your starting point. Please report the furthest point you reach as your "destination".



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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

What is the reason you did not make any trips on Saturday, May 28, 2016?

Please select all that apply.

- [ ] Was not scheduled to work or took a vacation/personal day
- [ ] Worked from home for pay (e.g. telecommuted or home-based job)
- [ ] Worked around the home (not for pay)
- [ ] The kids were on school vacation/break
- [ ] Did not have available transportation (no car, no way to get to bus, etc.)
- [ ] Was sick or caring another person (child or family member) at home
- [ ] Was waiting for a delivery or visitor (e.g. cable installation)
- [ ] Other

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

You said you didn't make any trips on Saturday, May 21, 2016.

Was that typical of a normal Saturday?

- Yes, it was a typical Saturday
- No, it was NOT a typical Saturday, please specify reasons: Please specify...

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Please list, in order, all the places you went between 3 AM on Saturday, May 28, 2016 and 3 AM on Sunday, May 29, 2016.

Please give a short description for each unique/different place. The places where you started and ended the day **are already filled in**. When all your places are listed below, click "Next" to continue. Remember if you go out and return to the same place without stopping, this counts as 2 trips.

Click and drag a place to re-order the list. Click the + button next to a place to add a new place. Click the − button next to a place to remove it.

I started the day at:	HOME	+	
Then went to:	COFFEE	−	+
Then went to:	LIBRARY	−	+
I ended the day at:	HOME		

Example Travel Day	
I started the day at:	Home
Then went to:	Kids' School
Then went to:	Work
Then went to:	Lunch
Then went to:	Work
Then went to:	Off-site meeting
Then went to:	Work
Then went to:	Kids' School
Then went to:	Dentist
Then went to:	Home
Then went to:	Park
I ended the day at:	Home

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Listed to the right are all the places person1 reported going on Saturday, May 21, 2016.

Are there any places to add for person1's travel on Saturday, May 21, 2016 that aren't already listed?

Please select all that apply.

- [ ] Yes, went out but didn't stop anywhere (e.g. for jog/bike ride, to walk dog, go for Sunday drive, etc.)
- [ ] Yes, made 1+ short trips in middle of other activities (e.g. quick trip for lunch)
- [ ] Yes, stopped briefly on way to somewhere else (e.g. for gas, at ATM, at drive-thru)
- [ ] Yes, dropped someone off on way to somewhere else (e.g. spouse at a park & ride lot, child at friend's house)
- [ ] Yes, forgot to include another type of trip
- [ ] No, listed all of person1's trips on Saturday, May 21, 2016

person1's Travel Day
Trip #1: HOME to PLACE 4184
Trip #2: PLACE 4184 to PLACE 3704
Trip #3: PLACE 3704 to SPECIFY
Trip #4: SPECIFY to PLACE 4184
Trip #5: PLACE 4184 to PLACE 9300
Trip #6: PLACE 9300 to PLACE 4184
Trip #7: PLACE 4184 to SPECIFY

It is important to report all trips, including short stops. This will help better understand transportation needs in the region. Some trips (e.g. walks, bike rides, or short stops on way somewhere else) are easy to forget!

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

We'll now ask you to locate each place you went.

Click a place below to begin locating it on the map. Once you've located a place, its button will turn green.

Once you have located all of the places in the list, click "Next" to continue.

HOME: 100 Main St, New Milford, CT 06776, USA

KID'S SCHOOL:

COFFEE:

WORK: 3643 N Roxboro Rd, Durham, NC 27704, United States

« Previous | Next »

Please locate:

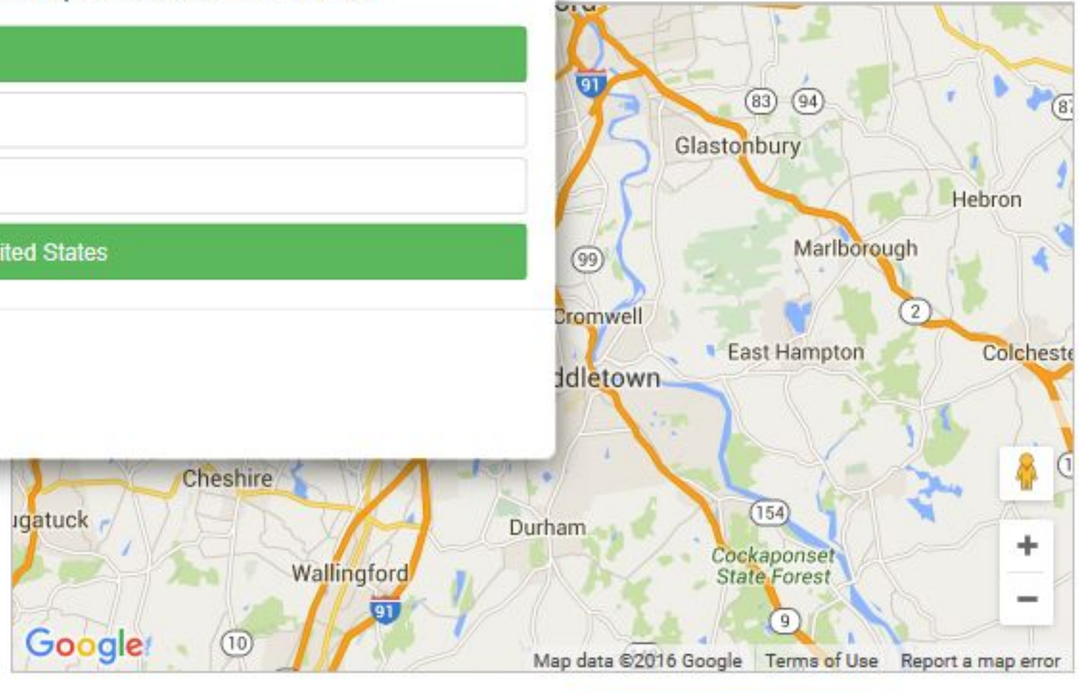
Locate by address | Locate on the map

To search by address or business name:

1. Enter a street address, nearest int
   below
2. Click on the **blue search button** t
3. Click on the correct address from t
4. Click "Next" to continue

- Example: 100 Main Street, New Milford,
- Example: W Cedar St and Richards Ave, Norwalk, CT
- Example: Timothy Edwards Middle School, South Windsor, CT

Need help locating the correct address?



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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Please locate: KID'S SCHOOL

Locate by address | Locate on the map

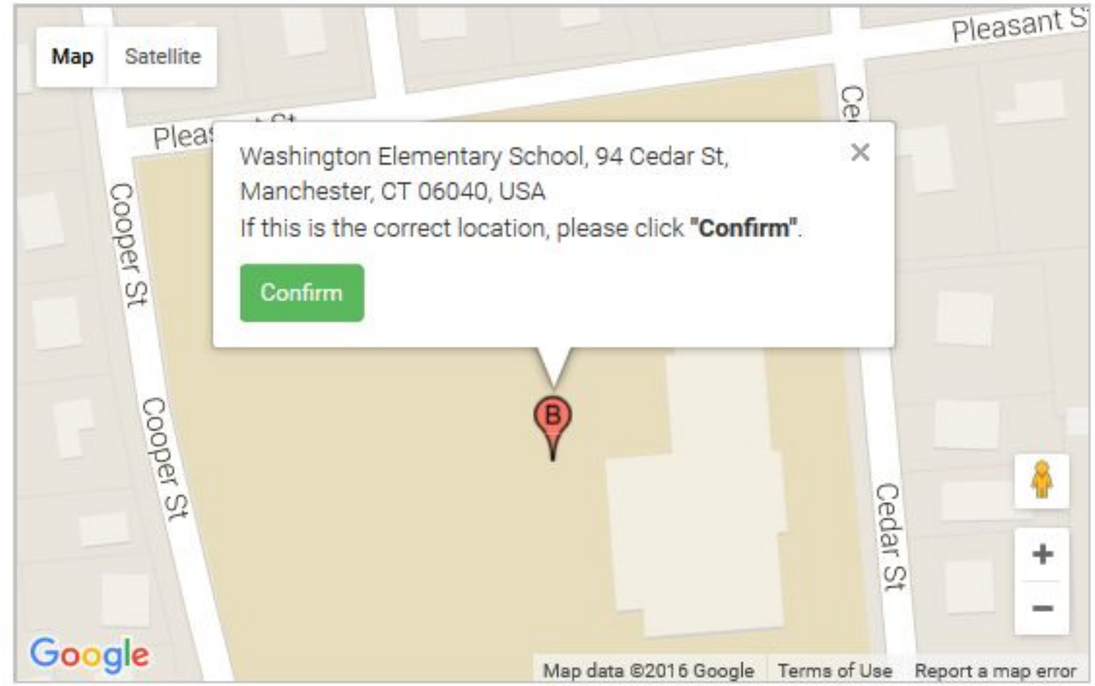
To search by address or business name:

1. Enter a street address, nearest intersection, or business name in the box below
2. Click on the **blue search button** to the right of the box
3. Click on the correct address from the list of results that appear
4. Click "Next" to continue

elementary school

- Example: 100 Main Street, New Milford, CT
- Example: W Cedar St and Richards Ave, Norwalk, CT
- Example: Timothy Edwards Middle School, South Windsor, CT

Need help locating the correct address?



Please choose the correct location from the list below, then click "Confirm" below to continue.

If your location doesn't appear, please try searching again.

Number of results found: 2

- ○ Wenonah elementary school, Hudson Ave, Lake Grove, NY 11755, USA (A)
- ◉ Washington Elementary School, 94 Cedar St, Manchester, CT 06040, USA (B)

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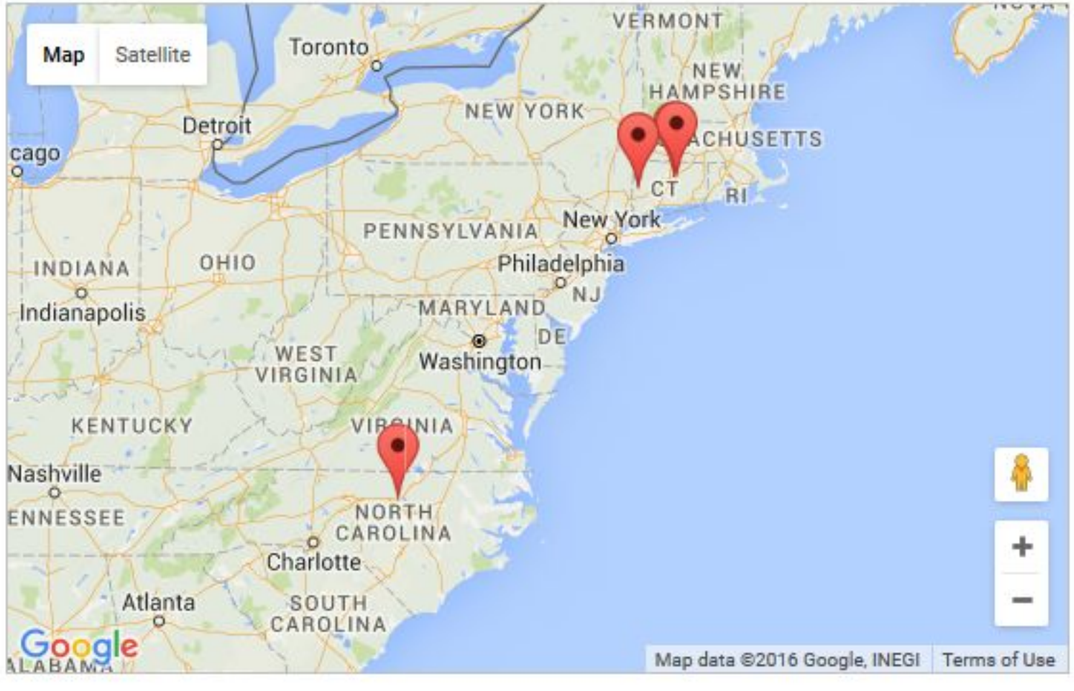
CONNECTICUT STATEWIDE TRANSPORTATION STUDY

The list below should include all the trips you made on Saturday, May 28, 2016.

If you need to add or remove trips, please click "Previous" to go back and edit your places. If all trips from Saturday, May 28, 2016 are shown, please click "Next" to continue.

Trip #	Start	End	Approx. Distance
1	HOME	KID'S SCHOOL	63.8 mi
2	KID'S SCHOOL	COFFEE	2.2 mi
3	COFFEE	WORK	608.2 mi
4	WORK	HOME	568.4 mi



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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Did person1 make any of the following kinds of trips on Saturday, May 21, 2016, either as a passenger or a driver of a vehicle?

Trips (or part of a trip) using a toll road? Please select...

Trips (or part of a trip) using an HOV lane? Please select...

Trips during which you paid to park the vehicle? Please select...

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Please tell us about your trip from HOME to KID'S SCHOOL.

Viewing trip 1 of 4 trip(s).

Time departed from **HOME**	7:35 AM
Time arrived at **KID'S SCHOOL**	7:55 AM
Household members who traveled on trip (select all that apply):	☑ kid ☐ Just me (no other household members)
Number of other people (e.g. friends, co-workers, etc.) who specifically traveled with me on trip:	1 person
Main purpose of trip to KID'S SCHOOL	Drop off/pick up/accompany other person
Main way traveled on trip	Vehicle in household
What vehicle was used?	2016 Motorcycle Other
Were you the driver or passenger?	Driver
Was an HOV lane used for any part of this trip?	Yes
Did you travel on a toll road for any part of this trip?	Yes
How much was the toll? *(please round to the nearest dollar)*	$
	☐ Not sure/don't remember
Where was the vehicle parked at/near **KID'S SCHOOL**?	Parking lot/garage at destination (within 2 blocks)
Did you pay for parking?	No, parking was free

My Travel Day
Trip #1: HOME to KID'S SCHOOL
Trip #2: KID'S SCHOOL to COFFEE
Trip #3: COFFEE to WORK
Trip #4: WORK to HOME

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Was your travel on Saturday, May 28, 2016 typical of a normal Saturday?

- ○ Yes, it was a typical Saturday
- ○ No, it was NOT a typical Saturday, please specify reasons: Please specify...

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Below is a list of trips that other household members reported making with kid. To make things easier, we can use the information they already provided if they made these trips together.

Please confirm the trips that kid made.

Trip First Reported By	Start location	End location	Start time	End time	Traveled on Trip	Confirm
adult	HOME	KID'S SCHOOL	7:35 AM	7:55 AM	adult kid	☐
		None of the above				☐

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Your "travel day" began at 3AM on Saturday, May 28, 2016 and ended at 3AM on Sunday, May 29, 2016.

Was the following trip the first trip kid made on your travel day?

HOME to KID'S SCHOOL, from 7:35 AM to 7:55 AM

- (●) Yes
- ( ) No

Was the following trip the last trip kid made on your travel day?

HOME to KID'S SCHOOL, from 7:35 AM to 7:55 AM

- ( ) Yes
- (●) No

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Where was kid at 3AM on Sunday, May 29, 2016 (when the travel day ENDED)?

If traveling between places (in a car, on a bus/plane, etc.), please answer with the first place stopped AFTER 3AM (even if it was a short stop such as to get gas).

- (●) Home
- ( ) Another place, please specify: Please specify...

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Please list, in order, all the places kid went between 3 AM on Saturday, May 28, 2016 and 3 AM on Sunday, May 29, 2016.

Please give a short description for each unique/different place. The places where kid started and ended the day **are already filled in**. When all of kid's places are listed, click "Next" to continue. Remember if you go out and return to the same place without stopping, this counts as 2 trips.

Click and drag a place to re-order the list. Click the + button next to a place to add a new place. Click the − button next to a place to remove it.

kid started the day at:	HOME (REPORTED BY ADULT)	
Then went to:	KID'S SCHOOL (REPORTED BY AD	+
Then went to:	SOCCER	− +
kid ended the day at:	HOME	

Example Travel Day	
kid started the day at:	Home
Then went to:	Kids' School
Then went to:	Work
Then went to:	Lunch
Then went to:	Work
Then went to:	Off-site meeting
Then went to:	Work
Then went to:	Kids' School
Then went to:	Dentist
Then went to:	Home
Then went to:	Park
kid ended the day at:	Home

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Thank you for your participation.

If you have any general comments that you would like to share with the Study Team, please enter them below and then click "Next."

Any feedback you wish to share will remain anonymous. Please see our privacy policy for more information.

Otherwise, please click the "Next" button to submit your survey.

If any household members still need to complete this survey, you will return to your household's dashboard where you can start the next person's survey.

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Congratulations, your household has completed the Connecticut Statewide Transportation Study!

Thank you very much for your participation in this important research.

Your household's thank you gift card will be sent to you within one month.

You may now close your browser.

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Appendix G

Main Study Print Materials

The copies of the pilot study print and website materials are organized as follows:

- ❑ Pre-notice Postcard (2 Pages)
- ❑ Invitation Packet Envelope (1 Page)
- ❑ Invitation Letter (2 Pages)
- ❑ Travel Log (2 Pages)
- ❑ Reminder Postcard (2 Pages)
- ❑ Screenshots of different pages of the website (10 Pages)

CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Connecticut Transportation Institute
270 Middle Turnpike, Unit 5202, Storrs, CT 06269-5202

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
STORRS, CT
PERMIT NO 36

In a few days, you will receive an invitation packet in the mail to participate in an important transportation study.

The Connecticut Department of Transportation and the Connecticut Transportation Institute at UCONN are performing this study to better understand the travel behaviors and transportation needs of Connecticut residents. The information collected in this study will help improve the transportation system and prioritize future transportation improvements in the state of Connecticut.

Yours is one of the few households randomly selected to participate in the study and your participation will have a significant impact. The information you provide will be kept confidential and will only be used for transportation planning purposes without disclosing identifiable information.

As thanks for your participation, your household will receive a $10 Visa gift card after completing the study.

To start now, go to the secure study website with your password: https://cttransportationstudy.org

<password>

Or call toll-free: 1-844-872-2562

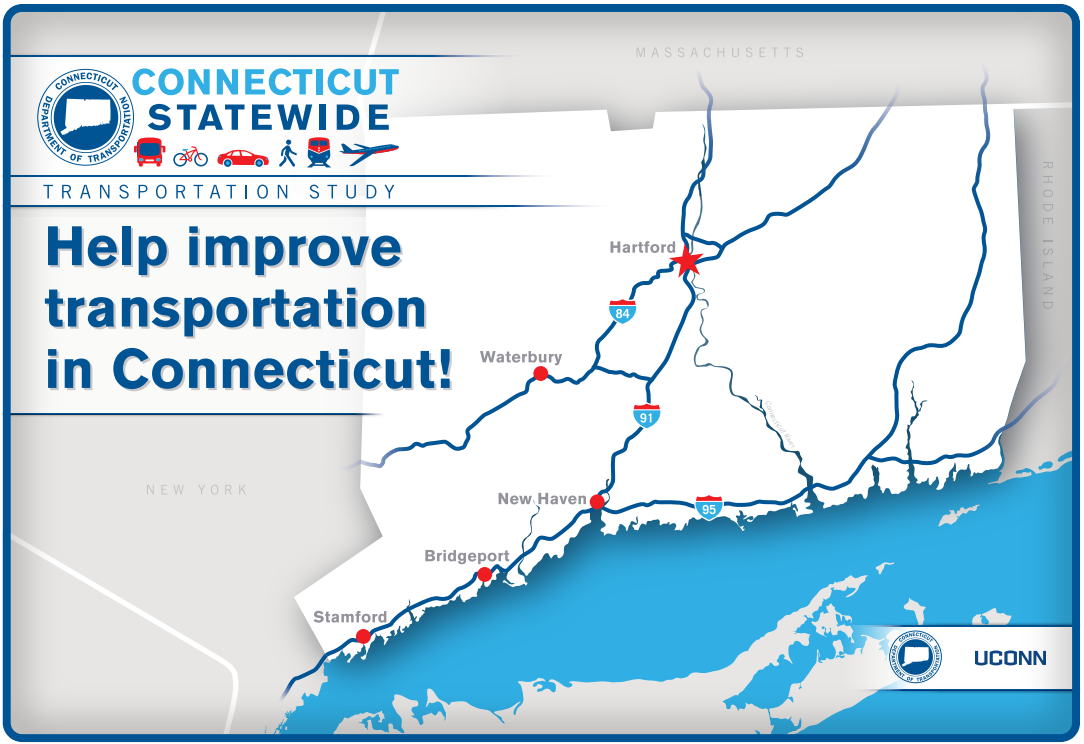
Questions? Email: help@cttransportationstudy.org

Lo invitamos a compartir sus experiencias de traslado en su región.
Para participar, llame sin costo: 1-844-872-2562

CONNECTICUT STATEWIDE

TRANSPORTATION STUDY

Help improve transportation in Connecticut!



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546

<Letter Date>

<First and last name/City name resident
Street Address 1, Street Address 2
City, CT #####>

Dear <First and last name/City name resident>

I'm asking you to help us improve our state's transportation system by participating in the Connecticut Statewide Transportation Study. Your input will help the Connecticut Department of Transportation to better plan and prioritize future transportation improvements. Yours is one of the few households randomly selected to participate in this study. The information you provide will have a significant impact on transportation planning in the state and in your community. As thanks for your time, your household will receive a **$10 Visa gift card** after completing the study.

PARTICIPATION IN THE STUDY IS A SIMPLE THREE STEP PROCESS:

STEP 1: Briefly tell us about your household. You can do this now.

Log on to the secure website using your password:

Study website: https://cttransportationstudy.org

Password: <password>

Or, participate over the phone by calling toll-free:
1-844-872-2562

- **Monday-Friday: 9AM – 8PM ET**
- **Saturday: 10AM – 4PM ET**

Or leave us a message with the best time and number for us to call you.

STEP 2: Track your trips on <travel day>. We ask that each member of your household keep track of every trip they make that day, using the enclosed Travel Logs to help remember the details of each trip.

STEP 3: Tell us about your travels. Just like Step 1, return to the study website with your password or call us to report the trips you made on <travel date>.

That's all it takes to help us with this critical study!

Your privacy will be protected and your name and address will never be linked to the study form. All information will be kept confidential and will only be used for transportation planning purposes without disclosing identifiable information. Please refer to the study website for our privacy policy.

For more details about this study, please see the back of this letter for answers to Frequently Asked Questions. You can also email **help@cttransportationstudy.org** or call **1-844-872-2562**.

Thank you in advance for your important contribution to improving transportation in Connecticut.

Sincerely,

Thomas J Maziarz

Thomas Maziarz
Bureau Chief, Bureau of Policy and Planning
Connecticut Department of Transportation

Lo invitamos a compartir sus experiencias de traslado en su región. Para participar, llame sin costo: 1-844-872-2562

UCONN

CONNECTICUT STATEWIDE TRANSPORTATION STUDY

FREQUENTLY ASKED QUESTIONS

SECURE STUDY WEBSITE: **https://cttransportationstudy.org**
EMAIL: **help@cttransportationstudy.org**
TOLL-FREE TELEPHONE: **1-844-872-2562**

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GENERAL INFORMATION

What is the Connecticut Statewide Transportation Study all about? The study is collecting information about everyday travel behavior of residents in the state of Connecticut including how we travel, where we go, why we travel, how long it takes, etc.

How was I selected to participate? Invited households (like yours) were randomly selected from all the residential addresses in the state. The random approach helps us understand the travel needs of all types of households from different regions in the state.

Why should I participate? Current data about residents' travel characteristics helps the state understand and plan for current and future transportation needs. It also helps local agencies plan for transportation improvements in your communities. Your responses have a large impact because yours is one of a small number of households invited to participate in the study.

My travel on the date assigned to me isn't "typical" – should I still participate? Yes. This study aims to collect travel information on the date assigned to you even if it is not a "typical" travel day. We will separately ask you a few questions about your usual travel habits.

I don't drive or travel very much – should I still participate? Yes. Whether you only walk or ride transit, don't go anywhere at all, or make a lot of trips, please report what actually happens on your assigned travel date. We want to understand all kinds of travel, regardless of what mode you take or how often you travel.

Who is sponsoring this study? This study is sponsored by Connecticut Department of Transportation in partnership with Connecticut Transportation Institute at UCONN.

What are my rights as a participant? You do not have to be in this study if you do not want to. If you agree to be in the study, but later change your mind, you may drop out at any time. There are no penalties or consequences of any kind if you decide that you do not want to participate, though you will not receive compensation. We will be happy to answer any questions you have about this study. If you have further questions about this study or if you have a research-related problem, you may contact the principal investigator, Dr. Karthik Charan Konduri at kkonduri@engr.uconn.edu. If you have any questions concerning your rights as a research subject, you may contact the UCONN Institutional Review Board (IRB) at 860-486-8802. The IRB is a group of people who review research studies to protect the rights and welfare of study participants. This protocol has been approved by the UCONN IRB, Protocol #H15-307.

What will I get for participating? As thanks for your time, your household will receive a $10 Visa gift card after every person in your household completes the study.

TAKING THE SURVEY

What do I use the "Travel Log" for? The "Travel Log" can be used to keep track of the details of your trips on the assigned travel date.

Why is my household assigned a specific travel date? We are asking for information about the travel made by each person in your household on one chosen weekday. We call this your "travel day" or "travel date". This helps us develop a full picture of all the travel that happens across the region and the state on each weekday (even if it is not a "typical" travel day).

What is a trip? A trip is any time you travel from one location and stop at a new location. Even if you stop briefly for gas, at an ATM, or to drop a child off at school, travel to that stop counts as one trip, and travel from that stop to the next place counts as a separate trip. If you go out and return to the same place without stopping (such as a jog, bike ride, or leisurely drive) then this counts as two trips: from the starting location to the furthest point you reach, and the trip back to your starting point.

What are some examples of trips? See below for some common trips that people make:

- Drive to work
- Drop your child off at school
- Walk the dog
- Bike to the grocery store
- Walk to the bus stop and then ride the bus to the bank
- Carpool to a meeting in New York

Often what we think of as one trip may actually be a chain of several trips. For example, "I picked up my child and stopped to buy gas on my way home from work" counts as three trips: 1) a trip from work to your child's activity, 2) a trip from your child's activity to the gas station, and 3) the trip home.

Should my children participate? Yes, trips to and from school, sports practice, play dates, and other activities help us understand the full nature of how the transportation system is used, and how it can be improved.

Who should be counted as a member of my household? Everyone who lives in your dwelling unit and shares the kitchen is a part of your household, including family and non-family members.

STUDY OVERVIEW

This study has 2 parts

	1 HOUSEHOLD INFO SURVEY	2 TRAVEL DIARY SURVEY
When do I take the survey?	As soon as convenient	After the day of your assigned travel
Who takes the survey?	You	All adults (an adult should also report trips for children under 18)
How long will the survey take?	About 15 minutes	About 5 minutes per person
What is the survey about?	We ask about your household and household members' typical travel behavior	Return to the website (or call) to report the trips you made on your assigned travel date (use your Travel Log to keep track!)

After completing both parts, your household will receive a $10 Visa gift card

CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

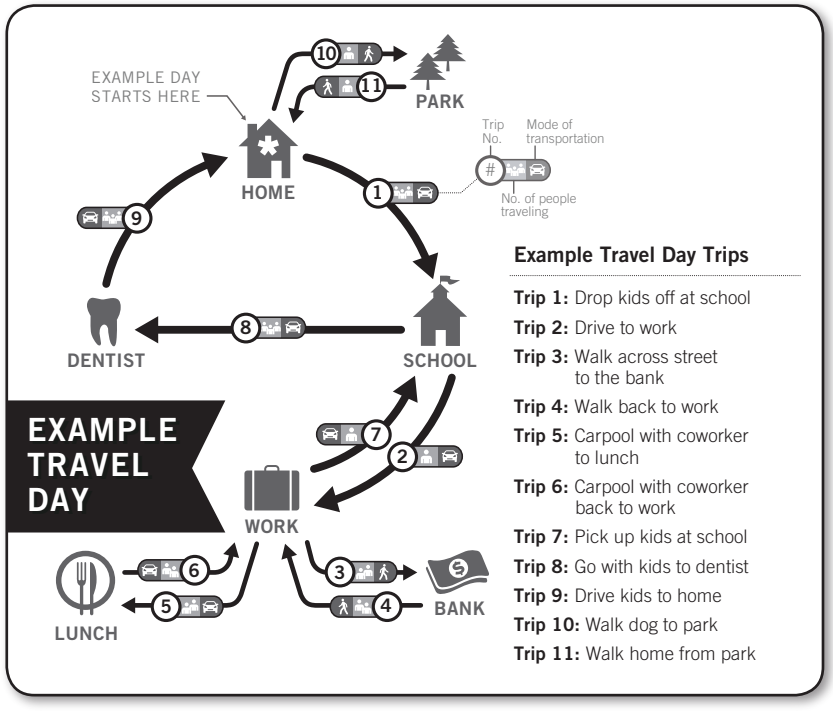
TRAVEL LOG INSTRUCTIONS

SECURE STUDY WEBSITE: **https://cttransportationstudy.org**
TOLL-FREE TELEPHONE: **1-844-872-2562**

STEP 1: On your assigned travel day:
Each adult (age 18 or older) in your household should take this Travel Log with them and note each trip made. Note: Your travel day begins at 3AM on your assigned day and ends 24 hours later. For many people, the first trip begins when they leave home in the morning.

STEP 2: After you complete your travel for the day:
Have your password ready (from the invitation letter) and call us or log on to the secure study website to record all your logged trips. Adults should also report all trips for children (under age 18) in the household.

What is a trip? A trip is any time you travel from one location and stop at a new location. Even if you stop briefly for gas, at an ATM, or to drop a child off at school, travel to that stop counts as one trip, and travel from that stop to the next place counts as a separate trip. If you go out and return to the same place without stopping (such as a jog, bike ride, or leisurely drive) then this counts as two trips: from the starting location to the furthest point you reach, and the trip back to your starting point.



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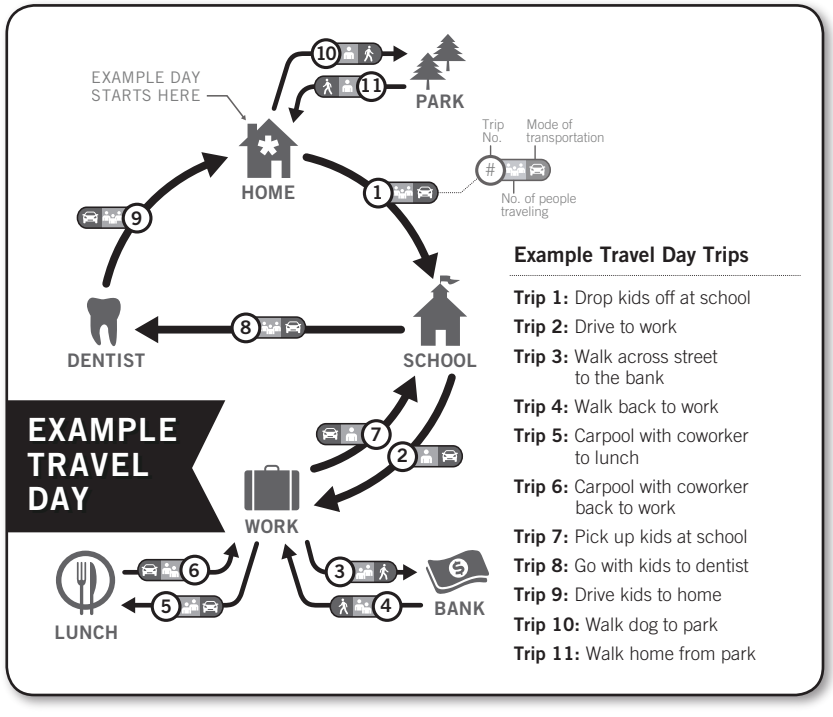

CONNECTICUT STATEWIDE TRANSPORTATION STUDY

TRAVEL LOG

SECURE STUDY WEBSITE:
https://cttransportationstudy.org
TOLL-FREE TELEPHONE:
1-844-872-2562

Name

Travel Date mm / dd / yy

Password

	When did your trip...		Where did you go?		Traveled by:	Traveled with:
	Start	End	Description	Address, Intersection, or Business Name		
Example	*7:05 AM*	*7:20 AM*	*Drop kids at school*	*West Middle Elementary School, Hartford*	*Car*	*Grace, Sophie*
Example	*7:25 AM*	*7:45 AM*	*Drive to work*	*550 Main St, Hartford*	*Car*	*N/A*
1st Trip						
2nd Trip						
3rd Trip						
4th Trip						
5th Trip						
6th Trip						
7th Trip						
8th Trip						
9th Trip						
10th Trip						

- **Include ALL trips you made on your travel day, even short stops such as stopping for gas or picking up coffee**
- **Include only the time spent traveling when listing your 'start' and 'end' times. Do not include any time spent at the location**

Questions?
TOLL-FREE TELEPHONE:
1-844-872-2562
EMAIL:
help@cttransportationstudy.org

This sheet is for your use only. We do not need you to return this form.
If you have questions, please email: help@cttransportationstudy.org

CONNECTICUT STATEWIDE TRANSPORTATION STUDY

TRAVEL LOG

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Name

Travel Date mm / dd / yy

Password

	When did your trip...		Where did you go?		Traveled by:	Traveled with:
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CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CONNECTICUT TRANSPORTATION INSTITUTE
270 Middle Turnpike, Unit 5202
Storrs, CT 06269-5202

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
STORRS, CT
PERMIT NO 36

Help improve the future of transportation in Connecticut by participating in this important study!

CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Connecticut Transportation Institute
270 Middle Turnpike, Unit 5202, Storrs, CT 06269-5202

FIRST-CLASS MAIL
U.S. POSTAGE
PAID
STORRS, CT
PERMIT NO 36

We recently mailed you an invitation to participate in the Connecticut Statewide Transportation Study.

If you have already completed the study, **thank you!**
If not, you still have time and participation is easy – please see the instructions below to get started.

Please tell us about your travels on: **<travel date>**

To participate, go online and enter your password: https://cttransportationstudy.org

<password>

Or call toll-free: 1-844-872-2562

Remember, your input is important! Your participation will help the Connecticut Department of Transportation plan and prioritize future transportation improvements in the state.

As thanks for your participation, your household will receive a $10 Visa gift card after completing the study.

Questions? Email: help@cttransportationstudy.org

Lo invitamos a compartir sus experiencias de traslado en su región.
Para participar, llame sin costo: 1-844-872-2562

CONNECTICUT STATEWIDE

TRANSPORTATION STUDY

Help improve transportation in Connecticut!

REMINDER:
You can still participate!

UCONN

CONNECTICUT STATEWIDE TRANSPORTATION STUDY

Go to survey

Click "Go to survey" to start the survey with your password. If you do not have a password, please contact us for more information.

Lo invitamos a compartir sus experiencias de traslado en su región. Para participar, llame sin costo: 1-844-872-2562

"Conducting this survey will help the Capitol Region gain a better understanding of travel behavior within and outside of our region and work with local elected officials to ensure transportation dollars are spent where they are needed most, to reduce congestion, increase safety, and improve multimodal options in our region — allowing us to sustainably grow and economically prosper." — *Lyle Wray, Executive Director, Capital Region Council of Governments (CRCOG)*

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

About the Study

The Connecticut Statewide Transportation Study is collecting information about day-to-day household travel activity and typical travel patterns in the state of Connecticut. The study reaches out to state residents to understand how we travel, where we go, why we travel, and how long it takes. This information is vital for the Connecticut Department of Transportation and regional planning agencies to understand how the transportation system is impacted by growth, development and other changes in communities across the region.

The data collected in this study will be used to update the database of household travel behavior and to forecast travel needs into the future. Reliable and viable travel options contribute to the state's quality of life and economic vitality, and this study will help agencies prioritize transportation improvements to support the needs of communities in the future.

For more information about this study, please visit the FAQs or contact us.

STUDY OVERVIEW

This study has 2 parts

	1 HOUSEHOLD INFO SURVEY	2 TRAVEL DIARY SURVEY
When do I take the survey?	As soon as convenient	After the day of your assigned travel
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About the Study Region

The Connecticut Statewide Transportation Study region includes the entire state of Connecticut. Connecticut is home to approximately 3 million residents. The state has a diverse economy, including many major employers in government, education, and private industry. In addition to being home to classic Ivy League schools, modern expressways, corporate offices, and small farms, Connecticut identifies as both a New England state and a neighbor to New York City and Boston.

Feedback about transportation needs in local communities will inform how the state maintains and improves this system as the population grows and changes in the coming decades. The study is sponsored by the Connecticut Department of Transportation (CTDOT) in partnership with the Connecticut Transportation Institute at UCONN.

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Study FAQs

Frequently Asked Questions About the Study

What is the Connecticut Statewide Transportation Study all about?

The study is collecting information about everyday travel behavior of residents in the state of Connecticut including how we travel, where we go, why we travel, how long it takes, etc.

How was I selected to participate?

Invited households (like yours) were randomly selected from all the residential addresses in the state. The random approach helps us understand the travel needs of all types of households from different regions in the state.

Why should I participate?

Current data about residents' travel characteristics helps the state to understand and plan for current and future transportation needs. It also helps local agencies plan for transportation improvements in your communities. Your responses have a large impact because yours is one of a small number of households invited to participate in the study.

How will the survey results be used?

Information collected in the study will help the Connecticut Department of Transportation plan and prioritize future transportation investments. For example, the information will help answer questions such as, what role can transit, biking and walking play in improving mobility in communities, and how can we improve roadways to more effectively handle increasing traffic and travel demands?

My travel on my assigned day isn't "typical" — should I still participate?

Yes. This study aims to collect travel information on the date assigned to you even if it as not a "typical" travel day. We will separately ask you a few questions about your usual travel habits.

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Yes. Whether you only walk or ride transit, don't go anywhere at all, or make a lot of trips, please report what actually happens on your assigned travel date. We want to understand all kinds of travel, regardless of what mode you take or how often you travel.

Who is sponsoring this study?

This study is sponsored by the Connecticut Department of Transportation in partnership with the Connecticut Transportation Institute at UCONN.

How is my personal privacy protected?

All your answers will be kept strictly confidential and will only be analyzed with responses from all other participating households. A copy of the privacy policy for this study is available here.

What are my rights as a participant?

You do not have to be in this study if you do not want to. If you agree to be in the study, but later change your mind, you may drop out at any time. There are no penalties or consequences of any kind if you decide that you do not want to participate, though you will not receive compensation. We will be happy to answer any questions you have about this study. If you have further questions about this study or if you have a research-related problem, you may contact the principal investigator, Dr. Karthik Charan Konduri at kkonduri@engr.uconn.edu. If you have any questions concerning your rights as a research subject, you may contact the UCONN Institutional Review Board (IRB) at 860-486-8802. The IRB is a group of people who review research studies to protect the rights and welfare of study participants. This protocol has been approved by the UCONN IRB, Protocol #H15-307.

What will I get for participating?

As thanks for participating, invited households will receive a $10 Visa gift card after every person in the household completes the study.

Taking the Survey

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What are some examples of trips?

See below some common trips that people make:

- Drive to work
- Drop your child off at school
- Walk the dog
- Walk your child to a neighbor's
- Bike to the grocery store
- Walk to the bus stop and then ride the bus to the bank
- Carpool to a meeting in New York

Often what we think of as one trip may actually be a chain of several trips. For example, "I picked up my child and stopped to buy gas on my way home from work" counts as **three trips**: 1) a trip from work to your child's activity, 2) a trip from your child's activity to the gas station, and 3) the trip home.

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Who should be counted as a member of my household?

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In the News

Major Series of Transportation Surveys to Begin this Month

Input Needed From Individuals, Organizations & Businesses For Analysis & Accurate Planning of Let's Go CT! Projects: http://www.ct.gov/dot/cwp/view.asp?A=1373&Q=575914

DOT conducting transportation surveys

As part of the "Let's Go CT!" plan, the governor's 30-year transportation initiative, the state Department of Transportation has announced a series of transportation surveys: http://www.hartfordbusiness.com/article/20160119/NEWS01/160119923/dot-conducting-transportation-surveys

ConnDOT eAlert: News from the Connecticut Department of Transportation

Major Series of Transportation Surveys to Begin this Month: http://cttransportationnhr.blogspot.com/2016/01/conndot-ealert-news-from-connecticut_14.html

Connecticut DOT, UConn partner on transportation study for household travel

The Connecticut Transportation Institute (CTI) at the University of Connecticut (UConn) is partnering with the Connecticut Department of Transportation (CTDOT) in conducting a study of trips traveled: http://www.equipmentworld.com/connecticut-dot-uconn-partner-on-transportation-study-for-household-travel/

Participate in the Statewide Transportation Study

The Connecticut Statewide Transportation Study is collecting information about everyday transportation choices and travel patterns in the state of Connecticut: http://www.bikewalkct.org/news/participate-in-the-statewide-transportation-study

State survey: How do you get around Connecticut?

A new survey by the state Department of Transportation and the University of Connecticut wants to know the trips you've taken on the state's highways, roads, trails and sidewalks: http://www.ctpost.com/local/article/State-survey-How-do-you-get-around-Connecticut-6895922.php

DOT: Where are you going?

The intention is not Orwellian in nature, but the state Department of Transportation does want to know where you travel: http://www.rep-am.com/news/local/947751.txt

Have Connecticut Transportation Patterns Changed in 40 Years? State Plans to Find Out

The new survey will give researchers a better understanding of how commuters get around the state today: http://wnpr.org/post/have-connecticut-transportation-patterns-changed-40-years-state-plans-find-out#stream/0

UConn Led Travel Survey will give state decision makers updated information

A new travel study being conducted by UConn faculty will provide data for the state travel model, updating decades-old information: http://news.engr.uconn.edu/uconn-led-travel-survey-will-give-state-decision-makers-updated-information.php

DOT releases transportation survey

Some Connecticut residents will find a survey from the state Department of Transportation in their mailbox, which is being used to gather data to make improvements throughout the state: http://www.wfsb.com/story/31612488/dot-releases-transportation-survey

ConnDOT eAlert: News from the Connecticut Department of Transportation

CTDOT and UConn Launch Household Travel Survey: http://www.aashtojournal.org/Pages/StateDotNewsDetail.aspx?MessageId=37240

Elm City Cycling Tweet

The Connecticut Statewide Transportation Study is collecting information about everyday transportation choices: https://twitter.com/elmcitycycling/status/711300448527851520

South Central Regional Council of Governments Transportation Technical Committee Announcements

The CT Statewide Transportation Study is collecting information about everyday transportation choices and travel patterns in the state: http://www.scrcog.org/documents/Statewide_Household_Travel_Survey_2016.pdf

Southeastern Connecticut Council of Governments "In the News"

Connecticut Statewide Transportation Study seeks information about everyday transportation choices and travel patterns in Connecticut: http://seccog.org/?publisher=4846312192

Naugatuck Valley Council of Governments News

Connecticut Statewide Transportation Study is Collecting Information: http://www.nvcogct.org/news/connecticut-statewide-transportation-study-collecting-information

Connecticut Metropolitan Council of Governments News

Household Travel Survey: http://www.ctmetro.org/news/39/194/Household-Travel-Survey/#.VwvEyPkrKUl

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Study Sponsor

Connecticut Department of Transportation (CTDOT)

Study Partner

UCONN UNIVERSITY OF CONNECTICUT

Connecticut Transportation Institute at UCONN (CTI)

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CONNECTICUT STATEWIDE TRANSPORTATION STUDY

HOME ABOUT REGION FAQ NEWS SPONSORS PARTICIPATE CONTACT PRIVACY

Participants, don't forget to use your travel log! Download one here: Download PDF ×

Participate

Invited households

If you received an invitation to the study, click here to access the survey and enter your password:

Go to survey

If you have misplaced the invitation with your password, feel free to call (1-844-872-2562) or email us and we can retrieve it for you.

Contact us

Want to participate?

If you did not receive an invitation to the study but would like to volunteer to participate, please contact us.

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Contact Us

For questions about the study:

Email: help@cttransportationstudy.org

Call toll-free: 1-844-872-2562

Monday to Friday, 9 a.m. to 8 p.m. (ET)

Saturday, 10 a.m. to 4 p.m. (ET)

Or leave a message with the best time and number for us to return your call.

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Resource Systems Group, Inc. Privacy Statement

SUMMARY

- © Resource Systems Group, Inc. 2016 is conducting this study for CTDOT and the Connecticut Transportation Institute at UCONN.
- Resource Systems Group (RSG) will never sell, trade or otherwise share any personal information collected in its surveys with any third party.
- RSG will never spam you, advertise to you or otherwise contact you outside of this survey without your explicit and direct permission.
- Any and all information collected during this survey will only be presented to RSG's clients as part of an aggregate sample. At no time will individual responses be connected to survey takers' personal information.
- During the study, we need your name and contact information in order to reach you, but at the conclusion of the study, this information will be destroyed. Your survey responses will never be sold or shared.

PRIVACY STATEMENT IN DEPTH

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Appendix H

Main Study Quality Control and Data Checks

INTRODUCTION

The study team completed a number of tasks as part of data processing. The primary goals of data processing tasks were twofold as noted below:

1. Identify and rectify potential accuracy and validity issues, and
2. Enhance the data for subsequent analysis.

This appendix describes the checks in support of these data processing goals. The checks performed can be categorized into three groups: Uniformity Checks, Consistency Checks, and Logical Checks. In addition, a list of checks that were typically carried out by the modeling consultant were also performed on the final dataset. Below, each of the four types of checks are described in greater detail. In the last section, the changes implemented in response to the checks are summarized.

UNIFORMITY CHECKS

The purpose of the uniformity checks was to ensure that the variables, and values contained in the data files followed assumed notations for variable names, variable descriptions, variable values, and value descriptions, among others. For example, ensuring the values match the responses enumerated in the questionnaire document. Furthermore, the checks also ensured that all data files and the information contained in them were uniformly organized. For example, ensuring that a value of -99 was used throughout to represent a “not applicable” and -999 is used to represent a “missing” value. Table H.1 provides a list of specific uniformity checks that were applied to all data files.

Table H.1: List of specific uniformity checks

Checked variable name for intuitiveness
Checked variable description and matched with questionnaire text and branching logic
Checked whether the variable type in SPSS matches the type of values elicited in the survey (i.e. string versus numeric)
Checked response values against questionnaire
Checked description of response values against questionnaire
Ensured that value -99 is used for “not applicable”
Ensured that value -999 is used for “missing” entries
Ensured plausibility of missing entries
Matched column type (and other attributes) for common variables across files

CONSISTENCY CHECKS

The purpose of the consistency checks was to ensure that the values reported for a given variable are consistent with information contained in another related variable in the same or different data files. For example, school type (schooltype) is only asked of adults (age >= 18) who are currently students (student= 1 or 2). As can be seen, school type and student status provide different items of information but they are related and thus can be compared to evaluate the information contained in the variables. Table H.2 provides the specific checks that were performed at the household level. Tables H.3 and H.4 provide the specific checks that were performed at the person level and trip level respectively. No consistency checks were performed for the vehicle information as there was no information in the dataset to compare against.

LOGICAL CHECKS

The purpose of the logical checks was to compare responses by using information contained in variables in the same data file or across other data files. For example, starting location type on assigned travel date (diary_st_loc) and ending location type on assigned travel date (diary_end_loc) are reported in the person file. This information can be matched against the origin and destination purpose for the first and last trip reported in the trip file. The focus of the logical checks was mainly on the travel responses[1]. The logical checks that were performed are enumerated in Table H.5.

ADDITIONAL CHECKS FROM MODELING CONSULTANT

These represent checks that are typically carried out by the modeling consultant as part of their model development efforts. A list of these checks at the household, person, and trip levels are presented in Table H.6, Table H.7 and Table H.8 respectively. It must be noted that there is an overlap between some of these checks and the three types of checks described above.

ACTIONS TAKEN TO FIX ISSUES AND ENHANCE DATA

While most of the checks did not result in any issues, some discrepancies were found. The study team rectified majority of these issues in the following ways. First, a new column was derived or calculated, based on the original or revised data column(s). Second, recoded column(s) were created by rectifying the original data column(s). As noted in Appendix K, all data columns are appropriately tagged to help identify the type of column. Also, when a data column was recoded, the original data column was retained to facilitate comparisons. Third, where appropriate, changes that have cascading impacts were incorporated. For example, change to destination purpose (d_purpose), will have implications for o_purpose and also for t_purpose. It must be noted that there may still be some discrepancies that either could not be rectified (e.g. day level HOV usage is at odds with trip level usage) or were not identified because the study team did not enumerate the check that would result in the said discrepancy.

[1] As it was observed that the household and person level consistency checks also cover logical checks for information contained in those files.

Table H.2: List of household specific consistency checks

Name of the variable being checked	Related variable or table against which check was made	Description of the check
Household file: hh_tripcount	Trip file	Compared against count of trip records in the trip file for each household Compared against aggregate of person level trip count variable: person_tripcount
Household file: transithh	Trip file: mode_category	Compared to see if members of the household reported at least one trip with mode_category = 6
Household file: recruit_duration	Household file: recruit_start_et, recruit_end_et	Compared against the difference
Household file: numvehicle_3plus	Household file: numvehicle	Compared to ensure that the mapping between the disaggregate and consolidated variables was appropriate
Household file: hhsize_5plus	Household file: hhsize	Compared to ensure that the mapping between the disaggregate and consolidated variables was appropriate
Household file: numvehicle	Person file	Compared against count of vehicle records in the vehicle file for each household
Household file: numpersons	Person file	Compared against count of person records in the person file for each household
Household file: numadults	Person file: age_broad	Compared against counts of persons in the person file where age_broad >= 5
Household file: numkids	Person file: age_broad	Compared against counts of persons in the person file where age_broad < 5
Household file: numkids_3plus	Household file: numkids	Compared to ensure that the mapping between the disaggregate and consolidated variables was appropriate
Household file: numstudents	Person file: schooltype	Compared against counts of persons in the person file where schooltype is any valid value except “None”
Household file: numstudents_adult	Person file: age_broad and schooltype	Compared against counts of persons in the person file where age_broad >= 5 and schooltype is any valid value except “None”
Household file: numstudents_kid	Person file: age_broad and schooltype	Compared against counts of persons in the person file where age_broad < 5 and schooltype is any valid value except “None”
Household file: numworkers	Person file: employment	Compared against counts of persons where employment = 1 or 2
Household file: numworkers_3plus	Household file: numworkers	Compared to ensure that the mapping between the disaggregate and consolidated variables was appropriate
Household file: numdrivers	Person file: license	Compared against counts of persons where license = 1
Household file:	Household file: hhincome_detailed	Compared to ensure that the mapping between the disaggregate and

Name of the variable being checked	Related variable or table against which check was made	Description of the check
hhincome_broad		consolidated variables was appropriate for all “prefer not to answer” at the disaggregate level.
Household file: hhincome_detailed	Household file: hhincome_followup	Compared to ensure that the counts of valid values of detailed income variable align with “not applicable” Also, compared to ensure that the counts of “prefer not to answer” of the detailed income variable match with a valid response for the income follow-up variable
Household file: imputed_income_for_missing	Household file: hhincome_detailed	Compared to ensure that the counts of “prefer not to answer” for detailed variable match counts of valid imputed values
Household file: imputed_hhincome_detailed	Household file: hhincome_detailed, imputed_income_for_missing	Compared to ensure that the original values and imputed values in the new variable match with the detailed income and imputed income columns
Household file: r_numvehicles_4plus	Household file: numvehicles	Compared to ensure that the mapping between the disaggregate and consolidated variables was appropriate
Household file: r_household_income_rev_2	Household file: imputed_hhincome_detailed	Compared to ensure that the mapping between the disaggregate and consolidated variables was appropriate
Household file: r_numworkers_3plus	Household file: numworkers	Compared to ensure that the mapping between the disaggregate and consolidated variables was appropriate
Household file: r_numpersons_6plus	Household file: numpersons	Compared to ensure that the mapping between the disaggregate and consolidated variables was appropriate
Household file: r_household_type	Person file: relationship	Values from the relationship were used to create the three categories of the household type; in defining “family couple households” the reference person was used to establish the presence of a couple
Household file: r_presence_of_children	Household file: numkids	Compared to ensure that the variable assumes a value 1 whenever number of kids is greater than zero and a value zero otherwise; includes other children in the household who are not related also

Table H.3: List of person specific consistency checks

Name of the variable being checked	Related variable or table against which check was made	Description of the check
Person file: age	Person file: age_broad	Compared to ensure that the mapping between the disaggregate and consolidated variables was appropriate
Person file: age	Person file: age_followup	Compared to ensure that the "Not Applicable" of age_followup and "Prefer not to answer" for age variables align
Person file: employment	Person file: age_broad	Confirmed the branching logic by checking whether valid values were available for all people with age_broad >= 4
Person file: jobs_count	Person file: employment	Confirmed the branching logic by checking whether valid values were available for all people with employment = 1 or 2
Person file: work_hours	Person file: employment	Confirmed the branching logic by checking whether valid values were available for all people with employment = 1 or 2
Person file: student	Person file: age_broad	Confirmed the branching logic by checking whether valid values were available for all people with age_broad >= 5
Person file: schooltype	Person file: age_broad, student	Confirmed the branching logic by checking whether valid values were available for all people with age_broad <5 and student = 2 or 3 Also, confirmed response values against the possible values for various groups of ages as noted in the questionnaire
Person file: education	Person file: age_broad	Confirmed the branching logic by checking whether valid values were available for all people with age_broad >= 5
Person file: license	Person file: age_broad	Confirmed the branching logic by checking whether valid values were available for all people with age_broad >= 4
Person file: transit_fare	Person file: transit_freq	Confirmed the branching logic by checking whether valid values were available for all people with tansit_freq not equal to "Never"
Person file: transit_pass	Person file: transit_fare	Confirmed the branching logic by checking whether valid values were available for all people with transit_fare as "Used pass (any type)"
Person file: transit_discount	Person file: transit_fare	Confirmed the branching logic by checking whether valid values were available for all people with transit_fare not equal to "Free (no cost)"
Person file: school_freq	Person file: student, age_broad, schooltype	Confirmed the branching logic by checking whether valid values were available for all children and adult school enrollees who are not home schooled (i.e. schooltype not equal to 2, 6 or 95) Also, confirmed response values against the possible values for various groups

Name of the variable being checked	Related variable or table against which check was made	Description of the check
		of ages as noted in the questionnaire
Person file: school_lat, school_lng	Person file: schooltype, school_freq	Confirmed to make sure that for all people with schoolype~= (2, 6, 95) and do not take online classes (i.e. school_freq ~= 8)
Person file: school_mode	Person file: student, age_broad, schoolfreq, license	Confirmed the branching logic by checking whether valid values were available for all children and adult school enrollees who do not take classes online Also, confirmed response values against the possible values for various groups of ages as noted in the questionnaire
Person file: work_lat, work_lng	Person file: employment, workplace	Confirmed to make sure that for all people with employment=1, 2 or 3 and a fixed workplace, a valid latitude and longitude values are available
Person file: workplace	Person file: employment	Confirmed the branching logic by checking whether valid values were available for all people with employment = 1, 2 or 3
Person file: occupation	Person file: employment	Confirmed the branching logic by checking whether valid values were available for all people with employment = 1, 2 or 3
Person file: industry	Person file: employment	Confirmed the branching logic by checking whether valid values were available for all people with employment = 1, 2 or 3
Person file: commute_freq	Person file: workplace	Confirmed the branching logic by checking whether valid values were available for all people with employment = 1, 2 or 3 and workplace = 1, 2
Person file: commute_mode	Person file: workplace, license	Confirmed the branching logic by checking whether valid values were available for all people with employment = 1, 2 or 3 and workplace = 1 or 2 Also, confirmed response values against the possible values based on licensing status as noted in the questionnaire
Person file: work_flex	Person file: employment	Confirmed the branching logic by checking whether valid values were available for all people with employment = 1, 2 or 3
Person file: diary_duration	Person file: diary_start_et, diary_end_et	Checked against the difference between the start and end times
Person file: person_tripcount	Trip file	Compared against count of trip records in the trip file for each household
Person file: person_tripcount_10plus	Person file: person_tripcount	Compared to ensure that the mapping between the disaggregate and consolidated variables was appropriate
Person file: trips_first, trips_last	Person file: copytrips_confirm	Compared against the copytrips_confirm indicator to ensure that they align
Person file: trips_yesno	Person file: person_tripcount	Compared against count of trips at the person level
Person file: no_travel_dayoff,	Person file: person_tripcount	Compared to see if valid values were available when person_tripcount = 0

Name of the variable being checked	Related variable or table against which check was made	Description of the check
no_travel_telecommute, no_travel_workhomenoapay, no_travel_kidsvacation, no_travel_notransport, no_travel_sick, no_travel_visitor, no_travel_other		
Person file: toll_use_travelday, hov_use_travelday, park_pay_use_travelday	Person file: age_broad, person_tripcount	Confirmed the branching logic by comparing against count of trips at the person level and the age_broad >= 4
Person file: r_age	Person file: age_broad	Compared to ensure that the mapping between the disaggregate and consolidated variables was appropriate
Person file: r_gender	Person file: gender	Compared to ensure that the mapping between the disaggregate and consolidated variables was appropriate
Person file: r_employment	Person file: employment	Compared to ensure that the mapping between the disaggregate and consolidated variables was appropriate
Person file: r_mode_to_work	Person file: employment, commute_mode	Compared to ensure that the mapping between the disaggregate and consolidated variables was appropriate

Table H.4: List of trip specific consistency checks

Name of the variable being checked	Related variable or table against which check was made	Description of the check
Trip file: departure_time	Trip file: departure_time_hhmm	The two variables provide the same information in different formats. These were compared to ensure consistency in the variables
Trip file: arrival_time	Trip file: arrival_time_hhmm	The two variables provide the same information in different formats. These were compared to ensure consistency in the variables
Trip file: departure_hour	Trip file: departure_time_hhmm	Compared the value of departure hour derived from the complete departure time
Trip file: arrival_hour	Trip file: arrival_time_hhmm	Compared the value of arrival hour derived from the complete arrival time
Trip file: reported_duration	Trip file: departure_time, arrival_time	Checked against the difference between arrival and departure times
Trip file: travelers_total	Trip file: travelers_hh, travelers_nonhh	Compared against sum of household members and non-household members in the travel party
Trip file: travelers_hh	Trip file: hhmember1, hhmember2, hhmember3, hhmember4, hhmember5, hhmember6, hhmember7, hhmember8, hhmember9	Compared against sum of household member occupancy indicators.
Trip file: o_purpose	Trip file: d_purpose	Checked to see that o_purpose for all but the first trip for each person corresponds to d_purpose for previous trip
Trip file: mode_category	Trip file: mode	Checked to make sure that the definitions of the disaggregate and aggregate variables align
Trip file: mode_hhauto	Trip file: mode_category, vehnum	Checked to see that this aligns with mode_category = 1, 2, or 3 Also, checked to see if a valid household vehicle ID was reported
Trip file: tollroad_cost	Trip file: tollroad_use, tollroad_cost_dk	Checked to see that valid values were available for tollroad_use = 1 and tollroad_cost_dk = 0
Trip file: park_cost	Trip file: park_pay, park_cost_dk	Checked to see that valid values were available for park_pay = 1 and park_cost_dk = 0
Trip file: taxi_cost	Trip file: mode_category, taxi_cost_dk	Checked to see that valid values were available for mode_category = 5 or 6 and taxi_cost_dk = 0
Trip file: transit_access	Trip file: mode_category, mode	Checked to see that valid values are available for mode_category = 6 and mode not equal to 12 (i.e. only transit without paratransit)
Trip file: transit_egress	Trip file: mode_category, mode	Checked to see that valid values are available for mode_category = 6 and

Name of the variable being checked	Related variable or table against which check was made	Description of the check
		mode not equal to 12 (i.e. only transit without paratransit)
Trip file: transit_pay	Trip file: mode_category, mode	Checked to see that valid values are available for mode_category = 6 and mode not equal to 12 (i.e. only transit without paratransit)
Trip file: transit_cost	Trip file: transit_pay	Checked to see that valid values are available for transit_pay = 2 or 3
Trip file: transit_system_1, transit_system_2, transit_system_3, transit_system_4	Trip file: mode_category, mode	Checked to see that valid values are available for mode_category = 6 and mode not equal to 12 (i.e. only transit without paratransit)
Trip file: transit_line_1, transit_line_2, transit_line_3, transit_line_4	Trip file: mode_category, mode	Checked to see that valid values are available for mode_category = 6 and mode not equal to 12 (i.e. only transit without paratransit)
Trip file: transit_transfers	Trip file: mode_category, mode, transit_system_1, transit_system_2, transit_system_3, and transit_system_4	Checked to see that valid values are available for mode_category = 6 and mode not equal to 12 (i.e. only transit without paratransit) Also, checked to see that the number of transfers matches with the valid information contained in the transit_system_1, transit_system_2, transit_system_3, and transit_system_4
Trip file: hhmember_none	Household file: hhsize Trip file: travelers_hh	Checked to see if valid values exist only when the household size is greater than one Also, checked to see if response to the variable is “no” only when the travelers_hh is greater than 1
Trip file: gdistance_bins	Trip file: gdistance	Checked to make sure that the bin ranges and values match
Trip file: gduration_bins	Trip file: gduration	Checked to make sure that the bin ranges and values match

Table H.5: List of trip specific logical checks

Name of the variable being checked	Related variable or table against which check was made	Description of the check
Trip file: hov_use	Person file: hov_use_travelday Trip file: mode, travelers_total	Compared the trip level hov usage against the day level hov usage reported
Trip file: tollroad_use	Person file: toll_use_travelday Trip file: mode	Compared the trip level toll usage against the day level toll usage reported
Trip file: park_loc	Person file: park_pay_use_travelday Trip file: mode	Compared the trip level parking location against the day level parking pay reported
Trip file: park_pay	Person file: park_pay_use_travelday Trip file: mode, park_loc	Compared the trip level parking pay usage against the day level parking pay reported
Trip file: driver	Person file: license Trip file: mode	Expected valid values for mode = 3, 4, and 7 & travelers_total > 2
Person file: dirary_loc_start	Trip file: o_purpose	Compared against the origin purpose of the very first trip
Person file: diary_loc_end	Trip file: d_purpose	Compared against the destination purpose of the very last trip
Trip file: o_purpose	Trip file: d_purpose	Checked to see if the combinations of o_purpose and d_purpose make sense
Trip file: d_lat, d_lng	Household file: home_lat, home_lng Trip file: d_name	This was the first of checks attempting to confirm the location accuracy. Checked to see if the home locations are consistent with destination reported in the trip file for “Go Home”

Table H.6: List of household specific checks provided by the modeling consultant

Missing geocodes, home
Sign inconsistency in geocodes, home
Geocodes out of the region, home
Length of the household ID must be constant.
Missing household income
Number of people in the person file must equal the household size variable in the Household file
Households in the household file do not show up in the trip file (except for the households with zero trip)
Number of spouses is greater than one

Table H.7: List of person specific checks provided by the modeling consultant

Missing geocode, work
Sign inconsistency in geocode, work
Geocode out of the region, work
Missing geocode, school
Sign inconsistency in geocode, school
Geocode out of the region, school
Household id in person file not in household file
Person represented in the person-file, but not represented in the trip file
(except for person with zero trip)
Child under 16 has driver's license
Missing educational attainment
Unusual age for school type
School type missing from student
School type present in non-student
School address missing from student
Work status missing
Child under 16 is listed as working
Work responses missing from worker
Worker with fixed location missing address
Worker did not report occupation
Worker did not report work location status (home, other, varies)
Worker did not report flexible schedule
Worker did not report work hours
Worker did not report industry
Missing school status
Missing gender
Missing age
Missing license
Missing relation to household head

Table H.8: List of trip specific checks provided by the modeling consultant

Missing geocode, origin
Missing geocode, destination
Sign inconsistency in geocode, origin
Sign inconsistency in geocode, destination
Duplicate trip record
Name/origin activity/type do not match information from the previous destination
Origin latitude/longitude do not match information from the previous destination
Missing time information
Arrival time is after departure time
Departure time is greater than the preceding trip's arrival time
Auto trip is missing passenger/driver info
Missing party size in auto trip
Missing/invalid household members in party in auto trip
Household members in party exceeds household size
Household members in party exceeds party size
Missing origin or destination name
The start time on the diary is not 3 AM
Origin matches destination by latitude/longitude

Appendix I

Main Study Purpose Cleaning Heuristics

INTRODUCTION

Once the main data collection was complete, two rounds of cleaning were conducted on the trip purpose variable. The cleaning tasks were carried out based on observations from the quality control and data checks as outlined in Appendix H.

The list of locations reported by each individual on the assigned travel date comprises of a starting location (i.e. origin of the first trip) and a series of activity locations (i.e. destinations of the trips). For each location, individuals were required to provide a "name" that described the location. The name information in turn was used by the online survey instrument to construct and present follow up questions in a way that is more meaningful and relatable to the respondents. The location name often contained information that could confirm the trip purpose. Two rounds of data cleaning were carried out utilizing the name information, to enhance the purpose variable in the dataset. Results from the first round of data cleaning were formalized into version 5 of the dataset. Results from the second round of data cleaning were incorporated into version 6 of the dataset, also referred to as the final version of the dataset.

Details regarding the two rounds of data cleaning are presented in the next two sections. Where appropriate, actual variable names are used to describe the data cleaning process. For example, d_name in the text refers to the variable that contains the name used by respondents to describe a trip destination. For more information about the variable names, please see Appendix O. When referring to a particular value of the trip purpose variable, either in reference to a particular cleaning task or in reference to being recoded to a new value, both the numeric value and the associated definition are presented. For example, "Recode trips with origin purpose of 1-Go home" indicates that the particular recoding task attempted to recode those trips where the origin purpose was assigned a value 1 i.e. to go home.

FIRST ROUND OF PURPOSE CLEANING

The name information was used to confirm and clean 1) the purpose of the starting location and 2) the purpose of the primary activity at all trip destinations. Also, the purpose cleaning was limited to only fixed activity locations (including home, work, and school). The purpose corrections regarding fixed activity locations could be ascertained with a high degree of confidence using programmable heuristics. The same is not possible with other locations – the cleaning of other locations requires manual corrections on a trip-by-trip basis which can be subject to interpretation biases. The purpose cleaning process for each of the fixed activity locations took the form of series of steps. Additionally, different criterion were applied based on whether the location was the starting location or the destination location for the trips. Table below provides a description of the steps for cleaning the purpose variable for different fixed activity locations. It must be noted that origin or destination purpose of those trips that do not satisfy the criterion outlined in the table were retained without any change.

Candidate Fixed Activity Location for Purpose Cleaning	Criterion for Purpose Cleaning	Recoded Value
Starting location is home	1. trip_num is 1 2. o_name_recode is “HOME” 3. o_purpose_recode is not equal to 1 4. distance between (home_lat, home_lng) and (o_lat_recode, o_lng_recode) is within 50 feet 5. d_purpose_recode is not equal to 1	o_purpose_recode_2 = 1
Starting location is work	1. trip_num is 1 2. o_name_recode is “WORK” 3. o_purpose_recode is not equal to 2 4. distance between (work_lat, work_lng) and (o_lat_recode, o_lng_recode) is within 50 feet 5. d_purpose_recode is not equal to 2	o_purpose_recode_2 = 2
Destination of the trip is home	1. trip_num is greater than 1 2. d_name is “HOME” 3. d_purpose_recode is not equal to 1 4. distance between (home_lat, home_lng) and (d_lat, d_lng) is within 50 feet 5. o_purpose_recode is not equal to 1 6. d_purpose_recode of next trip is not equal to 1	d_purpose_recode_2 = 1
Destination of the trip is work	1. trip_num is greater than 1 2. d_name is “WORK” 3. d_purpose_recode is not equal to 2 4. distance between (work_lat, work_lng) and (d_lat, d_lng) is within 50 feet 5. o_purpose_recode is not equal to 2 6. d_purpose_recode of the next trip is not equal to 2	d_purpose_recode_2 = 2
Destination of the trip is school	1. trip_num is greater than 1 2. d_name is “SCHOOL” 3. d_purpose_recode is not equal to 4 4. distance between (work_lat, work_lng) and (d_lat, d_lng) is within 50 feet 5. o_purpose_recode is not equal to 4 6. d_purpose_recode of next trip is not equal to 4	d_purpose_recode_2 = 4

Recoding the purpose of the activity at the location necessitates performing changes to other variables due to the cascading impacts. For example, if the destination purpose of a trip is modified, it also means that the origin purpose of the next trip should also be modified. Table 3 provides the list of cascading changes applied in response to recoding the activity purpose at the location. It must be noted that the list of variables and changes to their contents listed in table below only reflect the cascading changes. Primary changes to the variables and their contents were listed in the previous table.

Data File	Original Variable	Recoded Variable	Summary of Change
Trip File	o_address_recode	o_address_recode_2	Origin address of subsequent trip (trp_num greater than 1) was modified to be same as destination address of previous trip
	o_lat_recode	o_lat_recode_2	Origin latitude of subsequent trip (trp_num greater than 1) was modified to be same as destination latitude of previous trip
	o_lng_recode	o_lng_recode_2	Origin longitude of subsequent trip (trp_num greater than 1) was modified to be same as destination longitude of previous trip
	o_purpose_recode	o_purpose_recode_2	Origin purpose of subsequent trip (trp_num greater than 1) was modified to be same as destination purpose of previous trip
	d_address	d_address_recode	Destination address of any trip for which purpose was modified is altered to be same as the corresponding fixed activity location
	d_lat	d_lat_recode	Destination address of any trip for which purpose was modified is altered to be same as the corresponding fixed activity location
	d_lng	d_lng_recode	Destination address of any trip for which purpose was modified is altered to be same as the corresponding fixed activity location
	t_purpose	t_purpose_recode	New trip purpose was derived based on the d_purpose_recode_2 variable. More details regarding the detailed categories and their definitions can be found in the codebook.
Person File	diary_loc_start_recode	diary_loc_start_recode_2	Modified to reflect the actual start location
	diary_loc_end_recode	diary_loc_end_recode_2	Modified to reflect the actual end location

SECOND ROUND OF PURPOSE CLEANING

As noted in the last section, the first round cleaning was aimed at enhancing the origin or destination purpose of trips carried out at fixed activity locations. In the second round of cleaning, the origin or destination purpose of all trips were considered. Also, unlike the first round of cleaning where cleaning was carried out using programmable heuristics, in this round, manual corrections were performed on a trip-by-trip basis. In order to rectify possible issues due to interpretation biases of the analyst, a comprehensive quality assurance and quality control process as outlined in Section 3.7.3 was adopted. Similar to the first round of changes, cascading changes were applied after manually cleaning the origin or destination purposes. However, unlike the first round of changes, address, latitude and longitude for origins and destinations were not modified.

The specific cleaning tasks carried out and the criterion used to carry out the cleaning tasks are described in the remaining section. A total of 20 cleaning tasks were carried out. For each task, specific criterion used for recoding the purpose is presented. Also, where applicable, an overview of the task is presented

Recode trips with origin purpose of 1-Go home

Overview of the Data Cleaning Task

If the origin purpose of the trips were originally coded as 1-Go home, but the distance from trip origin to home is greater than 50 feet, the trips were highlighted for recoding. Also, a new purpose of 19-*Home other* was created for this task.

Specific Heuristics Applied to Recode the Values

Heuristics for changing origin purpose from 1-Go home to other values are shown in the table below.

Recoded Value	Criterion for Cleaning
19-Home other	o_name implies the trip origin is home (e.g. home, second home) or an ambiguous address, but the distance from trip origin to home is greater than 50 feet.
97-Other	o_name implies that the trip origin is not individual's home or primary work location (e.g. father's home, home depot).

Recode trips with destination purpose of 1-Go home

Overview of the Data Cleaning Task

If the destination purpose of the trips were originally coded as 1-Go home, but the distance from trip destination to home is greater than 50 feet, the trips were highlighted for recoding. Similar to the previous task, a new purpose of 19-Home other was created.

Specific Heuristics Applied to Recode the Values

Heuristics for changing destination purpose from 1-Go home to other values are shown in the table below.

Recoded Value	Criterion for Cleaning
2-Go to primary workplace	d_name implies that the destination is one's primary place of work or used similar expressive language (e.g. went back to work), and the distance from destination to the primary workplace is within 50 feet. However, if the purpose of previous or subsequent trip is 2-Go to primary workplace, the corresponding trip is not be recoded in order to avoid work to work loop.
3-Go to other work-related place	• d_name specifies a destination separate from primary work location using language like "work related" or "for work" (e.g. off-site business meeting). • d_name implies that the destination is the person's primary place of work or used similar expressive language (e.g. work), but the distance from destination to the primary workplace is greater than 50 feet, or the workplace location information of this person is not applicable.
4-Attend school/class	d_name is linked with an educational institution (e.g. UConn), and the distance from destination to the person's school location is within 50 feet. However, if the purpose of previous or subsequent trip is 4-Attend school/class, the corresponding trip is not be recoded in order to avoid school to school loop.
5-Other school-related activity	• d_name is linked with an educational institution, but not necessarily directly linked to an individual's education (e.g. piano lessons, after school program).

Recoded Value	Criterion for Cleaning
	• d_name is linked with an educational institution (e.g. UConn), but the distance from destination to the person's school location is greater than 50 feet, or the school location information of this person is not applicable.
6-Grocery shopping	d_name is related to a grocery store (e.g. Stop and Shop, Big Y), or d_name includes language like "grocery shopping".
7-Do other shopping (e.g. mall, hardware store)	d_name is related to a store (e.g. Staples, Nordstrom Rack), or d_name includes language like "shopping".
8-Run errands	d_name indicates bank visits, gas stop, mailing and picking up of items or pets (e.g. bank, post office, pick up cat).
9-Go to restaurant/ bar/ take out	If d_name is related to a restaurant or a coffee shop (e.g. Dunkin Donuts), or d_name includes language like "lunch", "dinner", "breakfast", or "eat".
10-Drop off/ pick up/ accompany other person	• d_name includes language like "pick up", "drop off" or "accompany". • If d_name has key words like "child's school", "wife's work", and the trip duration is short (usually less than 30 minutes) and also traveler_total of the subsequent trip changes, then the trip is classified as a drop off/pick up other person trip. Sometimes, the traveler_total could be misreported. Therefore, trip list of entire household was reviewed to identify and confirm who got picked up or dropped off. • If d_name indicates a visit for household members (e.g. "child's school"), but traveler_total does not change, checks were made to see if other household members also made the same trip. If so, the trip is classified as an accompany trip. • If d_name indicates a visit for non-household members (e.g. grandchild's school), and the traveler_total indicates presence of a non-household member (traveler_total is greater than traveler_hh), the trip list of the person was reviewed to ensure that trips were made to accompany non-household members. For example, if d_name of a candidate trip is "sister's work". By reviewing the trip list of this person, if it was found that the person first went to sister's home and picked up the sister – also, confirmed through change of traveler_total. It is highly likely that the candidate trip with d_name of "sister's work" was made to accompany the sister. In this case, the purpose should be recoded to 10-drop off/pick up/accompany other person. • For all the scenarios described above, it was ensured that the person is not the one who got picked up, dropped off or accompanied. For example "pick up child" could be the d_name for both the trip of the parent and the child due to the copy trip feature. However, the trip purpose for the parent is pick up whereas for the child, trip purpose should be some other valid value (e.g. school).
11-Exercise (e.g. gym, walk, jog/run)	d_name indicates a physical activity (e.g. gym, walk, walk the dog)
12-Family activity (e.g. child's game)	d_name indicates attending activities together as a family (e.g. child's art show, daughter's softball game)
13-Medical visit (e.g. doctor, dentist)	d_name implies a medical appointment (e.g. hospital, doctor's office)

Recoded Value	Criterion for Cleaning
14-Social (e.g. visit friends/relatives)	d_name implies social visits with other persons, family or friends regardless of the venue (e.g. visit a friend, father's home)
15-Leisure/ entertainment (e.g. movies)	d_name is related to activities that were purely voluntary with the caveat that they were done for no other benefit than relaxation or fun (e.g. gallery, watch a show, park, library)
16-Religious/ civic/ volunteer	Trips that were made for religious purposes (e.g. church), civic obligations (e.g. vote, town hall), charity, group/club meetings, or volunteering.
17-Vacation/ holiday/ traveling (e.g. hotel)	Trips that were made for vacation or traveling (e.g. hotel, on vacation)
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode. • In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car. • If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.
19-Home other	d_name implies the trip destination is home (e.g. home, second home) or an ambiguous address, but the distance from trip destination to home is greater than 50 feet. This category is only applicable to destination purposes that were originally coded as 1-Go home
20-Go to airport/switch airport	• d_name implies that the trip is made to the airport to catch a flight. For example, a person drove to airport, and then took flight to Florida, the trip to the airport is recoded to 20-Go to airport. • d_name implies that the trip is part of a multi stop flight travel. For example, a person took flight to airport A and then took another flight to airport B. In this case, both trips are recoded to 20-Go to airport. • d_name implies that the person took flight to airport. For example, a person took flight to airport and then drove home. In this case, the trip to airport is recoded to 20-Go to airport. • Sometimes people went to airport to pick up or drop off other persons, so if the mode of current trip or subsequent trip is not 17-Airplane/helicopter, and the traveler_total of subsequent trip changes, the trip was more likely made for dropping off/picking up the other person at the airport.

Recoded Value	Criterion for Cleaning
97-Other	d_name implies that the trip destination is not home (grandchild's school), and the purpose does not fall into any of the 20 categories.

Recode trips with destination purpose of 2-Go to primary workplace

Overview of the Data Cleaning Task

- If the destination purpose of the trips were originally coded as 2-Go to primary workplace, but the distance from trip destination to workplace is greater 50 feet, the trips were highlighted for recoding.
- Caution was exercised when recoding trips with long dwell time (more than 3 hours), because the trips were likely made for work or work-related.
- If the person did not report his or her work location information, it was not possible to calculate the distance from trip destination to work location. In this case, distance from home to trip destination was used as a surrogate indicator. If a person made multiple trips to the same place, distances from home to trip destination are going to be the same, and if all the trips have d_name as "work", the trip purpose is recoded as 2-Go to primary workplace.
- If the d_name of highlighted trip indicated an education institution, and the person is a worker but not a student, the purpose was recoded to 3-Go to other work related place. In this case it was assumed that the person could be working at the education institution. If the person is not a worker, the purpose is recoded to 4-Attend school/class when the distance from destination to their reported school location is less than 50 feet, otherwise, the purpose is recoded to 5-Other school-related activities.
- If only a noun is noted in the d_name (e.g. "Big Y", "church", "post office"), it is hard to tell why they went there. It is possible that they were at the location to perform work related actives. Therefore, the purpose of such trips is recoded to 3-Go to other work-related place.
- If d_name of highlighted trips does not provide strong evidence for recoding the purpose to other categories (e.g. work), dwell time, person status (e.g. if the person is a worker), and distance to primary work location (e.g. if destination is close to work location) were reviewed. If the purpose 2-Go to primary workplace is plausible, no change is made to the trip purpose. However, if there was some evidence that this is not the individual's primary workplace, the trip purpose is changed to 3-Go to other work-related place.

Specific Heuristics Applied to Recode the Values

Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
1-Go home	d_name implies the destination is home (e.g. went back home, work from home), and the distance from destination to home is within 50 feet. However, if the purpose of previous or subsequent trip is 1-Go home, the corresponding trip should not be recoded in order to avoid home to home loop.
3-Go to other work-related place	• d_name specifies a destination separate from primary work location using language like "work related" or "for work" (e.g. off-site business meeting). • d_name implies that the destination is the person's primary place of work or used similar expressive language (e.g. went back to work) but the distance from destination to the primary workplace is greater than 50 feet. • Library visit is usually recoded as 15-leisure/entertainment, but since trips in this group are originally recoded as 2-go to primary workplace, it is highly

Recoded Value	Criterion for Cleaning
	likely that the trip was made for work-related purpose rather than for leisure.
4-Attend school/ class	d_name is linked with an educational institution (e.g. UConn), and the distance from destination to the person's school location is within 50 feet, and also the person is not a worker. However, if the purpose of previous or subsequent trip is 4-Attend school/class, the corresponding trip is not be recoded in order to avoid school to school loop.
8-Run errands	d_name indicates gas stop or errands for pets.
9-Go to restaurant/ bar/ take out	d_name includes language like "lunch" or "dinner" or "breakfast" or "eat".
10-Drop off/ pick up/ accompany other person	• d_name includes language like "pick up", "drop off" or "accompany". • If d_name has key words like "child's school", "wife's work", and the trip duration is short (usually less than 30 minutes) and also traveler_total of the subsequent trip changes, then the trip is classified as a drop off/pick up other person trip. Sometimes, the traveler_total could be misreported. Therefore, trip list of entire household is reviewed to identify and confirm who got picked up or dropped off. • If d_name indicates a visit for household members (e.g. "child's school"), but traveler_total does not change, checks were made to see if other household members also made the same trip. If so, the trip is classified as an accompany trip. • If d_name indicates a visit for non-household members (e.g. grandchild's school), and the traveler_total indicates presence of a non-household member (traveler_total is greater than traveler_hh), the trip list of the person was reviewed to ensure that trips were made to accompany non-household members. For example, if d_name of a candidate trip is "sister's work". By reviewing the trip list of this person, if it was found that the person first went to sister's home and picked up the sister – also, confirmed through change of traveler_total. It is highly likely that the candidate trip with d_name of "sister's work" was made to accompany the sister. In this case, the purpose should be recoded to 10-drop off/pick up/accompany other person. • For all the scenarios described above, it was ensured that the person is not the one who got picked up, dropped off or accompanied. For example "pick up child" could be the d_name for both the trip of the parent and the child due to the copy trip feature. However, the trip purpose for the parent is pick up whereas for the child, trip purpose should be some other valid value (e.g. school).
11-Exercise (e.g. gym, walk, jog/run)	d_name indicates a physical activity (e.g. gym, walk, walk the dog)
16-Religious/ civic/ volunteer	Trips that were made for religious purposes (e.g. church), civic obligations (e.g. vote, town hall), charity, group/club meetings, or volunteering.
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child

Recoded Value	Criterion for Cleaning
	at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode. • In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car. • If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.
97-Other	d_name implies that the trip destination is not work, and the purpose does not fall into any of the 19 categories.

Recode trips with destination purpose of 3-Go to other work-related place

Overview of the Data Cleaning Task

- Caution was exercised when recoding trips with long dwell time (i.e. more than 3 hours), because it is highly likely the trip could be made for work-related activity.
- If d_name indicates a place outside CT, it was not recoded because the trip could be work-related.
- If only a noun is noted in the d_name (e.g. friend's place, church), such trips have not been recoded. In such cases, it is hard to tell why they went there, and they could likely have been doing work-related activity.

Specific Heuristics Applied to Recode the Values

Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
5-Other school-related activity	• d_name is linked with an educational institution, but not directly linked to an individual's education (e.g. piano lessons, after school program). • d_name is linked with an educational institution (e.g. UConn), but the distance from destination to the person's school location is greater than 50 feet, or the school location information of this person is not applicable.
8-Run errands	d_name indicates gas stop or activities related to pets.
9-Go to restaurant/ bar/ take out	d_name includes language like "lunch", "dinner", "breakfast", or "eat", and the dwell time is reasonable.
10-Drop off/ pick up/ accompany other person	• d_name includes language like "pick up", "drop off" or "accompany". • If d_name has key words like "child's school", "wife's work", and the trip duration is short (usually less than 30 minutes) and also traveler_total of the subsequent trip changes, then the trip is classified as a drop off/pick up other person trip. Sometimes, the traveler_total could be misreported. Therefore, trip list of entire household was reviewed to identify and confirm who got picked up or dropped off.

Recoded Value	Criterion for Cleaning
	• If d_name indicates a visit for household members (e.g. "child's school"), but traveler_total does not change, checks were made to see if other household members also made the same trip. If so, the trip is classified as an accompany trip. • If d_name indicates a visit for non-household members (e.g. grandchild's school), and the traveler_total indicates presence of a non-household member (traveler_total is greater than traveler_hh), the trip list of the person was reviewed to ensure that trips were made to accompany non-household members. For example, if d_name of a candidate trip is "sister's work". By reviewing the trip list of this person, if it was found that the person first went to sister's home and picked up the sister – also, confirmed through change of traveler_total. It is highly likely that the candidate trip with d_name of "sister's work" was made to accompany the sister. In this case, the purpose should be recoded to 10-drop off/pick up/accompany other person. • For all the scenarios described above, it was ensured that the person is not the one who got picked up, dropped off or accompanied. For example "pick up child" could be the d_name for both the trip of the parent and the child due to the copy trip feature. However, the trip purpose for the parent is pick up whereas for the child, trip purpose should be some other valid value (e.g. school).
11-Exercise (e.g. gym, walk, jog /run)	d_name indicates a physical activity (e.g. gym, walk, walk the dog). When only a noun qualifier is used in the d_name, such as softball game, karate, baseball practice, it is hard to say whether it is done as part of exercise or for something else. For example they may be just watching a game, or they are a player by profession, in which case this qualifies as work. Given the ambiguity for such instances, trips were not recoded when a noun qualifier is used.
12-Family activity (e.g. child's game)	d_name indicates performing trips together as a family (e.g. "child's art show", "daughter's softball game")
13-Medical visit (e.g. doctor, dentist)	d_name implies a medical appointment (e.g. doctor's appointment)
14-Social (e.g. visit friends/ relatives)	d_name clearly indicates social visits with others with key words like "visit".
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode. • In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs

Recoded Value	Criterion for Cleaning
	to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car. • If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.
20-Go to airport/switch airport	• d_name implies that the trip is made to the airport to catch a flight. For example, a person drove to airport, and then took flight to Florida, the trip to the airport is recoded to 20-Go to airport/switch airport. • d_name implies that the trip is part of a multi stop flight travel. For example, a person took flight to airport A and then took another flight to airport B. In this case, both trips are recoded to 20-Go to airport/switch airport. • d_name implies that the person took flight to airport. For example, a person took flight to airport and then drove home. In this case, the trip to airport is recoded to 20-Go to airport/switch airport. • Sometimes people went to airport to pick up or drop off other persons, so if the mode of current trip or subsequent trip is not 17-Airplane/helicopter, and the traveler_total of subsequent trip changes, the trip was more likely made for dropping off/picking up the other person at the airport.

Recode trips with destination purpose of 4-Attend school/class

<u>Overview of the Data Cleaning Task</u>
The approach for adults is described below:

- If it is a multiple person trip, and the person is not a student and/or school type information is coded as "not applicable", these were likely coded as 10-Pick-up/drop-off/accompany.
- In the cases where it was obvious that, the person him-/her-self was making the trip (e.g. traveler_total is 1 and the person is not a student, the trip purpose has been recoded to school-related (5) rather than school (4). The logic for such reconciliation is that the person thinks that they went to the location to "learn" something, however, they are not students, and so their trips are school related (read as learning related).
- There were also some occasions, where the d_name indicated the adult went to a school/college/university, given that, no school information is available for these persons, the trips have been recoded to school related (5).

The approach for children is described below:

- If a child makes multiple back to back school trips, the one closest to the school location has been recoded as attend school/classes (4) and the other ones are recoded as school related (5). The logic was since school/class (4) purpose refers to a fixed activity location, trips made to different locations cannot be coded as school/class (4). Also, back to back school/class (4) trips do not make sense when it was obvious that the person was changing place. Some examples of d_name that was coded to school related include dance, kungfu, karate, music class, violin lesson, cello lesson, photo class, swim lesson, riding lesson, flute lesson, choir practice, and field trip. For many of these coding the intention was to break the school (4) to school (4) loop and not to code multiple locations as school (4).
- If d_name of highlighted trips does not provide strong evidence for recoding the purpose to other categories (e.g. University), dwell time, person status (e.g. if the person is a student), and distance to

school location (e.g. if destination is close to school location) are reviewed. If the purpose 4-Attend school is plausible, no change is made. If it can be confirmed that the trip was not destined to the individual's reported school location, the trip purpose is changed to 5-Other school-related activities.

Specific Heuristics Applied to Recode the Values

Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
1-Go home	d_name implies the destination is home (e.g. went back home, work from home), and the distance from destination to home is within 50 feet. However, if the purpose of previous or subsequent trip is 1-Go home, the corresponding trip should not be recoded in order to avoid home to home loop.
3-Go to other work-related place	• d_name specifies a destination separate from primary work location using language like "work related" or "for work" (e.g. off-site business meeting). • d_name implies that the destination is the person's primary place of work or used similar expressive language (e.g. went back to work), but the distance from destination to the primary workplace is greater than 50 feet, or the workplace location information of this person is not applicable.
5-Other school-related activity	• d_name is linked with an educational institution, but not directly linked to an individual's education (e.g. piano lessons, after school program, dance) regardless of the student status. • d_name is linked with an educational institution (e.g. UConn), but the distance from destination to the person's school location is greater than 50 feet, or the school location information of this person is not applicable. • Library visit is usually recoded as 15-leisure/entertainment, but since it was originally reported as 4-Attend school/class, it is highly likely that the trip was made for school-related purpose rather than for leisure. • If d_name indicates a visit to church, town hall or other charity organization, and the person is a child, it is highly likely that the trip was school-related.
8-Run errands	d_name indicates bank visits, gas stop, mailing and picking up of items or related to pets (e.g. bank, post office, pick up cat), and the dwell time is reasonable for an errand.
9-Go to restaurant/ bar/ take out	d_name is related to a restaurant or a coffee shop (e.g. Dunkin Donuts), or d_name includes language like "lunch", "dinner", "breakfast", or "eat", and the dwell time is reasonable.
10-Drop off/ pick up/ accompany other person	• d_name includes language such as "pick up", "drop off" or "accompany". • If d_name has key words such as "child's school", "wife's work", and the trip duration is short (usually less than 30 minutes), and also traveler_total of the subsequent trip changes, then the trip is classified as a drop off/pick up other person trip. Sometimes, the traveler_total could be misreported. Therefore, trip list of entire household was reviewed to identify and confirm who got picked up or dropped off. • If d_name indicates a visit for household members (e.g. "child's school"), but traveler_total does not change, checks were made to see if other household members also made the same trip. If so, the trip is classified as an accompany trip. • If d_name indicates a visit for non-household members (e.g. grandchild's school), and the traveler_total indicates presence of a non-household

Recoded Value	Criterion for Cleaning
	member (traveler_total is greater than traveler_hh), the trip list of the person was reviewed to ensure that trips were made to accompany non-household members. For example, if d_name of a candidate trip is "sister's work". By reviewing the trip list of this person, if it was found that the person first went to sister's home and picked up the sister – also, confirmed through change of traveler_total. It is highly likely that the candidate trip with d_name of "sister's work" was made to accompany the sister. In this case, the purpose should be recoded to 10-drop off/pick up/accompany other person. • For all the scenarios described above, it was ensured that the person is not the one who got picked up, dropped off or accompanied. For example "pick up child" could be the d_name for both the trip of the parent and the child due to the copy trip feature. However, the trip purpose for the parent is pick up whereas for the child, trip purpose should be some other valid value (e.g. school).
11-Exercise (e.g. gym, walk, jog/run)	Trips made for gym, yoga, tennis club and weight watcher. If the d_name implies physical activity such as dance class, but with a learning aspect attached to it, it is recoded to 5-other school-related activity.
12-Family activity (e.g. child's game)	d_name indicates completing trips together as a family (e.g. "child's art show", "daughter's softball game")
13-Medical visit (e.g. doctor, dentist)	d_name implies a medical appointment (e.g. doctor's appointment)
14-Social (e.g. visit friends/relatives)	d_name clearly indicates social visits with others with keywords like "visit". If d_name only implies someone's home (e.g. father's home), the purpose has been recoded to 5-Other school-related activity, because person could have been doing school-related activity at someone's home.
15-Leisure/ entertainment (e.g. movies)	d_name is related to things that were done for no other benefit than relaxation or fun (e.g. gallery, watch a show, park, library)
16-Religious/ civic/ volunteer	• Trips that were made for religious purposes (e.g. church), civic obligations (e.g. vote, town hall), charity, group/club meetings, or volunteering, and the person is an adult. • If d_name indicates a visit to church, town hall or other charity organization, and the person is a child, it is highly likely that the trip was school-related, so the purpose has been recoded to 5-Other school-related activity.
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode.

Recoded Value	Criterion for Cleaning
	• In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car. • If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.
97-Other	d_name implies that the trip destination is not school, and the purpose does not fall into any of the 19 categories.

Recode trips with destination purpose of 5-Other school-related activity

Overview of the Data Cleaning Task

- If only a noun is noted in the d_name, such as church, mall, father's home, hospital and the person is a student, it is hard to tell why they went there. They could have been doing school-related activity at the destination so such trips have not been recoded.

Specific Heuristics Applied to Recode the Values

Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
3-Go to other work-related place	• d_name specifies a destination separate from primary work location using language like "work related" or "for work" (e.g. off-site business meeting). • d_name implies that the destination is the person's primary place of work or used similar expressive language (e.g. went back to work), but the distance from destination to the primary workplace is greater than 50 feet, or the workplace location information of this person is not applicable.
8-Run errands	d_name indicates bank visits, gas stop, mailing and picking up of items or related to pets (e.g. bank, post office, pick up cat), and the dwell time is reasonable for an errand.
9-Go to restaurant/ bar/ take out	D_name is related to a restaurant or a coffee shop (e.g. Dunkin Donuts), or d_name includes language like "lunch", "dinner", "breakfast", or "eat", and the dwell time is reasonable.
10-Drop off/ pick up/ accompany other person	• d_name includes language like "pick up", "drop off" or "accompany". • If d_name has key words like "child's school", "wife's work", and the trip duration is short (usually less than 30 minutes) and also traveler_total of the subsequent trip changes, then the trip is classified as a drop off/pick up other person trip. Sometimes, the traveler_total could be misreported. Therefore, trip list of entire household was reviewed to identify and confirm who got picked up or dropped off. • If d_name indicates a visit for household members (e.g. "child's school"), but traveler_total does not change, checks were made to see if other household members also made the same trip. If so, the trip is classified as an accompany trip. • If d_name indicates a visit for non-household members (e.g. grandchild's school), and the traveler_total indicates presence of a non-household member

Recoded Value	Criterion for Cleaning
	(traveler_total is greater than traveler_hh), the trip list of the person was reviewed to ensure that trips were made to accompany non-household members. For example, if d_name of a candidate trip is "sister's work". By reviewing the trip list of this person, if it was found that the person first went to sister's home and picked up the sister – also, confirmed through change of traveler_total. It is highly likely that the candidate trip with d_name of "sister's work" was made to accompany the sister. In this case, the purpose should be recoded to 10-drop off/pick up/accompany other person. • For all the scenarios described above, it was ensured that the person is not the one who got picked up, dropped off or accompanied. For example "pick up child" could be the d_name for both the trip of the parent and the child due to the copy trip feature. However, the trip purpose for the parent is pick up whereas for the child, trip purpose should be some other valid value (e.g. school).
12-Family activity (e.g. child's game)	d_name is related to child's game or activity, and the person is not the child. The trip purpose was recoded to 12-Family activity for adults, while the trip purpose for the child was left as 5-Other school-related activity.
14-Social (e.g. visit friends/relatives)	d_name clearly indicates social visits with others with keyword "visit". If d_name only implies someone's home (e.g. father's home), the purpose was not recoded because the person could have been doing school-related activity at someone's home.
16-Religious/ civic/ volunteer	• Trips that were made for religious purposes (e.g. church), civic obligations (e.g. vote, town hall), charity, group/club meetings, or volunteering, and the person is an adult. • If d_name indicates a visit or church, town hall or other charity organization, and the person is a child, it is highly likely that the trip were school-related. Such trips were not recoded.
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode. • In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car. • If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.

Recoded Value	Criterion for Cleaning
20-Go to airport/ switch airport	• d_name implies that the trip is made to the airport to catch a flight. For example, a person drove to airport, and then took flight to Florida, the trip to the airport is recoded to 20-Go to airport/switch airport. • d_name implies that the trip is part of a multi stop flight travel. For example, a person took flight to airport A and then took another flight to airport B. In this case, both trips are recoded to 20-Go to airport/switch airport. • d_name implies that the person took flight to airport. For example, a person took flight to airport and then drove home. In this case, the trip to airport is recoded to 20-Go to airport/switch airport. • Sometimes people went to airport to pick up or drop off other persons, so if the mode of current trip or subsequent trip is not 17-Airplane/helicopter, and the traveler_total of subsequent trip changes, the trip was more likely made for dropping off/picking up the other person at the airport.

Recode trips with destination purpose of 6-Grocery shopping

Overview of the Data Cleaning Task

- If d_name implies a visit to a store, and the store has a grocery section, the trip has not been recoded.
- If d_name only has key word of "shopping" or "store", it has not been recoded.
- If d_name only has key words of "gas station" or "shell station", it has not been recoded, because many gas stations have convenience store.

Specific Heuristics Applied to Recode the Values

Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
1-Go home	d_name implies the destination is home (e.g. went back home, work from home), and the distance from destination to home is within 50 feet. However, if the purpose of previous or subsequent trip is 1-Go home, the corresponding trip should not be recoded in order to avoid home to home loop.
3-Go to other work-related place	• d_name specifies a destination separate from primary work location using language like "work related" or "for work" (e.g. off-site business meeting). • d_name implies that the destination is the person's primary place of work or used similar expressive language (e.g. work), but the distance from destination to the primary workplace is greater than 50 feet, or the workplace location information of this person is not applicable.
7-Do other shopping (e.g. mall, hardware store)	d_name is related to a store that does not provide any grocery (e.g. Petco, hardware store).
8-Run errands	d_name indicates bank visits, gas stop, mailing and picking up of items or related to pets (e.g. bank, post office, pick up cat).
9-Go to restaurant/ bar/ take out	d_name is related to a restaurant or a coffee shop (e.g. Dunkin Donuts), or d_name includes language like "lunch", "dinner", "breakfast", or "eat".
10-Drop off/ pick up/ accompany other person	d_name includes language like "pick up", "drop off" or "accompany", and the person is not the one who got picked up or dropped off.

Recoded Value	Criterion for Cleaning
11-Exercise (e.g. gym, walk, jog /run)	d_name indicates a physical activity (e.g. gym, walk, walk the dog).
14-Social (e.g. visit friends/relatives)	d_name implies social visits with other persons, family or friends regardless of the venue (e.g. visit a friend, father's home)
15-Leisure/ entertainment (e.g. movies)	d_name is related to things that were done for no other benefit than relaxation or fun (e.g. gallery, watch a show, park).
16-Religious/ civic/ volunteer	Trips that were made for religious purposes (e.g. church), civic obligations (e.g. vote, town hall), charity, group/club meetings, or volunteering, and the person is an adult.
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode. • In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car. • If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.

Recode trips with destination purpose of 7-Do other shopping

<u>Overview of the Data Cleaning Task</u>

- If d_name indicates a grocery store or a supermarket, the purpose was not recoded. It is hard to tell if they went there to purchase grocery since most of the grocery stores and markets provide multiple products including gardening products and pet products.
- If d_name is "gas station", then the purpose was not recoded because people could shop at the convenience store at the gas station. But if the d_name clearly indicates to get gas, the purpose has been recoded to 8-Run errands.

<u>Specific Heuristics Applied to Recode the Values</u>

Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
1-Go home	d_name implies the destination is home (e.g. went back home, work from home), and the distance from destination to home is within 50 feet. However, if the purpose of previous or subsequent trip is 1-Go home, the corresponding trip should not be recoded in order to avoid home to home loop.

Recoded Value	Criterion for Cleaning
3-Go to other work-related place	• d_name specifies a destination separate from primary work location using language like “work related” or “for work” (e.g. off-site business meeting). • d_name implies that the destination is the person’s primary place of work or used similar expressive language (e.g. went back to work), but the distance from destination to the primary workplace is greater than 50 feet.
8-Run errands	d_name indicates bank visits, gas stop, mailing and picking up of items or related to pets (e.g. bank, get gas, pick up cat).
9-Go to restaurant/ bar/ take out	d_name is related to a restaurant or a coffee shop (e.g. Dunkin Donuts), or d_name includes language like “lunch”, “dinner”, “breakfast”, or “eat”.
10-Drop off/ pick up/ accompany other person	• d_name includes language like “pick up”, “drop off” or “accompany”. • If d_name has key words like “child’s school”, ”wife’s work”, and the trip duration is short (usually less than 30 minutes) and also traveler_total of the subsequent trip changes, then the trip is classified as a drop off/pick up other person trip. Sometimes, the traveler_total could be misreported. Therefore, trip list of entire household was reviewed to identify and confirm who got picked up or dropped off. • If d_name indicates a visit for household members (e.g. “child’s school”), but traveler_total does not change, checks were made to see if other household members also made the same trip. If so, the trip is classified as an accompany trip. • If d_name indicates a visit for non-household members (e.g. grandchild’s school), and the traveler_total indicates presence of a non-household member (traveler_total is greater than traveler_hh), the trip list of the person was reviewed to ensure that trips were made to accompany non-household members. For example, if d_name of a candidate trip is “sister’s work”. By reviewing the trip list of this person, if it was found that the person first went to sister’s home and picked up the sister – also, confirmed through change of traveler_total. It is highly likely that the candidate trip with d_name of “sister’s work” was made to accompany the sister. In this case, the purpose should be recoded to 10-drop off/pick up/accompany other person. • For all the scenarios described above, it was ensured that the person is not the one who got picked up, dropped off or accompanied. For example “pick up child” could be the d_name for both the trip of the parent and the child due to the copy trip feature. However, the trip purpose for the parent is pick up whereas for the child, trip purpose should be some other valid value (e.g. school).
11-Exercise (e.g. gym, walk, jog /run)	d_name indicates a physical activity (e.g. gym, walk, walk the dog).
13-Medical visit (e.g. doctor, dentist)	d_name implies a medical appointment (e.g. hospital, doctor’s office)
14-Social (e.g. visit friends/relatives)	d_name implies social visits with other persons, family or friends regardless of the venue (e.g. visit a friend, father’s home)
15-Leisure/ entertainment (e.g. movies)	d_name is related to things that were done for no other benefit than relaxation or fun (e.g. gallery, watch a show, park, library)

Recoded Value	Criterion for Cleaning
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode. • In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car. • If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.
97-Other	d_name implies that the trip purpose is not for shopping (off site meeting) and but the purpose does not fall into any of the 20 categories.

Recode trips with destination purpose of 8-Run errands

<u>Overview of the Data Cleaning Task</u>

- If d_name implies a visit to library, the purpose was left as 8-Run errands.
- If d_name implies a visit to pharmacy stores, the purpose was left as 8-run errands.

<u>Specific Heuristics Applied to Recode the Values</u>

Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
1-Go home	d_name implies the destination is home (e.g. went back home, work from home), and the distance from destination to home is within 50 feet. However, if the purpose of previous or subsequent trip is 1-Go home, the corresponding trip should not be recoded in order to avoid home to home loop.
2-Go to primary workplace	d_name implies that the destination is one's primary place of work or used similar expressive language (e.g. went back to work), and the distance from destination to the primary workplace is within 50 feet. However, if the purpose of previous or subsequent trip is 2-Go to primary workplace, the corresponding trip should not be recoded in order to avoid work to work loop.
3-Go to other work-related place	• d_name specifies a destination separate from primary work location using language like "work related" or "for work" (e.g. off-site business meeting). • d_name implies that the destination is the person's primary place of work or used similar expressive language (e.g. went back to work), but the distance from destination to the primary workplace is greater than 50 feet, or the workplace location information of this person is not applicable.

Recoded Value	Criterion for Cleaning
4-Attend school/class	d_name is linked with an educational institution (e.g. UConn), and the distance from destination to the person's school location is within 50 feet. However, if the purpose of previous or subsequent trip is 4-Attend school/class, the corresponding trip should not be recoded in order to avoid school to school loop.
6-Grocery shopping	d_name clearly indicates grocery shopping (e.g. food shopping). However, if d_name only has the name of a grocery store, it was not recoded because there isn't enough evidence to recode the purpose as grocery shopping instead of run errands.
7-Do other shopping (e.g. mall, hardware store)	d_name clearly indicates shopping (e.g. shopping, buy wood). However, if d_name only has the name of a store or a pharmacy, it was not recoded because there isn't enough evidence to recode the purpose as other shopping instead of run errands.
9-Go to restaurant/ bar/ take out	d_name is related to a restaurant or a coffee shop (e.g. Dunkin Donuts), or d_name includes language like "lunch", "dinner", "breakfast", or "eat".
10-Drop off/ pick up/ accompany other person	d_name includes language like "pick up", "drop off" or "accompany", and the person is not the one who got picked up or dropped off.
11-Exercise (e.g. gym, walk, jog/run)	d_name indicates a physical activity (e.g. gym, walk, walk the dog).
13-Medical visit (e.g. doctor, dentist)	d_name implies a medical appointment (e.g. hospital, doctor's office)
14-Social (e.g. visit friends/relatives)	d_name implies social visits with other persons, family or friends regardless of the venue (e.g. visit a friend, father's home)
15-Leisure/ entertainment (e.g. movies)	d_name is related to trips that were done for no other benefit than relaxation or fun (e.g. gallery, watch a show, park).
16-Religious/ civic/ volunteer	Trips that were made for religious purposes (e.g. church), civic obligations (e.g. vote, town hall), charity, group/club meetings, or volunteering, and the person is an adult.
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode. • In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car.

Recoded Value	Criterion for Cleaning
	• If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.

Recode trips with destination purpose of 9-Go to restaurant

<u>Specific Heuristics Applied to Recode the Values</u>
Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
1-Go home	d_name implies the destination is home (e.g. went back home, work from home), and the distance from destination to home is within 50 feet. However, if the purpose of previous or subsequent trip is 1-Go home, the corresponding trip should not be recoded in order to avoid home to home loop.
2-Go to primary workplace	d_name implies that the destination is one's primary place of work or used similar expressive language (e.g. went back to work), and the distance from destination to the primary workplace is within 50 feet. However, if the purpose of previous or subsequent trip is 2-Go to primary workplace, the corresponding trip should not be recoded in order to avoid work to work loop.
3-Go to other work-related place	• d_name specifies a destination separate from primary work location using language like "work related" or "for work" (e.g. off-site business meeting). • d_name implies that the destination is the person's primary place of work or used similar expressive language (e.g. went back to work), but the distance from destination to the primary workplace is greater than 50 feet, or the workplace location information of this person is not applicable.
5-Other school-related activity	• d_name is linked with an educational institution, but not directly linked to an individual's education (e.g. piano lessons, after school program, dance) regardless of the student status. • d_name is linked with an educational institution (e.g. UConn), but the distance from destination to the person's school location is greater than 50 feet, or the school location information of this person is not applicable.
6-Grocery shopping	d_name is related to a grocery store (e.g. Stop and Shop, Big Y), or d_name includes language like "grocery shopping"
7-Do other shopping (e.g. mall, hardware store)	d_name is related to a store (e.g. Staples, Nordstrom Rack), or d_name includes language like "shopping"
8-Run errands	d_name indicates bank visits, gas stop, mailing and picking up of items or related to pets (e.g. bank, post office, pick up cat).
10-Drop off/ pick up/ accompany other person	d_name includes language like "pick up", "drop off" or "accompany", and the person is not the one who got picked up or dropped off.
11-Exercise (e.g. gym, walk, jog/run)	d_name indicates a physical activity (e.g. gym, walk, walk the dog).
14-Social (e.g. visit friends/relatives)	d_name implies social visits with other persons, family or friends regardless of the venue (e.g. visit a friend, father's home)
15-Leisure/ entertainment (e.g. movies)	d_name is related to trips that were done for no other benefit than relaxation or fun (e.g. gallery, watch a show, park, library)

Recoded Value	Criterion for Cleaning
16-Religious/ civic/ volunteer	Trips that were made for religious purposes (e.g. church), civic obligations (e.g. vote, town hall), charity, group/club meetings, or volunteering.
17-Vacation/ holiday/ traveling (e.g. hotel)	Trips that were made for vacation or traveling (e.g. hotel, on vacation)
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode. • In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car. • If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.

Recode trips with destination purpose of 10-Drop off/pick up/accompany other person

<u>Overview of the Data Cleaning Task</u>

- d_name includes language like "pick up", "drop off" or "accompany".
- If the total number of travelers of the subsequent trip changed, the corresponding trip was not recoded.
- If the total number of travelers of the subsequent trip did not change, but it could be confirmed that the trip was made for accompanying other persons, the corresponding trip is not recoded.
- For all the trips that were originally coded as 10-Drop off/pick up/accompany other person, it was ensured that the person is not the one who got picked up, dropped off or accompanied. For example "pick up child" could be the d_name for both the trip of the parent and the child due to the copy trip feature. However, the trip purpose for the parent is pick up whereas for the child, trip purpose should be some other valid value (e.g. school).

<u>Specific Heuristics Applied to Recode the Values</u>

Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
1-Go home	d_name implies the destination is home (e.g. went back home, work from home), and the distance from destination to home is within 50 feet. However, if the purpose of previous or subsequent trip is 1-Go home, the corresponding trip should not be recoded in order to avoid home to home loop.

Recoded Value	Criterion for Cleaning
3-Go to other work-related place	• d_name specifies a destination separate from primary work location using language like “work related” or “for work” (e.g. off-site business meeting). • d_name implies that the destination is the person’s primary place of work or used similar expressive language (e.g. went back to work), but the distance from destination to the primary workplace is greater than 50 feet, or the workplace location information of this person is not applicable.
4-Attend school/class	d_name is linked with an educational institution (e.g. UConn), and the distance from destination to the person’s school location is within 50 feet. However, if the purpose of previous or subsequent trip is 4-Attend school/class, the corresponding trip should not be recoded in order to avoid school to school loop.
5-Other school-related activity	• d_name is linked with an educational institution, but not directly linked to an individual’s education (e.g. piano lessons, after school program, dance) regardless of the student status. • d_name is linked with an educational institution (e.g. UConn), but the distance from destination to the person’s school location is greater than 50 feet, or the school location information of this person is not applicable.
6-Grocery shopping	d_name is related to a grocery store (e.g. Stop and Shop, Big Y), or d_name includes language like “grocery shopping”
7-Do other shopping (e.g. mall, hardware store)	d_name is related to a store (e.g. Staples, Nordstrom Rack), or d_name includes language like “shopping”
8-Run errands	d_name indicates bank visits, gas stop, mailing and picking up of items or related to pets (e.g. bank, post office, pick up cat).
9-Go to restaurant/ bar/ take out	d_name is related to a restaurant or a coffee shop (e.g. Dunkin Donuts), or d_name includes language like “lunch”, “dinner”, “breakfast”, or “eat”.
12-Family activity (e.g. child’s game)	d_name is related to child’s game or activity, and the person is not the child.
14-Social (e.g. visit friends/relatives)	d_name implies social visits with other persons, family or friends regardless of the venue (e.g. visit a friend, father’s home)
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent’s trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child’s trip needs be recoded to 18-Change travel mode. • In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car.

Recoded Value	Criterion for Cleaning
	• If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.

Recode trips with destination purpose of 11-Exercise (e.g. gym, walk, jog /run)

<u>Specific Heuristics Applied to Recode the Values</u>
Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
1-Go home	d_name implies the destination is home (e.g. went back home, work from home), and the distance from destination to home is within 50 feet. However, if the purpose of previous or subsequent trip is 1-Go home, the corresponding trip should not be recoded in order to avoid home to home loop.
3-Go to other work-related place	• d_name specifies a destination separate from primary work location using language like "work related" or "for work" (e.g. off-site business meeting). • d_name implies that the destination is the person's primary place of work or used similar expressive language (e.g. went back to work), but the distance from destination to the primary workplace is greater than 50 feet, or the workplace location information of this person is not applicable.
7-Do other shopping (e.g. mall, hardware store)	d_name is related to a store (e.g. Staples, Nordstrom Rack), or d_name includes language like "shopping"
8-Run errands	d_name indicates bank visits, gas stop, mailing and picking up of items or related to pets (e.g. bank, post office, pick up cat).
9-Go to restaurant/ bar/ take out	d_name is related to a restaurant or a coffee shop (e.g. Dunkin Donuts), or d_name includes language like "lunch", "dinner", "breakfast", or "eat".
10-Drop off/ pick up/ accompany other person	d_name includes language like "pick up", "drop off" or "accompany", and the person is not the one who got picked up or dropped off.
13-Medical visit (e.g. doctor, dentist)	d_name implies a medical appointment (e.g. hospital, doctor's office)
14-Social (e.g. visit friends/relatives)	d_name implies social visits with other persons, family or friends regardless of the venue (e.g. visit a friend, father's home)
15-Leisure/ entertainment (e.g. movies)	d_name is related to things that were done for no other benefit than relaxation or fun (e.g. gallery, watch a show, park).
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode.

Recoded Value	Criterion for Cleaning
	• In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car. • If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.

Recode trips with destination purpose of 12-Family activity

Overview of the Data Cleaning Task

- If d_name includes language like "child's soccer practice", "son's dance class", and the person is the parent who accompanied the child, the purpose was unchanged, because it looks appropriate, and there is no strong evidence to say that it is an accompany trip rather than a family activity.
- If d_name includes language like "child's soccer practice", "son's dance class", and the person is the parent. But the parent did not stay there, s/he just picked up or dropped off their child, the trip purpose of the parent was recoded to 10-Drop off/ pick up/ accompany other person. The corresponding trip purpose of the child was also recoded.

Specific Heuristics Applied to Recode the Values

Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
3-Go to other work-related place	• d_name specifies a destination separate from primary work location using language like "work related" or "for work" (e.g. off-site business meeting). • d_name implies that the destination is the person's primary place of work or used similar expressive language (e.g. work), but the distance from destination to the primary workplace is greater than 50 feet, or the workplace location information of this person is not applicable.
5-Other school-related activity	• d_name is linked with an educational institution, but not directly linked to an individual's education (e.g. piano lessons, after school program). • d_name is linked with an educational institution (e.g. UConn), but the distance from destination to the person's school location is greater than 50 feet, or the school location information of this person is not applicable.
8-Run errands	d_name indicates bank visits, gas stop, mailing and picking up of items or related to pets (e.g. bank, post office, pick up cat).
10-Drop off/ pick up/ accompany other person	• d_name includes language like "pick up", "drop off" or "accompany". • If d_name has key words like "child's school", "wife's work", and the trip duration is short (usually less than 30 minutes) and also traveler_total of the subsequent trip changes, then the trip is classified as a drop off/pick up other person trip. Sometimes, the traveler_total could be misreported. Therefore, trip list of entire household was reviewed to identify and confirm who got picked up or dropped off. • If d_name indicates a visit for household members (e.g. "child's school"), but traveler_total does not change, checks were made to see if other household

Recoded Value	Criterion for Cleaning
	members also made the same trip. If so, the trip is classified as an accompany trip. • If d_name indicates a visit for non-household members (e.g. grandchild's school), and the traveler_total indicates presence of a non-household member (traveler_total is greater than traveler_hh), the trip list of the person was reviewed to ensure that trips were made to accompany non-household members. For example, if d_name of a candidate trip is "sister's work". By reviewing the trip list of this person, if it was found that the person first went to sister's home and picked up the sister – also, confirmed through change of traveler_total. It is highly likely that the candidate trip with d_name of "sister's work" was made to accompany the sister. In this case, the purpose should be recoded to 10-drop off/pick up/accompany other person. • For all the scenarios described above, it was ensured that the person is not the one who got picked up, dropped off or accompanied. For example "pick up child" could be the d_name for both the trip of the parent and the child due to the copy trip feature. However, the trip purpose for the parent is pick up whereas for the child, trip purpose should be some other valid value (e.g. school).
11-Exercise (e.g. gym, walk, jog/run)	d_name indicates a physical activity (e.g. gym, walk, walk the dog)
16-Religious/ civic/ volunteer	Trips that were made for religious purposes (e.g. church), civic obligations (e.g. vote, town hall), charity, group/club meetings, or volunteering.
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode. • In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car. • If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.

Recode trips with destination purpose of 13-Medical visit

<u>Overview of the Data Cleaning Task</u>

If d_name indicates a visit to pediatrics and there is an infant in the travel party, the trip purpose for the adults got recoded to 10-drop off/pick up/accompany other person, while the trip purpose of the infant remained as 13-Medical visit.

Specific Heuristics Applied to Recode the Values

Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
3-Go to other work-related place	• d_name specifies a destination separate from primary work location using language like "work related" or "for work" (e.g. off-site business meeting). • d_name implies that the destination is the person's primary place of work or used similar expressive language (e.g. work), but the distance from destination to the primary workplace is greater than 50 feet, or the workplace location information of this person is not applicable.
7-Do other shopping (e.g. mall, hardware store)	d_name is related to a store (e.g. Staples, Nordstrom Rack), or d_name includes language like "shopping"
8-Run errands	d_name indicates bank visits, gas stop, mailing and picking up of items or related to pets (e.g. bank, post office, pick up cat).
10-Drop off/ pick up/ accompany other person	• d_name includes language like "pick up", "drop off" or "accompany". • If d_name has key words like "child's school", "wife's work", and the trip duration is short (usually less than 30 minutes)and also traveler_total of the subsequent trip changes, then the trip is classified as a drop off/pick up other person trip. Sometimes, the traveler_total could be misreported. Therefore, trip list of entire household was reviewed to identify and confirm who got picked up or dropped off. • If d_name indicates a visit for household members (e.g. "child's school"), but traveler_total does not change, checks were made to see if other household members also made the same trip. If so, the trip is classified as an accompany trip. • If d_name indicates a visit for non-household members (e.g. grandchild's school), and the traveler_total indicates presence of a non-household member (traveler_total is greater than traveler_hh), the trip list of the person was reviewed to ensure that trips were made to accompany non-household members. For example, if d_name of a candidate trip is "sister's work". By reviewing the trip list of this person, if it was found that the person first went to sister's home and picked up the sister – also, confirmed through change of traveler_total. It is highly likely that the candidate trip with d_name of "sister's work" was made to accompany the sister. In this case, the purpose should be recoded to 10-drop off/pick up/accompany other person. • For all the scenarios described above, it was ensured that the person is not the one who got picked up, dropped off or accompanied. For example "pick up child" could be the d_name for both the trip of the parent and the child due to the copy trip feature. However, the trip purpose for the parent is pick up whereas for the child, trip purpose should be some other valid value (e.g. school).
11-Exercise (e.g. gym, walk, jog/run)	d_name indicates a physical activity (e.g. gym, walk, walk the dog)
14-Social (e.g. visit friends/relatives)	d_name implies social visits with other persons, family or friends regardless of the venue (e.g. visit a friend, father's home)

Recoded Value	Criterion for Cleaning
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode. • In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car. • If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.

Recode trips with destination purpose of 14-Social (e.g. visit friends/relatives)

<u>Specific Heuristics Applied to Recode the Values</u>
Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
1-Go home	d_name implies the destination is home (e.g. went back home, work from home), and the distance from destination to home is within 50 feet. However, if the purpose of previous or subsequent trip is 1-Go home, the corresponding trip should not be recoded in order to avoid home to home loop.
3-Go to other work-related place	• d_name specifies a destination separate from primary work location using language like "work related" or "for work" (e.g. off-site business meeting). • d_name implies that the destination is the person's primary place of work or used similar expressive language (e.g. went back to work), but the distance from destination to the primary workplace is greater than 50 feet, or the workplace location information of this person is not applicable.
4-Attend school/class	d_name is linked with an educational institution (e.g. UConn), and the distance from destination to the person's school location is within 50 feet. However, if the purpose of previous or subsequent trip is 4-Attend school/class, the corresponding trip should not be recoded in order to avoid school to school loop.
7-Do other shopping (e.g. mall, hardware store)	d_name is related to a store (e.g. Staples, Nordstrom Rack), or d_name includes language like "shopping"
8-Run errands	d_name indicates bank visits, gas stop, mailing and picking up of items or related pets (e.g. bank, post office, pick up cat).
10-Drop off/ pick up/ accompany other person	d_name includes language like "pick up", "drop off" or "accompany", and the person is not the one who got picked up or dropped off.

Recoded Value	Criterion for Cleaning
11-Exercise (e.g. gym, walk, jog/run)	d_name indicates a physical activity (e.g. gym, walk, walk the dog).
12-Family activity (e.g. child's game)	d_name indicates that completing trips together as a family (e.g. "child's art show", "daughter's softball game")
13-Medical visit (e.g. doctor, dentist)	d_name implies a medical appointment (e.g. hospital, doctor's office)
15-Leisure/ entertainment (e.g. movies)	d_name is related to trips that were done for no other benefit than relaxation or fun (e.g. gallery, watch a show, park).
16-Religious/ civic/ volunteer	Trips that were made for religious purposes (e.g. church), civic obligations (e.g. vote, town hall), charity, group/club meetings, or volunteering, and the person is an adult.
17-Vacation/ holiday/ traveling (e.g. hotel)	Trips that were made for vacation or traveling (e.g. hotel, on vacation)
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode. • In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car. • If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.

Recode trips with destination purpose of 15-Leisure/entertainment

<u>Specific Heuristics Applied to Recode the Values</u>
Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
1-Go home	d_name implies the destination is home (e.g. went back home, work from home), and the distance from destination to home is within 50 feet. However, if the purpose of previous or subsequent trip is 1-Go home, the corresponding trip should not be recoded in order to avoid home to home loop.
3-Go to other work-related place	• d_name specifies a destination separate from primary work location using language like "work related" or "for work" (e.g. off-site business meeting).

Recoded Value	Criterion for Cleaning
	• d_name implies that the destination is the person's primary place of work or used similar expressive language (e.g. went back to work), but the distance from destination to the primary workplace is greater than 50 feet, or the workplace location information of this person is not applicable.
7-Do other shopping (e.g. mall, hardware store)	d_name is related to a store (e.g. convenience store, store). However, if d_name has keyword like "mall" or "shopping center", the purpose has not been recoded because there could be entertainment facilities there.
8-Run errands	d_name indicates bank visits, gas stop, mailing and picking up of items or related to pets (e.g. bank, post office, pick up cat).
10-Drop off/ pick up/ accompany other person	d_name includes language like "pick up", "drop off" or "accompany", and the person is not the one who got picked up or dropped off.
11-Exercise (e.g. gym, walk, jog/run)	d_name indicates a physical activity (e.g. gym, walk, walk the dog).
16-Religious/ civic/ volunteer	Trips that were made for religious purposes (e.g. church), civic obligations (e.g. vote, town hall), charity, group/club meetings, or volunteering, and the person is an adult.
17-Vacation/ holiday/ traveling (e.g. hotel)	Trips that were made for vacation or traveling (e.g. hotel, on vacation)
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode. • In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car. • If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.

Recode trips with destination purpose of 16-Religious/civic/volunteer

<u>Overview of the Data Cleaning Task</u>

- Trips made to library, school were not recoded because people could do volunteer related activity at library or school.

<u>Specific Heuristics Applied to Recode the Values</u>

Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
6-Grocery shopping	d_name is related to a grocery store (e.g. Stop and Shop, Big Y), or d_name includes language like "grocery shopping"
7-Do other shopping (e.g. mall, hardware store)	d_name is related to a store (e.g. Staples, Nordstrom Rack), or d_name includes language like "shopping"
8-Run errands	d_name indicates bank visits, gas stop, mailing and picking up of items or related to pets (e.g. bank, post office, pick up cat).
9-Go to restaurant/ bar/ take out	d_name is related to a restaurant or a coffee shop (e.g. Dunkin Donuts), or d_name includes language like "lunch", "dinner", "breakfast", or "eat".
10-Drop off/ pick up/ accompany other person	d_name includes language like "pick up", "drop off" or "accompany", and the person is not the one who got picked up or dropped off.
11-Exercise (e.g. gym, walk, jog/run)	d_name indicates a physical activity (e.g. gym, walk, walk the dog).
13-Medical visit (e.g. doctor, dentist)	d_name implies a medical appointment (e.g. hospital, doctor's office)
14-Social (e.g. visit friends/relatives)	d_name implies social visits with other persons, family or friends regardless of the venue (e.g. visit a friend, father's home)
15-Leisure/ entertainment (e.g. movies)	d_name is related to things that were purely voluntary with the caveat that they were done for no other benefit than relaxation or fun (e.g. gallery, watch a show, park).
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode. • In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car. • If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.

Recode trips with destination purpose of 17-Vacation/holiday/travelling (e.g. hotel)

<u>Specific Heuristics Applied to Recode the Values</u>
Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
8-Run errands	d_name indicates bank visits, gas stop, mailing and picking up of items or related to pets (e.g. bank, get gas, pick up cat).
9-Go to restaurant/ bar/ take out	d_name is related to a restaurant or a coffee shop (e.g. Dunkin Donuts), or d_name includes language like “lunch”, “dinner”, “breakfast”, or “eat”.
10-Drop off/ pick up/ accompany other person	• d_name includes language like “pick up”, “drop off” or “accompany”. • If d_name has key words like “child’s school”, ”wife’s work”, and the trip duration is short (usually less than 30 minutes) and also traveler_total of the subsequent trip changes, then the trip is classified as a drop off/pick up other person trip. Sometimes, the traveler_total could be misreported. Therefore, trip list of entire household was reviewed to identify and confirm who got picked up or dropped off. • If d_name indicates a visit for household members (e.g. “child’s school”), but traveler_total does not change, checks were made to see if other household members also made the same trip. If so, the trip is classified as an accompany trip. • If d_name indicates a visit for non-household members (e.g. grandchild’s school), and the traveler_total indicates presence of a non-household member (traveler_total is greater than traveler_hh), the trip list of the person was reviewed to ensure that trips were made to accompany non-household members. For example, if d_name of a candidate trip is “sister’s work”. By reviewing the trip list of this person, if it was found that the person first went to sister’s home and picked up the sister – also, confirmed through change of traveler_total. It is highly likely that the candidate trip with d_name of “sister’s work” was made to accompany the sister. In this case, the purpose should be recoded to 10-drop off/pick up/accompany other person. • For all the scenarios described above, it was ensured that the person is not the one who got picked up, dropped off or accompanied. For example “pick up child” could be the d_name for both the trip of the parent and the child due to the copy trip feature. However, the trip purpose for the parent is pick up whereas for the child, trip purpose should be some other valid value (e.g. school).
15-Leisure/ entertainment (e.g. movies)	d_name is related to things that were done for no other benefit than relaxation or fun (e.g. gallery, watch a show, park, library)
20-Go to airport/switch airport	• d_name implies that the trip is made to the airport to catch a flight. For example, a person drove to airport, and then took flight to Florida, the trip to the airport is recoded to 20-Go to airport/switch airport. • d_name implies that the trip is part of a multi stop flight travel. For example, a person took flight to airport A and then took another flight to airport B. In this case, both trips are recoded to 20-Go to airport/switch airport. • d_name implies that the person took flight to airport. For example, a person took flight to airport and then drove home. In this case, the trip to airport is recoded to 20-Go to airport/switch airport. • Sometimes people went to airport to pick up or drop off other persons, so if the mode of current trip or subsequent trip is not 17-Airplane/helicopter, and

Recoded Value	Criterion for Cleaning
	the traveler_total of subsequent trip changes, the trip was more likely made for dropping off/picking up the other person at the airport.
97-Other	d_name implies that the trip purpose is not for vacation/holiday/travelling (grandchild's home to babysit) and the purpose does not fall into any of the 20 categories.

Recode trips with destination purpose of 18 change travel mode (e.g. wait for bus, change planes)

Specific Heuristics Applied to Recode the Values

Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
7-Do other shopping (e.g. mall, hardware store)	d_name is related to a store (e.g. Staples, Nordstrom Rack), or d_name includes language like "shopping"
10-Drop off/ pick up/ accompany other person	d_name includes language like "pick up", "drop off" or "accompany", and the person is not the one who got picked up or dropped off.

Recode trips with destination purpose of 97-Other

Overview of the Data Cleaning Task

- If d_name only has the name of the school or institution but no other information provided, and the destination is not within 50 feet to one's reported school location, the trip was not recoded because it is hard to confirm the purpose of the trip.
- If d_name only has the name of a hospital but no other information provided, the trip was not recoded because it is hard to tell if the purpose is for medical visit or for visiting someone at hospital.
- If d_name only indicates someone's home but no other information is provided, it was recoded to 14-Social. Sometimes people provided additional descriptions such as "walk the dog for friend". In such cases, the trip was recoded to corresponding purpose instead of 14-Social.

Specific Heuristics Applied to Recode the Values

Table below lists the heuristics applied to recode the values.

Recoded Value	Criterion for Cleaning
1-Go home	d_name implies the destination is home (e.g. went back home, work from home), and the distance from destination to home is within 50 feet. However, if the purpose of previous or subsequent trip is 1-Go home, the corresponding trip should not be recoded in order to avoid home to home loop.
2-Go to primary workplace	d_name implies that the destination is one's primary place of work or used similar expressive language (e.g. went back to work), and the distance from destination to the primary workplace is within 50 feet. However, if the purpose of previous or subsequent trip is 2-Go to primary workplace, the corresponding trip should not be recoded in order to avoid work to work loop.
3-Go to other work-related place	• d_name specifies a destination separate from primary work location using language like "work related" or "for work" (e.g. off-site business meeting, job interview).

Recoded Value	Criterion for Cleaning
	• d_name implies that the destination is the person's primary place of work or used similar expressive language (e.g. work), but the distance from destination to the primary workplace is greater than 50 feet, or the workplace location information of this person is not applicable.
4-Attend school/class	d_name is linked with an educational institution (e.g. UConn, daycare), and the distance from destination to the person's school location is within 50 feet. However, if the purpose of previous or subsequent trip is 4-Attend school/class, the corresponding trip should not be recoded in order to avoid school to school loop.
5-Other school-related activity	• d_name is linked with an educational institution, but not directly linked to an individual's education (e.g. piano lessons, after school program). • d_name is linked with an educational institution (e.g. UConn), but the distance from destination to the person's school location is greater than 50 feet, or the school location information of this person is not applicable.
6-Grocery shopping	d_name is related to a grocery store (e.g. Stop and Shop, Big Y), or d_name includes language like "grocery shopping".
7-Do other shopping (e.g. mall, hardware store)	d_name is related to a store (e.g. Staples, Nordstrom Rack), or d_name includes language like "shopping".
8-Run errands	d_name indicates bank visits, gas stop, mailing and picking up of items or related to pets (e.g. bank, post office, pick up cat).
9-Go to restaurant/ bar/ take out	If d_name is related to a restaurant or a coffee shop (e.g. Dunkin Donuts), or d_name includes language like "lunch", "dinner", "breakfast", or "eat".
10-Drop off/ pick up/ accompany other person	• d_name includes language like "pick up", "drop off" or "accompany". • If d_name has key words like "child's school", "wife's work", and the trip duration is short (usually less than 30 minutes) and also traveler_total of the subsequent trip changes, then the trip is classified as a drop off/pick up other person trip. Sometimes, the traveler_total could be misreported. Therefore, trip list of entire household was reviewed to identify and confirm who got picked up or dropped off. • If d_name indicates a visit for household members (e.g. "child's school"), but traveler_total does not change, checks were made to see if other household members also made the same trip. If so, the trip is classified as an accompany trip. • If d_name indicates a visit for non-household members (e.g. grandchild's school), and the traveler_total indicates presence of a non-household member (traveler_total is greater than traveler_hh), the trip list of the person was reviewed to ensure that trips were made to accompany non-household members. For example, if d_name of a candidate trip is "sister's work". By reviewing the trip list of this person, if it was found that the person first went to sister's home and picked up the sister – also, confirmed through change of traveler_total. It is highly likely that the candidate trip with d_name of "sister's work" was made to accompany the sister. In this case, the purpose should be recoded to 10-drop off/pick up/accompany other person. • For all the scenarios described above, it was ensured that the person is not the one who got picked up, dropped off or accompanied. For example "pick up

Recoded Value	Criterion for Cleaning
	child" could be the d_name for both the trip of the parent and the child due to the copy trip feature. However, the trip purpose for the parent is pick up whereas for the child, trip purpose should be some other valid value (e.g. school).
11-Exercise (e.g. gym, walk, jog/run)	d_name indicates a physical activity (e.g. gym, walk, walk the dog)
12-Family activity (e.g. child's game)	d_name indicates taking trips together as a family (e.g. "child's art show", "daughter's softball game")
13-Medical visit (e.g. doctor, dentist)	d_name implies a medical appointment (e.g. hospital, doctor's office)
14-Social (e.g. visit friends/relatives)	d_name implies social visits with other persons, family or friends regardless of the venue (e.g. visit a friend, father's home)
15-Leisure/ entertainment (e.g. movies)	d_name is related to things that were done for no other benefit than relaxation or fun (e.g. gallery, watch a show, park, library).
16-Religious/ civic/ volunteer	Trips that were made for religious purposes (e.g. church), civic obligations (e.g. vote, town hall), charity, group/club meetings, or volunteering.
17-Vacation/ holiday/ traveling (e.g. hotel)	Trips that were made for vacation or traveling (e.g. hotel, on vacation)
18-Change travel mode (e.g. wait for bus, change planes)	• d_name implies that the trip is made for purpose of changing mode (e.g. train station, walk to bus stop, park & ride lot). • Sometimes trip list of the entire household needs to be reviewed to confirm change mode trips. For example, when parents drop off/pick up their child at a bus stop, caution was exercised. If the mode of the subsequent trip did not change, but the traveler_total changed, the trip was likely made by the parent to drop off/pick up the child. In this case, the parent's trip needs to be recoded to 10-Drop off/pick up/accompany other person. On the other hand, if the mode of the subsequent trip changes, the trip was likely made by the child. In this case, the child's trip needs be recoded to 18-Change travel mode. • In other instances, the reported trip mode is wrong and a potential change of mode may not be observed. In such instances, trip list of the person needs to be reviewed to confirm if the purpose is indeed for changing mode. For example, if a person went from parking lot to work and then went back to parking lot after work, it is highly likely that the trips made to and from parking lot are to change mode to car. • If the recoded purpose causes a fixed activity loop (e.g. home-change mode-home), then it should not be recoded.

Appendix J

Main Study Imputation Analysis

INTRODUCTION

In this memo, details regarding the imputation analysis are presented. The rest of the appendix is organized as follows:

- In the next section, background for imputation analysis and methodologies that were explored in this study are presented.
- In the third section, the model development process is described.
- In the fourth section, model estimation results are presented.
- In the fifth section, the approach to imputing the missing income values is described.
- In the last section, the improvements made to the final imputation analysis is presented.

BACKGROUND

In surveys, valid values for some data items are missing because a respondent may not have provided a response – this is also referred to as item nonresponse or missing data. Data is often missing for sensitive items (e.g. income, race). Even in survey instruments that force respondents to provide responses, a valid skip is offered for such sensitive data items so as to avoid respondent drop-out and potentially risk not collecting responses for all other data items for which the respondent may be willing to provide an answer. Missing data are problematic and they impact subsequent survey data analyses.

In the CSTS, respondents were generally forced to provide a valid response for all but three data items: exact age, income, and ownership status. For these three data items, respondents were offered "prefer not to respond" as an option (not a valid value that can be used for subsequent analyses). For the age question, respondents were required to answer a follow up question with coarser categories, therefore valid age information is available (not missing) for all respondents. For income, respondents were offered (but not required to answer) a follow up question where they were asked to respond to the same question on a coarser scale in the hope that those hesitant to providing response on a detailed level may respond when the options were consolidated. The presence of follow up did improve valid responses, however, there were still missing values. For the ownership status, no follow up option was available. Thus, there are observations with missing home ownership status information. The focus of the imputation analysis presented in the appendix is on the income variable. The imputation analysis was limited only to the income variable because this was the only variable that was used for correcting sample bias as part of the weighting analysis.

In order to impute the income, two different imputation techniques were explored: stochastic regression technique and Markov Chain Monte Carlo multiple imputation technique[1]. A brief overview of the two methodologies is provided below (Stopher 2008, Enders 2010):

- In a regression imputation technique, values are imputed using predictions from a regression model. The regression model is specified using other observed variables in the dataset as explanatory variables. A common limitation of the regression technique is that it reduces variability in the data. An extension of this approach that avoids this issue is the stochastic regression imputation wherein an error term is added to the predicted value before assigning it as the imputed value. Thus, the stochastic regression imputation preserves variability in the data. While this approach overcomes the variability issue, it still suffers from the issue of overfitting the data.

[1] There are a number of other approaches to treating missing data including deletion methods, single point imputation techniques, and expectation maximization among others. However, the chosen methods are superior if not comparable in performance to these other methods. (Zimowski et al. 1997, Stopher 2008, Enders 2010)

- The intuition behind multiple imputation technique is to draw multiple missing values from an underlying distribution. This approach accurately reflects the uncertainty in predicting the true value instead of inferring a single value for the missing entries. Multiple realizations of the imputed dataset are created by using a different draw from the underlying distribution for each missing observation. The realizations are then treated as complete datasets and analyzed to come up with multiple estimates of the parameters of interest. For any given parameter, these multiple estimates can then be used to draw inferences about attributes of interest. There are different implementations of the multiple imputation framework based on the type of missing data and approach to imputation (e.g. parametric regression method, propensity score method, and Markov Chain Monte Carlo method to name a few) (Yang 2016).

In the CSTS, both methodologies were explored for imputing the income variable. In particular, for the stochastic regression approach, a multinomial logistic (MNL) model form was assumed to impute income. The MNL model formulation is appropriate for imputing income because income responses were collected on a discrete scale in the CSTS (as opposed to continuous scale). For the multiple imputation approach, Markov Chain Monte Carlo (MCMC) approach was applied. Unlike the MNL model, income was treated as a continuous variable in this approach. Comprehensive validation analysis was conducted to evaluate the two methods for imputing income values. Missing income observations were created artificially from valid records in the CSTS. The two methods were then applied and predictions for the artificially missing observations were compared against the actual values. Disaggregate and aggregate comparisons were performed to evaluate the two methods. It was found that the MNL model based stochastic regression imputation provided comparable results to the MCMC based multiple imputation. Additionally, MNL model did not require making any strong assumptions or manipulating the income variable to conform to the underlying model formulation. As a result, in the CSTS, MNL based stochastic regression model was applied to impute missing income information. In the next section, the model development process is described.

MODEL DEVELOPMENT

MNL based stochastic regression model was used to impute detailed income information for the households – detailed income was collected on a 12 category scale. The model was estimated using those sample observations where households reported valid values for the detailed income. Out of 8,403 non-volunteer households that completed the travel diary, 1,443 households did not report the detailed income category. The MNL model was developed using the remaining 6,960 household observations.

The MNL model included two types of variables, namely, those related directly to the household with missing information and those related to other households in the vicinity of the household with missing information. Four types of variables were used in the model. Details regarding the variables are described below along with reasoning for their inclusion.

Employment and Education of Household Members

The first set of variables considered in the analysis include the counts of household members based on combination of employment status, the usual hours worked per week, and the level of educational attainment. All these variables are associated with income of a household. High number of workers in a household is associated with high level of household income. Similarly, low count of workers in a household will be associated with low household income. Additionally, the worker status (i.e. full time versus part time) as well as level of educational attainment is generally related to the salaries earned by employed individuals. Consequently, higher counts of such individuals will influence overall household

income. Specific definitions for the employment status, hours worked per week, and level of education variables are listed below:

- Any member of the household who reported either being employed or self-employed in the CSTS was considered a worker; all other household members were considered as a non-worker.
- Level of education attained was grouped into three categories:
    - low education - completed high school but have not achieved a college degree
    - college education – completed bachelor or associate degrees, or have completed vocational or technical training
    - high education - completed post graduate education
- Each worker in the household was categorized into two categories based on employment status:
    - part-time - working fewer than 30 hours per week
    - full-time - working more than 30 hours per week

Only those household members who were workers were considered and categorized into one of the six types:

- Full-time low education worker
- Full-time college education worker
- Full-time high education worker
- Part-time low education worker
- Part-time college education worker
- Part-time high education worker

Each of these worker types reflect different combinations of employment status, hours worked per week and educational attainment.

Lifecycle Indicators

The second set of variables used for income imputation are related to the structure of the households. These are also referred to as lifecycle variables. There are a variety of ways in which household structure can be defined. In the CSTS, the structure is defined by combining counts of adult household members by retirement status and counts of children in the household. It is hypothesized that stage of the lifecycle of a household is closely related to the income. For example, single adult households make less income compared to households comprising of multiple adults. Additionally, older households are associated with higher income compared to younger households. Retired households would be associated with less income compared to those households who have not retired. Specific definitions of adult, retirement status, and children used for constructing the lifecycle variables are as noted below:

- Adults are defined as any household member who is 18 years or older. Based on counts of adults, households are grouped into two categories:
    - One adult households and
    - 2 or more adult households
- Household members who are retired are identified based on the employment variable. Based on retiree status of members of household, households are classified as:
    - Those households with retirees and
    - Those households without retirees.
- Children are defined into three categories based on the age range as noted below:
    - Children between 0 and 4 years old,
    - Children between 5 and 15 years old, and

- Children between 16 and 17 years old.

Further, based on presence of children of various age categories, households are grouped into four categories:

- No children,
- Youngest child between 0 and 4 years,
- Youngest child between 5 and 15 years, and
- Youngest child between 16 and 17 years.

Combining the category of the respondent households along the above three dimensions, the following 10 lifecycle indicators were defined:

- Household with one adult and no children
- Household with 2 or more adults and no children
- Household with one adult and youngest child between 0 and 4 years
- Household with 2 or more adults and youngest child between 0 and 4 years
- Household with one adult and youngest child between 5 and 15 years
- Household with 2 or more adults and youngest child between 5 and 15 years
- Household with one adult and youngest child between 16 and 17 years
- Household with 2 or more adults and youngest child between 16 and 17 years
- Household with one adult who is retired with no children
- Household with 2 or more adults who are retired with no children

Household Vehicle Ownership

The next set of variables used for income imputation are the count of the household vehicles. It is assumed that possession of high number of household vehicles is generally associated with high household income. On the other hand, lower vehicle ownership is generally associated with lower household income. The vehicle count variable was collected in the CSTS on an integer scale and included in the income model without any transformation.

Income Distribution of Surrounding Households

In addition to the above mentioned variables related to the respondent household, information regarding the income distribution of households in the vicinity of the respondent household were also used. It is posited that the income distribution of the households in the vicinity will be closely related to the income of the respondent household. Information about income of households in the vicinity of the responding household was collected from the 2009-2013 American Community survey (ACS) Summary Files. In particular, the income distribution of households in the same blockgroup as the respondent household, measured as proportion of households belonging to various income categories, was used. In the following section, the model estimation results are presented.

MODEL ESTIMATION RESULTS

A MNL model was estimated using the above explanatory variables. A total of 12 income categories were considered as noted below:

- Less than $10,000
- $10,000 - $14,999
- $15,000 - $24,999
- $25,000 - $34,999
- $35,000 - $49,999
- $50,000- $59,999
- $60,000 - $74,999
- $75,000 - $99,999
- $100,000 - $149,999
- $150,000 - $199,999
- $200,000 - $249,999
- $250,000 or more

The model estimation summary is presented in Table J.1. Note that all parameters in the model were treated to be alternative specific. Income category 6 (i.e. income between $50,000- $59,999) was set as the base alternative. The final model was estimated on 6959 households out of 6960 households who reported detailed income information; one record was excluded from the model estimation because the income distribution of surrounding households could not be identified. The final model consists of 155 parameters; 11 parameters are constants associated with various income categories (other than baseline alternative). The model estimation results are plausible and consistent with our expectations of the influence of the different variables in explaining household income. Log-likelihood ratio test confirmed that the model is statistically significant. Final model estimation results are presented in Table J.2.

Employment and Education of Household Members

The parameters associated with the composite variables combining employment and education of household members show that as the count of employed individuals increase, the household tends to belong to a higher income category and vice versa. This can be seen from the negative coefficients for income categories 1 through 5 and positive coefficients for income categories 7 through 12. One exception was the variable that indicates the number of workers who are part time with low education – as the count of the workers in the category increases, the household tends to be associated with lower income. This is consistent with expectation that individuals with higher education are generally associated with higher levels of income and vice versa for those with lower education attainment. Also, the opposite influence can be seen for high income category for this variable. Overall, the impact of counts of full-time workers (across all levels of educational) was found to be more significant than the impact of the counts of part-time workers.

Lifecycle Indicators

Households with one adult were found to be associated with lower income categories (as indicated by positive values of the parameters in low income category alternatives) and lower probability to belong to the high income categories (as indicated by the negative values of the parameters in high income category alternatives). However, this trend was limited to households with no children (i.e. households with one adult and no children). For other households with one adult with children of various ages, they mostly showed higher probability to belong to lower income categories but there were also instances where they

were associated with some high income categories. The retired households with 2 or more adults show higher propensity to belong to high income categories and show lower propensity to belong to the low income categories.

Household Vehicle Ownership

The vehicle count variable was found to be very significant and contributed negatively towards the household's propensity to belong to lower income categories. On the other hand, vehicle count contributed positively to the household's propensity to belong to higher income categories.

Income Distribution of Surrounding Households

The coefficient estimates associated with the influence of income distribution of surrounding households also aligned with the prior hypothesis about the potential association of these variables with household income category. The proportion of surrounding households of lower income categories was found to be significantly positively associated with low income categories for respondents. Also, proportion of surrounding households of higher income categories was found to be significantly negatively associated with low income categories. It was interesting to note that the impact of the surrounding households' income distribution on the income category of the respondent household was more pronounced for the lowest and highest income distributions. For the intermediate income distributions, the associated parameters were found to be significantly positive only in and around the respective income categories. In the next section, the approach to applying the model to impute the income values is presented.

Table J.1: Model Estimation Summary

Statistics	Value
Number of Observations	6959
Log-likelihood value at convergence, final model	-13242.559
Log-likelihood value at convergence, constant only model	-16513.707
Number of Parameters, final model	155
Number of Constants	11
Likelihood ratio	6542.296
Degrees of freedom (DOF)	144
Critical Chi-square value (DOF = 144, level of significance = 0.001)	202.184

APPLICATION OF THE MODEL TO IMPUTE MISSING INCOME

The MNL model was then applied to impute the income values for the 1,443 households with missing income information. The steps applied to impute the income values for each household are noted below:

1. If the household answered the follow up income question wherein they provided income information on a coarse scale, the applicable income categories for imputation were limited to only those that fall within the broad reported income. If they did not provide a valid answer to the follow up income question, then all income categories are applicable for imputation.
2. The probability that the missing value belongs to each applicable category of income is estimated using the MNL model estimated by utilizing the attributes of the household.

3. A Monte Carlo procedure is applied to predict a single income category value based on the estimated probabilities[2].

Table J.3 shows the comparison of the prediction using the MNL model and the actual values. This table shows the ability of the model to replicate the results for observations that were used to estimate the model. As can be seen, the model does well in predicting the income category. For most observations, the predicted value matches the actual value. Even when the predictions do not match the actual value, the predictions are distributed around the actual value. It is also interesting to note that the predictions are limited to a narrow band around the actual value. This is by design owing to the first step described above wherein applicable income categories are limited based on the response to the coarse income category. In the replication analysis, it was assumed that response to coarse income category question was available for all observations. This in turn aids the prediction performance. However, for the observations with missing income data, only a small percentage of the observations have the coarse income response available which could affect the performance.

Table J.4 shows the comparison of income values between the original income and imputed income variables. The missing values in the original dataset are denoted by "Prefer not to answer" category. As can be seen, all the valid income values in the original variable were retained in the imputed income variable whereas the missing income values (i.e. "Prefer not to answer") are assigned a valid income value in the imputed variable. The highest counts of imputed income fall in the income category "$100,000 - $149,999". This is also the category with the highest number of observations in the original income variable. The least counts of imputed income are for the lowest income category i.e. "less than $10,000".

[2] The Monte Carlo proceeds by first calculating cumulative probability distribution that provides the range of probability for each income value. After this step, a random number is drawn between 0 and 1. Based on the probability range to which the random draw belongs, the income category value is assigned.

Table J.2: Model Estimation Results

Exploratory Variable Names	Income Category Alternatives										
	Less than $10,000	$10,000 - $14,999	$15,000 - $24,999	$25,000 - $34,999	$35,000 - $49,999	$60,000 - $74,999	$75,000 - $99,999	$100,000 - $149,999	$150,000 - $199,999	$200,000 - $249,999	$250,000 or more
Constant	2.036 (4.57)	1.231 (3.99)	0.156 (0.65)	-0.363 (-1.26)	0.969 (7.39)	-0.326 (-3.45)	-1.538 (-6.81)	-2.144 (-8.99)	-3.947 (-12.96)	-4.779 (-12.42)	-4.954 (-17.75)
Employment and Education of Household Members											
# of Full time low educated worker	-2.451 (-9.18)	-1.444 (-6.82)	-0.851 (-6.47)			0.323 (3.61)	0.36 (4.16)	0.459 (5.11)	0.491 (3.99)	0.54 (3.13)	
# of Full time college educated worker	-3.56 (-9.69)	-2.894 (-8.84)	-2.112 (-10.35)	-0.682 (-4.85)	-0.214 (-1.85)	0.446 (4.02)	0.78 (7.49)	1.152 (10.67)	1.455 (11.47)	1.466 (9.16)	1.141 (7.9)
# of Full time post graduate worker	-3.893 (-6.47)	-4.578 (-4.52)	-2.226 (-6.88)	-1.238 (-4.88)		1.066 (7.64)	1.639 (13.02)	2.301 (17.83)	2.927 (19.81)	3.2 (17.93)	3.076 (19.77)
# of Part time low educated worker		0.325 (1.57)	0.554 (3.66)	0.537 (3.44)						-0.819 (-2.11)	-0.833 (-2.45)
# of Part time college educated worker	-0.62 (-1.91)	-0.445 (-1.38)								0.51 (2.28)	
# of Part time post graduate worker	-2.507 (-3.41)	-1.278 (-2.68)	-0.871 (-2.48)				0.617 (3.04)	0.807 (4.05)	1.108 (4.63)	1.263 (4.26)	1.113 (4.28)
Lifecycle Indicators											
HH with 1 adult, no children	0.365 (1.95)	0.288 (1.44)					-0.26 (-2.54)	-0.573 (-5)	-1.166 (-5.78)	-1.501 (-4.27)	-0.539 (-2.32)
HH with 1 adult, youngest child age 0-4	2.157 (3.31)	1.571 (2.22)	0.978 (1.41)	1.269 (2.12)	1.307 (2.39)						
HH with 2+ adults, youngest child age 0-4	0.672 (1.42)	0.633 (1.41)			0.226 (1.08)						
HH with 1 adult, youngest child age 5-15	1.001 (2.17)	1.125 (2.49)	1.327 (3.76)	1.016 (2.86)	0.717 (2.02)		0.827 (2.61)	0.556 (1.68)			
HH with 2+ adult, youngest child age 5-15			0.472 (1.86)		0.295 (1.66)						0.372 (2.41)
HH with 2+ adult, youngest child age 16-17			1.19 (2.63)								
HH with 1 retired adult, no children	-1.341 (-6.34)	-0.44 (-2.01)						-0.597 (-2.86)	-0.731 (-1.86)	-0.467 (-0.84)	-1.158 (-2.11)
HH with 2+ retired adults, no children		-0.916 (-2.15)	-0.992 (-3.15)	0.225 (0.97)	0.504 (2.52)	1.057 (5.37)	0.868 (4.38)	1.477 (7.41)	1.273 (4.68)	1.383 (3.71)	0.943 (2.9)

Exploratory Variable Names	Income Category Alternatives										
	Less than $10,000	$10,000 - $14,999	$15,000 - $24,999	$25,000 - $34,999	$35,000 - $49,999	$60,000 - $74,999	$75,000 - $99,999	$100,000 - $149,999	$150,000 - $199,999	$200,000 - $249,999	$250,000 or more
Household Vehicle Ownership											
HH Vehicle Count	-1.749 (-12.78)	-1.446 (-10.97)	-0.747 (-8.1)	-0.63 (-7.7)	-0.334 (-5)		0.099 (1.75)	0.272 (5.02)	0.42 (6.33)	0.502 (5.91)	0.664 (8.69)
Income Distribution of Surrounding Households											
% of HH in the BG with income < $10,000	2.862 (3.32)	2.382 (3.1)	2.471 (3.77)	1.13 (1.65)						-2.101 (-1.33)	
% of HH in the BG with income $10,000- $14,999	2.174 (1.84)	3.29 (3.01)	3.068 (3.18)	3.692 (3.86)			1.998 (2)	0.821 (0.81)	1.892 (1.33)		
% of HH in the BG with income $15,000-$24,999	2.723 (2.6)	3.314 (3.52)	3.503 (4.65)	2.531 (3.31)							
% of HH in the BG with income $25,000-$34,999			1.367 (1.73)	1.819 (2.27)							
% of HH in the BG with income $35,000-$49,999	1.699 (1.53)		2.297 (2.97)	2.299 (2.94)							
% of HH in the BG with income $60,000-$74,999			1.574 (1.68)	1.888 (2.01)			2.469 (3.57)	2.264 (3.38)	1.399 (1.44)		
% of HH in the BG with income $75,000-$99,999							2.469 (4.5)	1.431 (2.72)			
% of HH in the BG with income $100,000-$149,999	-3.523 (-2.72)				-2.239 (-4.26)		0.931 (1.86)	1.475 (3.09)	2.346 (3.61)	1.088 (1.19)	
% of HH in the BG with income $150,000-$199,999	-4.012 (-1.97)	-3.367 (-1.99)					1.644 (2.25)	3.191 (4.61)	3.112 (3.38)	3.264 (2.72)	2.59 (2.38)
% of HH in the BG with income $200,000-$249,999				1.891 (2.64)			2.866 (6.67)	3.559 (8.76)	5.431 (11.58)	6.193 (11.89)	8.82 (20.47)

Table J.3: Comparison of the Actual and Imputed Income Values for the Estimation Sample

		Imputed Household Income												Total
		Less than $10,000	$10,000-$14,999	$15,000-$24,999	$25,000-$34,999	$35,000-$49,999	$50,000-$59,999	$60,000-$74,999	$75,000-$99,999	$100,000-$149,999	$150,000-$199,999	$200,000-$249,999	$250,000 or more	
Original Household Income	Less than $10,000	127	75	108	0	0	0	0	0	0	0	0	0	310
	$10,000-$14,999	80	93	118	0	0	0	0	0	0	0	0	0	291
	$15,000-$24,999	113	122	243	0	0	0	0	0	0	0	0	0	478
	$25,000-$34,999	0	0	0	236	251	0	0	0	0	0	0	0	487
	$35,000-$49,999	0	0	0	254	401	0	0	0	0	0	0	0	655
	$50,000-$59,999	0	0	0	0	0	247	313	0	0	0	0	0	560
	$60,000-$74,999	0	0	0	0	0	311	372	0	0	0	0	0	683
	$75,000-$99,999	0	0	0	0	0	0	0	986	0	0	0	0	986
	$100,000-$149,999	0	0	0	0	0	0	0	0	764	280	114	136	1294
	$150,000-$199,999	0	0	0	0	0	0	0	0	294	119	55	88	556
	$200,000-$249,999	0	0	0	0	0	0	0	0	101	74	27	62	264
	$250,000 or more	0	0	0	0	0	0	0	0	138	79	58	120	395
Total		320	290	469	490	652	558	685	986	1297	552	254	406	6959

Table J.4: Comparison Between Values for the Original and Imputed Income Variables

		Imputed Household Income												Total
		Less than $10,000	$10,000-$14,999	$15,000-$24,999	$25,000-$34,999	$35,000-$49,999	$50,000-$59,999	$60,000-$74,999	$75,000-$99,999	$100,000-$149,999	$150,000-$199,999	$200,000-$249,999	$250,000 or more	
Original Household Income	Less than $10,000	310	0	0	0	0	0	0	0	0	0	0	0	310
	$10,000-$14,999	0	291	0	0	0	0	0	0	0	0	0	0	291
	$15,000-$24,999	0	0	478	0	0	0	0	0	0	0	0	0	478
	$25,000-$34,999	0	0	0	487	0	0	0	0	0	0	0	0	487
	$35,000-$49,999	0	0	0	0	656	0	0	0	0	0	0	0	656
	$50,000-$59,999	0	0	0	0	0	560	0	0	0	0	0	0	560
	$60,000-$74,999	0	0	0	0	0	0	683	0	0	0	0	0	683
	$75,000-$99,999	0	0	0	0	0	0	0	986	0	0	0	0	986
	$100,000-$149,999	0	0	0	0	0	0	0	0	1294	0	0	0	1294
	$150,000-$199,999	0	0	0	0	0	0	0	0	0	556	0	0	556
	$200,000-$249,999	0	0	0	0	0	0	0	0	0	0	264	0	264
	$250,000 or more	0	0	0	0	0	0	0	0	0	0		395	395
	Prefer not to answer	51	56	87	83	134	116	163	174	253	145	61	120	1443
Total		361	347	565	570	790	676	846	1160	1547	701	325	515	8403

IMPROVEMENTS TO IMPUTATION IN FINAL ANALYSIS

The study team proposed an update to the imputation analysis documented above to address the issue of stochasticity during imputation. As noted above, a MNL based stochastic regression technique was used to impute detailed income information for the households with missing income information. To impute the income value, a Monte Carlo procedure was applied. Questions abound on the best approach to prediction using the Monte Carlo procedure. In order to address the above issue, an iterative stochastic regression approach was applied (Gold et al. 2000). In this approach, a multinomial logit (MNL) model is estimated and applied iteratively to impute the income information until convergence is achieved. The process begins by estimating the MNL model first using the observations with valid income information. These first set of MNL model coefficient estimates are then used to stochastically impute the missing income values. In the second step, the observations with imputed income information are combined with observations with valid income information. The MNL model is re-estimated using this combined dataset (including observed and imputed income values). The income values are imputed again using the new coefficient estimates. This second step is repeated until convergence is achieved. In this project, stability in the parameter estimates (i.e. no change in parameter estimates across iterations) was used as the convergence criterion.

The coefficient estimates and the imputed income values are very similar to the previous earlier model estimation results. Therefore, the presentation of the revised model estimation is limited to the results. The coefficient estimates are presented in Table J.5. The imputed income values are predicted in the same way as before using the Monte Carlo procedure. The comparison of the original and imputed income variables using the revised model estimation are presented in Section 3.7.4.

Table J.5: Revised Model Estimation Results using Iterative Stochastic Regression Approach

Exploratory Variable Names	Income Category Alternatives										
	Less than $10,000	$10,000 - $14,999	$15,000 - $24,999	$25,000 - $34,999	$35,000 - $49,999	$60,000 - $74,999	$75,000 - $99,999	$100,000 - $149,999	$150,000 - $199,999	$200,000 - $249,999	$250,000 or more
Constant	2.134 (5.34)	1.163 (4.15)	0.227 (1.04)	-0.282 (-1.07)	1.054 (8.74)	-0.288 (-3.38)	-1.444 (-6.89)	-2.045 (-9.36)	-3.713 (-13.55)	-4.704 (-13.63)	-4.934 (-19.67)
Employment and Education of Household Members											
# of Full time low educated worker	-2.363 (-9.73)	-1.459 (-7.25)	-0.822 (-6.6)			0.337 (4.06)	0.371 (4.55)	0.478 (5.79)	0.456 (4.05)	0.451 (2.8)	
# of Full time college educated worker	-3.768 (-10.4)	-3.109 (-9.68)	-2.102 (-11.23)	-0.728 (-5.63)	-0.302 (-2.83)	0.332 (3.28)	0.713 (7.54)	1.058 (10.93)	1.332 (11.84)	1.258 (8.86)	1.101 (8.72)
# of Full time post graduate worker	-4.145 (-6.92)	-4.801 (-4.74)	-2.27 (-7.36)	-1.199 (-5.18)		0.983 (7.59)	1.585 (13.61)	2.243 (19.01)	2.807 (21.01)	3.172 (19.99)	3.013 (21.53)
# of Part time low educated worker		0.305 (1.57)	0.539 (3.77)	0.592 (4.14)						-0.696 (-2.12)	-0.799 (-2.66)
# of Part time college educated worker	-0.792 (-2.57)	-0.549 (-1.83)								0.503 (2.54)	
# of Part time post graduate worker	-2.7 (-3.69)	-1.32 (-3.01)	-0.932 (-2.81)				0.505 (2.77)	0.681 (3.87)	0.878 (4.08)	1.061 (4.02)	1.035 (4.6)
Lifecycle Indicators											
HH with 1 adult, no children	0.362 (2.15)	0.396 (2.15)					-0.149 (-1.57)	-0.54 (-5.11)	-1.068 (-5.99)	-1.619 (-4.89)	-0.498 (-2.42)
HH with 1 adult, youngest child age 0-4	1.931 (3.18)	1.302 (1.9)	0.71 (1.05)	1.187 (2.16)	1.062 (2.05)						
HH with 2+ adults, youngest child age 0-4	0.499 (1.12)	0.633 (1.48)			0.117 (0.57)						
HH with 1 adult, youngest child age 5-15	1.062 (2.45)	1.312 (3.1)	1.384 (4.11)	0.967 (2.8)	0.63 (1.82)		0.829 (2.73)	0.636 (2.09)			
HH with 2+ adult, youngest child age 5-15			0.572 (2.41)		0.22 (1.28)						0.346 (2.57)
HH with 2+ adult, youngest child age 16-17			1.28 (3.29)								
HH with 1 retired adult, no children	-1.485 (-7.74)	-0.397 (-2.01)						-0.622 (-3.36)	-1.021 (-2.8)	-0.666 (-1.35)	-1.416 (-2.88)

Exploratory Variable Names	Income Category Alternatives										
	Less than $10,000	$10,000 - $14,999	$15,000 - $24,999	$25,000 - $34,999	$35,000 - $49,999	$60,000 - $74,999	$75,000 - $99,999	$100,000 - $149,999	$150,000 - $199,999	$200,000 - $249,999	$250,000 or more
HH with 2+ retired adults, no children		-0.754 (-2.11)	-1.077 (-3.71)	0.139 (0.66)	0.566 (3.27)	1.156 (6.82)	0.906 (5.21)	1.466 (8.42)	1.129 (4.81)	1.044 (3.15)	0.674 (2.38)
Household Vehicle Ownership											
HH Vehicle Count	-1.768 (-14.29)	-1.478 (-12.34)	-0.789 (-9.22)	-0.624 (-8.32)	-0.336 (-5.49)		0.112 (2.13)	0.288 (5.81)	0.421 (6.95)	0.522 (6.75)	0.636 (9.13)
Income Distribution of Surrounding Households											
% of HH in the BG with income < $10,000	2.917 (3.7)	2.336 (3.3)	2.258 (3.71)	1.462 (2.34)						-1.793 (-1.24)	
% of HH in the BG with income $10,000- $14,999	1.825 (1.66)	3.393 (3.36)	3.372 (3.8)	3.189 (3.56)			1.611 (1.72)	0.657 (0.7)	1.412 (1.07)		
% of HH in the BG with income $15,000-$24,999	2.708 (2.8)	3.637 (4.18)	3.501 (4.96)	2.388 (3.32)							
% of HH in the BG with income $25,000-$34,999			1.209 (1.65)	1.502 (2.01)							
% of HH in the BG with income $35,000-$49,999	2.114 (2.09)		2.489 (3.48)	2.4 (3.31)							
% of HH in the BG with income $60,000-$74,999			1.172 (1.35)	1.679 (1.94)			2.05 (3.21)	1.831 (3)	0.981 (1.11)		
% of HH in the BG with income $75,000-$99,999							1.904 (3.72)	1.206 (2.51)			
% of HH in the BG with income $100,000-$149,999	-4.078 (-3.52)				-2.551 (-5.3)		0.846 (1.84)	1.547 (3.58)	2.107 (3.57)	1.381 (1.67)	
% of HH in the BG with income $150,000-$199,999	-2.91 (-1.62)	-1.83 (-1.27)					1.825 (2.76)	3.12 (5.03)	3.08 (3.71)	2.838 (2.61)	3.825 (4.01)
% of HH in the BG with income $200,000-$249,999				1.563 (2.45)			2.677 (7.11)	3.43 (9.75)	5.411 (13.32)	6.261 (13.79)	8.806 (23.74)

Appendix K

Main Study Recorded, Derived, and Calculated Variables

The below table provides a list of all variables utilized in the final data tables including household, person, unlinked trip, linked trip, tour and vehicle files. The list of variables below are from the full version (i.e. the non-public version) of the dataset. Also, where the “Type of Variable” is noted as “Recoded Latest”, the corresponding variable should be used in lieu of the originally collected/calculated/derived variables.

File Name	Variable Name	Variable Description	Type of Variable
Household	hhid	Household ID (unique)	ID
Household	segnum	Sample segment	Study Design/Administrative
Household	week	Week number of assigned travel date	Study Design/Administrative
Household	traveldate	Assigned travel date	Study Design/Administrative
Household	hh_hts_status	Household survey status	Derived/Calculated
Household	hh_tripcount	USE RECODED VERSION: Household number of trips on travel day	Derived/Calculated
Household	hh_tripcount_20plus	USE RECODED VERSION: Household number of trips on travel day (categories)	Derived/Calculated
Household	transithh	Household used transit on travel day	Derived/Calculated
Household	recruit_start_et	Recruit survey start time (ET)	Study Design/Administrative
Household	recruit_end_et	Recruit survey end time (ET)	Study Design/Administrative
Household	recruit_duration	Recruit survey duration, minutes	Derived/Calculated
Household	numvehicle	Household number of vehicles	Collected
Household	numvehicle_3plus	Household number of vehicles (categories)	Derived/Calculated
Household	numbicycle	Household number of bicycles	Collected
Household	hhsize	Household size	Collected
Household	hhsize_5plus	Household size (categories)	Derived/Calculated
Household	numadults	Number of adults in household age 18+	Derived/Calculated
Household	numstudents	Number of students (i.e. valid "schooltype" person variable - excludes None) in household	Derived/Calculated
Household	numstudents_adult	Number of adult students (age 18+ and valid "schooltype" person variable - excludes None) in household	Derived/Calculated
Household	numstudents_kid	Number of child students (age <18 and valid "schooltype" person variable - excludes None) in household	Derived/Calculated

File Name	Variable Name	Variable Description	Type of Variable
Household	numkids	Number of children in household under age 18	Derived/Calculated
Household	numkids_3plus	Number of children in household under age 18 (categories)	Derived/Calculated
Household	numworkers	Number of workers in household: employed full or part time, self-employed	Derived/Calculated
Household	numworkers_3plus	Number of workers in household: employed full or part time, self-employed (categories)	Derived/Calculated
Household	numdrivers	Number of licensed drivers in household	Derived/Calculated
Household	rent_own	Residence tenure status	Collected
Household	res_type	Residence type of structure	Collected
Household	home_address	Reported home address	Collected
Household	home_lat	Reported home address: latitude	Derived/Calculated
Household	home_lng	Reported home address: longitude	Derived/Calculated
Household	home_county	Reported home location: County corresponding to home location	Derived/Calculated
Household	home_town	Reported home location: Town corresponding to home location	Derived/Calculated
Household	home_bg_geoid	Reported home location: Block Group ID corresponding to home location	Derived/Calculated
Household	hhincome_detailed	Household income 2015: detailed categories	Collected
Household	hhincome_followup	Prefer not to answer detailed household income 2015: broad follow-up categories	Collected
Household	hhincome_broad	Household income 2015: broad categories, all respondents	Derived/Calculated
Household	participate	Willing to participate in future studies	Collected
Household	callcenter_end	Call center completed recruit survey	Derived/Calculated
Household	recruit_nonenglish	Flag: recruit survey language (web browser)	Derived/Calculated
Household	expansion_weight	Expansion weight calculated as ratio of the count of households belonging to a segment in the population divided by the count of sample households in the segment	Derived/Calculated

File Name	Variable Name	Variable Description	Type of Variable
Household	final_weights	Readjusted weights matching marginal distributions of household and person variables of interest	Modeled
Household	imputed_income_for_missing	Imputed value for missing observations in hhincome_detailed; values reported on the same scale as hhincome_detailed	Modeled
Household	imputed_hhincome_detailed	Imputed household income 2015: detailed categories	Derived/Calculated
Household	r_numvehicles_4plus	Vehicle count variable used in the weighting analysis	Derived/Calculated
Household	r_household_income_rev_2	Imputed household income variable (i.e. imputed_hhincome_detailed) used in the weighting analysis	Derived/Calculated
Household	r_numworkers_3plus	Worker count variable used in the weighting analysis	Derived/Calculated
Household	r_numpersons_6plus	Household size variable used in the weighting analysis	Derived/Calculated
Household	r_household_type	Household type variable used in the weighting analysis	Derived/Calculated
Household	r_presence_of_children	Presence of children variable used in the weighting analysis	Derived/Calculated
Household	sample_geo	Region ID obtained by combining MPO and COG boundaries	Derived/Calculated
Household	hh_tripcount_recode	Final Recoded Household number of trips on travel day	Recoded Latest
Household	hh_tripcount_20plus_recode	Final Recoded Household number of trips on travel day (categories)	Recoded Latest
Household	hh_tripcount_linked	Household number of linked trips on travel day	Derived/Calculated
Household	hh_tripcount_20plus_linked	Household number of linked trips on travel day (categories)	Derived/Calculated
Person	hhid	Household ID	ID
Person	personid	Person ID (unique)	ID

File Name	Variable Name	Variable Description	Type of Variable
Person	segnum	Sample segment	Study Design/Administrative
Person	traveldate	Assigned travel date	Study Design/Administrative
Person	week	Week number of assigned travel date	Study Design/Administrative
Person	hh_hts_status	Household survey status	Derived/Calculated
Person	person_num	Person number	Study Design/Administrative
Person	relationship	Relationship to primary respondent	Collected
Person	gender	Gender	Collected
Person	age	Age	Collected
Person	age_followup	Prefer not to answer exact age: Broad follow-up categories	Collected
Person	age_broad	Age: Broad categories, all respondents	Derived/Calculated
Person	employment	Age 16+: Employment status	Collected
Person	jobs_count	Age 16+ employed: Number of jobs	Collected
Person	work_hours	Age 16+ employed: Number of hours worked per week	Collected
Person	student	Adult (Age 18+): Student status	Collected
Person	schooltype	Child (Age < 18) or Adult Student: Type of school attended	Collected
Person	education	Adult (Age 18+): Educational attainment	Collected
Person	license	Age 16+: Has valid driver's license	Collected
Person	transit_freq	How often in past month: Ridden transit	Collected
Person	transit_fare	If ever uses transit: How typically pays for transit fare	Collected
Person	transit_pass	If typical transit fare payment method is pass: type of transit pass used most often	Collected
Person	transit_discount	If typical transit fare is not free: eligible for discounted transit fares	Collected
Person	school_freq	Student (adult or child, except home school/in-house nanny or sitter): How often travels to school	Collected

File Name	Variable Name	Variable Description	Type of Variable
Person	school_mode	Student (adult or child, except home school/in-house nanny or sitter and online-classes): Travel mode to school	Collected
Person	school_address	Student (adult or child, except home school/in-house nanny or sitter and online-classes): School address	Collected
Person	school_lat	Student (adult or child, except home school/in-house nanny or sitter and online-classes): School latitude	Derived/Calculated
Person	school_lng	Student (adult or child, except home school/in-house nanny or sitter and online-classes): School longitude	Derived/Calculated
Person	school_county	Student (adult or child, except home school/in-house nanny or sitter and online-classes): County corresponding to school location	Derived/Calculated
Person	school_town	Student (adult or child, except home school/in-house nanny or sitter and online-classes): Town corresponding to school location	Derived/Calculated
Person	school_bg_geoid	Student (adult or child, except home school/in-house nanny or sitter and online-classes): Block Group ID corresponding to school location	Derived/Calculated
Person	workplace	Employed or volunteer: Primary type of workplace	Collected
Person	occupation	Employed or volunteer: Primary occupation	Collected
Person	industry	Employed or volunteer: Primary employment industry	Collected
Person	commute_freq	If travels to fixed or varied workplace (i.e. workplace == 1 or workplace == 2): How often commute to primary workplace	Collected
Person	commute_mode	If commutes: Typical commute mode	Collected
Person	work_flex	Employed or volunteer: Amount of flexibility in primary work schedule	Collected

File Name	Variable Name	Variable Description	Type of Variable
Person	work_address	If goes to a fixed workplace: Primary workplace address	Collected
Person	work_lat	If goes to a fixed workplace: Primary workplace latitude	Derived/Calculated
Person	work_lng	If goes to a fixed workplace: Primary workplace longitude	Derived/Calculated
Person	work_county	USE RECODED VERSION: If goes to a fixed workplace: County corresponding to primary workplace location	Derived/Calculated
Person	work_town	USE RECODED VERSION: If goes to a fixed workplace: Town corresponding to primary workplace location	Derived/Calculated
Person	work_bg_geoid	USE RECODED VERSION: If goes to a fixed workplace: Block Group ID corresponding to primary workplace location	Derived/Calculated
Person	diary_start_et	Diary start time (ET)	Study Design/Administrative
Person	diary_end_et	Diary end time (ET)	Study Design/Administrative
Person	diary_duration	Diary duration, minutes	Derived/Calculated
Person	person_tripcount	USE RECODED VERSION: Number of trips made	Derived/Calculated
Person	person_tripcount_10plus	USE RECODED VERSION: Number of trips made, categories	Derived/Calculated
Person	diary_proxy	Respondent is represented by proxy	Collected
Person	copytrips_confirm	If copied trips available: Selected from available trips	Collected
Person	trips_first	First copied trip was first trip of the day	Collected
Person	trips_last	Last copied trip was last trip of the day	Collected
Person	diary_loc_start	USE RECODED VERSION: Where started travel day (at 3 AM)	Collected
Person	diary_loc_start_other	Where started travel day, other	Collected
Person	diary_loc_end	USE RECODED VERSION: Where ended travel day (at 3 AM)	Collected

File Name	Variable Name	Variable Description	Type of Variable
Person	diary_loc_end_other	Where ended travel day, other	Collected
Person	trips_yesno	USE RECODED VERSION: Made trips on travel day	Collected
Person	no_travel_dayoff	No travel: Was not scheduled to work or took a vacation/personal day (if employed)	Collected
Person	no_travel_telecommute	No travel: Worked from home for pay e.g. telecommuted or home-based job (if employed)	Collected
Person	no_travel_workhomenoapay	No travel: Worked around the home (not for pay)	Collected
Person	no_travel_kidsvacation	No travel: The kids were on school vacation/break	Collected
Person	no_travel_notransport	No travel: Did not have available transportation (no car, no way to get to the bus, etc.)	Collected
Person	no_travel_sick	No travel: Was sick or caring another person (child or family member) at home	Collected
Person	no_travel_visitor	No travel: Was waiting for a delivery or visitor (e.g. cable installation)	Collected
Person	no_travel_other	No travel: Other	Collected
Person	added_loop	Additional trips to report: Walk, bike trip (exercise, walk the dog, etc)	Collected
Person	added_quick	Additional trips to report: One or more short trips in the middle of other activities (e.g. a quick trip for lunch)	Collected
Person	added_stop	Additional trips to report: Stopped briefly on the way to somewhere else (e.g. for gas, at an ATM, at a drive-thru restaurant, etc.)	Collected
Person	added_dropoff	Additional trips to report: Dropped someone off on the way to somewhere else (e.g. spouse at a park and ride lot, child at a friend's house, etc.)	Collected
Person	added_other	Additional trips to report: Other type of trip	Collected
Person	toll_use_travelday	Age 16+: Used toll road on travel day	Collected
Person	hov_use_travelday	Age 16+: Used HOV lane on travel day	Collected

File Name	Variable Name	Variable Description	Type of Variable
Person	park_pay_use_travelday	Age 16+: Paid for parking on travel day	Collected
Person	typicalday	Typical travel day	Collected
Person	typicalday_other	Typical travel day: other specify	Collected
Person	comments	Optional: Participant comments	Collected
Person	diary_callcenter	Call center completed diary	Derived/Calculated
Person	diary_nonenglish	Flag: diary survey language (web browser)	Derived/Calculated
Person	r_age	Age variable used in the weighting analysis	Derived/Calculated
Person	r_gender	Gender variable used in the weighting analysis	Derived/Calculated
Person	r_employment	Employment variable used in the weighting analysis	Derived/Calculated
Person	r_mode_to_work	Mode to work variable used in the weighting analysis	Derived/Calculated
Person	person_tripcount_recode	Final Recoded Number of trips made	Recoded Latest
Person	person_tripcount_10plus_recode	Final Recoded Number of trips made, categories	Recoded Latest
Person	trips_yesno_recoded_2	Final Recoded Made trips on travel day after data processing was complete recoded	Recoded Latest
Person	diary_loc_start_recode_3	Final Recoded Where started travel day recoded 3 (at 3 AM)	Recoded Latest
Person	diary_loc_end_recode_3	Final Recoded Where ended travel day recoded 3 (at 3 AM)	Recoded Latest
Person	person_tripcount_linked	Number of trips made linked	Derived/Calculated
Person	person_tripcount_10plus_linked	Number of trips made, categories linked	Derived/Calculated
Person	work_county_recode	Final Recoded If goes to a fixed workplace: County corresponding to primary workplace location	Recoded Latest
Person	work_town_recode	Final Recoded If goes to a fixed workplace: Town corresponding to primary workplace location	Recoded Latest
Person	work_bg_geoid_recode	Final Recoded If goes to a fixed workplace: Block Group ID corresponding to primary workplace location	Recoded Latest

File Name	Variable Name	Variable Description	Type of Variable
Person	final_weights	Readjusted weights matching marginal distributions of household and person variables of interest	Modeled
Unlinked Trips	hhid	Household ID	ID
Unlinked Trips	personid	Person ID	ID
Unlinked Trips	tripid	Trip ID (unique)	ID
Unlinked Trips	trip_num	Trip number	Study Design/Administrative
Unlinked Trips	segnum	Sample segment	Study Design/Administrative
Unlinked Trips	week	Week number of assigned travel date	Study Design/Administrative
Unlinked Trips	traveldate	Assigned travel date	Study Design/Administrative
Unlinked Trips	person_num	Person number	Study Design/Administrative
Unlinked Trips	hh_hts_status	Household survey status	Derived/Calculated
Unlinked Trips	prepop	Trip was copied from other HH member	Study Design/Administrative
Unlinked Trips	o_name	USE RECODED VERSION: Trip origin nickname	Collected
Unlinked Trips	d_name	Trip destination nickname	Collected
Unlinked Trips	o_address	USE RECODED VERSION: Trip origin address	Collected
Unlinked Trips	o_lat	USE RECODED VERSION: Trip origin latitude	Derived/Calculated
Unlinked Trips	o_lng	USE RECODED VERSION: Trip origin longitude	Derived/Calculated
Unlinked Trips	d_address	USE RECODED VERSION: Trip destination address	Collected
Unlinked Trips	d_lat	USE RECODED VERSION: Trip destination latitude	Derived/Calculated
Unlinked Trips	d_lng	USE RECODED VERSION: Trip destination longitude	Derived/Calculated
Unlinked Trips	departure_time	Trip departure time	Collected
Unlinked Trips	arrival_time	Trip arrival time	Collected
Unlinked Trips	departure_time_hhmm	Trip departure time: hours and minutes	Derived/Calculated
Unlinked Trips	arrival_time_hhmm	Trip arrival time: hours and minutes	Derived/Calculated
Unlinked Trips	departure_hour	Trip departure time: hour of day	Derived/Calculated
Unlinked Trips	arrival_hour	Trip arrival time: hour of day	Derived/Calculated

File Name	Variable Name	Variable Description	Type of Variable
Unlinked Trips	reported_duration	Trip duration: minutes	Derived/Calculated
Unlinked Trips	implied_speed_mph	Trip speed (miles per hour)	Derived/Calculated
Unlinked Trips	travelers_total	Total number of travelers on trip including self	Derived/Calculated
Unlinked Trips	travelers_hh	Household members on trip including self	Derived/Calculated
Unlinked Trips	travelers_nonhh	Non-household members on trip	Collected
Unlinked Trips	o_purpose	USE RECODED VERSION: Primary purpose at trip origin	Derived/Calculated
Unlinked Trips	d_purpose	USE RECODED VERSION: Primary purpose at trip destination	Collected
Unlinked Trips	d_purpose_other	Optional: primary purpose at trip destination: other specify:	Collected
Unlinked Trips	t_purpose	USE RECODED VERSION: Overall trip purpose	Derived/Calculated
Unlinked Trips	mode	Main way traveled on trip	Collected
Unlinked Trips	mode_category	Main way traveled on trip, aggregated	Derived/Calculated
Unlinked Trips	mode_hhauto	HH or Other Vehicle: Vehicle used	Collected
Unlinked Trips	driver	HH or Other Vehicle, or Vanpool: If age 16+ and licensed travel party > 1: Was driver or passenger on trip	Collected
Unlinked Trips	hov_use	HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses HOV and travel party > 1: Used HOV lane on trip	Collected
Unlinked Trips	tollroad_use	HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses toll road: Toll road used on trip	Collected
Unlinked Trips	tollroad_cost	If used toll road for this trip: Toll road cost for trip (dollars)	Collected
Unlinked Trips	tollroad_cost_dk	Toll road cost for trip: don't know	Collected
Unlinked Trips	park_loc	HH or Other vehicle, or Vanpool: If age 16+: Parking location at destination	Collected
Unlinked Trips	park_pay	Parked on street or in a lot/garage: If ever pays for parking: How paid for parking at destination	Collected

File Name	Variable Name	Variable Description	Type of Variable
Unlinked Trips	park_cost	If paid with cash/tickets: Cost of parking at destination (dollars)	Collected
Unlinked Trips	park_cost_dk	Parking cost for trip: don't know	Collected
Unlinked Trips	taxi_cost	Taxi or Rideshare: Cost of taxi for trip (dollars)	Collected
Unlinked Trips	taxi_cost_dk	Cost of taxi for trip: don't know	Collected
Unlinked Trips	transit_access	Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit access mode	Collected
Unlinked Trips	transit_egress	Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit egress mode	Collected
Unlinked Trips	transit_pay	Public Bus, Commuter Rail, Subway, Train or Intercity Bus: How paid for transit on trip	Collected
Unlinked Trips	transit_cost	Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Cost of transit for trip (dollars)	Collected
Unlinked Trips	transit_cost_dk	Cost of transit for trip: don't know	Collected
Unlinked Trips	transit_system_1	First transit system used	Collected
Unlinked Trips	transit_system_2	Second transit system used	Collected
Unlinked Trips	transit_system_3	Third transit system used	Collected
Unlinked Trips	transit_system_4	Fourth transit system used	Collected
Unlinked Trips	transit_line_1	First transit route/line used	Collected
Unlinked Trips	transit_line_2	Second transit route/line used	Collected
Unlinked Trips	transit_line_3	Third transit route/line used	Collected
Unlinked Trips	transit_line_4	Fourth transit route/line used	Collected
Unlinked Trips	transit_transfers	Count of transit transfers made (derived)	Derived/Calculated
Unlinked Trips	gdistance	Driving distance (miles) from origin to destination (Google estimate)	Derived/Calculated
Unlinked Trips	gdistance_bins	Driving distance (miles) from origin to destination (Google estimate) (derived 10 mile increments)	Derived/Calculated
Unlinked Trips	gduration	Driving travel time (minutes) from origin to destination (Google estimate)	Derived/Calculated

File Name	Variable Name	Variable Description	Type of Variable
Unlinked Trips	gduration_bins	Driving travel time (minutes) from origin to destination (Google estimate) (derived 10 minute increments)	Derived/Calculated
Unlinked Trips	hhmember1	Household member 1 was in the travel party	Collected
Unlinked Trips	hhmember2	Household member 2 was in the travel party	Collected
Unlinked Trips	hhmember3	Household member 3 was in the travel party	Collected
Unlinked Trips	hhmember4	Household member 4 was in the travel party	Collected
Unlinked Trips	hhmember5	Household member 5 was in the travel party	Collected
Unlinked Trips	hhmember6	Household member 6 was in the travel party	Collected
Unlinked Trips	hhmember7	Household member 7 was in the travel party	Collected
Unlinked Trips	hhmember8	Household member 8 was in the travel party	Collected
Unlinked Trips	hhmember9	Household member 9 was in the travel party	Collected
Unlinked Trips	hhmembernone	If household size > 1: No household member was in the travel party	Collected
Unlinked Trips	o_name_recode	Final Recoded Trip origin nickname	Recoded Latest
Unlinked Trips	o_address_recode_2	Final Recoded Trip origin address	Recoded Latest
Unlinked Trips	o_lat_recode_2	Final Recoded Trip origin latitude	Recoded Latest
Unlinked Trips	o_lng_recode_2	Final Recoded Trip origin longitude	Recoded Latest
Unlinked Trips	d_address_recode	Final Recoded Trip destination address	Recoded Latest
Unlinked Trips	d_lat_recode	Final Recoded Trip destination latitude	Recoded Latest
Unlinked Trips	d_lng_recode	Final Recoded Trip destination longitude	Recoded Latest
Unlinked Trips	o_purpose_recode_3	Final Recoded Primary purpose at trip origin	Recoded Latest
Unlinked Trips	d_purpose_recode_3	Final Recoded Primary purpose at trip destination	Recoded Latest
Unlinked Trips	t_purpose_recode_2	Final Recoded Overall trip purpose	Recoded Latest
Unlinked Trips	valid_linked_trip_recode	Final Recoded Indicator of whether the trip is part of a linked trip	Recoded Latest
Unlinked Trips	linked_tripid_recode	Final Recoded Corresponding linked trip ID (unique)	Recoded Latest
Unlinked Trips	linked_trip_index_recode	Final Recoded linked trip index	Recoded Latest

File Name	Variable Name	Variable Description	Type of Variable
Unlinked Trips	how_linked_recode	Final Recoded how trip got linked	Recoded Latest
Unlinked Trips	origin_county	Trip origin: County corresponding to recoded origin location	Recoded Latest
Unlinked Trips	origin_town	Trip origin: Town corresponding to recoded origin location	Recoded Latest
Unlinked Trips	origin_bg_geoid	Trip origin: Block Group ID corresponding to recoded origin location	Recoded Latest
Unlinked Trips	destination_county_recode	Trip destination: County corresponding to recoded destination location	Recoded Latest
Unlinked Trips	destination_town_recode	Trip destination: Town corresponding to recoded destination location	Recoded Latest
Unlinked Trips	destination_bg_geoid_recode	Trip destination: Block Group ID corresponding to recoded destination location	Recoded Latest
Unlinked Trips	final_weights	Readjusted weights matching marginal distributions of household and person variables of interest	Modeled
Linked Trips	hhid	Household ID	ID
Linked Trips	personid	Person ID	ID
Linked Trips	linked_tripid	Linked trip ID (Unique)	ID
Linked Trips	trip_num	Trip number of the first unlinked trip that is part of the trip chain	Study Design/Administrative
Linked Trips	segnum	Sample segment	Study Design/Administrative
Linked Trips	week	Week number of assigned travel date	Study Design/Administrative
Linked Trips	traveldate	Assigned travel date	Study Design/Administrative
Linked Trips	person_num	Person number	Study Design/Administrative
Linked Trips	hh_hts_status	Household survey status	Derived/Calculated
Linked Trips	valid_linked_trip	Indicator of whether the trip is part of a linked trip	Derived/Calculated
Linked Trips	linked_trip_index	Linked trip index	Derived/Calculated
Linked Trips	how_linked	How trip got linked	Derived/Calculated
Linked Trips	count_of_legs	Count of legs	Derived/Calculated

File Name	Variable Name	Variable Description	Type of Variable
Linked Trips	o_name_across_legs_string	Linked Trip origin nickname, concatenated)	Derived/Calculated
Linked Trips	d_name_across_legs_string	Linked Trip destination nickname, concatenated	Derived/Calculated
Linked Trips	d_purpose_across_legs_string	Primary purpose at "linked" trip destination, concatenated	Derived/Calculated
Linked Trips	o_name_recode_linked	Trip origin nickname	Derived/Calculated
Linked Trips	o_address_recode_2_linked	Trip origin address	Derived/Calculated
Linked Trips	o_lat_recode_2_linked	Trip origin latitude	Derived/Calculated
Linked Trips	o_lng_recode_2_linked	Trip origin longitude	Derived/Calculated
Linked Trips	origin_county_linked	Trip origin: County corresponding to origin location	Derived/Calculated
Linked Trips	origin_town_linked	Trip origin: Town corresponding to origin location	Derived/Calculated
Linked Trips	origin_bg_geoid_linked	Trip origin: Block Group ID corresponding to origin location	Derived/Calculated
Linked Trips	d_name_linked	Trip destination nickname	Derived/Calculated
Linked Trips	d_address_recode_linked	Trip destination address	Derived/Calculated
Linked Trips	d_lat_recode_linked	Trip destination latitude	Derived/Calculated
Linked Trips	d_lng_recode_linked	Trip destination longitude	Derived/Calculated
Linked Trips	destination_county_recode_linked	Trip destination: County corresponding to destination location	Derived/Calculated
Linked Trips	destination_town_recode_linked	Trip destination: Town corresponding to destination location	Derived/Calculated
Linked Trips	destination_bg_geoid_recode_linked	Trip destination: Block Group ID corresponding to destination location	Derived/Calculated
Linked Trips	departure_time_linked	Trip departure time	Derived/Calculated
Linked Trips	arrival_time_linked	Trip arrival time	Derived/Calculated
Linked Trips	departure_time_hhmm_linked	Trip departure time: hours and minutes	Derived/Calculated
Linked Trips	arrival_time_hhmm_linked	Trip arrival time: hours and minutes	Derived/Calculated
Linked Trips	departure_hour_linked	Trip departure time: hour of day	Derived/Calculated
Linked Trips	arrival_hour_linked	Trip arrival time: hour of day	Derived/Calculated

File Name	Variable Name	Variable Description	Type of Variable
Linked Trips	reported_duration_linked	Trip duration: minutes (obtained by aggregating the reported durations across all trip legs)	Derived/Calculated
Linked Trips	reported_duration_linked_recode	Final Recoded trip duration: minutes (obtained by taking the difference between arrival time and departure time)	Recoded Latest
Linked Trips	travelers_total_linked	Total number of travelers on trip including self	Derived/Calculated
Linked Trips	travelers_hh_linked	Household members on trip including self	Derived/Calculated
Linked Trips	travelers_nonhh_linked	Non-household members on trip	Derived/Calculated
Linked Trips	o_purpose_recode_3_linked	Primary purpose at trip origin	Derived/Calculated
Linked Trips	d_purpose_recode_3_linked	Primary purpose at trip destination	Derived/Calculated
Linked Trips	t_purpose_recode_linked	Overall trip purpose	Derived/Calculated
Linked Trips	primary_mode_linked	Main way traveled on trip	Derived/Calculated
Linked Trips	primary_mode_category_linked	USE RECODED VERSION: Main way traveled on trip, aggregated	Derived/Calculated
Linked Trips	mode_across_legs_string	Main way traveled on "linked" trip, concatenated	Derived/Calculated
Linked Trips	mode_hhauto_linked	HH or Other Vehicle: Vehicle used	Derived/Calculated
Linked Trips	driver_linked	HH or Other Vehicle, or Vanpool: If age 16+ and licensed travel party > 1: Was driver or passenger on trip	Derived/Calculated
Linked Trips	hov_use_linked	HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses HOV and travel party > 1: Used HOV lane on trip	Derived/Calculated
Linked Trips	tollroad_use_linked	HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses toll road: Toll road used on trip	Derived/Calculated
Linked Trips	tollroad_cost_linked	If used toll road for this trip: Toll road cost for trip (dollars)	Derived/Calculated
Linked Trips	tollroad_cost_dk_linked	Toll road cost for trip: don't know	Derived/Calculated
Linked Trips	park_loc_linked	HH or Other vehicle, or Vanpool: If age 16+: Parking location at destination	Derived/Calculated

File Name	Variable Name	Variable Description	Type of Variable
Linked Trips	park_pay_linked	Parked on street or in a lot/garage: If ever pays for parking: How paid for parking at destination	Derived/Calculated
Linked Trips	park_cost_linked	If paid with cash/tickets: Cost of parking at destination (dollars)	Derived/Calculated
Linked Trips	park_cost_dk_linked	Parking cost for trip: don't know	Derived/Calculated
Linked Trips	taxi_cost_linked	Taxi or Rideshare: Cost of taxi for trip (dollars)	Derived/Calculated
Linked Trips	taxi_cost_dk_linked	Cost of taxi for trip: don't know	Derived/Calculated
Linked Trips	transit_access_linked	Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit access mode	Derived/Calculated
Linked Trips	transit_egress_linked	Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit egress mode	Derived/Calculated
Linked Trips	transit_pay_linked	USE RECODED VERSION: Public Bus, Commuter Rail, Subway, Train or Intercity Bus: How paid for transit on trip	Derived/Calculated
Linked Trips	transit_cost_linked	Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Cost of transit for trip (dollars)	Derived/Calculated
Linked Trips	transit_cost_dk_linked	Cost of transit for trip: don't know	Derived/Calculated
Linked Trips	transit_transfers_llinked	Count of transit transfers made	Derived/Calculated
Linked Trips	transit_system_linked	transit system used, concatenated	Derived/Calculated
Linked Trips	transit_line_linked	transit line used, concatenated	Derived/Calculated
Linked Trips	gdistance_linked	Driving distance (miles) from origin to destination (Google estimate)	Derived/Calculated
Linked Trips	gduration_linked	Driving travel time (minutes) from origin to destination (Google estimate)	Derived/Calculated
Linked Trips	hhmembernone_linked	If household size > 1: No household member was in the travel party	Derived/Calculated
Linked Trips	hhmember1_linked	Household member 1 was in the travel party	Derived/Calculated
Linked Trips	hhmember2_linked	Household member 2 was in the travel party	Derived/Calculated
Linked Trips	hhmember3_linked	Household member 3 was in the travel party	Derived/Calculated
Linked Trips	hhmember4_linked	Household member 4 was in the travel party	Derived/Calculated
Linked Trips	hhmember5_linked	Household member 5 was in the travel party	Derived/Calculated

File Name	Variable Name	Variable Description	Type of Variable
Linked Trips	hhmember6_linked	Household member 6 was in the travel party	Derived/Calculated
Linked Trips	hhmember7_linked	Household member 7 was in the travel party	Derived/Calculated
Linked Trips	hhmember8_linked	Household member 8 was in the travel party	Derived/Calculated
Linked Trips	final_weights	Readjusted weights matching marginal distributions of household and person variables of interest (modeled)	Modeled
Linked Trips	tourid	Tour ID (Unique)	ID
Linked Trips	transit_pay_linked_recode	Final Recoded Public Bus, Commuter Rail, Subway, Train or Intercity Bus: How paid for transit on trip	Recoded Latest
Linked Trips	primary_mode_category_linked_recode	Final Recoded Main way traveled on trip, aggregated	Recoded Latest
Tours	hhid	Household ID	ID
Tours	tourid	Tour ID (unique)	ID
Tours	personid	Person ID	ID
Tours	tour_index	Tour index	Derived/Calculated
Tours	parent_home_based_tourid	Tour ID of the home based tour to which work based sub tour belongs	Derived/Calculated
Tours	tour_trip_count	Count of trips that constitute the tour	Derived/Calculated
Tours	tour_purpose	Tour purpose	Derived/Calculated
Tours	tour_primary_activity_dwell_time	Tour primary activity dwell time	Derived/Calculated
Tours	tour_stop_count_school	Count of additional school stop	Derived/Calculated
Tours	tour_stop_count_work	Count of additional work stop	Derived/Calculated
Tours	tour_stop_count_meal	Count of additional meal stop	Derived/Calculated
Tours	tour_stop_count_shop	Count of additional shopping stop	Derived/Calculated
Tours	tour_stop_count_PerBus	Count of additional personal business stop	Derived/Calculated
Tours	tour_stop_count_SocRec	Count of additional social recreational stop	Derived/Calculated
Tours	tour_stop_count_escort	Count of additional escort stop	Derived/Calculated
Tours	tour_stop_count_other	Count of additional other stop	Derived/Calculated
Tours	tour_tripid	String of linked_tripid's that constitute the tour	Derived/Calculated

File Name	Variable Name	Variable Description	Type of Variable
Tours	tour_occupancy_hh	Tour occupancy type based on household members only	Derived/Calculated
Tours	tour_occupancy_hh_member	String of household members personid's accompanying the respondent during the tour	Derived/Calculated
Tours	tour_occupancy_total	Tour occupancy type based on household members and non-household members	Derived/Calculated
Tours	school_escort_member_personid_to_4	String of household members personid’s accompanying the respondent to primary school (d_purpose_recode_3 = 4)	Derived/Calculated
Tours	school_escort_member_tourid_to_4	String of household members tourid’s accompanying the respondent to primary school (d_purpose_recode_3 = 4)	Derived/Calculated
Tours	school_escort_member_personid_from_4	String of household members personid’s accompanying the respondent from primary school (d_purpose_recode_3 = 4)	Derived/Calculated
Tours	school_escort_member_tourid_from_4	String of household members tourid’s accompanying the respondent from primary school (d_purpose_recode_3 = 4)	Derived/Calculated
Tours	school_escort_member_personid_to_5	String of household members personid’s accompanying the respondent to school related activity (d_purpose_recode_3 = 5)	Derived/Calculated
Tours	school_escort_member_tourid_to_5	String of household members tourid’s accompanying the respondent to school related activity (d_purpose_recode_3 = 5)	Derived/Calculated
Tours	school_escort_member_personid_from_5	String of household members personid’s accompanying the respondent from school related activity (d_purpose_recode_3 = 5)	Derived/Calculated
Tours	school_escort_member_tourid_from_5	String of household members tourid’s accompanying the respondent from school related activity (d_purpose_recode_3 = 5)	Derived/Calculated
Tours	tour_type	Type of tour	Derived/Calculated

File Name	Variable Name	Variable Description	Type of Variable
Tours	final_weights	Readjusted weights matching marginal distributions of household and person variables of interest	Modeled
Vehicle	hhid	Household ID	ID
Vehicle	segnum	Sample segment	Study Design/Administrative
Vehicle	hh_hts_status	Household survey status	Derived/Calculated
Vehicle	vehnum	Vehicle number	Study Design/Administrative
Vehicle	vehid	Vehicle ID (unique)	ID
Vehicle	year	Vehicle year	Collected
Vehicle	make	Vehicle make	Collected
Vehicle	model	Vehicle model	Collected
Vehicle	tolltransp	Vehicle has a toll transponder	Collected
Vehicle	final_weights	Readjusted weights matching marginal distributions of household and person variables of interest (modeled)	Modeled

Appendix L

Main Study Summary of Comments Submitted by Email

Note: Below is a summary of all participant comments submitted by participants and/or interested parties during the CSTS pilot and main studies that were directed to the study sponsors. All names and contact information have been removed unless otherwise requested by the sender.

Comment Number	Redacted Email Content
1	I have 2 suggestions: 1. Create Merrit Pkwy exits for Route 7 which is a divided highway. This significant investment is terribly underutilized because there are no exits. 2. Create bike lanes wherever possible, at least fro downtown Westport to the Y. Lots of cars always parked at the Y, but perhaps 1-2 bikes.
2	Hello Highway Department. That is your name, eh? Received your Connecticut Statewide Transportation Study postcards. They raised two salient points (which I did not take offense at because I always liberally sprinkle my food with salt, even before tasting it)...the first point being the cards show UCONN being located on eastern Long Island. Which, we all know, is where Steffie Dolson lives. The second salient point is that no one knows who the Department of Transportation is. Or what. Or where. As a life-long resident of Connecticut, allow me to point out to your postcard committee that you are, in fact, and substance, and reality, a Highway Department. Too cruel? Perhaps. But just look at the front of the postcard you sent out to thousands of Connecticut residents. Especially notice the map of our beloved Nutmeg State (whatever that is). It shows a totally blank state with only four...FOUR....objects. Highways...95, 91, 84 (which garners credit for two highways because that's what Mrs. Auerback Fox decreed before she was done screwing up the traffic in the middle of the State. By the way, Folks, was Ole Bearice on the planning committee of the SubCommitee to repair (ha ha) 95? Which never gets finished. And when you look at all the yellow-jacketed observers standing around and staring at an empty hole in the middle of the passing lane, you have visible proof that no transportation is happening there. Or then. Or anytime soon. Well, Folks, the hour grows tardy (another adjective for "late"). I looked over the test materials you wasted so dang much money on while our diligent and hardworking Legislators and Legislatewomen have been trying their dangest to solve the financial problems of the State, and to no avail, and discovered every jotting and tittling I could transcribe would involve where I went on Wednesday May 11. And why. But Folks, don't you see? You really don't care about my transportation needs. You only want to prove I drove my car around. On streets and highways and biways (which we need more of because biways do not require periodic closings for repairs). (Or observing. See? Highway. Not transportation. Transportation requires busses. And trains. And bicycles. And snowboards in the winter.

Comment Number	Redacted Email Content
	Just saying, Folks. Get with it. Warmly,
3	i would like to know why there are buses are on sunday. what I want to know is why they do not go to waterbury.
4	Good Morning, I don't understand why this study has to know where we walk dogs, jog and bike. Please clarify. Your info just says the same thing over and over – about improving future transportation. Very general and not giving any specifics. Please answer this: does this have anything to do with obtaining more ammo for putting in tolls? This, I am totally against. I have always felt, and still do feel, that at the state lines is good enough, if at all –just as other states do, and nothing within the state where CT residents would have to pay even more for a daily or even occasional trip, on top of all the taxes we already pay! So please answer those 2 questions – tolls, and why the walking dogs and jogging which are done on local roads around our own homes? Thank you,
5	To the State of CT Transportation Institute, I'm concerned about this survey I keep receiving in light of the current state of affairs in CT; mainly the out of control budget. What I want to know is this: 1. How many households were asked to participate? 2. Why do I keep receiving multiple mailings? To date I have received 4 items in the mail. 3. Who is paying for all these mailings? I work in the print/mailing industry and can conservatively estimate the cost per piece including postage. It adds up pretty quickly especially if you keep sending out postcards over and over. 4. Who is paying for the $10 gift card? Can you really afford to do this? I think it is totally irresponsible for the State of CT to pursue this survey while at the same time laying off people left and right. Did you lay them off just to fund this pet project? Bottom line is STOP! How can you be so clueless to not know what kind of improvements need to be done?

Comment Number	Redacted Email Content
	Drive around, watch the news, read the paper, go online, talk to your local politicians who are probably getting an earful on the condition of our roads and bridges. Sincerely, Concerned Citizen
6	Two things I would like to share. 1) Relating to reinstituting tolls in CT: This is something we should do, however it should be done so as to have no economic impact on state residents. Here is how you do it. People pay their tolls throughout the year and then they are entitled to a full refund of tolls paid in the form of a state income tax credit. Provided they are an in-state resident. People from other states will then be the primary payers for the privilege of passing through our state. The tax credit is only provided to those who file an income tax return. Which provides an incentive to file. I imagine that a good chunk of the money owed back to state residents will never be claimed. It's a beautiful thing! ….. and I want a check from the state payable to me for $1000 for having an idea superior to any other yet proposed. 2) For the life of me, I don't understand why we don't have an elevated transit system right down the middle of our interstate highway system. A monorail of sorts. It would solve a LOT of problems and it is a system that I would sure use.
7	Good evening, I hope this finds you well. I was hoping you may be of interest in getting the City of New Haven to assist in getting zero car and transit customers' responses during the statewide survey. We would be glad to assist - please let us know if that would be of interest. Doug Hausladen Director of Transportation, Traffic and Parking Acting Executive Director of Park New Haven City of New Haven Office: 203-946-8067
8	I would like to see the public transportation system run an overnight service.
9	To Whom it May Concern at CT DOT and UCONN, Excited to see this survey taking place. How is the CT Transportation study reaching low income, minority, and urban resident populations in Connecticut? I'm a little bit concerned that the survey may leave out these significant and underserved resident populations. As a state that is looking to transform our transportation system and mode shares with sustainability in focus, missing (or thin) survey data from these populations will skew the results to suburban, single-occupancy car drivers. "Nationally an estimated 49 percent of workers who commute by bicycle earn less than $25,000 per year (Keatts and Kinder Institute 2015)."

Comment Number	Redacted Email Content
	https://cttransportationstudy.org/web/pages/home?locale=en-US I noticed that in a recent CT Transit survey the online survey was supplemented by canvassing, and paper surveys at busy CT Fastrak Stations. If the only place you ask for data is online, your dataset will represent those connected to the internet – and civically engaged. Getting data from poor and urban road and transit users takes an additional effort. A couple questions: • What efforts is this study taking to include residents in Connecticut's urban centers? • How is the demographic of the survey respondents being tested or evaluated to ensure that it also includes poor, minority, and urban demographic groups? Keep up the great work!

Appendix M

Main Study Validation Analysis

INTRODUCTION

This appendix presents the analysis that was carried out to validate data collected in the 2016 Connecticut Statewide Transportation Study (CSTS). The analysis consists of two parts. First, comparisons were made between data from CSTS and 2009 National Household Travel Survey (NHTS) dataset, to assess plausibility of the data collected. Once plausibility was confirmed, CSTS data was then compared against 2010/2011 Regional Household Travel Survey (RHTS) to assess accuracy. While in the former analysis, data for the entire state was used, in the latter analysis, data corresponding to only two counties: Fairfield and New Haven counties, was used.

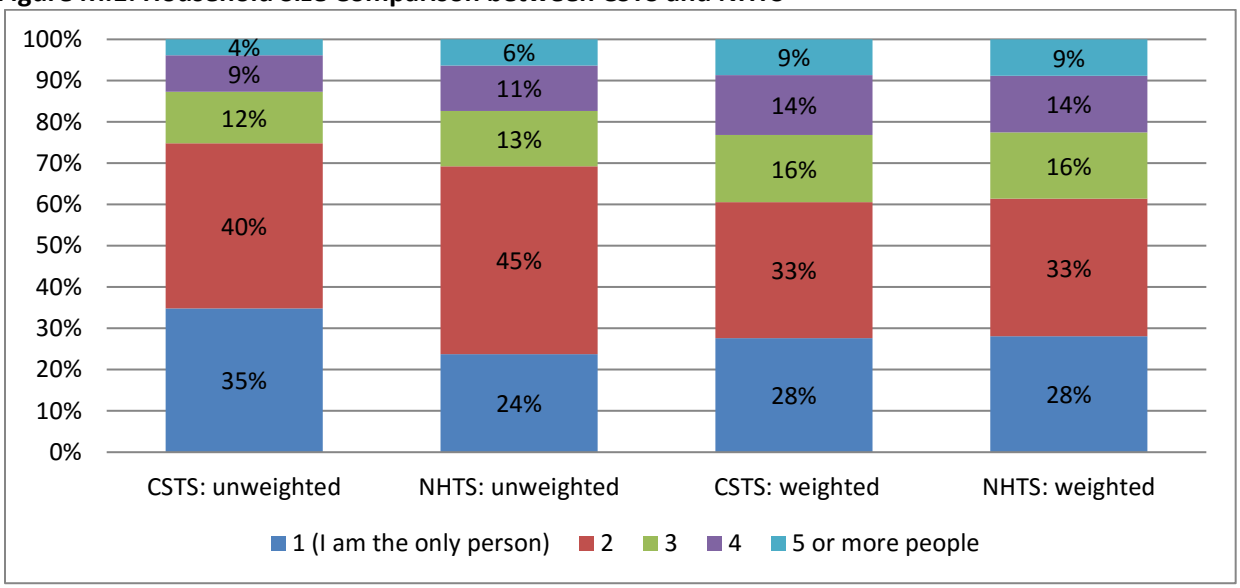
COMPARISON WITH 2009 NATIONAL HOUSEHOLD TRAVEL SURVEY

The 2009 NHTS provides travel information from a representative set of households from the entire United States. In the 2009 NHTS, demographic and trip information were collected from 150,171 households across the US. The collected data were published in four files including a household file, a person file, a trip file and a vehicle file. To assess plausibility of data collected in CSTS, comparisons for household-, person-, and trip-level attributes were made. These comparisons are discussed in the subsections below.

Household-level Attributes Comparison

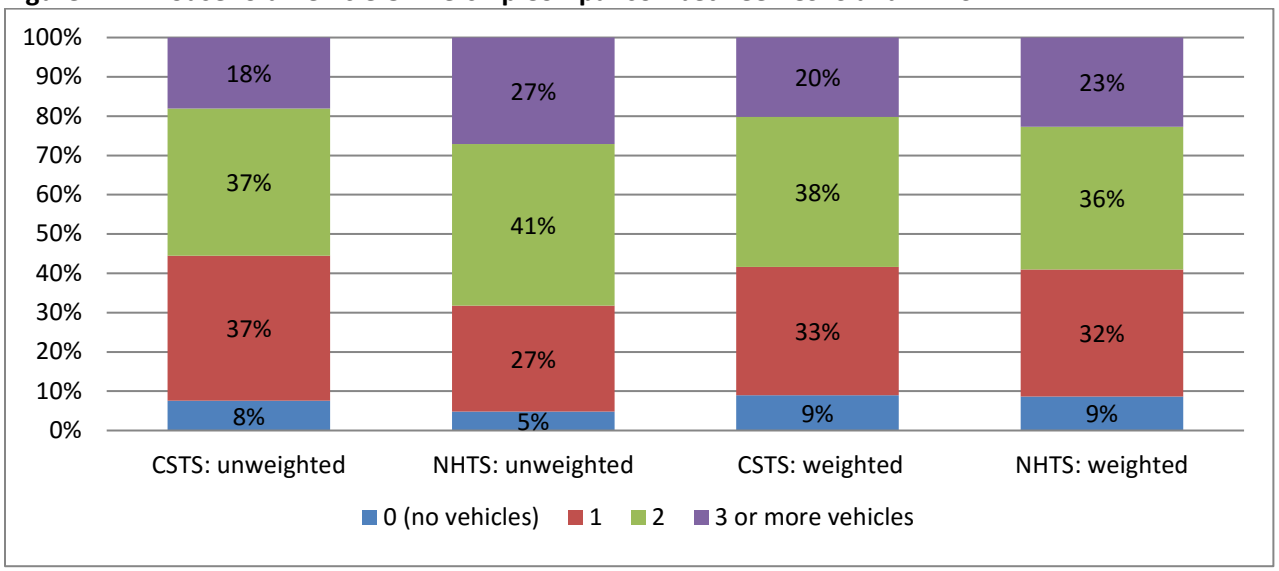
For household level comparison, the study team first compared the household size distribution. Figure M.1 shows both unweighted and weighted household size frequency distributions from CSTS and NHTS. The unweighted comparison shows that the smaller household in CSTS survey is over-represented, while the larger household is under-represented. However, after weighting, the household size distributions of the two surveys show similarities.

Figure M.1: Household Size Comparison between CSTS and NHTS



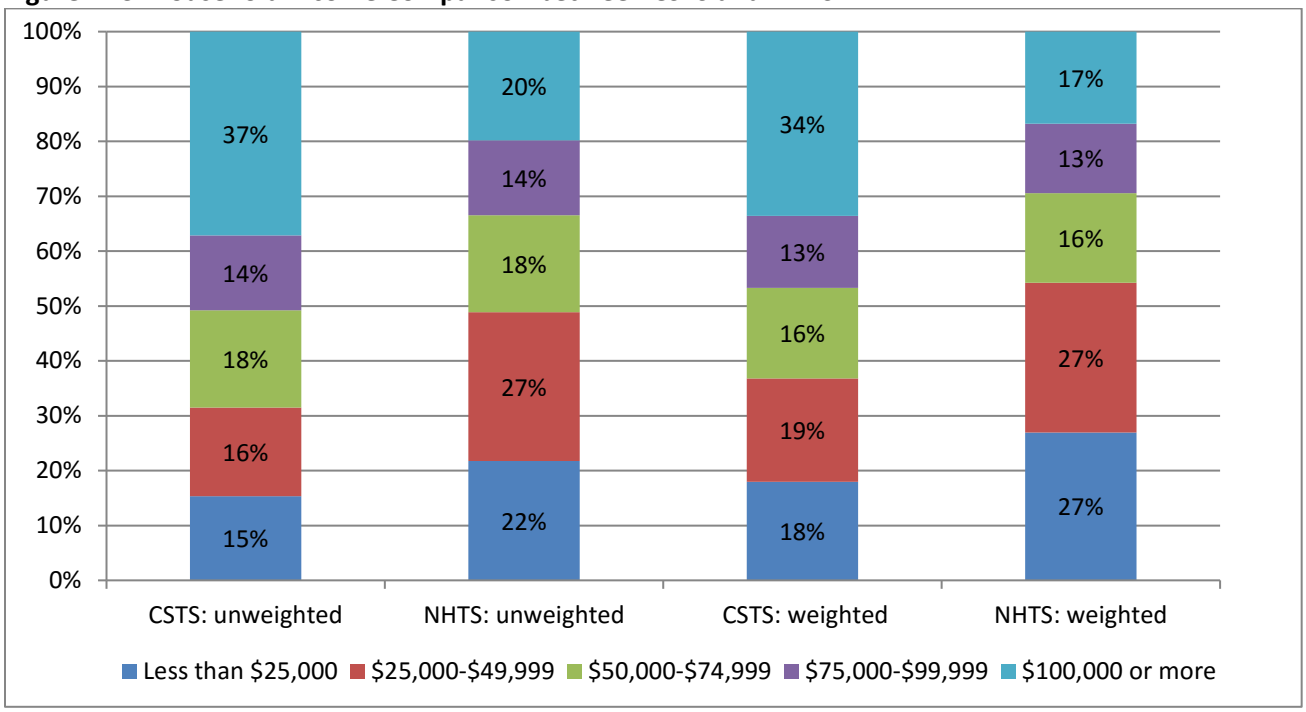
The unweighted comparison of household vehicle ownership shows that 1-vehicle household is over-represented in CSTS survey (see Figure M.2). The weighted comparison, however, shows the distribution from CSTS is similar to the vehicle ownership distribution from NHTS survey.

Figure M.2: Household Vehicle Ownership Comparison between CSTS and NHTS



For household income, the study team observed some larger differences (see Figure M.3). Compared with NHTS, CSTS had fewer low-income households, and more high-income households with annual income of $100,000 or more. The difference holds both for weighted and unweighted results. This is reasonable because there is more similarity between Connecticut and United States in terms of variables representing household structures (e.g., household size and vehicle ownership) when compared to income. Income variability across United States can be attributed to differences in cost of living, and regional economy.

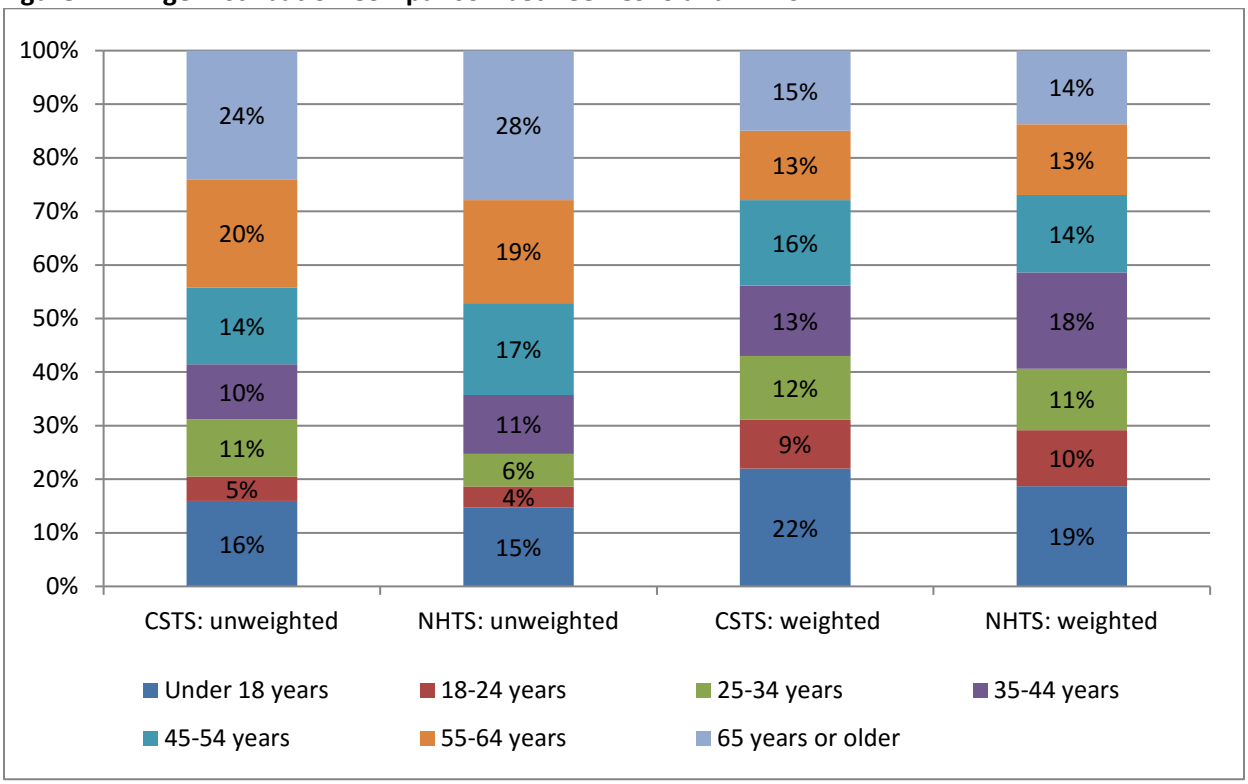
Figure M.3: Household Income Comparison between CSTS and NHTS



Person-level Attributes Comparison

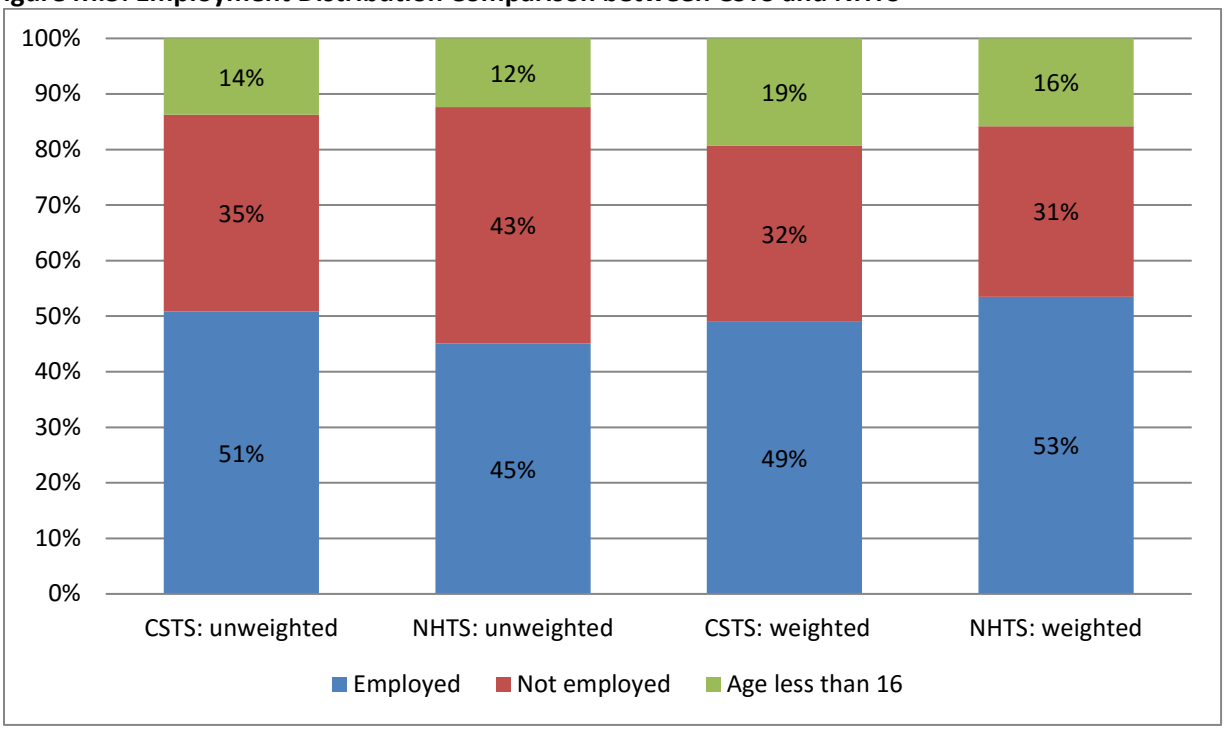
Age, employment, and gender variables were selected for person-level comparison (see Figure M.4, Figure M.5, and Figure M.6 respectively). The unweighted age distributions from the two surveys are slightly different. After applying the weights, the distributions are similar. When comparing the weighted distributions, CSTS had a greater proportion of people under 18 years old than NHTS. This may be attributed to the absence of people under 5 years old in the NHTS dataset.

Figure M.4: Age Distribution Comparison between CSTS and NHTS



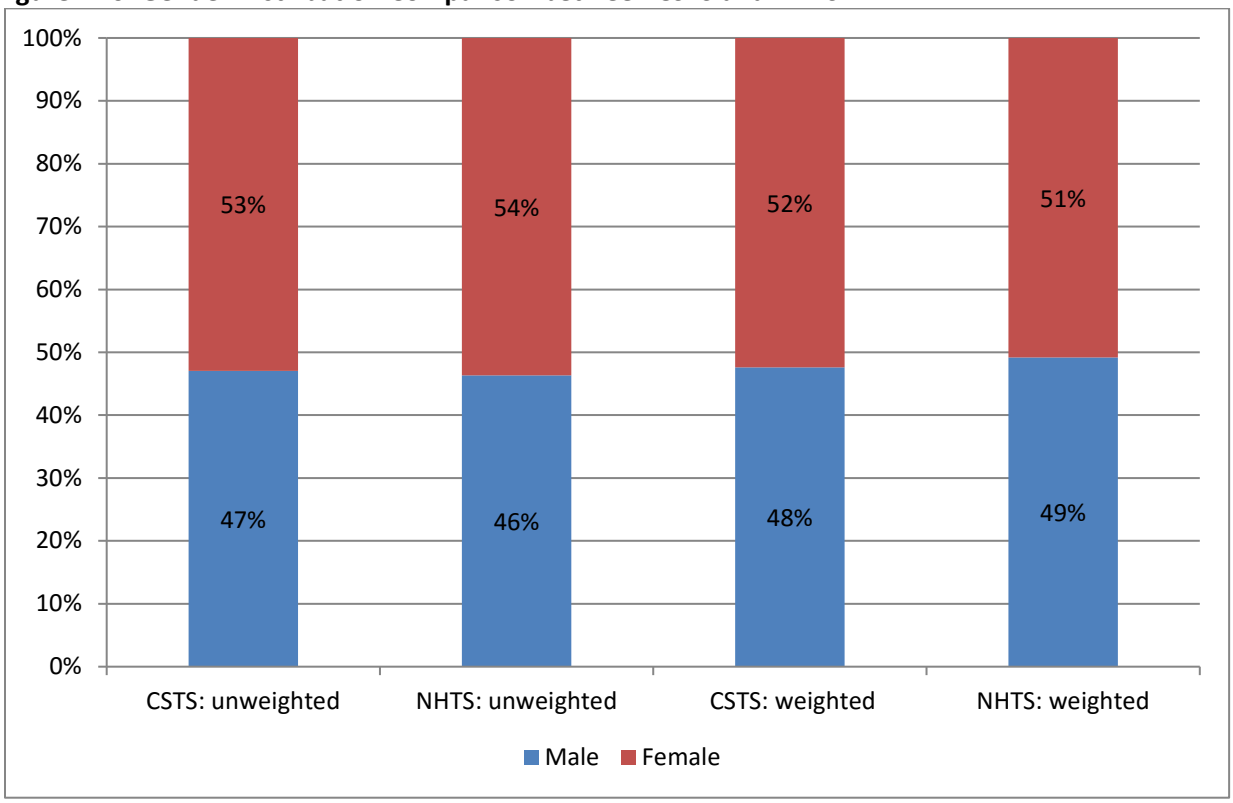
The unweighted employment frequency distributions show that CSTS has a greater proportion of employed and a smaller proportion of unemployed persons. However, the weighted distributions are very similar. CSTS has a slightly smaller proportion of employed and a greater proportion of people under 16 years old. This can also be attributed to the absence of people under 5 years old in the NHTS dataset.

Figure M.5: Employment Distribution Comparison between CSTS and NHTS



The comparison of both unweighted and weighted gender distributions from two surveys shows similarities.

Figure M.6: Gender Distribution Comparison between CSTS and NHTS



Trip-level Attributes Comparison

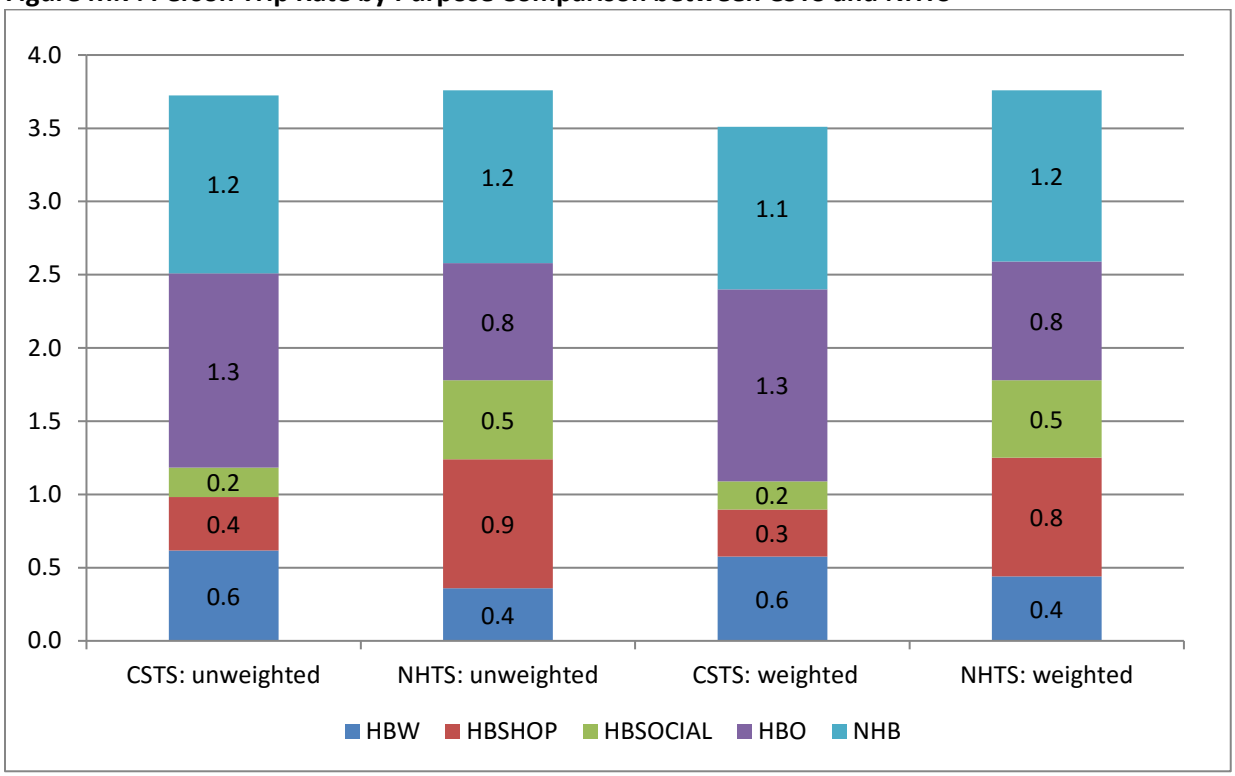
Table M.1 shows the household and person daily trip rates from CSTS and NHTS. CSTS has a slightly higher household trip rate than NHTS, while the person daily rates from two surveys are very similar.

Table M.1: Daily Trip Rates Comparison between CSTS and NHTS

Trip Rate Measure	CSTS		NHTS	
	Unweighted	Weighted	Unweighted	Weighted
Daily household trips	7.7	8.7	7.8	8.0
Daily person trips	3.7	3.5	3.8	3.8

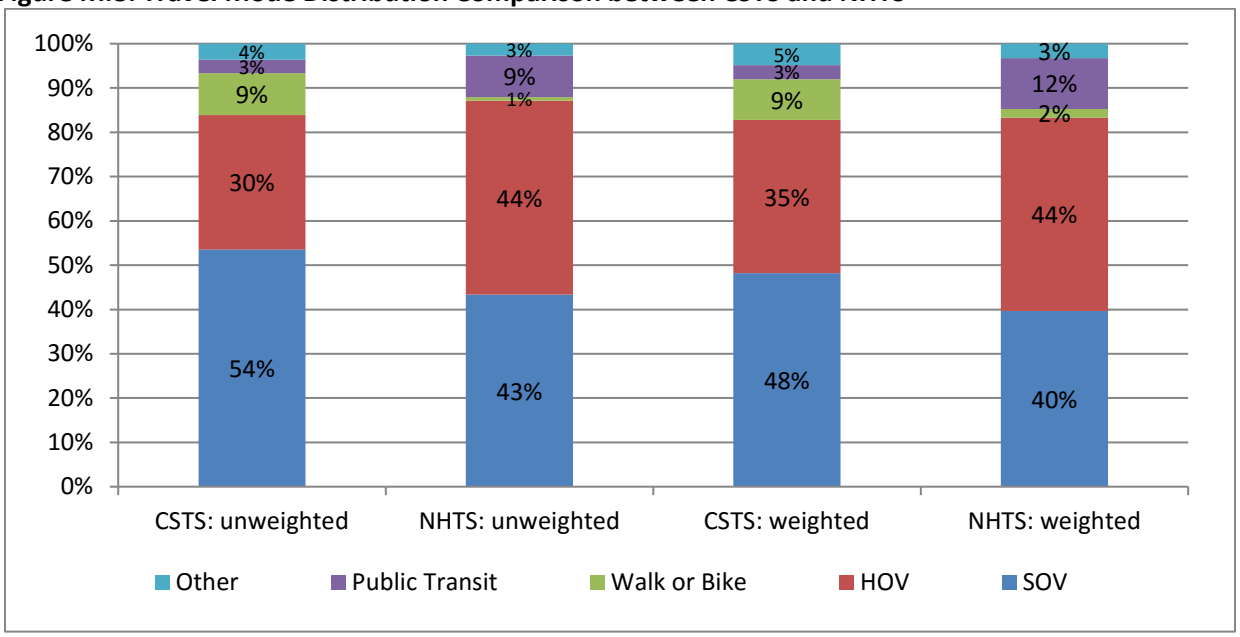
Figure M.7 shows person daily trip rates by purpose. The weighted distribution indicates that Connecticut residents made on average of 1.3 home-based other trips per day, which is higher than 0.8 from the NHTS. However, the average home-based shopping trip rate is only 0.3 from CSTS, while it is 0.8 from NHTS.

Figure M.7: Person Trip Rate by Purpose Comparison between CSTS and NHTS



See Figure M.8 for travel mode comparisons. The results from CSTS show more single occupancy vehicle (SOV) and walk/bike trips compared with NHTS, but fewer high occupancy vehicle (HOV) and transit trips.

Figure M.8: Travel Mode Distribution Comparison between CSTS and NHTS

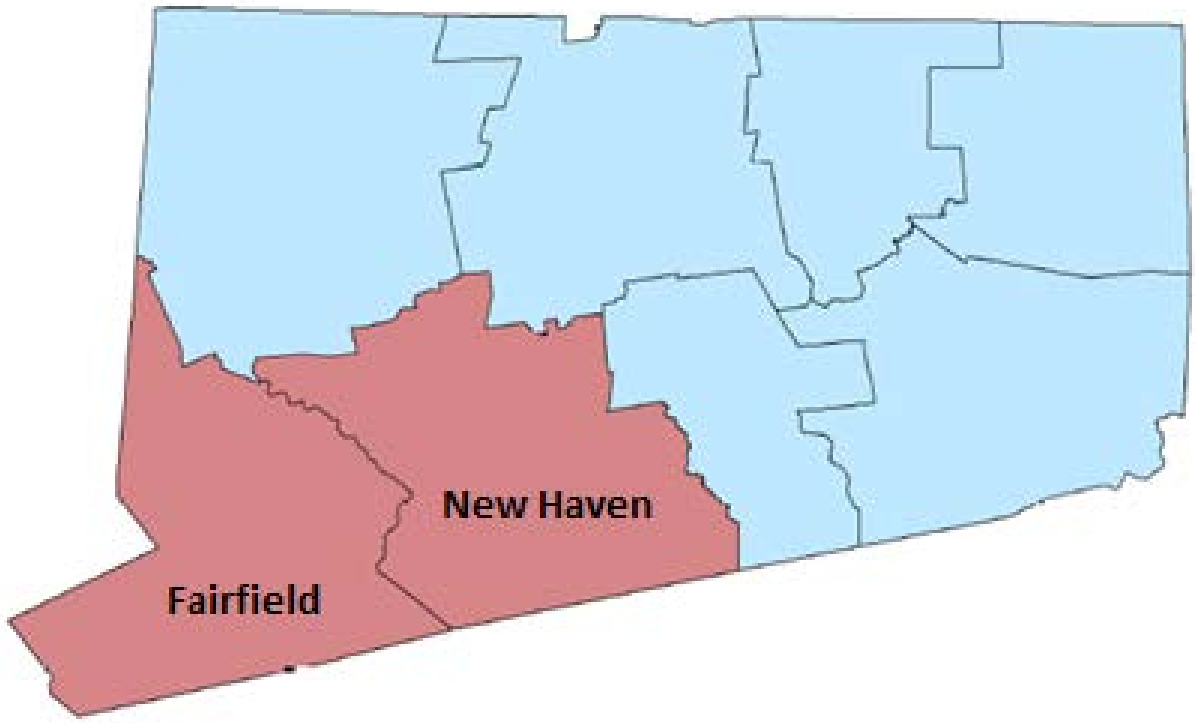


Based on the comparisons described above, it can be seen that after applying the weighting process survey sample bias is rectified. Subsequently, weighted results from the CSTS compare well with national trends and allude to the plausibility of data collected in the CSTS. The weighted household attributes and person attributes from the two surveys are comparable, except for the household income that shows differences. The average person and household daily trip rates from the two surveys are also very close. Differences in trip purpose and travel mode distribution were observed between the two surveys. However, this is reasonable because travel patterns are very region specific and will tend to differ when they are compared against travel trends from the entire nation. In order to verify accuracy of the CSTS data, the study team conducted a more focused and localized comparison by comparing data from the CSTS and the 2010/2011 RHTS.

COMPARISON WITH 2010/2011 REGIONAL HOUSEHOLD TRAVEL SURVEY

The 2010/2011 Regional Household Travel Survey (RHTS) was conducted by New York Metropolitan Transportation Council (NYMTC) and North Jersey Transportation Planning Authority (NJTPA). The data was collected between September 2010 and November 2011 from a representative set of households in 28 counties across New York, New Jersey, and Connecticut. From Connecticut, data was collected from two counties: Fairfield and New Haven. In the RHTS, data was collected from 18,800 households, including a subsample of 1,880 households who provided travel data using wearable global positioning system (GPS) devices. The reason for including GPS subsample is to improve accounting for short, and non-motorized trips. For the comparative analysis, only data that is common to both CSTS and RHTS was considered so as to conduct a more focused and localized analysis. The common region includes the counties of Fairfield and New Haven, as shown as Figure M.9. Since data from the common areas is considered and because these data were collected within a short time window of each other, it was expected that the demographic and travel measures from the two surveys should be very comparable. Any differences would require deeper introspection to identify the reason for the differences. Similar to the first comparative analysis, the localized comparison also included comparison of household-, person- and trip-level attributes.

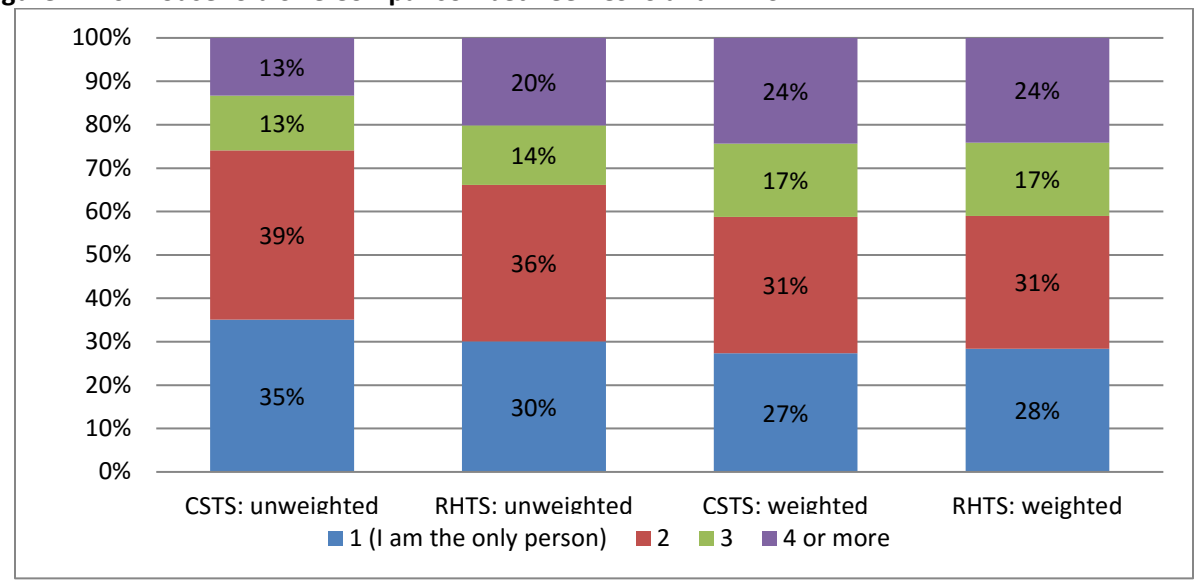
Figure M.9: Map Showing Fairfield and New Haven County



Household-level Attributes Comparison

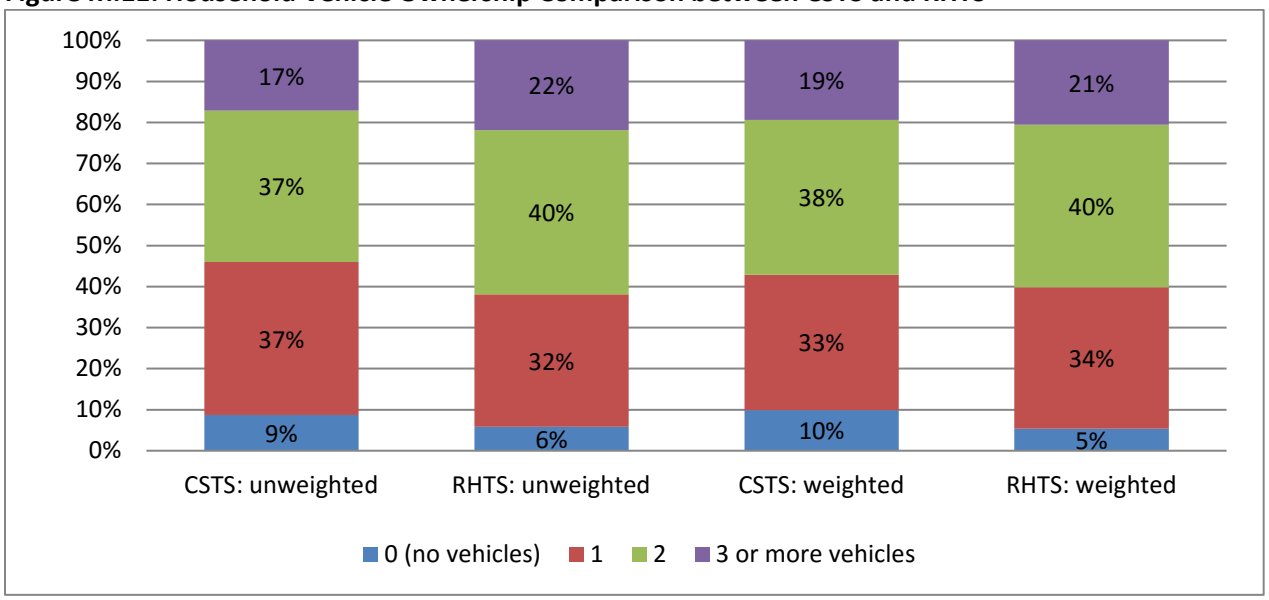
While there are small differences in the unweighted household size distributions between CSTS and RHTS, the weighted distributions are nearly identical (see Figure M.10).

Figure M.10: Household Size Comparison between CSTS and RHTS



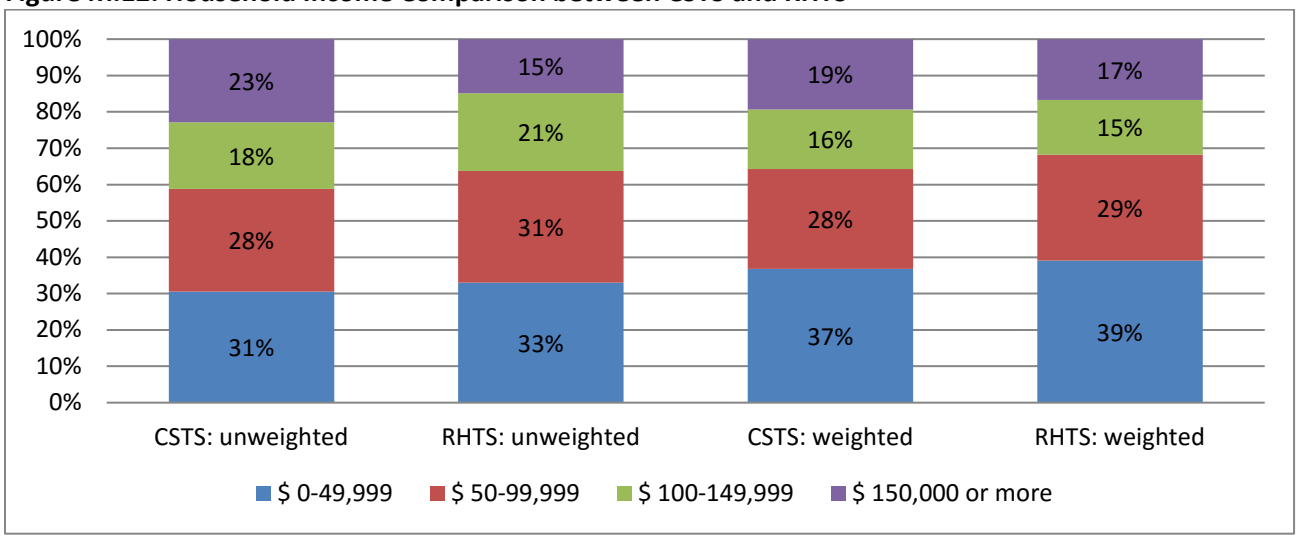
For household vehicle ownership comparison, the weighted distributions from the two surveys are close for most categories except the zero vehicle households (See Figure M.11). CSTS has higher shares of zero vehicle households compared to the RHTS. It must be noted that in the CSTS weighting analysis, the study team controlled for the vehicle ownership distribution. Therefore, the proportions of different categories of vehicle ownership in the weighted CSTS mirrors the actual population distributions more closely compared to RHTS. Subsequently they are not subject to biases with respect to the variable when compared to RHTS.

Figure M.11: Household Vehicle Ownership Comparison between CSTS and RHTS



The comparison of weighted household income shows that CSTS has slightly fewer low income households than RHTS (see Figure M.12). But the overall distributions are similar from the two surveys. The distributions do not show a sizeable difference as what we observed when comparing results with NHTS.

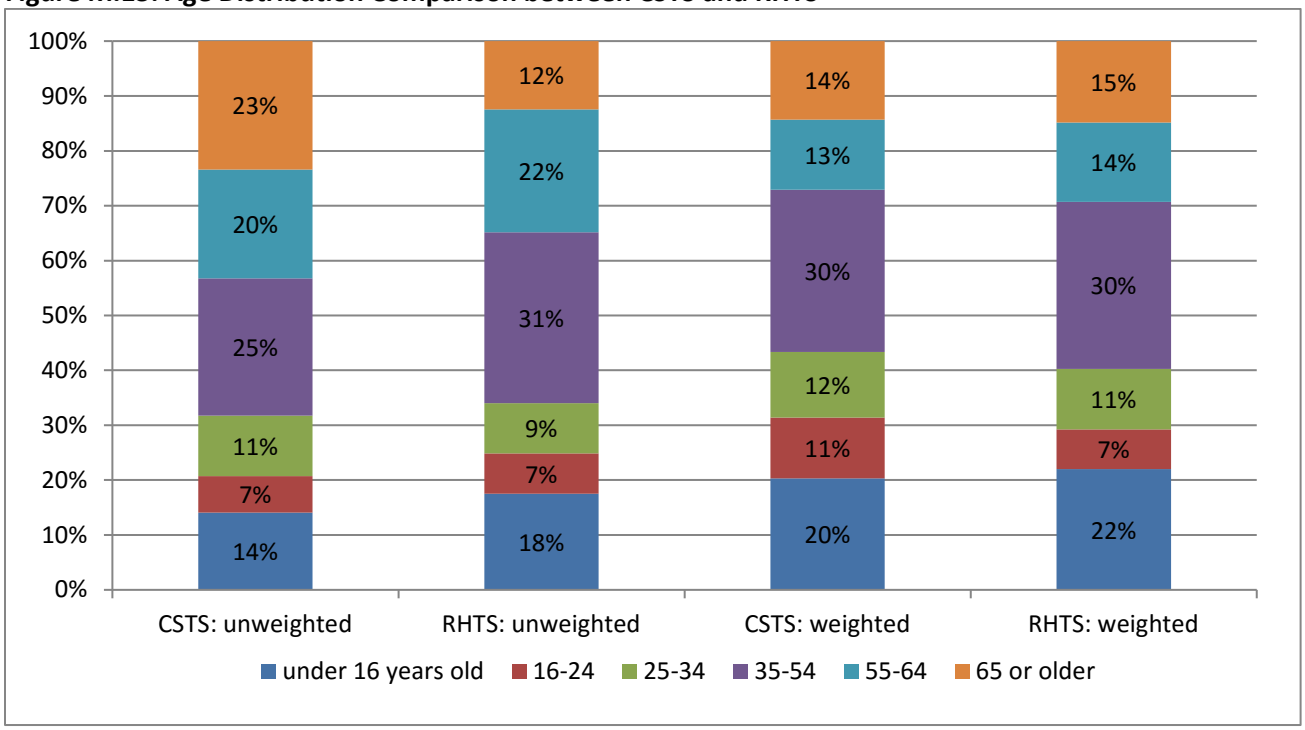
Figure M.12: Household Income Comparison between CSTS and RHTS



Person-level Attributes Comparison

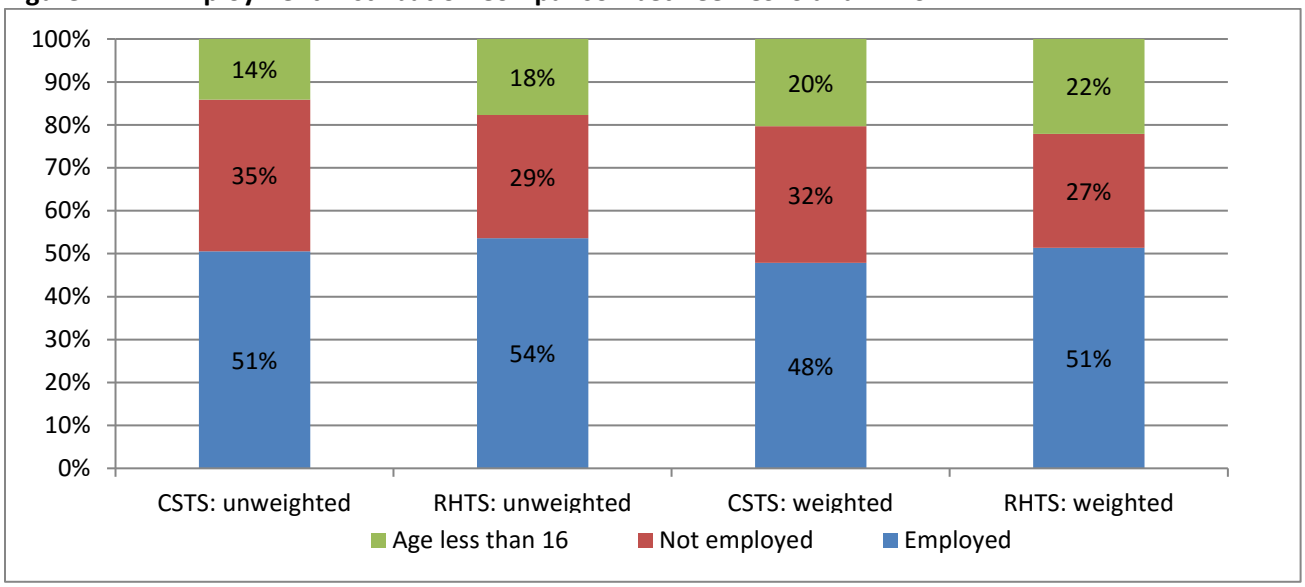
The weighted age distribution from CSTS is similar to that from RHTS (See Figure M.13). CSTS has slightly fewer young people under 16 years old, and more people from 16 to 24 years old.

Figure M.13: Age Distribution Comparison between CSTS and RHTS



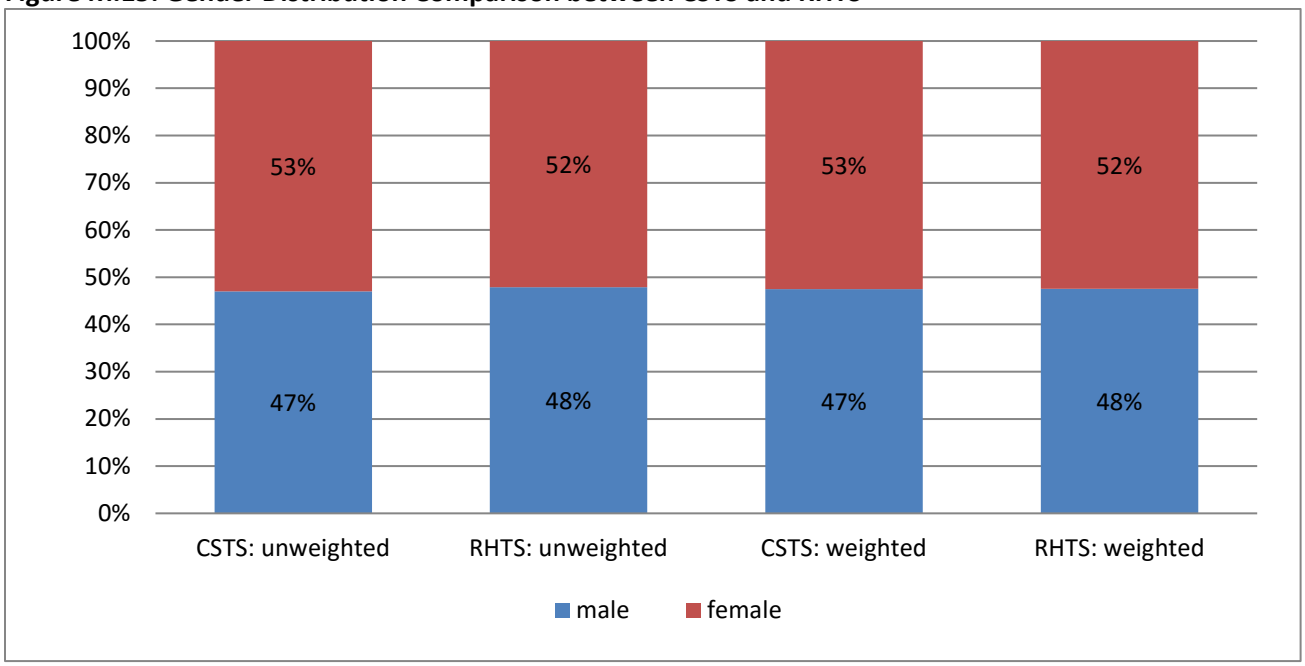
Employment distributions from the two survey show similarities, but the result from CSTS shows a higher proportion of unemployed people compared with that of RHTS (See Figure M.14).

Figure M.14: Employment Distribution Comparison between CSTS and RHTS



The gender split from the two surveys is very close (See Figure M.15).

Figure M.15: Gender Distribution Comparison between CSTS and RHTS



Trip-level Attributes Comparison

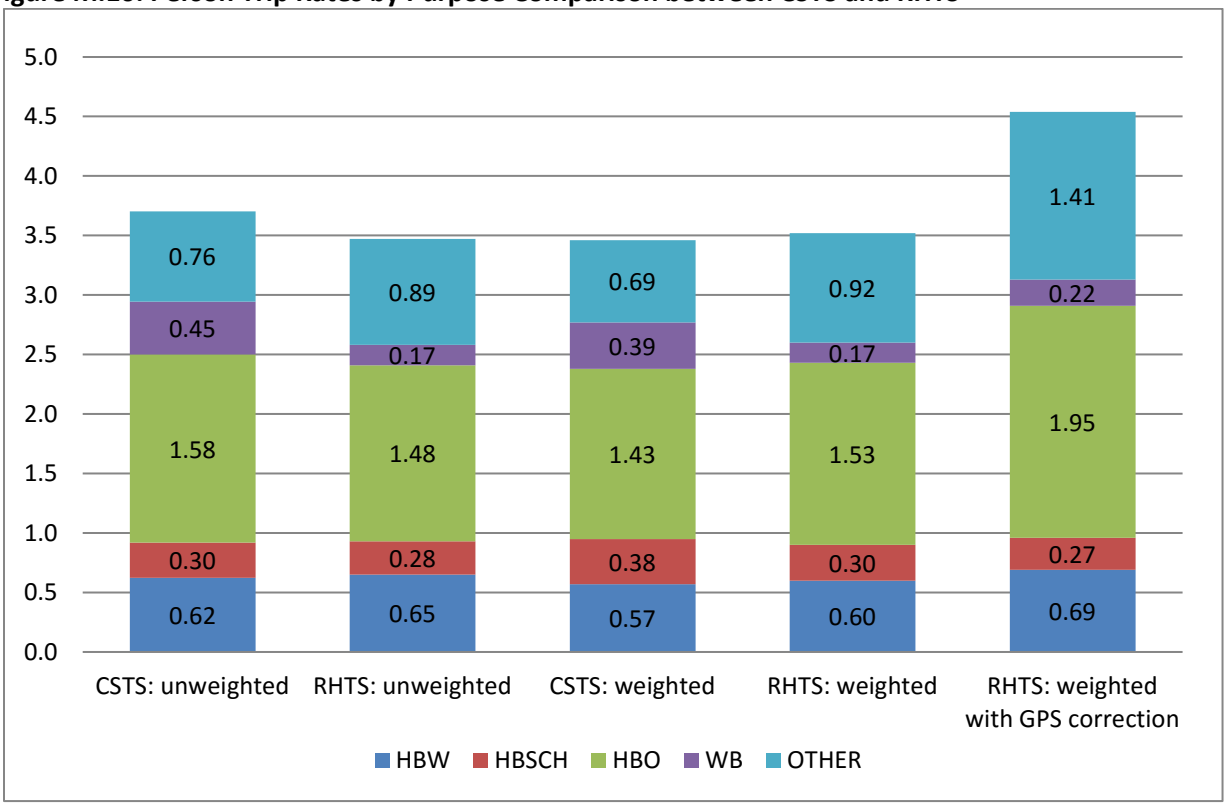
Both weighted and unweighted average household trip rates and person trip rates from CSTS are almost equal to those from RHTS (see Table M.2). However, when comparing the trip rates from CSTS with GPS corrected trip rates from RHTS, there are large differences. The weighted household trip rate from CSTS is 8.7, and it is nearly two trips less than the GPS corrected household trip rate from RHTS. The weighted person trip rate from CSTS is 3.5, which is also lower when compared to the GPS corrected person trip rate of 4.5 from RHTS. The GPS correction rectifies potential trip underreporting in the RHTS. Therefore, it can be said that there may also be potential underreporting issues in the CSTS survey. However, caution must be exercised when borrowing underreporting correction factors from RHTS.

Table M.2: Daily Trip Rates Comparison between CSTS and RHTS

Trip Rate Measure	CSTS		RHTS	
	Unweighted	Weighted	Unweighted	Weighted
Daily household trips	7.8	8.7	8.0 (10.2*)	8.7 (11.1*)
Daily person trips	3.7	3.5	3.5 (4.4*)	3.5 (4.5*)
* Adjusted with GPS correction factor				

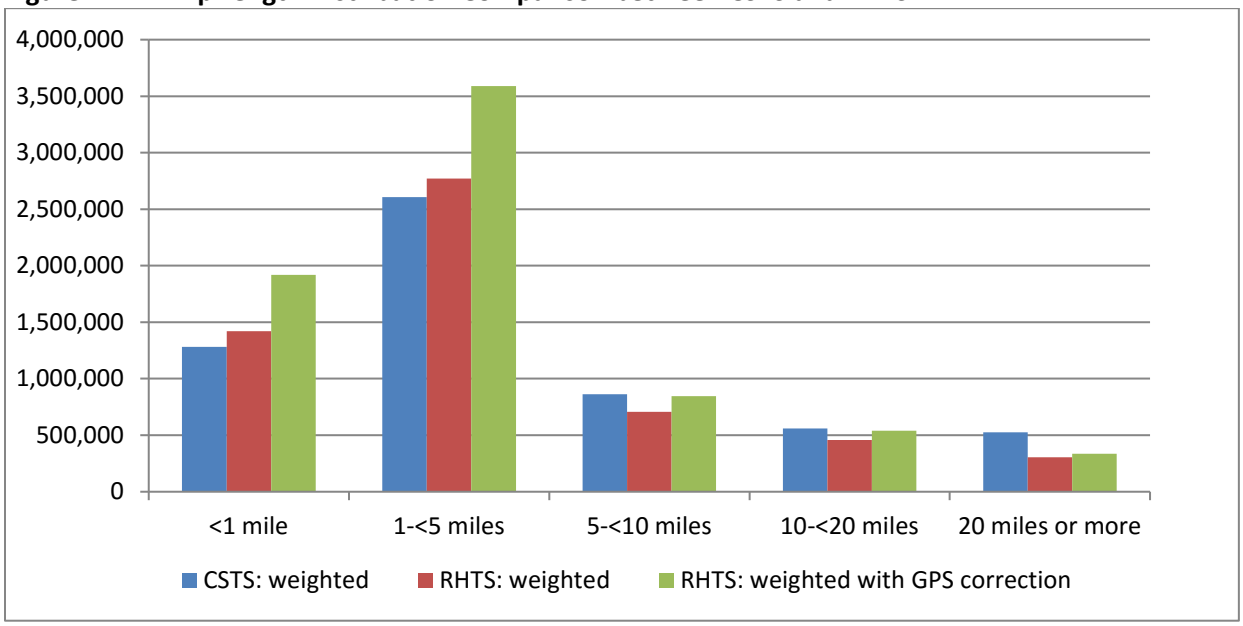
The weighted distributions of person trip rate by purpose from the two surveys are similar (See Figure M.16). The person daily home-based work trips from CSTS are slightly greater than that of the RHTS, while the non-home, non-work based other trips from CSTS are fewer than that of the RHTS. The comparison with the GPS corrected person trip rates indicate that the respondents tend to underreport the non-home, and non-work based other trips.

Figure M.16: Person Trip Rates by Purpose Comparison between CSTS and RHTS



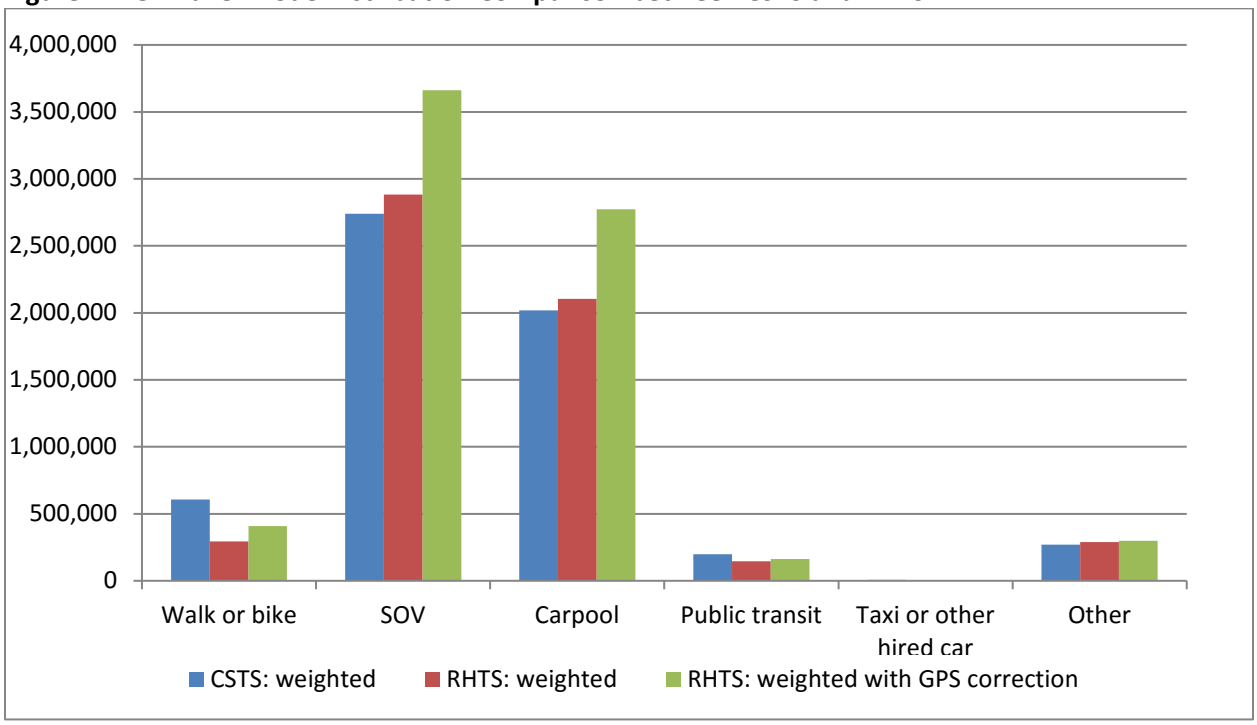
The comparison of trip length distribution shows that the weighted trip length distribution from CSTS is close to that from RHTS (See Figure M.17). The comparison with the GPS corrected trip length shows that short trips (under 5 miles) are more likely to be underreported.

Figure M.17: Trip Length Distribution Comparison between CSTS and RHTS



The weighted travel mode distribution comparison shows that CSTS has more walk, bike and transit trips, while fewer SOV and carpool trips when compared with the weighted distribution from RHTS (see Figure M.18). The GPS corrected travel mode distribution indicates that SOV and carpool trips turn out to be underreported.

Figure M.18: Travel Mode Distribution Comparison between CSTS and RHTS



Summary of Findings

Findings from the validation analysis are summarized in Section 3.8.5.

Appendix N

Main Study Dataset Guide

This appendix provides additional explanation of the Connecticut Statewide Transportation Study (CSTS) Main datasets, beyond the labels for variables and values in the data dictionaries. This version of the data includes valid, fully complete households; it does not include "incomplete" households (only completed Part 1-Recruit Survey) and "volunteer" households. Only data for complete households were considered in the weighting analysis. A comprehensive list of data variables can be found in the data codebooks.

PRIVACY

This dataset guide accompanies full version of the datasets that include sensitive or confidential information. Specifically, home, school, work and trip (location) addresses and coordinates are considered sensitive information. Other potentially sensitive data may include the household income variables, vehicle fleet composition, names used by respondents to describe locations visited and open-ended comments (if participants shared personal information). As such, these datasets should be treated with utmost care and not shared or posted publicly.

Personally identifiable information that was only used for survey administration includes passwords, sample mailing addresses, email addresses, phone numbers, and person nicknames. These variables have been removed from the dataset.

OVERVIEW

A total of 8,403 invited households completed the entire Main study (Part 1 - Recruit Survey and Part 2 - Travel Diary Survey) online or over the phone in spring 2016. The remainder of this reference document only refers to the information corresponding to these complete households.

The data deliverable includes six distinct datasets:

1. Household-level data
2. Person-level data
3. Unlinked Trip-level data
4. Linked Trip-level data
5. Tour-level data
6. Vehicle-level data

Missing Data

Blank or null cells are intentionally missing data (e.g., a question was not asked, or an answer choice was not shown to the respondent). Only a small number of sensitive questions, such as household income, home ownership, and detailed age variables offered respondents the option to select "Prefer not to answer"; any "Prefer not to answer" responses have been coded as 99 in the dataset.

If data are missing because of a logic error or technical issue, the value was coded to -999 (unintentionally missing). One person in the valid dataset is missing school location data due to an error in the Google address geocoder. Due to the limits of the Google driving distance and duration calculator, 17 trips are missing Google distance and Google duration.

Weights

The household-level dataset also includes two sets of weights, namely, expansion weight and final weight. Expansion weight is based on the parameters of the sampling plan. Final weight is obtained by adjusting expansion weight to match marginal distributions of known household and person level variables of interest. Final weight has also been included in all of the remaining files to ease the process

of generating weighted distributions. Details regarding the expansion weight and final weight can be obtained from the final report.

DESCRIPTION OF DATA FILES AND KEY VARIABLES

Household-Level Dataset

The household-level dataset has 8,403 records from valid, complete households – one row per household.

Unique identifier: hhid

Example = 16100001. All hhid numbers start with '16', marking the year of the main study recruitment and data collection.

Sample segment (segnum)

Segnum variable refers to the household's assigned segment based on the sampling plan. For the Main study, the sample segment is based on the location of the mailing address to which study materials were sent.

Recruit survey start time, end time, duration (recruit_start_et, recruit_end_et, recruit_duration)

The recruit survey start and end timestamps are automatically recorded in the survey database (based on when the respondent viewed the first and last page of the survey). The recruit survey duration is calculated as the difference (in minutes) between the survey start and end times. Exclude extremely long durations when interpreting survey duration as the respondent may have paused the survey by leaving the website open and returned at a later time or date.

Household survey status (hh_hts_status)

Filter variable indicating whether or not each household completed Part 2 (the travel diaries). The dataset only includes valid, and complete households, therefore, all records assume a value of one.

Household number of trips on travel day (hh_tripcount)

The number of trips reported by each household is the count of trip records associated with each household's diaries (collected from all household members).

Home location variables (home_address, home_lat, home_lng, bg_geoid, town, county)

Respondents reported their home address during the recruit portion of the survey. Participants could search for either an address or an intersection, or they could place a marker on a Google map indicating their home location. The latitude and longitude of each home address were auto-calculated in the survey (in WGS84, the coordinate system used by the Google API). Other home location variables (block group ID, town, county) were derived from the spatial location of the reported home coordinates.

Household income variables (hhincome_detailed, hhincome_followup, hhincome_broad)

Households had the option of reporting income in twelve categories or selecting "prefer not to answer" (hhincome_detailed). If "prefer not to answer" was selected, a follow-up question offered the option of reporting income in one of five broad categories (hhincome_followup), though households were again allowed to select "prefer not to answer". A third derived income variable aggregated the responses from the two questions into a single variable with broad categories (hhincome_broad). Additionally, income was imputed (imputed_income_for_missing) for all observations with missing detailed income

(hhincome_detailed=99) information using a Multinomial Logit-based stochastic regression approach. Additional details regarding the income imputation can be obtained from the final report.

Call center completed recruit survey (callcenter_end)

If the user's IP address upon exiting the survey was determined to be located in Olathe, KS (the call center's location), the household is recorded as using the call center to complete the survey. Note: To protect privacy, the IP address is not provided with the dataset.

Foreign language household (recruit_nonenglish)

This flag was derived to indicate if the household was a foreign language participant. The household is flagged if their web browser used a non-English language setting – 17 households used a browser with a non-English language setting when completing the recruit survey.

Other derived variables (numadults, numkids, numstudents, numworkers, numdrivers, hhr_age, and transithh among others)

Other household-level variables were derived to summarize data collected at the person level. Additionally, other derived variables were generated to support weighting analysis and/or for reporting purposes.

Vehicle-Level Dataset

The vehicle-level dataset has 14,540 records from valid, complete households – one row per vehicle reported households that own vehicles.

Unique identifier: vehid

Example = 16100001101. The unique identifier for the vehicle-level dataset is the household's hhid (16100001) with a '1' and the vehicle number (101, 102, etc.) appended for each household vehicle. The '1' is appended to distinguish the unique vehicle ids from the unique person ids (see below).

Vehicle number (vehnum)

Vehicle number (1 through numvehicles). Unique within each household.

Person-Level Dataset

The person-level dataset has 17,481 records from valid, complete households – one row per person (all adults and all children). These person-level variables include data from both the recruit survey and the travel diary.

Unique identifier: personid

Example = 1610000101, where each personid is the household's hhid (16100001) with the person number (01, 02, etc.) appended for each household member.

Person number (person_num)

Person number (1 through hhsize). Unique within each household. Person number 1 completed the recruit survey.

Number of trips reported by person on travel day (person_tripcount)

The number of trips reported by each respondent is the count of trip records associated with each person's personid.

Person age variables (age, age_followup, age_broad)

Participants had the option of reporting individual members' ages in one-year increments or selecting "prefer not to answer" (age). If "prefer not to answer" was selected, a follow-up question offered the option of reporting ages in one of twelve broad categories (age_followup). A third derived age variable aggregated the responses from the two questions into a single variable with broad categories (age_broad).

School location variables (school_address, school_lat, school_lng)

The primary school address was reported in the recruit survey for each member who commutes to a school or daycare (excluding members who are homeschooled or only take classes online). As previously noted, the intent was to also collect school addresses for all participants who commuted to a school or daycare, but due to an error that data is missing for one person in the Main study dataset. As with the home addresses, participants could search for an address or intersection or place a marker on a Google map indicating their school location. Latitude and longitude of each address were auto-calculated in the survey (in WGS84, the coordinate system used by the Google API). Additional variables representing the corresponding block group ID, town, county were derived for the school location in the final version of the dataset.

Work location variables (work_address, work_lat, work_lng)

The primary workplace address was reported in the recruit survey for each member who commutes to a fixed workplace at least once per week. As with the home and school addresses, participants could search for an address or intersection or place a marker on a Google map indicating their work location. Latitude and longitude of each address were auto-calculated in the survey (in WGS84, the coordinate system used by the Google API). Additional variables representing the corresponding block group ID, town, county were derived for the work location in the final version of the dataset.

Travel diary start time, end time, duration (diary_start_et, diary_end_et, diary_duration)

As with the recruit survey, the diary survey start and end timestamps are automatically recorded in the survey database (based on when the respondent viewed the first and last page of the survey). The diary survey duration is calculated as the difference (in minutes) between the survey start and end times. Exclude extremely long durations when interpreting survey duration as the respondent may have paused the survey by leaving the website open and returned at a later time or date.

Foreign language travel diary (diary_nonenglish)

As with the recruit survey, this flag indicates if the diary was reported by someone who may speak a foreign language. A diary is flagged if the respondent's web browser used a non-English language setting – 36 diaries were completed on a browser with a non-English language setting.

Call center completed person's diary survey (diary_callcenter)

As with the recruit survey flag, if the user's IP address upon exiting the diary was determined to be located at the call center's location, that person is recorded as using the call center to complete their diary.

Proxy variable (proxy)

The proxy variable indicates if respondents took the diary for themselves, if other people filled out the answers while they were present, or if people filled out the answers and they were not present.

Copied trip variables (copytrips_confirm_none, trips_first, trips_last)

These variables indicate that the person had the opportunity to copy trips from previous household members. Copytrips_confirm_none is a flag indicating that the person was shown a list of copied trips from previous members; when coded '1', this means that the person chose not to copy any of the trips where other members reported them as part of the travel party; otherwise they copied at least one trip from a previous member. Trips_first and trips_last recorded the response to the question "Was [this copied trip] the first/last trip of the travel day?" If the respondent answered "No" to either question, they then reported the location where they started and/or ended the travel day (the same as members who did not have any copied trips).

Had additional trips to report (added_trip flags)

Indicates if the respondent went back and added more trips in the roster after seeing the prompt asking whether they had made any additional trips not already reported. Each variable name indicates a different type of trip a respondent could have added.

Other derived variables

Other derived variables were generated to support weighting analysis, for reporting purposes, and in response to data cleaning and processing carried out.

Unlinked Trip-Level Dataset

The trip-level dataset has 66,175 trips reported by valid, complete households – one row per (one-way) trip. These trip-level variables are reported in the diary for each person for their assigned travel date. The travel date starts at 3 AM on the assigned travel date and ends at 3 AM the following day.

Unique identifier: tripID

Example = 161000010101, where each tripid is the household's hhid (16100001) with the person number (01, 02, etc.) and the trip number appended for each person-trip (01, 02, etc.)

Trip number (trip_num)

Trip number (1 through person_tripcount). Unique within each person.

Trip copied from other household member (prepop)

Flag to indicate that a respondent copied this trip from another household member who had already reported them in the travel party on the original trip. This option is available to all household members (except for the first member to complete a travel diary), and reduces the respondent burden of repeating trip details.

Origin and destination location variables (o_address, o_lat, o_lng, d_address, d_lat, d_lng)

The destination addresses were reported in the diary survey for each trip to a new location. Respondents were only asked to record each location once; the addresses were automatically copied for each trip that returned to the same location (e.g. if a person left and returned home multiple times during the day). Additionally, respondents did not need to re-record locations for trips to home, work, or

school locations already recorded in the recruit survey – these addresses were prepopulated when respondents reported trip to these locations. Destination addresses were also automatically recorded for the origins of the next sequential trip.

As with the home, school and work addresses in the recruit survey, participants could search for an address or intersection or place a marker on a Google map indicating their trip locations. Latitude and longitude of each address were auto-calculated in the survey (in WGS84, the coordinate system used by the Google API). Additional variables representing the corresponding block group ID, town, county were derived for the trip destination in the final version of the dataset.

Origin, destination, and overall trip purposes (o_purpose, d_purpose, t_purpose)

Respondents report the destination trip purpose. The origin purpose is derived from the destination purpose of the previous trip, except for first trip in the day. For the first trip in the day, origin purpose is instead coded as home, work, or other, based on the origin-location description for the starting location of the day; it is most often home. Overall trip purpose was derived for modeling purposes to identify home-based, work-based, and other-based trips.

It must be noted that o_purpose and d_purpose went through significant data cleaning. Recoded variables for these and any derived variables were created. These are appropriately labeled in the final versions of the dataset

Trip departure and arrival time variables (depature_time, arrival_time, departure_time_hhmm, arrival_time_hhmm, departure_hour, arrival_hour)

Respondents reported the time when they departed (began traveling) on each trip and when they arrived at their destination (stopped traveling). They were asked to report their travel times in five-minute increments. Departure_time and arrival_time variables are the numeric codes recorded in the raw dataset (value labels are provided in standard time). For convenience, these raw codes were then recoded to text fields displaying the reported 5-minute increments in military time (departure_time_hhmm and arrival_time_hhmm). Departure_hour and arrival_hour are derived variables that place a trip's departure or arrival time into 1-hour bins for each hour of the travel day (again provided for convenience).

Reported trip duration (reported_duration)

Reported travel time is derived as the difference between respondent-reported start and end time of the trip. Minimum duration allowed by the survey is 5 minutes.

Google-estimated driving distance and time (gdistance, gduration)

The survey instrument estimated travel distance (in miles) and duration (in minutes) for each trip in addition to the user-reported travel time. The estimates of distance and duration were calculated using the Google Maps API Distance Matrix Service and indicate the distance and duration of a trip for "standard driving directions using the road network" (under free-flow conditions). Google estimated drive time and distance can be used to validate reported trip durations, but does not necessarily reflect the routes or modes used by the respondent (and consequently some differences in reported versus Google estimated travel times should be expected). As previously noted, 17 trips are missing this information when a trip was made where driving paths and times could not be estimated (e.g. overseas trips).

For 1,855 trips in this version of the dataset, the estimated distance and duration were 0 miles and/or 0 minutes. This means that the respondent had a trip where the origin and destination were in the same location or were very close together (such that the Google service rounded the driving time estimate to 0 minutes). Some of these trips may be considered valid trips, such as "loop trips" (e.g., a jog or bike ride) or a very short trip (e.g. a walk across the block); others of these trips could be erroneous (e.g., the respondent did not understand instructions or made some error in their reporting). However, there are no definitive criteria to indicate respondents' intentions when reporting these trips; therefore, analysts should evaluate these trips carefully to determine how and if they should be included in analyses.

Implied speed in miles per hour (implied_speed_mph)

Google-estimated driving distance over reported travel time. This variable can be used in trip validation to detect trip records with potential issues (i.e. extremely high or low speeds for a given mode may indicate a potential trip record with error). Similar to Google-estimated times and distances, outliers in travel speeds may be valid estimates of travel conditions (e.g. congested traffic). However, analysts may wish to evaluate these outliers when considering analysis of travel times and destinations.

Household member on trip (hhmember1 through hhmember9)

Household members who were reported as traveling on each trip. This was asked for households with more than one member. The member number (hhmember1, hhmember2, etc.) corresponds to the person number in each household (01, 02, etc.) A '1' indicates that the member was reported as traveling on the trip, while a '0' indicates that they were not a traveler on that trip. These variables were derived for "self" (the member the trip was reported for) for all trips from all households (including single-person households).

Linked Trip-Level Dataset

In the CSTS, individual legs of the travel episode were sometimes broken and reported as separate trips for multimodal journeys. For example, an individual going back home from office may have reported walking to the parking lot to get in his/her car and driving home as two separate trips. When in fact they should have been reported as a single trip pursued using the auto mode. The process of identifying these trip legs and consolidating them into a single trip is referred to as trip linking. A total of 65,103 linked trips were derived from the 66,175 unlinked trips reported by valid, complete households.

Unique identifier: linked_tripID

Example = 16100001010101, where each tripid is the household's hhid (16100001) with the person number (01, 02, etc.) and the first unlinked trip that is part of the linked trip chain appended for each person-trip (01, 02, etc.) and linked trip index (1, 2, etc.). If the trip was not part of a trip chain then the linked trip index was left as 0.

Other variables

All other variables in the linked trip file were derived from the unlinked trip file.

Tour-Level Dataset

The linked trips were then joined to form home-based tours and work-based sub-tours. A total of 22,434 tours were identified from the 65,103 linked trips. It must be noted that only full tours are included in this file. Partial tours (i.e. where trip chains did not start/end at the same location) are excluded.

Unique identifier: linked_tripID

Example = 1610000101201, where each tripid is the household's hhid (16100001) with the person number (01, 02, etc.) a dummy value of "2" and the index of the tour for the person (01, 02, etc.).

Other variables

All other variables in the tour file were derived from the unlinked trip file.

Appendix O

Main Study Codebook

Notes

The same codebook can be used for both the full version and the public release version of the CSTS datasets. However, it must be noted that some of the variables referenced in the codebook may not be available in the public release version of the dataset due to privacy and confidentiality reasons.

Codebook - Household File

hhid

		Value
Standard Att	Label	Household ID (unique)
	Type	Numeric
	Measuremen	Scale

segnum

		Value
Standard Att	Label	Sample segment
	Type	Numeric
	Measuremen	Nominal
Valid Values	1	Segment 1: Over Sample, low response rate
	2	Segment 2: Over Sample, medium response rate
	3	Segment 3: Over Sample, high response rate
	4	Segment 4: Regular Sample, low response rate
	5	Segment 5: Regular Sample, medium response rate
	6	Segment 6: Regular Sample, high response rate
	99	Segment 99: Volunteers

week

		Value
Standard Att	Label	Week number of assigned travel date
	Type	Numeric
	Measuremen	Nominal

traveldate

		Value
Standard Att	Label	Assigned travel date
	Type	String
	Measuremen	Nominal

hh_hts_status

		Value
Standard Att	Label	Household survey status
	Type	Numeric
	Measuremen	Nominal
Valid Values	0	Incomplete
	1	Complete

hh_tripcount

		Value
Standard Att	Label	USE RECODED VERSION: Household number of trips on travel day
	Type	Numeric
	Measuremen	Scale

hh_tripcount_20plus

		Value
Standard Att	Label	USE RECODED VERSION: Household number of trips on travel day (categories)
	Type	Numeric
	Measuremen	Nominal
Valid Values	0	0 (no trips)
	1	1
	2	2
	3	3
	4	4
	5	5
	6	6
	7	7
	8	8
	9	9
	10	10
	11	11
	12	12
	13	13
	14	14
	15	15
	16	16
	17	17
	18	18
	19	19
	20	20 or more

transithh

		Value
Standard Att	Label	Household used transit on travel day
	Type	Numeric
	Measuremen	Nominal
Valid Values	0	False (household made 0 transit trips)
	1	True (household made 1+ transit trips)

Codebook - Household File

recruit_start_et

		Value
Standard Att	Label	Recruit survey start time (ET)
	Type	Numeric
	Measuremer	Scale

recruit_end_et

		Value
Standard Att	Label	Recruit survey end time (ET)
	Type	Numeric
	Measuremer	Scale

recruit_duration

		Value
Standard Att	Label	Recruit survey duration, minutes
	Type	Numeric
	Measuremer	Scale

numvehicle

		Value
Standard Att	Label	Household number of vehicles
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	0 (no vehicles)
	1	1
	2	2
	3	3
	4	4
	5	5
	6	6
	7	7
	8	8
	9	9
	10	10 or more vehicles

numvehicle_3plus

		Value
Standard Att	Label	Household number of vehicles (categories)
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	0 (no vehicles)
	1	1
	2	2
	3	3 or more vehicles

numbicycle

		Value
Standard Att	Label	Household number of bicycles
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	0 (no bicycles)
	1	1
	2	2
	3	3
	4	4
	5	5 or more bicycles

hhsize

		Value
Standard Att	Label	Household size
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	1 (I am the only person)
	2	2
	3	3
	4	4
	5	5
	6	6
	7	7
	8	8
	9	9
	10	10
	11	11
	12	12 or more people

Codebook - Household File

hhsize_5plus

		Value
Standard Att	Label	Household size (categories)
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	1 (I am the only person)
	2	2
	3	3
	4	4
	5	5 or more people

numadults

		Value
Standard Att	Label	Number of adults in household age 18+
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	1 (I am the only adult)
	2	2
	3	3
	4	4
	5	5
	6	6
	7	7
	8	8
	9	9
	10	10
	11	11
	12	12 or more adults

numstudents

		Value
Standard Att	Label	Number of students (i.e. valid "schooltype" person variable - excludes None) in household
	Type	Numeric
	Measuremer	Nominal

numstudents_adult

		Value
Standard Att	Label	Number of adult students (age 18+ and valid "schooltype" person variable - excludes None) in household
	Type	Numeric
	Measuremer	Nominal

numstudents_kid

		Value
Standard Att	Label	Number of child students (age <18 and valid "schooltype" person variable - excludes None) in household
	Type	Numeric
	Measuremer	Scale

numkids

		Value
Standard Att	Label	Number of children in household under age 18
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	0 (no children)
	1	1
	2	2
	3	3
	4	4
	5	5
	6	6
	7	7
	8	8
	9	9
	10	10
	11	11
	12	12 or more children

numkids_3plus

		Value
Standard Att	Label	Number of children in household under age 18 (categories)
	Type	Numeric
	Measuremer	Nominal
Valid Values	.0	0 (no children)
	1.0	1
	2.0	2
	3.0	3 or more children

numworkers

		Value
Standard Att	Label	Number of workers in household: employed full or part time, self-employed
	Type	Numeric
	Measuremer	Nominal

numworkers_3plus

		Value
Standard Att	Label	Number of workers in household: employed full or part time, self-employed (categories)
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	0 (no workers)
	1	1
	2	2
	3	3 or more workers

numdrivers

		Value
Standard Att	Label	Number of licensed drivers in household
	Type	Numeric
	Measuremer	Nominal

rent_own

		Value
Standard Att	Label	Residence tenure status
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Own/Buying (paying mortgage)
	2	Rent
	3	Provided by job or military
	97	Other
Missing Valu	99	Prefer not to answer

res_type

		Value
Standard Att	Label	Residence type of structure
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Single-family house (detached house)
	2	Duplex or Townhouse (attached house)
	3	Multi-family house (3 or fewer apartments)
	4	Building with 3 or fewer apartments/condos
	5	Building with 4 or more apartments/condos
	6	Mobile home/trailer
	7	Dorm or institutional housing
	97	Other (including boat, RV, van, etc.)

home_address

		Value
Standard Att	Label	Reported home address
	Type	String
	Measuremer	Nominal

home_lat

		Value
Standard Att	Label	Reported home address: latitude
	Type	Numeric
	Measuremer	Scale

home_lng

		Value
Standard Att	Label	Reported home address: longitude
	Type	Numeric
	Measuremer	Scale

home_county

		Value
Standard Att	Label	Reported home location: County corresponding to home location
	Type	String
	Measuremer	Nominal

home_town

		Value
Standard Att	Label	Reported home location: Town corresponding to home location
	Type	String
	Measuremer	Nominal

home_bg_geoid

		Value
Standard Att	Label	Reported home location: Block Group ID corresponding to home location
	Type	String
	Measuremer	Nominal

Codebook - Household File

hhincome_detailed

		Value
Standard Att	Label	Household income 2015: detailed categories
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Less than $10,000
	2	$10,000-$14,999
	3	$15,000-$24,999
	4	$25,000-$34,999
	5	$35,000-$49,999
	6	$50,000-$59,999
	7	$60,000-$74,999
	8	$75,000-$99,999
	9	$100,000-$149,999
	10	$150,000-$199,999
	11	$200,000-$249,999
	12	$250,000 or more
Missing Valu	99	Prefer not to answer

hhincome_followup

		Value
Standard Att	Label	Prefer not to answer detailed household income 2015: broad follow-up categories
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not applicable
	1	Under $25,000
	2	$25,000-$49,999
	3	$50,000-$74,999
	4	$75,000-$99,999
	5	$100,000 or more
Missing Valu	99	Prefer not to answer

hhincome_broad

		Value
Standard Att	Label	Household income 2015: broad categories, all respondents
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Under $25,000
	2	$25,000-$49,999
	3	$50,000-$74,999
	4	$75,000-$99,999
	5	$100,000 or more
Missing Valu	99	Prefer not to answer

participate

		Value
Standard Att	Label	Willing to participate in future studies
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Yes
	2	No

callcenter_end

		Value
Standard Att	Label	Call center completed recruit survey
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	False
	1	True

recruit_nonenglish

		Value
Standard Att	Label	Flag: recruit survey language (web browser)
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	English
	1	Non-english

expansion_weight

		Value
Standard Att	Label	Expansion weight calculated as ratio of the count of households belonging to a segment in the population divided by the count of sample households in the segment
	Type	Numeric
	Measuremer	Scale

final_weights

		Value
Standard Att	Label	Readjusted weights matching marginal distributions of household and person variables of interest
	Type	Numeric
	Measuremer	Scale

imputed_income_for_missing

		Value
Standard Att	Label	Imputed value for missing observations in hhincome_detailed; values reported on the same scale as hhincome_detailed
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-99	Not Applicable
	1	Less than $10,000
	2	$10,000-$14,999
	3	$15,000-$24,999
	4	$25,000-$34,999
	5	$35,000-$49,999
	6	$50,000-$59,999
	7	$60,000-$74,999
	8	$75,000-$99,999
	9	$100,000-$149,999
	10	$150,000-$199,999
	11	$200,000-$249,999
	12	$250,000 or more

imputed_hhincome_detailed

		Value
Standard Att	Label	Imputed household income 2015: detailed categories
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Less than $10,000
	2	$10,000-$14,999
	3	$15,000-$24,999
	4	$25,000-$34,999
	5	$35,000-$49,999
	6	$50,000-$59,999
	7	$60,000-$74,999
	8	$75,000-$99,999
	9	$100,000-$149,999
	10	$150,000-$199,999
	11	$200,000-$249,999
	12	$250,000 or more
	99	Prefer not to answer

r_numvehicles_4plus

		Value
Standard Att	Label	Vehicle count variable used in the weighting analysis
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	0 vehicles
	1	1 vehicle
	2	2 vehicles
	3	3 vehicles
	4	4 or more vehicles

r_household_income_rev_2

		Value
Standard Att	Label	Imputed household income variable (i.e. imputed_hhincome_detailed) used in the weighting analysis
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Less than $25,000
	2	$25,000-$49,999
	3	$50,000-$74,999
	4	$75,000-$99,999
	5	$100,000 or more

r_numworkers_3plus

		Value
Standard Att	Label	Worker count variable used in the weighting analysis
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	0 workers
	1	1 worker
	2	2 workers
	3	3 or more workers

r_numpersons_6plus

		Value
Standard Att	Label	Household size variable used in the weighting analysis
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	1 person
	2	2 persons
	3	3 persons
	4	4 persons
	5	5 persons
	6	6 or more persons

Codebook - Household File

r_household_type

		Value
Standard Att	Label	Household type variable used in the weighting analysis
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Family households: Married-couple
	2	Family households: Other family
	3	Nonfamily households

r_presence_of_children

		Value
Standard Att	Label	Presence of children variable used in the weighting analysis
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	Children under age 18 not present
	1	Children under age 18 present

sample_geo

		Value
Standard Att	Label	Region ID obtained by combining MPO and COG boundaries
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	South Western
	2	Housatonic Valley
	3	Northwest Hills
	5	Central Naugatuck Valley
	6	Greater Bridgeport
	7	Greater Bridgeport
	8	South Central
	10	Capital Region
	11	Lower CT River Valley
	13	Southeastern
	15	Northeastern

hh_tripcount_recode

		Value
Standard Att	Label	Final Recoded Household number of trips on travel day
	Type	Numeric
	Measuremer	Scale

hh_tripcount_20plus_recode

		Value
Standard Att	Label	Final Recoded Household number of trips on travel day (categories)
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	0 (no trips)
	1	1
	2	2
	3	3
	4	4
	5	5
	6	6
	7	7
	8	8
	9	9
	10	10
	11	11
	12	12
	13	13
	14	14
	15	15
	16	16
	17	17
	18	18
	19	19
	20	20 or more

hh_tripcount_linked

		Value
Standard Att	Label	Household number of linked trips on travel day
	Type	Numeric
	Measuremer	Scale

hh_tripcount_20plus_linked

		Value
Standard Att	Label	Household number of linked trips on travel day (categories)
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	0 (no trips)
	1	1
	2	2
	3	3
	4	4
	5	5
	6	6
	7	7
	8	8
	9	9
	10	10
	11	11
	12	12
	13	13
	14	14
	15	15
	16	16
	17	17
	18	18
	19	19
	20	20 or more

hhid

		Value
Standard Att	Label	Household ID
	Type	Numeric
	Measuremen	Scale

personid

		Value
Standard Att	Label	Person ID (unique)
	Type	Numeric
	Measuremen	Nominal

segnum

		Value
Standard Att	Label	Sample segment
	Type	Numeric
	Measuremen	Nominal
Valid Values	1	Segment 1: Over Sample, low response rate
	2	Segment 2: Over Sample, medium response rate
	3	Segment 3: Over Sample, high response rate
	4	Segment 4: Regular Sample, low response rate
	5	Segment 5: Regular Sample, medium response rate
	6	Segment 6: Regular Sample, high response rate
	99	Segment 99: Volunteers

traveldate

		Value
Standard Att	Label	Assigned travel date
	Type	String
	Measuremen	Nominal

week

		Value
Standard Att	Label	Week number of assigned travel date
	Type	Numeric
	Measuremen	Nominal

hh_hts_status

		Value
Standard Att	Label	Household survey status
	Type	Numeric
	Measuremen	Nominal
Valid Values	0	Incomplete
	1	Complete

person_num

		Value
Standard Att	Label	Person number
	Type	Numeric
	Measuremen	Nominal

relationship

		Value
Standard Att	Label	Relationship to primary respondent
	Type	Numeric
	Measuremen	Nominal
Valid Values	0	Self (derived)
	1	Husband/Wife/Partner
	2	Son/Daughter/In-law
	3	Mother/Father/In-law
	4	Brother/Sister/In-law
	5	Grandchild
	6	Other relative
	7	Roommate/Friend
	8	Household help
	97	Other

gender

		Value
Standard Att	Label	Gender
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Male
	2	Female

age

		Value
Standard Att	Label	Age
	Type	Numeric
	Measuremer	Scale
Labeled Valu	0	Less than 1
	99	99 or older
	999	Prefer not to answer

age_followup

		Value
Standard Att	Label	Prefer not to answer exact age: Broad follow-up categories
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	Under 5 years old
	2	5-11
	3	12-15
	4	16-17
	5	18-24
	6	25-34
	7	35-44
	8	45-54
	9	55-64
	10	65-74
	11	75-84
	12	85 years or older

age_broad

		Value
Standard Att	Label	Age: Broad categories, all respondents
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Under 5 years old
	2	5-11
	3	12-15
	4	16-17
	5	18-24
	6	25-34
	7	35-44
	8	45-54
	9	55-64
	10	65-74
	11	75-84
	12	85 years or older

employment

		Value
Standard Att	Label	Age 16+: Employment status
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	Employed (full or part time)
	2	Self-employed
	3	Unpaid volunteer or intern
	4	Homemaker
	5	Retired
	6	Not currently employed

jobs_count

		Value
Standard Att	Label	Age 16+ employed: Number of jobs
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	1 job
	2	2 jobs
	3	3 jobs
	4	4 jobs
	5	5 or more jobs

work_hours

		Value
Standard Att	Label	Age 16+ employed: Number of hours worked per week
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	50 or more hours
	2	40-49 hours
	3	30-39 hours
	4	20-29 hours
	5	10-19 hours
	6	Fewer than 10 hours
	7	Hours vary greatly from week to week

student

		Value
Standard Att	Label	Adult (Age 18+): Student status
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	No, not a student
	2	Yes, full-time student
	3	Yes, part-time student

schooltype

		Value
Standard Att	Label	Child (Age < 18) or Adult Student: Type of school attended
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	Daycare
	2	In-house nanny/babysitter
	3	House of friend/relative/babysitter
	4	Preschool
	5	K-12 public or private school
	6	K-12 home school (full-time or part-time)
	7	College, graduate, or professional school
	8	Vocational/technical school
	95	None
	97	Other

education

		Value
Standard Att	Label	Adult (Age 18+): Educational attainment
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	Less than high school
	2	High school graduate/GED
	3	Some college
	4	Vocational/technical training
	5	Associates degree
	6	Bachelor degree
	7	Graduate/post-graduate degree

license

		Value
Standard Att	Label	Age 16+: Has valid drivers license
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	Yes
	2	No

transit_freq

		Value
Standard Att	Label	How often in past month: Ridden transit
	Type	Numeric
	Measuremen	Nominal
Valid Values	1	6-7 days a week
	2	5 days a week
	3	4 days a week
	4	2-3 days a week
	5	1 day a week
	6	A few times per month
	7	Less than monthly
	8	Never

transit_fare

		Value
Standard Att	Label	If ever uses transit: How typically pays for transit fare
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	Free (no cost)
	2	Cash or ticket(s)
	3	Stored value card
	4	Used pass (any type)
	97	Other
	98	Don't Know

transit_pass

		Value
Standard Att	Label	If typical transit fare payment method is pass: type of transit pass used most often
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	1 day pass(es)
	2	3 day pass(es)
	3	5 day pass(es)
	4	7 day pass
	5	Monthly pass
	97	Other transit pass
	98	Don't know

transit_discount

		Value
Standard Att	Label	If typical transit fare is not free: eligible for discounted transit fares
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	No, pays regular fare
	2	Yes, youth/student discount
	3	Yes, senior/disability discount
	4	Yes, other type of discount
	98	Don't know

school_freq

		Value
Standard Att	Label	Student (adult or child, except home school/in-house nanny or sitter): How often travels to school
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	6-7 days a week
	2	5 days a week
	3	4 days a week
	4	2-3 days a week
	5	1 day a week
	6	A few times per month
	7	Less than monthly
	8	Never, only takes online classes

school_mode

		Value
Standard Att	Label	Student (adult or child, except home school/in-house nanny or sitter and online-classes): Travel mode to school
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	Walk/jog/wheelchair
	2	Bicycle
	3	Drive alone
	4	Drive/Carpool with ONLY family/ household member(s)
	5	Carpool with at least one person NOT in household
	6	Motorcycle/moped/scooter
	7	Vanpool
	8	School bus
	9	Bus (public transit)
	10	Train (any rail, subway, monorail)
	11	Private shuttle bus
	12	Paratransit
	13	Taxi or other hired car service (e.g. Lyft, Uber)
	97	Other

school_address

		Value
Standard Att	Label	Student (adult or child, except home school/in-house nanny or sitter and online-classes): School address
	Type	String
	Measuremen	Nominal

school_lat

		Value
Standard Att	Label	Student (adult or child, except home school/in-house nanny or sitter and online-classes): School latitude
	Type	Numeric
	Measuremen	Scale
Labeled Valu	-99.00	Not Applicable

school_lng

		Value
Standard Att	Label	Student (adult or child, except home school/in-house nanny or sitter and online-classes): School longitude
	Type	Numeric
	Measuremen	Scale
Labeled Valu	-99.00	Not Applicable

school_county

		Value
Standard Att	Label	Student (adult or child, except home school/in-house nanny or sitter and online-classes): County corresponding to school location
	Type	String
	Measuremen	Nominal
Valid Values	-99	Not Applicable

school_town

		Value
Standard Att	Label	Student (adult or child, except home school/in-house nanny or sitter and online-classes): Town corresponding to school location
	Type	String
	Measuremen	Nominal
Valid Values	-99	Not Applicable

school_bg_geoid

		Value
Standard Att	Label	Student (adult or child, except home school/in-house nanny or sitter and online-classes): Block Group ID corresponding to school location
	Type	String
	Measuremer	Nominal
Valid Values	-99	Not Applicable

workplace

		Value
Standard Att	Label	Employed or volunteer: Primary type of workplace
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	Usually the same location (outside home)
	2	Workplace regularly varies (different offices or jobsites)
	3	At home (telecommute or self-employed)
	4	Drives for a living (e.g. bus driver, salesman)

occupation

		Value
Standard Att	Label	Employed or volunteer: Primary occupation
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	Computer, Engineering, & Science
	2	Construction & Extraction
	3	Education, Legal, Community Service, Arts, & Media
	4	Farming, Fishing, & Forestry
	5	Healthcare Practitioners & Technical
	6	Installation, Maintenance, & Repair
	7	Management, Business, & Financial
	8	Military
	9	Office & Administrative Support
	10	Production
	11	Sales/ Sales-related
	12	Service
	13	Transportation & Material Moving
	97	Other
	98	Don't Know

industry

		Value
Standard Att	Label	Employed or volunteer: Primary employment industry
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	Accommodation & Food Services
	2	Administrative, Support, & Waste Management Services
	3	Agriculture, Forestry, Fishing, & Hunting
	4	Arts, Entertainment, & Recreation
	5	Construction
	6	Education Services
	7	Finance & Insurance
	8	Health Care & Social Assistance
	9	Information
	10	Management of Companies & Enterprises
	11	Manufacturing
	12	Military
	13	Mining, Quarrying, & Oil/Gas Extraction
	14	Other Services
	15	Professional, Scientific, & Technical Services
	16	Public Administration
	17	Real Estate, Rental, & Leasing
	18	Retail Trade
	19	Transportation & Warehousing
	20	Utilities
	21	Wholesale Trade
	97	Other
	98	Don't Know

commute_freq

		Value
Standard Att	Label	If travels to fixed or varied workplace (i.e. workplace == 1 or workplace == 2): How often commute to primary workplace
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	6-7 days a week
	2	5 days a week
	3	4 days a week
	4	3 days a week
	5	2 days a week
	6	1 day a week
	7	Less than weekly

commute_mode

		Value
Standard Att	Label	If commutes: Typical commute mode
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	Walk/jog/wheelchair
	2	Bicycle
	3	Drive alone
	4	Drive/Carpool with ONLY family/household member(s)
	5	Carpool with at least one person NOT in household
	6	Motorcycle/moped/scooter
	7	Vanpool
	9	Bus (public transit)
	10	Train (any rail, subway, monorail)
	11	Private shuttle bus
	12	Paratransit
	13	Taxi or other hired car service (e.g. Lyft, Uber)
	97	Other

work_flex

		Value
Standard Att	Label	Employed or volunteer: Amount of flexibility in primary work schedule
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	No flexibility (always have to start at a fixed time, time may vary by day or shift)
	2	Some flexibility (e.g. can start up to 30 minutes earlier/later)
	3	Complete flexibility (e.g. can set own schedule)

work_address

		Value
Standard Att	Label	If goes to a fixed workplace: Primary workplace address
	Type	String
	Measuremer	Nominal

work_lat

		Value
Standard Att	Label	If goes to a fixed workplace: Primary workplace latitude
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-99.00	Not Applicable

work_lng

		Value
Standard Att	Label	If goes to a fixed workplace: Primary workplace longitude
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-99.00	Not Applicable

work_county

		Value
Standard Att	Label	USE RECODED VERSION: If goes to a fixed workplace: County corresponding to primary workplace location
	Type	String
	Measuremer	Nominal
Valid Values	-99	Not Applicable

work_town

		Value
Standard Att	Label	USE RECODED VERSION: If goes to a fixed workplace: Town corresponding to primary workplace location
	Type	String
	Measuremer	Nominal
Valid Values	-99	Not Applicable

work_bg_geoid

		Value
Standard Att	Label	USE RECODED VERSION: If goes to a fixed workplace: Block Group ID corresponding to primary workplace location
	Type	String
	Measuremer	Nominal
Valid Values	-99	Not Applicable

diary_start_et

		Value
Standard Att	Label	Diary start time (ET)
	Type	Numeric
	Measuremer	Scale

diary_end_et

		Value
Standard Att	Label	Diary end time (ET)
	Type	Numeric
	Measuremer	Scale

diary_duration

		Value
Standard Att	Label	Diary duration, minutes
	Type	Numeric
	Measuremer	Scale

person_tripcount

		Value
Standard Att	Label	USE RECODED VERSION: Number of trips made
	Type	Numeric
	Measuremer	Scale

person_tripcount_10plus

		Value
Standard Att	Label	USE RECODED VERSION: Number of trips made, categories
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	0
	1	1
	2	2
	3	3
	4	4
	5	5
	6	6
	7	7
	8	8
	9	9
	10	10 or more trips

diary_proxy

		Value
Standard Att	Label	Respondent is represented by proxy
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	I am <name> and I am answering this survey
	2	I am answering this survey for <name> and <name> IS here with me to provide answers
	3	I am answering this survey for <name> and <name> is NOT here with me to provide answers

copytrips_confirm

		Value
Standard Att	Label	If copied trips available: Selected from available trips
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not selected
	1	Selected

trips_first

		Value
Standard Att	Label	First copied trip was first trip of the day
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	Yes
	2	No

trips_last

		Value
Standard Att	Label	Last copied trip was last trip of the day
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	Yes
	2	No

diary_loc_start

		Value
Standard Att	Label	USE RECODED VERSION: Where started travel day (at 3 AM)
	Type	Numeric
	Measuremen	Nominal
Valid Values	1	Home
	2	Work (Primary)
	4	Another place, please specify:

diary_loc_start_other

		Value
Standard Att	Label	Where started travel day, other
	Type	String
	Measuremen	Nominal

diary_loc_end

		Value
Standard Att	Label	USE RECODED VERSION: Where ended travel day (at 3 AM)
	Type	Numeric
	Measuremen	Nominal
Valid Values	1	Home
	2	Work (Primary)
	4	Another place, please specify:

diary_loc_end_other

		Value
Standard Att	Label	Where ended travel day, other
	Type	String
	Measuremen	Nominal

trips_yesno

		Value
Standard Att	Label	USE RECODED VERSION: Made trips on travel day
	Type	Numeric
	Measuremen	Nominal
Valid Values	1	Yes
	2	No

no_travel_dayoff

		Value
Standard Att	Label	No travel: Was not scheduled to work or took a vacation/personal day (if employed)
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

no_travel_telecommute

		Value
Standard Att	Label	No travel: Worked from home for pay e.g. telecommuted or home-based job (if employed)
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

no_travel_workhomenoapay

		Value
Standard Att	Label	No travel: Worked around the home (not for pay)
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

no_travel_kidsvacation

		Value
Standard Att	Label	No travel: The kids were on school vacation/break
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

no_travel_notransport

		Value
Standard Att	Label	No travel: Did not have available transportation (no car, no way to get to the bus, etc.)
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

no_travel_sick

		Value
Standard Att	Label	No travel: Was sick or caring another person (child or family member) at home
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

no_travel_visitor

		Value
Standard Att	Label	No travel: Was waiting for a delivery or visitor (e.g. cable installation)
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

no_travel_other

		Value
Standard Att	Label	No travel: Other
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

added_loop

		Value
Standard Att	Label	Additional trips to report: Walk, bike trip (exercise, walk the dog, etc)
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

added_quick

		Value
Standard Att	Label	Additional trips to report: One or more short trips in the middle of other activities (e.g. a quick trip for lunch)
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

added_stop

		Value
Standard Att	Label	Additional trips to report: Stopped briefly on the way to somewhere else (e.g. for gas, at an ATM, at a drive-thru restaurant, etc.)
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

added_dropoff

		Value
Standard Att	Label	Additional trips to report: Dropped someone off on the way to somewhere else (e.g. spouse at a park and ride lot, child at a friend's house, etc.)
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

added_other

		Value
Standard Att	Label	Additional trips to report: Other type of trip
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

toll_use_travelday

		Value
Standard Att	Label	Age 16+: Used toll road on travel day
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	Yes
	2	No

hov_use_travelday

		Value
Standard Att	Label	Age 16+: Used HOV lane on travel day
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	Yes
	2	No

park_pay_use_travelday

		Value
Standard Att	Label	Age 16+: Paid for parking on travel day
	Type	Numeric
	Measuremen	Nominal
Valid Values	-99	Not Applicable
	1	Yes
	2	No

typicalday

		Value
Standard Att	Label	Typical travel day
	Type	Numeric
	Measuremen	Nominal
Valid Values	1	Yes
	2	No

typicalday_other

		Value
Standard Att	Label	Typical travel day: other specify
	Type	String
	Measuremen	Nominal

comments

		Value
Standard Att	Label	Optional: Participant comments
	Type	String
	Measuremen	Nominal

diary_callcenter

		Value
Standard Att	Label	Call center completed diary
	Type	Numeric
	Measuremen	Nominal
Valid Values	0	No
	1	Yes

diary_nonenglish

		Value
Standard Att	Label	Flag: diary survey language (web browser)
	Type	Numeric
	Measuremen	Nominal
Valid Values	0	No, English
	1	Yes, non-english

r_age

		Value
Standard Att	Label	Age variable used in the weighting analysis
	Type	Numeric
	Measuremen	Nominal
Valid Values	1	Under 5 years
	2	5-17 years
	3	18-24 years
	4	25-34 years
	5	35-44 years
	6	45-54 years
	7	55-64 years
	8	65-74 years
	9	75-84 years
	10	85 years or older

r_gender

		Value
Standard Att	Label	Gender variable used in the weighting analysis
	Type	Numeric
	Measuremen	Nominal
Valid Values	1	Male
	2	Female

r_employment

		Value
Standard Att	Label	Employment variable used in the weighting analysis
	Type	Numeric
	Measuremen	Nominal
Valid Values	1	Employed
	2	Not employed
	3	Age less than 16

r_mode_to_work

		Value
Standard Att	Label	Mode to work variable used in the weighting analysis
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Drove alone
	2	Carpool or Vanpool
	7	Bus or trolley bus
	9	Subway or elevated railroad
	12	Taxicab
	13	Motorcycle
	14	Bicycle
	15	Walked
	16	Other means
	17	Worked at home
	18	Unemployed
	19	Age less than 16

person_tripcount_recode

		Value
Standard Att	Label	Final Recoded Number of trips made
	Type	Numeric
	Measuremer	Scale

person_tripcount_10plus_recode

		Value
Standard Att	Label	Final Recoded Number of trips made, categories
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	0
	1	1
	2	2
	3	3
	4	4
	5	5
	6	6
	7	7
	8	8
	9	9
	10	10 or more trips

trips_yesno_recoded_2

		Value
Standard Att	Label	Final Recoded Made trips on travel day after data processing was complete recoded
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Yes
	2	No
	3	Yes - No trip records in the trip file

diary_loc_start_recode_3

		Value
Standard Att	Label	Final Recoded Where started travel day recoded 3 (at 3 AM)
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Home
	2	Work (Primary)
	3	Home other
	4	Another place, please specify:

diary_loc_end_recode_3

		Value
Standard Att	Label	Final Recoded Where ended travel day recoded 3 (at 3 AM)
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Home
	2	Work (Primary)
	3	Home other
	4	Another place, please specify:

person_tripcount_linked

		Value
Standard Att	Label	Number of trips made linked
	Type	Numeric
	Measuremer	Scale

person_tripcount_10plus_linked

		Value
Standard Att	Label	Number of trips made, categories linked
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	0
	1	1
	2	2
	3	3
	4	4
	5	5
	6	6
	7	7
	8	8
	9	9
	10	10 or more trips

work_county_recode

		Value
Standard Att	Label	Final Recoded If goes to a fixed workplace: County corresponding to primary workplace location
	Type	String
	Measuremer	Nominal
Valid Values	-99	Not Applicable

work_town_recode

		Value
Standard Att	Label	Final Recoded If goes to a fixed workplace: Town corresponding to primary workplace location
	Type	String
	Measuremer	Nominal
Valid Values	-99	Not Applicable

work_bg_geoid_recode

		Value
Standard Att	Label	Final Recoded If goes to a fixed workplace: Block Group ID corresponding to primary workplace location
	Type	String
	Measuremer	Nominal
Valid Values	-99	Not Applicable

final_weights

		Value
Standard Att	Label	Readjusted weights matching marginal distributions of household and person variables of interest
	Type	Numeric
	Measuremer	Scale

hhid

		Value
Standard Att	Label	Household ID
	Type	Numeric
	Measuremer	Scale

segnum

		Value
Standard Att	Label	Sample segment
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Segment 1: Over Sample, low response rate
	2	Segment 2: Over Sample, medium response rate
	3	Segment 3: Over Sample, high response rate
	4	Segment 4: Regular Sample, low response rate
	5	Segment 5: Regular Sample, medium response rate
	6	Segment 6: Regular Sample, high response rate
	99	Segment 99: Volunteers

hh_hts_status

		Value
Standard Att	Label	Household survey status
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	Incomplete
	1	Complete

vehnum

		Value
Standard Att	Label	Vehicle number
	Type	Numeric
	Measuremer	Nominal

vehid

		Value
Standard Att	Label	Vehicle ID (unique)
	Type	String
	Measuremer	Nominal

year

		Value
Standard Att	Label	Vehicle year
	Type	Numeric
	Measuremer	Scale
Labeled Valu	1980	1980 or earlier

make

		Value
Standard Att	Label	Vehicle make
	Type	String
	Measuremer	Nominal

model

		Value
Standard Att	Label	Vehicle model
	Type	String
	Measuremer	Nominal

tolltransp

		Value
Standard Att	Label	Vehicle has a toll transponder
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	No
	2	Yes

final_weights

		Value
Standard Att	Label	Readjusted weights matching marginal distributions of household and person variables of interest (modeled)
	Type	Numeric
	Measuremer	Scale

hhid

		Value
Standard Att	Label	Household ID
	Type	Numeric
	Measuremer	Scale

personid

		Value
Standard Att	Label	Person ID
	Type	Numeric
	Measuremer	Nominal

tripid

		Value
Standard Att	Label	Trip ID (unique)
	Type	Numeric
	Measuremer	Nominal

trip_num

		Value
Standard Att	Label	Trip number
	Type	Numeric
	Measuremer	Scale

segnum

		Value
Standard Att	Label	Sample segment
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Segment 1: Over Sample, low response rate
	2	Segment 2: Over Sample, medium response rate
	3	Segment 3: Over Sample, high response rate
	4	Segment 4: Regular Sample, low response rate
	5	Segment 5: Regular Sample, medium response rate
	6	Segment 6: Regular Sample, high response rate
	99	Segment 99: Volunteers

week

		Value
Standard Att	Label	Week number of assigned travel date
	Type	Numeric
	Measuremer	Nominal

traveldate

		Value
Standard Att	Label	Assigned travel date
	Type	String
	Measuremer	Nominal

person_num

		Value
Standard Att	Label	Person number
	Type	Numeric
	Measuremer	Nominal

hh_hts_status

		Value
Standard Att	Label	Household survey status
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	Incomplete
	1	Complete

prepop

		Value
Standard Att	Label	Trip was copied from other HH member
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	Not selected
	1	Selected

o_name

		Value
Standard Att	Label	USE RECODED VERSION: Trip origin nickname
	Type	String
	Measuremer	Nominal

d_name

		Value
Standard Att	Label	Trip destination nickname
	Type	String
	Measuremer	Nominal

o_address

		Value
Standard Att	Label	USE RECODED VERSION: Trip origin address
	Type	String
	Measuremer	Nominal

o_lat

		Value
Standard Att	Label	USE RECODED VERSION: Trip origin latitude
	Type	Numeric
	Measuremer	Scale

o_lng

		Value
Standard Att	Label	USE RECODED VERSION: Trip origin longitude
	Type	Numeric
	Measuremer	Scale

d_address

		Value
Standard Att	Label	USE RECODED VERSION: Trip destination address
	Type	String
	Measuremer	Nominal

d_lat

		Value
Standard Att	Label	USE RECODED VERSION: Trip destination latitude
	Type	Numeric
	Measuremer	Scale

d_lng

		Value
Standard Att	Label	USE RECODED VERSION: Trip destination longitude
	Type	Numeric
	Measuremer	Scale

departure_time

		Value
Standard Att	Label	Trip departure time
	Type	Numeric
	Measuremer	Scale

arrival_time

		Value
Standard Att	Label	Trip arrival time
	Type	Numeric
	Measuremer	Scale

departure_time_hhmm

		Value
Standard Att	Label	Trip departure time: hours and minutes
	Type	String
	Measuremer	Nominal

arrival_time_hhmm

		Value
Standard Att	Label	Trip arrival time: hours and minutes
	Type	String
	Measuremer	Nominal

departure_hour

		Value
Standard Att	Label	Trip departure time: hour of day
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-1	Before 3:00 AM
	3	3:00 - 3:55 AM
	4	4:00 - 4:55 AM
	5	5:00 - 5:55 AM
	6	6:00 - 6:55 AM
	7	7:00 - 7:55 AM
	8	8:00 - 8:55 AM
	9	9:00 - 9:55 AM
	10	10:00 - 10:55 AM
	11	11:00 - 11:55 AM
	12	12:00 - 12:55 PM
	13	1:00 - 1:55 PM
	14	2:00 - 2:55 PM
	15	3:00 - 3:55 PM
	16	4:00 - 4:55 PM
	17	5:00 - 5:55 PM
	18	6:00 - 6:55 PM
	19	7:00 - 7:55 PM
	20	8:00 - 8:55 PM
	21	9:00 - 9:55 PM
	22	10:00 - 10:55 PM
	23	11:00 - 11:55 PM
	24	12:00 - 12:55 PM
	25	1:00 - 1:55 AM (next day)
	26	2:00 - 2:55 AM (next day)
	27	After 3:00 AM (next day)

arrival_hour

		Value
Standard Att	Label	Trip arrival time: hour of day
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-1	Before 3:00 AM
	3	3:00 - 3:55 AM
	4	4:00 - 4:55 AM
	5	5:00 - 5:55 AM
	6	6:00 - 6:55 AM
	7	7:00 - 7:55 AM
	8	8:00 - 8:55 AM
	9	9:00 - 9:55 AM
	10	10:00 - 10:55 AM
	11	11:00 - 11:55 AM
	12	12:00 - 12:55 PM
	13	1:00 - 1:55 PM
	14	2:00 - 2:55 PM
	15	3:00 - 3:55 PM
	16	4:00 - 4:55 PM
	17	5:00 - 5:55 PM
	18	6:00 - 6:55 PM
	19	7:00 - 7:55 PM
	20	8:00 - 8:55 PM
	21	9:00 - 9:55 PM
	22	10:00 - 10:55 PM
	23	11:00 - 11:55 PM
	24	12:00 - 12:55 PM
	25	1:00 - 1:55 AM (next day)
	26	2:00 - 2:55 AM (next day)
	27	After 3:00 AM (next day)

reported_duration

		Value
Standard Att	Label	Trip duration: minutes
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-99	Not Applicable; Either departed before 3AM or arrived at or after 3AM next day

implied_speed_mph

		Value
Standard Att	Label	Trip speed (miles per hour)
	Type	Numeric
	Measuremer	Scale

travelers_total

		Value
Standard Att	Label	Total number of travelers on trip including self
	Type	Numeric
	Measuremer	Nominal

travelers_hh

		Value
Standard Att	Label	Household members on trip including self
	Type	Numeric
	Measuremer	Nominal

travelers_nonhh

		Value
Standard Att	Label	Non-household members on trip
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	Nobody (0 people)
	1	1 person
	2	2 people
	3	3 people
	4	4 people
	5	5 or more people

o_purpose

		Value
Standard Att	Label	USE RECODED VERSION: Primary purpose at trip origin
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Go home
	2	Go to primary workplace
	3	Go to other work-related place
	4	Attend school/class
	5	Other school-related activity
	6	Grocery shopping
	7	Do other shopping (e.g. mall, hardware store)
	8	Run errands (e.g. bank, haircut)
	9	Go to restaurant/bar/get take-out
	10	Drop off/pick up/accompany other person
	11	Exercise (e.g. gym, walk, jog/run)
	12	Family activity (e.g. child's game)
	13	Medical visit (e.g. doctor, dentist)
	14	Social (e.g. visit friends/relatives)
	15	Leisure/entertainment (e.g. movies)
	16	Religious/civic/volunteer
	17	Vacation/holiday/traveling (e.g. hotel)
	18	Change travel mode (e.g. wait for bus, change planes)
	97	Other

d_purpose

		Value
Standard Att	Label	USE RECODED VERSION: Primary purpose at trip destination
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Go home
	2	Go to primary workplace
	3	Go to other work-related place
	4	Attend school/class
	5	Other school-related activity
	6	Grocery shopping
	7	Do other shopping (e.g. mall, hardware store)
	8	Run errands (e.g. bank, haircut)
	9	Go to restaurant/bar/get take-out
	10	Drop off/pick up/accompany other person
	11	Exercise (e.g. gym, walk, jog/run)
	12	Family activity (e.g. child's game)
	13	Medical visit (e.g. doctor, dentist)
	14	Social (e.g. visit friends/relatives)
	15	Leisure/entertainment (e.g. movies)
	16	Religious/civic/volunteer
	17	Vacation/holiday/traveling (e.g. hotel)
	18	Change travel mode (e.g. wait for bus, change planes)
	97	Other

d_purpose_other

		Value
Standard Att	Label	Optional: primary purpose at trip destination: other specify:
	Type	String
	Measuremer	Nominal

t_purpose

		Value
Standard Att	Label	USE RECODED VERSION: Overall trip purpose
	Type	String
	Measuremer	Nominal
Valid Values	HBO	Home Based Other (home to/from any other purpose)
	WBO	Work Based Other (work/work-related to/from any non-home purpose)
	HBW	Home Based Work (home to/from work/work-related)
	NWBO	Non Work Based Other (any non-home, non-work to/from any non-home, non-work)
	HBSch	Home Based School (home to/from school/school-related)
	HBShp	Home Based Shopping (home to/from grocery/other shopping)

mode

		Value
Standard Att	Label	Main way traveled on trip
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Walk/jog/wheelchair
	2	Bicycle
	3	Vehicle in household
	4	Other vehicle (e.g. rental, friend's car)
	5	Regular taxi or hired car service
	6	Ride-share taxi/car service (e.g. Uber, Lyft)
	7	Vanpool
	8	School bus
	9	Public (city) bus
	10	Train (e.g. Amtrak)
	11	Shuttle (e.g. a hotel's, an airport's)
	12	Paratransit
	13	Commuter Rail (e.g. Metro North)
	14	Subway
	15	Intercity bus (e.g. Greyhound)
	16	Ferry/water taxi/boat
	17	Airplane/helicopter
	97	Other

mode_category

		Value
Standard Att	Label	Main way traveled on trip, aggregated
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	SOV (single-occupant vehicle)
	2	Family carpool (HH or Other vehicle, only HH members in travel party)
	3	Other carpool (HH or Other vehicle, includes at least one non-HH member)
	4	Walk or Bike
	5	Taxi (traditional or rideshare)
	6	Public transit (bus, train, paratransit, commuter rail, subway, intercity bus)
	97	Other (vanpool, school bus, shuttle, ferry/boat, airplane, other)

mode_hhauto

		Value
Standard Att	Label	HH or Other Vehicle: Vehicle used
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	HH vehicle 1
	2	HH vehicle 2
	3	HH vehicle 3
	4	HH vehicle 4
	5	HH vehicle 5
	6	HH vehicle 6
	7	HH vehicle 7
	8	HH vehicle 8
	9	HH vehicle 9
	10	HH vehicle 10
	11	Rental car
	12	Car from work
	13	Friend/relative's car
	14	Carshare vehicle (e.g. Car2Go)
	15	Motorcycle/moped/scooter

driver

		Value
Standard Att	Label	HH or Other Vehicle, or Vanpool: If age 16+ and licensed travel party > 1: Was driver or passenger on trip
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Driver
	2	Passenger
	3	Both (switched drivers during trip)

hov_use

		Value
Standard Att	Label	HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses HOV and travel party > 1: Used HOV lane on trip
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Yes
	2	No

tollroad_use

		Value
Standard Att	Label	HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses toll road: Toll road used on trip
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Yes
	2	No

tollroad_cost

		Value
Standard Att	Label	If used toll road for this trip: Toll road cost for trip (dollars)
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-99	Not Applicable

tollroad_cost_dk

		Value
Standard Att	Label	Toll road cost for trip: don't know
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

park_loc

		Value
Standard Att	Label	HH or Other vehicle, or Vanpool: If age 16+: Parking location at destination
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Own driveway/garage
	2	Someone else's driveway
	3	Parking lot/garage at destination (within 2 blocks)
	4	Parking lot/garage 2+ blocks away from destination
	5	On street parking at destination (within 2 blocks)
	6	On street parking 2+ blocks away from destination
	7	Park & ride lot
	8	Didn't park (waited, drop-off, drive-thru)
	9	Other

park_pay

		Value
Standard Att	Label	Parked on street or in a lot/garage: If ever pays for parking: How paid for parking at destination
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	No, parking was free
	2	Yes, with cash/tickets
	3	Yes, with parking pass
	4	No, another person paid or was reimbursed
	5	Not sure/don't remember

park_cost

		Value
Standard Att	Label	If paid with cash/tickets: Cost of parking at destination (dollars)
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-99	Not Applicable

park_cost_dk

		Value
Standard Att	Label	Parking cost for trip: don't know
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

taxi_cost

		Value
Standard Att	Label	Taxi or Rideshare: Cost of taxi for trip (dollars)
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-99	Not Applicable

taxi_cost_dk

		Value
Standard Att	Label	Cost of taxi for trip: don't know
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

transit_access

		Value
Standard Att	Label	Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit access mode
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	Walked or jogged
	2	Rode a bike
	3	Drove and parked a car
	4	Got dropped off
	5	Took a taxi/ride-share (e.g. Uber, Lyft)
	6	Transferred from other transit
	7	Was already at the destination
	8	Other

transit_egress

		Value
Standard Att	Label	Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit egress mode
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	Walked or jogged
	2	Rode a bike
	3	Drove a parked car
	4	Got picked up
	5	Took a taxi /ride-share (e.g. Uber, Lyft)
	6	Transferred to other transit
	7	Was already at the destination
	8	Other

transit_pay

		Value
Standard Att	Label	Public Bus, Commuter Rail, Subway, Train or Intercity Bus: How paid for transit on trip
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	Free (no cost)
	2	Cash or ticket(s)
	3	Stored value card
	4	Used pass (any type)
	5	Not sure/don't remember
	6	Other

transit_cost

		Value
Standard Att	Label	Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Cost of transit for trip (dollars)
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-99	Not Applicable

transit_cost_dk

		Value
Standard Att	Label	Cost of transit for trip: don't know
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

transit_system_1

		Value
Standard Att	Label	First transit system used
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	CT Transit: Hartford
	2	CT Transit: Stamford
	3	CT Transit: New Britain
	4	CT Transit: New Haven
	5	CT Transit: Waterbury
	6	CT Transit: Bristol
	7	CT Transit: Meriden
	8	CT Transit: Wallingford
	9	CT Transit: CTFastrak
	10	CT Transit: Hartford Express
	11	Norwalk Transit District
	12	Greater Bridgeport Transit
	13	Housatonic Area Regional Transit
	14	Northwestern CT Transit District
	15	Valley Transit District
	16	Milford Transit District
	17	Middletown Area Transit
	18	Estuary Transit District
	19	Southeast Area Transit (SEAT)
	20	Windham Region Transit District
	21	Northeastern Connecticut Transit District
	22	iBUS Express
	23	Post Road Stages
	24	Greyhound
	25	Peter Pan
	26	Dattco
	27	Kelly Transit
	28	CT Rides
	29	Other Dial -A -Ride services
	30	Amtrak
	31	Metro North
	32	Shoreline East
	33	Long Island Rail Road
	34	MTA Subway
	35	NJ Transit Rail
	36	Other

transit_system_2

		Value
Standard Att	Label	Second transit system used
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	CT Transit: Hartford
	2	CT Transit: Stamford
	3	CT Transit: New Britain
	4	CT Transit: New Haven
	5	CT Transit: Waterbury
	6	CT Transit: Bristol
	7	CT Transit: Meriden
	8	CT Transit: Wallingford
	9	CT Transit: CTFastrak
	10	CT Transit: Hartford Express
	11	Norwalk Transit District
	12	Greater Bridgeport Transit
	13	Housatonic Area Regional Transit
	14	Northwestern CT Transit District
	15	Valley Transit District
	16	Milford Transit District
	17	Middletown Area Transit
	18	Estuary Transit District
	19	Southeast Area Transit (SEAT)
	20	Windham Region Transit District
	21	Northeastern Connecticut Transit District
	22	iBUS Express
	23	Post Road Stages
	24	Greyhound
	25	Peter Pan
	26	Dattco
	27	Kelly Transit
	28	CT Rides
	29	Other Dial -A -Ride services
	30	Amtrak
	31	Metro North
	32	Shoreline East
	33	Long Island Rail Road
	34	MTA Subway
	35	NJ Transit Rail
	36	Other

transit_system_3

		Value
Standard Att	Label	Third transit system used
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	CT Transit: Hartford
	2	CT Transit: Stamford
	3	CT Transit: New Britain
	4	CT Transit: New Haven
	5	CT Transit: Waterbury
	6	CT Transit: Bristol
	7	CT Transit: Meriden
	8	CT Transit: Wallingford
	9	CT Transit: CTFastrak
	10	CT Transit: Hartford Express
	11	Norwalk Transit District
	12	Greater Bridgeport Transit
	13	Housatonic Area Regional Transit
	14	Northwestern CT Transit District
	15	Valley Transit District
	16	Milford Transit District
	17	Middletown Area Transit
	18	Estuary Transit District
	19	Southeast Area Transit (SEAT)
	20	Windham Region Transit District
	21	Northeastern Connecticut Transit District
	22	iBUS Express
	23	Post Road Stages
	24	Greyhound
	25	Peter Pan
	26	Dattco
	27	Kelly Transit
	28	CT Rides
	29	Other Dial -A -Ride services
	30	Amtrak
	31	Metro North
	32	Shoreline East
	33	Long Island Rail Road
	34	MTA Subway
	35	NJ Transit Rail
	36	Other

transit_system_4

		Value
Standard Att	Label	Fourth transit system used
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	CT Transit: Hartford
	2	CT Transit: Stamford
	3	CT Transit: New Britain
	4	CT Transit: New Haven
	5	CT Transit: Waterbury
	6	CT Transit: Bristol
	7	CT Transit: Meriden
	8	CT Transit: Wallingford
	9	CT Transit: CTFastrak
	10	CT Transit: Hartford Express
	11	Norwalk Transit District
	12	Greater Bridgeport Transit
	13	Housatonic Area Regional Transit
	14	Northwestern CT Transit District
	15	Valley Transit District
	16	Milford Transit District
	17	Middletown Area Transit
	18	Estuary Transit District
	19	Southeast Area Transit (SEAT)
	20	Windham Region Transit District
	21	Northeastern Connecticut Transit District
	22	iBUS Express
	23	Post Road Stages
	24	Greyhound
	25	Peter Pan
	26	Dattco
	27	Kelly Transit
	28	CT Rides
	29	Other Dial -A -Ride services
	30	Amtrak
	31	Metro North
	32	Shoreline East
	33	Long Island Rail Road
	34	MTA Subway
	35	NJ Transit Rail
	36	Other

transit_line_1

		Value
Standard Att	Label	First transit route/line used
	Type	Numeric
	Measuremer	Scale

transit_line_2

		Value
Standard Att	Label	Second transit route/line used
	Type	Numeric
	Measuremer	Scale

transit_line_3

		Value
Standard Att	Label	Third transit route/line used
	Type	Numeric
	Measuremer	Scale

transit_line_4

		Value
Standard Att	Label	Fourth transit route/line used
	Type	Numeric
	Measuremer	Scale

transit_transfers

		Value
Standard Att	Label	Count of transit transfers made (derived)
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable

gdistance

		Value
Standard Att	Label	Driving distance (miles) from origin to destination (Google estimate)
	Type	Numeric
	Measuremer	Scale

gdistance_bins

		Value
Standard Att	Label	Driving distance (miles) from origin to destination (Google estimate) (derived 10 mile increments)
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-1	0 miles
	0	0 - 10 miles
	10	10 - 20 miles
	20	20 - 30 miles
	30	30 - 40 miles
	40	40 - 50 miles
	50	50 - 60 miles
	60	60 - 70 miles
	70	70 - 80 miles
	80	80 - 90 miles
	90	90 - 100 miles
	100	100 miles or more

gduration

		Value
Standard Att	Label	Driving travel time (minutes) from origin to destination (Google estimate)
	Type	Numeric
	Measuremer	Scale

gduration_bins

		Value
Standard Att	Label	Driving travel time (minutes) from origin to destination (Google estimate) (derived 10 minute increments)
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-1	0 minutes
	0	1 - 10 minutes
	10	10 - 20 minutes
	20	20 - 30 minutes
	30	30 - 40 minutes
	40	40 - 50 minutes
	50	50 - 60 minutes
	60	60 - 70 minutes
	70	70 - 80 minutes
	80	80 - 90 minutes
	90	90 - 100 minutes
	100	100 minutes or more

hhmember1

		Value
Standard Att	Label	Household member 1 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	Not Selected
	1	Selected

hhmember2

		Value
Standard Att	Label	Household member 2 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

hhmember3

		Value
Standard Att	Label	Household member 3 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

hhmember4

		Value
Standard Att	Label	Household member 4 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

hhmember5

		Value
Standard Att	Label	Household member 5 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

hhmember6

		Value
Standard Att	Label	Household member 6 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

hhmember7

		Value
Standard Att	Label	Household member 7 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

hhmember8

		Value
Standard Att	Label	Household member 8 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

hhmember9

		Value
Standard Att	Label	Household member 9 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

hhmembernone

		Value
Standard Att	Label	If household size > 1: No household member was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	No
	1	Yes

o_name_recode

		Value
Standard Att	Label	Final Recoded Trip origin nickname
	Type	String
	Measuremer	Nominal

o_address_recode_2

		Value
Standard Att	Label	Final Recoded Trip origin address
	Type	String
	Measuremer	Nominal

o_lat_recode_2

		Value
Standard Att	Label	Final Recoded Trip origin latitude
	Type	Numeric
	Measuremer	Scale

o_lng_recode_2

		Value
Standard Att	Label	Final Recoded Trip origin longitude
	Type	Numeric
	Measuremer	Scale

d_address_recode

		Value
Standard Att	Label	Final Recoded Trip destination address
	Type	String
	Measuremer	Nominal

d_lat_recode

		Value
Standard Att	Label	Final Recoded Trip destination latitude
	Type	Numeric
	Measuremer	Scale

d_lng_recode

		Value
Standard Att	Label	Final Recoded Trip destination longitude
	Type	Numeric
	Measuremer	Scale

o_purpose_recode_3

		Value
Standard Att	Label	Final Recoded Primary purpose at trip origin
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Go home
	2	Go to primary workplace
	3	Go to other work-related place
	4	Attend school/class
	5	Other school-related activity
	6	Grocery shopping
	7	Do other shopping (e.g. mall, hardware store)
	8	Run errands (e.g. bank, haircut)
	9	Go to restaurant/bar/get take-out
	10	Drop off/pick up/accompany other person
	11	Exercise (e.g. gym, walk, jog/run)
	12	Family activity (e.g. child's game)
	13	Medical visit (e.g. doctor, dentist)
	14	Social (e.g. visit friends/relatives)
	15	Leisure/entertainment (e.g. movies)
	16	Religious/civic/volunteer
	17	Vacation/holiday/traveling (e.g. hotel)
	18	Change travel mode (e.g. wait for bus, change planes)
	19	Home other
	20	Go to airport/switch airport
	97	Other

d_purpose_recode_3

		Value
Standard Att	Label	Final Recoded Primary purpose at trip destination
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Go home
	2	Go to primary workplace
	3	Go to other work-related place
	4	Attend school/class
	5	Other school-related activity
	6	Grocery shopping
	7	Do other shopping (e.g. mall, hardware store)
	8	Run errands (e.g. bank, haircut)
	9	Go to restaurant/bar/get take-out
	10	Drop off/pick up/accompany other person
	11	Exercise (e.g. gym, walk, jog/run)
	12	Family activity (e.g. child's game)
	13	Medical visit (e.g. doctor, dentist)
	14	Social (e.g. visit friends/relatives)
	15	Leisure/entertainment (e.g. movies)
	16	Religious/civic/volunteer
	17	Vacation/holiday/traveling (e.g. hotel)
	18	Change travel mode (e.g. wait for bus, change planes)
	19	Home other
	20	Go to airport/switch airport
	97	Other

t_purpose_recode_2

		Value
Standard Att	Label	Final Recoded Overall trip purpose
	Type	String
	Measuremer	Nominal
Valid Values	WB	Work Based (work/work related to any/from any non-home purpose)
	HH	Home Based Home (home to/from home loop trip)
	WW	Work Based Work (primary workplace to/from primary workplace loop trip)
	NHB	Non Home Based (any non-home, non-work to/from any non-home, non work)
	HBO	Home Based Other (home to/from any other purpose)
	HBW	Home Based Work (home to/from work/work-related)
	HBSoc	Home Based Social Recreation (home to/from social recreation activity)
	HBEsc	Home Based Escorting (home to/from drop off/pick up/accompany other person)
	HBSch	Home Based School (home to/from school/other school related)
	HHOth	Home Based Home Other (home to/from home other)
	HBMel	Home Based Meal (home to/from restaurant/bar/get take-out)
	HBShp	Home Based Shopping (home to/from grocery shopping/other shopping)
	HBPer	Home Based Personal Business (home to/from personal business)

valid_linked_trip_recode

		Value
Standard Att	Label	Final Recoded Indicator of whether the trip is part of a linked trip
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	Unlinked
	1	Linked

linked_tripid_recode

		Value
Standard Att	Label	Final Recoded Corresponding linked trip ID (unique)
	Type	Numeric
	Measuremer	Scale

linked_trip_index_recode

		Value
Standard Att	Label	Final Recoded linked trip index
	Type	Numeric
	Measuremer	Nominal

how_linked_recode

		Value
Standard Att	Label	Final Recoded how trip got linked
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	Not Linked
	1	Linked by Change Mode Heuristic
	2	Linked by Same Purpose Heuristic

origin_county

		Value
Standard Att	Label	Trip origin: County corresponding to recoded origin location
	Type	String
	Measuremer	Nominal

origin_town

		Value
Standard Att	Label	Trip origin: Town corresponding to recoded origin location
	Type	String
	Measuremer	Nominal

origin_bg_geoid

		Value
Standard Att	Label	Trip origin: Block Group ID corresponding to recoded origin location
	Type	String
	Measuremer	Nominal

destination_county_recode

		Value
Standard Att	Label	Trip destination: County corresponding to recoded destination location
	Type	String
	Measuremer	Nominal

destination_town_recode

		Value
Standard Att	Label	Trip destination: Town corresponding to recoded destination location
	Type	String
	Measuremer	Nominal

destination_bg_geoid_recode

		Value
Standard Att	Label	Trip destination: Block Group ID corresponding to recoded destination location
	Type	String
	Measuremer	Nominal

final_weights

		Value
Standard Att	Label	Readjusted weights matching marginal distributions of household and person variables of interest
	Type	Numeric
	Measuremer	Scale

hhid

		Value
Standard Att	Label	Household ID
	Type	Numeric
	Measuremer	Scale

personid

		Value
Standard Att	Label	Person ID
	Type	Numeric
	Measuremer	Nominal

linked_tripid

		Value
Standard Att	Label	Linked trip ID (Unique)
	Type	Numeric
	Measuremer	Nominal

trip_num

		Value
Standard Att	Label	Trip number of the first unlinked trip that is part of the trip chain
	Type	Numeric
	Measuremer	Scale

segnum

		Value
Standard Att	Label	Sample segment
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Segment 1: Over Sample, low response rate
	2	Segment 2: Over Sample, medium response rate
	3	Segment 3: Over Sample, high response rate
	4	Segment 4: Regular Sample, low response rate
	5	Segment 5: Regular Sample, medium response rate
	6	Segment 6: Regular Sample, high response rate
	99	Segment 99: Volunteers

week

		Value
Standard Att	Label	Week number of assigned travel date
	Type	Numeric
	Measuremer	Nominal

traveldate

		Value
Standard Att	Label	Assigned travel date
	Type	String
	Measuremer	Nominal

person_num

		Value
Standard Att	Label	Person number
	Type	Numeric
	Measuremer	Nominal

hh_hts_status

		Value
Standard Att	Label	Household survey status
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	Incomplete
	1	Complete

valid_linked_trip

		Value
Standard Att	Label	Indicator of whether the trip is part of a linked trip
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	Not Linked
	1	Linked

linked_trip_index

		Value
Standard Att	Label	Linked trip index
	Type	Numeric
	Measuremer	Nominal

how_linked

		Value
Standard Att	Label	How trip got linked
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	Not Linked
	1	Linked by Change Mode Heuristic
	2	Linked by Same Purpose Heuristic

count_of_legs

		Value
Standard Att	Label	Count of legs
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Unlinked Trip
	2	Linked Trip with 2 Legs
	3	Linked Trip with 3 Legs
	4	Linked Trip with 4 Legs
	5	Linked Trip with 5 Legs
	6	Linked Trip with 6 Legs
	7	Linked Trip with 7 Legs

o_name_across_legs_string

		Value
Standard Att	Label	"Linked" Trip origin nickname, concatenated)
	Type	String
	Measuremer	Nominal

d_name_across_legs_string

		Value
Standard Att	Label	"Linked" Trip destination nickname, concatenated
	Type	String
	Measuremer	Nominal

d_purpose_across_legs_string

		Value
Standard Att	Label	Primary purpose at "linked" trip destination, concatenated
	Type	String
	Measuremer	Nominal
Valid Values	1	Go home
	2	Go to primary workplace
	3	Go to other work-related place
	4	Attend school/class
	5	Other school-related activity
	6	Grocery shopping
	7	Do other shopping (e.g. mall, hardware store)
	8	Run errands (e.g. bank, haircut)
	9	Go to restaurant/bar/get take-out
	10	Drop off/pick up/accompany other person
	20	Go to airport/switch airport
	11	Exercise (e.g. gym, walk, jog/run)
	12	Family activity (e.g. child's game)
	13	Medical visit (e.g. doctor, dentist)
	14	Social (e.g. visit friends/relatives)
	15	Leisure/entertainment (e.g. movies)
	16	Religious/civic/volunteer
	17	Vacation/holiday/traveling (e.g. hotel)
	97	Other
	18	Change travel mode (e.g. wait for bus, change planes)
	19	Home other

o_name_recode_linked

		Value
Standard Att	Label	Trip origin nickname
	Type	String
	Measuremer	Nominal

o_address_recode_2_linked

		Value
Standard Att	Label	Trip origin address
	Type	String
	Measuremer	Nominal

o_lat_recode_2_linked

		Value
Standard Att	Label	Trip origin latitude
	Type	Numeric
	Measuremer	Scale

o_lng_recode_2_linked

		Value
Standard Att	Label	Trip origin longitude
	Type	Numeric
	Measuremer	Scale

origin_county_linked

		Value
Standard Att	Label	Trip origin: County corresponding to origin location
	Type	String
	Measuremer	Nominal

origin_town_linked

		Value
Standard Att	Label	Trip origin: Town corresponding to origin location
	Type	String
	Measuremer	Nominal

origin_bg_geoid_linked

		Value
Standard Att	Label	Trip origin: Block Group ID corresponding to origin location
	Type	String
	Measuremer	Nominal

d_name_linked

		Value
Standard Att	Label	Trip destination nickname
	Type	String
	Measuremer	Nominal

d_address_recode_linked

		Value
Standard Att	Label	Trip destination address
	Type	String
	Measuremer	Nominal

d_lat_recode_linked

		Value
Standard Att	Label	Trip destination latitude
	Type	Numeric
	Measuremer	Scale

d_lng_recode_linked

		Value
Standard Att	Label	Trip destination longitude
	Type	Numeric
	Measuremer	Scale

destination_county_recode_linked

		Value
Standard Att	Label	Trip destination: County corresponding to destination location
	Type	String
	Measuremer	Nominal

destination_town_recode_linked

		Value
Standard Att	Label	Trip destination: Town corresponding to destination location
	Type	String
	Measuremer	Nominal

destination_bg_geoid_recode_linked

		Value
Standard Att	Label	Trip destination: Block Group ID corresponding to destination location
	Type	String
	Measuremer	Nominal

departure_time_linked

		Value
Standard Att	Label	Trip departure time
	Type	Numeric
	Measuremer	Scale

arrival_time_linked

		Value
Standard Att	Label	Trip arrival time
	Type	Numeric
	Measuremer	Scale

departure_time_hhmm_linked

		Value
Standard Att	Label	Trip departure time: hours and minutes
	Type	String
	Measuremer	Nominal

arrival_time_hhmm_linked

		Value
Standard Att	Label	Trip arrival time: hours and minutes
	Type	String
	Measuremer	Nominal

departure_hour_linked

		Value
Standard Att	Label	Trip departure time: hour of day
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-1	Before 3:00 AM
	3	3:00 - 3:55 AM
	4	4:00 - 4:55 AM
	5	5:00 - 5:55 AM
	6	6:00 - 6:55 AM
	7	7:00 - 7:55 AM
	8	8:00 - 8:55 AM
	9	9:00 - 9:55 AM
	10	10:00 - 10:55 AM
	11	11:00 - 11:55 AM
	12	12:00 - 12:55 PM
	13	1:00 - 1:55 PM
	14	2:00 - 2:55 PM
	15	3:00 - 3:55 PM
	16	4:00 - 4:55 PM
	17	5:00 - 5:55 PM
	18	6:00 - 6:55 PM
	19	7:00 - 7:55 PM
	20	8:00 - 8:55 PM
	21	9:00 - 9:55 PM
	22	10:00 - 10:55 PM
	23	11:00 - 11:55 PM
	24	12:00 - 12:55 PM
	25	1:00 - 1:55 AM (next day)
	26	2:00 - 2:55 AM (next day)
	27	After 3:00 AM (next day)

arrival_hour_linked

		Value
Standard Att	Label	Trip arrival time: hour of day
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-1	Before 3:00 AM
	3	3:00 - 3:55 AM
	4	4:00 - 4:55 AM
	5	5:00 - 5:55 AM
	6	6:00 - 6:55 AM
	7	7:00 - 7:55 AM
	8	8:00 - 8:55 AM
	9	9:00 - 9:55 AM
	10	10:00 - 10:55 AM
	11	11:00 - 11:55 AM
	12	12:00 - 12:55 PM
	13	1:00 - 1:55 PM
	14	2:00 - 2:55 PM
	15	3:00 - 3:55 PM
	16	4:00 - 4:55 PM
	17	5:00 - 5:55 PM
	18	6:00 - 6:55 PM
	19	7:00 - 7:55 PM
	20	8:00 - 8:55 PM
	21	9:00 - 9:55 PM
	22	10:00 - 10:55 PM
	23	11:00 - 11:55 PM
	24	12:00 - 12:55 PM
	25	1:00 - 1:55 AM (next day)
	26	2:00 - 2:55 AM (next day)
	27	After 3:00 AM (next day)

reported_duration_linked

		Value
Standard Att	Label	Trip duration: minutes (obtained by aggregating the reported durations across all trip legs)
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-99	Not Applicable; Either departed before 3AM or arrived at or after 3AM next day

reported_duration_linked_recode

		Value
Standard Att	Label	Final Recoded trip duration: minutes (obtained by taking the difference between arrival time and departure time)
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-99	Not Applicable; Either departed before 3AM or arrived at or after 3AM next day

travelers_total_linked

		Value
Standard Att	Label	Total number of travelers on trip including self
	Type	Numeric
	Measuremer	Nominal

travelers_hh_linked

		Value
Standard Att	Label	Household members on trip including self
	Type	Numeric
	Measuremer	Nominal

travelers_nonhh_linked

		Value
Standard Att	Label	Non-household members on trip
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	Nobody (0 people)
	1	1 person
	2	2 people
	3	3 people
	4	4 people
	5	5 or more people

o_purpose_recode_3_linked

		Value
Standard Att	Label	Primary purpose at trip origin
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Go home
	2	Go to primary workplace
	3	Go to other work-related place
	4	Attend school/class
	5	Other school-related activity
	6	Grocery shopping
	7	Do other shopping (e.g. mall, hardware store)
	8	Run errands (e.g. bank, haircut)
	9	Go to restaurant/bar/get take-out
	10	Drop off/pick up/accompany other person
	11	Exercise (e.g. gym, walk, jog/run)
	12	Family activity (e.g. child's game)
	13	Medical visit (e.g. doctor, dentist)
	14	Social (e.g. visit friends/relatives)
	15	Leisure/entertainment (e.g. movies)
	16	Religious/civic/volunteer
	17	Vacation/holiday/traveling (e.g. hotel)
	18	Change travel mode (e.g. wait for bus, change planes)
	19	Home other
	20	Go to airport/switch airport
	97	Other

d_purpose_recode_3_linked

		Value
Standard Att	Label	Primary purpose at trip destination
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Go home
	2	Go to primary workplace
	3	Go to other work-related place
	4	Attend school/class
	5	Other school-related activity
	6	Grocery shopping
	7	Do other shopping (e.g. mall, hardware store)
	8	Run errands (e.g. bank, haircut)
	9	Go to restaurant/bar/get take-out
	10	Drop off/pick up/accompany other person
	11	Exercise (e.g. gym, walk, jog/run)
	12	Family activity (e.g. child's game)
	13	Medical visit (e.g. doctor, dentist)
	14	Social (e.g. visit friends/relatives)
	15	Leisure/entertainment (e.g. movies)
	16	Religious/civic/volunteer
	17	Vacation/holiday/traveling (e.g. hotel)
	18	Change travel mode (e.g. wait for bus, change planes)
	19	Home other
	20	Go to airport/switch airport
	97	Other

t_purpose_recode_linked

		Value
Standard Att	Label	Overall trip purpose
	Type	String
	Measuremer	Nominal
Valid Values	WB	Work Based (work/work related to any/from any non-home purpose)
	HH	Home Based Home (home to/from home loop trip)
	WW	Work Based Work (primary workplace to/from primary workplace loop trip)
	NHB	Non Home Based (any non-home, non-work to/from any non-home, non work)
	HBO	Home Based Other (home to/from any other purpose)
	HBW	Home Based Work (home to/from work/work-related)
	HBSoc	Home Based Social Recreation (home to/from social recreation activity)
	HBEsc	Home Based Escorting (home to/from drop off/pick up/accompany other person)
	HBSch	Home Based School (home to/from school/other school related)
	HHOth	Home Based Home Other (home to/from home other)
	HBMel	Home Based Meal (home to/from restaurant/bar/get take-out)
	HBShp	Home Based Shopping (home to/from grocery shopping/other shopping)
	HBPer	Home Based Personal Business (home to/from personal business)

primary_mode_linked

		Value
Standard Att	Label	Main way traveled on trip
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Walk/jog/wheelchair
	2	Bicycle
	3	Vehicle in household
	4	Other vehicle (e.g. rental, friend's car)
	5	Regular taxi or hired car service
	6	Ride-share taxi/car service (e.g. Uber, Lyft)
	7	Vanpool
	8	School bus
	9	Public (city) bus
	10	Train (e.g. Amtrak)
	11	Shuttle (e.g. a hotel's, an airport's)
	12	Paratransit
	13	Commuter Rail (e.g. Metro North)
	14	Subway
	15	Intercity bus (e.g. Greyhound)
	16	Ferry/water taxi/boat
	17	Airplane/helicopter
	97	Other

primary_mode_category_linked

		Value
Standard Att	Label	USE RECODED VERSION: Main way traveled on trip, aggregated
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	SOV (single-occupant vehicle)
	2	Family carpool (HH or Other vehicle, only HH members in travel party)
	3	Other carpool (HH or Other vehicle, includes at least one non-HH member)
	4	Walk or Bike
	5	Taxi (traditional or rideshare)
	6	Public transit (bus, train, paratransit, commuter rail, subway, intercity bus)
	97	Other (vanpool, school bus, shuttle, ferry/boat, airplane, other)

mode_across_legs_string

		Value
Standard Att	Label	Main way traveled on "linked" trip, concatenated
	Type	String
	Measuremer	Nominal
Valid Values	1	Walk/jog/wheelchair
	2	Bicycle
	3	Vehicle in household
	4	Other vehicle (e.g. rental, friend's car)
	5	Regular taxi or hired car service
	6	Ride-share taxi/car service (e.g. Uber, Lyft)
	7	Vanpool
	8	School bus
	9	Public (city) bus
	10	Train (e.g. Amtrak)
	11	Shuttle (e.g. a hotel's, an airport's)
	12	Paratransit
	13	Commuter Rail (e.g. Metro North)
	14	Subway
	15	Intercity bus (e.g. Greyhound)
	16	Ferry/water taxi/boat
	17	Airplane/helicopter
	97	Other

mode_hhauto_linked

		Value
Standard Att	Label	HH or Other Vehicle: Vehicle used
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	HH vehicle 1
	2	HH vehicle 2
	3	HH vehicle 3
	4	HH vehicle 4
	5	HH vehicle 5
	6	HH vehicle 6
	7	HH vehicle 7
	8	HH vehicle 8
	9	HH vehicle 9
	10	HH vehicle 10
	11	Rental car
	12	Car from work
	13	Friend/relative's car
	14	Carshare vehicle (e.g. Car2Go)
	15	Motorcycle/moped/scooter

driver_linked

		Value
Standard Att	Label	HH or Other Vehicle, or Vanpool: If age 16+ and licensed travel party > 1: Was driver or passenger on trip
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Driver
	2	Passenger
	3	Both (switched drivers during trip)

hov_use_linked

		Value
Standard Att	Label	HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses HOV and travel party > 1: Used HOV lane on trip
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Yes
	2	No

tollroad_use_linked

		Value
Standard Att	Label	HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses toll road: Toll road used on trip
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Yes
	2	No

tollroad_cost_linked

		Value
Standard Att	Label	If used toll road for this trip: Toll road cost for trip (dollars)
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-99	Not Applicable

tollroad_cost_dk_linked

		Value
Standard Att	Label	Toll road cost for trip: don't know
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not selected
	1	Selected

park_loc_linked

		Value
Standard Att	Label	HH or Other vehicle, or Vanpool: If age 16+: Parking location at destination
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	Own driveway/garage
	2	Someone else's driveway
	3	Parking lot/garage at destination (within 2 blocks)
	4	Parking lot/garage 2+ blocks away from destination
	5	On street parking at destination (within 2 blocks)
	6	On street parking 2+ blocks away from destination
	7	Park & ride lot
	8	Didn't park (waited, drop-off, drive-thru)
	9	Other

park_pay_linked

		Value
Standard Att	Label	Parked on street or in a lot/garage: If ever pays for parking: How paid for parking at destination
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	No, parking was free
	2	Yes, with cash/tickets
	3	Yes, with parking pass
	4	No, another person paid or was reimbursed
	5	Not sure/don't remember

park_cost_linked

		Value
Standard Att	Label	If paid with cash/tickets: Cost of parking at destination (dollars)
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-99	Not Applicable

park_cost_dk_linked

		Value
Standard Att	Label	Parking cost for trip: don't know
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not selected
	1	Selected

taxi_cost_linked

		Value
Standard Att	Label	Taxi or Rideshare: Cost of taxi for trip (dollars)
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-99	Not Applicable
	0	Not Selected
	1	Selected

taxi_cost_dk_linked

		Value
Standard Att	Label	Cost of taxi for trip: don't know
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not selected
	1	Selected

transit_access_linked

		Value
Standard Att	Label	Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit access mode
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	Walked or jogged/ Rode a bike
	2	Drove and parked a car/ Got dropped off
	5	Took a taxi/ Ride share (e.g. Uber, Lyft)
	6	Transferred from other transit
	7	Was already at destination
	8	Other

transit_egress_linked

		Value
Standard Att	Label	Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit egress mode
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	Walked or jogged/ Rode a bike
	2	Drove and parked a car/ Got dropped off
	5	Took a taxi/ Ride share (e.g. Uber, Lyft)
	6	Transferred from other transit
	7	Was already at destination
	8	Other

transit_pay_linked

		Value
Standard Att	Label	USE RECODED VERSION: Public Bus, Commuter Rail, Subway, Train or Intercity Bus: How paid for transit on trip
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	Unlinked Trip: Free (no cost)
	2	Unlinked Trip: Cash or ticket(s)
	3	Unlinked Trip: Stored value card
	4	Unlinked Trip: Used pass (any type)
	5	Unlinked Trip: Not sure/don't remember
	6	Unlinked Trip: Other
	888	Linked Trip: Did not pay
	999	Linked Trip: Paid

transit_cost_linked

		Value
Standard Att	Label	Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Cost of transit for trip (dollars)
	Type	Numeric
	Measuremer	Scale
Labeled Valu	-99	Not Applicable

transit_cost_dk_linked

		Value
Standard Att	Label	Cost of transit for trip: don't know
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not selected
	1	Selected

transit_transfers_llinked

		Value
Standard Att	Label	Count of transit transfers made
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable

transit_system_linked

		Value
Standard Att	Label	transit system used, concatenated
	Type	String
	Measuremer	Nominal
Valid Values	-99	Not Applicable

transit_line_linked

		Value
Standard Att	Label	transit line used, concatenated
	Type	String
	Measuremer	Nominal
Valid Values	-99	Not Applicable

gdistance_linked

		Value
Standard Att	Label	Driving distance (miles) from origin to destination (Google estimate)
	Type	Numeric
	Measuremer	Scale

gduration_linked

		Value
Standard Att	Label	Driving travel time (minutes) from origin to destination (Google estimate)
	Type	Numeric
	Measuremer	Scale

hhmembernone_linked

		Value
Standard Att	Label	If household size > 1: No household member was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	No
	1	Yes

hhmember1_linked

		Value
Standard Att	Label	Household member 1 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	0	Not Selected
	1	Selected

hhmember2_linked

		Value
Standard Att	Label	Household member 2 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

hhmember3_linked

		Value
Standard Att	Label	Household member 3 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

hhmember4_linked

		Value
Standard Att	Label	Household member 4 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

hhmember5_linked

		Value
Standard Att	Label	Household member 5 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

hhmember6_linked

		Value
Standard Att	Label	Household member 6 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

hhmember7_linked

		Value
Standard Att	Label	Household member 7 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

hhmember8_linked

		Value
Standard Att	Label	Household member 8 was in the travel party
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	0	Not Selected
	1	Selected

final_weights

		Value
Standard Att	Label	Readjusted weights matching marginal distributions of household and person variables of interest (modeled)
	Type	Numeric
	Measuremer	Scale

tourid

		Value
Standard Att	Label	Tour ID (Unique)
	Type	Numeric
	Measuremer	Nominal

transit_pay_linked_recode

		Value
Standard Att	Label	Final Recoded Public Bus, Commuter Rail, Subway, Train or Intercity Bus: How paid for transit on trip
	Type	Numeric
	Measuremer	Nominal
Valid Values	-99	Not Applicable
	1	Did not pay
	2	Paid

primary_mode_category_linked_recode

		Value
Standard Att	Label	Final Recoded Main way traveled on trip, aggregated
	Type	Numeric
	Measuremer	Nominal
Valid Values	1	SOV (single-occupant vehicle)
	2	Family carpool (HH or Other vehicle, only HH members in travel party)
	3	Other carpool (HH or Other vehicle, includes at least one non-HH member)
	4	Walk or Bike
	5	Taxi (traditional or rideshare)
	6	Public transit (bus, train, paratransit, commuter rail, subway, intercity bus)
	97	Other (vanpool, school bus, shuttle, ferry/boat, airplane, other)

Appendix P

Main Study Unweighted Data Tabulations

Unweighted tabulations of some key variables from the household file.
Total number of household observations is 8403
Please note that while there are no observations for Canaan town, the weighting analysis does account for households and persons living in the town.

Sample segment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Segment 1: Over Sample, low response rate	1547	18.4	18.4	18.4
	Segment 2: Over Sample, medium response rate	772	9.2	9.2	27.6
	Segment 3: Over Sample, high response rate	423	5.0	5.0	32.6
	Segment 4: Regular Sample, low response rate	565	6.7	6.7	39.4
	Segment 5: Regular Sample, medium response rate	2175	25.9	25.9	65.2
	Segment 6: Regular Sample, high response rate	2921	34.8	34.8	100.0
	Total	8403	100.0	100.0	

Week number of assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	762	9.1	9.1	9.1
	2	793	9.4	9.4	18.5
	3	839	10.0	10.0	28.5
	4	860	10.2	10.2	38.7
	5	838	10.0	10.0	48.7
	6	814	9.7	9.7	58.4
	7	856	10.2	10.2	68.6
	8	773	9.2	9.2	77.8
	9	796	9.5	9.5	87.2
	10	1072	12.8	12.8	100.0
	Total	8403	100.0	100.0	

Assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2016-03-15	266	3.2	3.2	3.2
	2016-03-16	257	3.1	3.1	6.2
	2016-03-17	239	2.8	2.8	9.1
	2016-03-22	260	3.1	3.1	12.2
	2016-03-23	232	2.8	2.8	14.9
	2016-03-24	301	3.6	3.6	18.5
	2016-03-29	288	3.4	3.4	21.9
	2016-03-30	266	3.2	3.2	25.1
	2016-03-31	285	3.4	3.4	28.5
	2016-04-05	298	3.5	3.5	32.0
	2016-04-06	273	3.2	3.2	35.3
	2016-04-07	289	3.4	3.4	38.7
	2016-04-19	280	3.3	3.3	42.1
	2016-04-20	262	3.1	3.1	45.2
	2016-04-21	296	3.5	3.5	48.7
	2016-04-26	281	3.3	3.3	52.0
	2016-04-27	283	3.4	3.4	55.4
	2016-04-28	250	3.0	3.0	58.4
	2016-05-03	300	3.6	3.6	62.0
	2016-05-04	287	3.4	3.4	65.4
	2016-05-05	269	3.2	3.2	68.6
	2016-05-10	266	3.2	3.2	71.7
	2016-05-11	277	3.3	3.3	75.0
	2016-05-12	230	2.7	2.7	77.8
	2016-05-17	298	3.5	3.5	81.3
	2016-05-18	252	3.0	3.0	84.3
	2016-05-19	246	2.9	2.9	87.2
	2016-05-24	364	4.3	4.3	91.6
	2016-05-25	351	4.2	4.2	95.8
	2016-05-26	357	4.2	4.2	100.0
	Total	8403	100.0	100.0	

Household survey status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	8403	100.0	100.0	100.0

Household used transit on travel day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	False (household made 0 transit trips)	7592	90.3	90.3	90.3
	True (household made 1+ transit trips)	811	9.7	9.7	100.0
	Total	8403	100.0	100.0	

Unweighted Distributions - Household File

Household number of vehicles

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no vehicles)	639	7.6	7.6	7.6
	1	3100	36.9	36.9	44.5
	2	3147	37.5	37.5	81.9
	3	1085	12.9	12.9	94.9
	4	320	3.8	3.8	98.7
	5	80	1.0	1.0	99.6
	6	19	.2	.2	99.8
	7	8	.1	.1	99.9
	8	4	.0	.0	100.0
	9	1	.0	.0	100.0
	Total	8403	100.0	100.0	

Household number of vehicles (categories)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no vehicles)	639	7.6	7.6	7.6
	1	3100	36.9	36.9	44.5
	2	3147	37.5	37.5	81.9
	3 or more vehicles	1517	18.1	18.1	100.0
	Total	8403	100.0	100.0	

Household number of bicycles

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no bicycles)	4443	52.9	52.9	52.9
	1	1487	17.7	17.7	70.6
	2	1299	15.5	15.5	86.0
	3	515	6.1	6.1	92.2
	4	369	4.4	4.4	96.5
	5 or more bicycles	290	3.5	3.5	100.0
	Total	8403	100.0	100.0	

Household size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 (I am the only person)	2929	34.9	34.9	34.9
	2	3361	40.0	40.0	74.9
	3	1046	12.4	12.4	87.3
	4	742	8.8	8.8	96.1
	5	248	3.0	3.0	99.1
	6	60	.7	.7	99.8
	7	13	.2	.2	100.0
	8	3	.0	.0	100.0
	9	1	.0	.0	100.0
	Total	8403	100.0	100.0	

Household size (categories)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 (I am the only person)	2929	34.9	34.9	34.9
	2	3361	40.0	40.0	74.9
	3	1046	12.4	12.4	87.3
	4	742	8.8	8.8	96.1
	5 or more people	325	3.9	3.9	100.0
	Total	8403	100.0	100.0	

Number of adults in household age 18+

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 (I am the only adult)	3167	37.7	37.7	37.7
	2	4410	52.5	52.5	90.2
	3	635	7.6	7.6	97.7
	4	162	1.9	1.9	99.7
	5	24	.3	.3	99.9
	6	5	.1	.1	100.0
	Total	8403	100.0	100.0	

Number of students (i.e. valid "schooltype" person variable - excludes None) in household

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	6257	74.5	74.5	74.5
	1	1102	13.1	13.1	87.6
	2	734	8.7	8.7	96.3
	3	258	3.1	3.1	99.4
	4	39	.5	.5	99.8
	5	10	.1	.1	100.0
	6	3	.0	.0	100.0
	Total	8403	100.0	100.0	

Number of adult students (age 18+ and valid "schooltype" person variable - excludes None) in household

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	7560	90.0	90.0	90.0
	1	726	8.6	8.6	98.6
	2	106	1.3	1.3	99.9
	3	11	.1	.1	100.0
	Total	8403	100.0	100.0	

Number of child students (age <18 and valid "schooltype" person variable - excludes None) in household

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	6833	81.3	81.3	81.3
	1	766	9.1	9.1	90.4
	2	616	7.3	7.3	97.8
	3	157	1.9	1.9	99.6
	4	27	.3	.3	100.0
	5	4	.0	.0	100.0
	Total	8403	100.0	100.0	

Number of children in household under age 18

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no children)	6746	80.3	80.3	80.3
	1	791	9.4	9.4	89.7
	2	647	7.7	7.7	97.4
	3	177	2.1	2.1	99.5
	4	36	.4	.4	99.9
	5	5	.1	.1	100.0
	6	1	.0	.0	100.0
	Total	8403	100.0	100.0	

Number of children in household under age 18 (categories)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no children)	6746	80.3	80.3	80.3
	1	791	9.4	9.4	89.7
	2	647	7.7	7.7	97.4
	3 or more children	219	2.6	2.6	100.0
	Total	8403	100.0	100.0	

Number of workers in household: employed full or part time, self-employed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2631	31.3	31.3	31.3
	1	3106	37.0	37.0	68.3
	2	2289	27.2	27.2	95.5
	3	319	3.8	3.8	99.3
	4	50	.6	.6	99.9
	5	6	.1	.1	100.0
	6	2	.0	.0	100.0
	Total	8403	100.0	100.0	

Number of workers in household: employed full or part time, self-employed (categories)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no workers)	2631	31.3	31.3	31.3
	1	3106	37.0	37.0	68.3
	2	2289	27.2	27.2	95.5
	3 or more workers	377	4.5	4.5	100.0
	Total	8403	100.0	100.0	

Number of licensed drivers in household

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	344	4.1	4.1	4.1
	1	3242	38.6	38.6	42.7
	2	4106	48.9	48.9	91.5
	3	583	6.9	6.9	98.5
	4	107	1.3	1.3	99.8
	5	17	.2	.2	100.0
	6	4	.0	.0	100.0
	Total	8403	100.0	100.0	

Residence tenure status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Own/Buying (paying mortgage)	5913	70.4	71.3	71.3
	Rent	2271	27.0	27.4	98.7
	Provided by job or military	12	.1	.1	98.9
	Other	95	1.1	1.1	100.0
	Total	8291	98.7	100.0	
Missing	Prefer not to answer	112	1.3		
Total		8403	100.0		

Residence type of structure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single-family house (detached house)	5214	62.0	62.0	62.0
	Duplex or Townhouse (attached house)	626	7.4	7.4	69.5
	Multi-family house (3 or fewer apartments)	503	6.0	6.0	75.5
	Building with 3 or fewer apartments/condos	158	1.9	1.9	77.4
	Building with 4 or more apartments/condos	1825	21.7	21.7	99.1
	Mobile home/trailer	29	.3	.3	99.4
	Dorm or institutional housing	27	.3	.3	99.8
	Other (including boat, RV, van, etc.)	21	.2	.2	100.0
	Total	8403	100.0	100.0	

Reported home location: County corresponding to home location

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Fairfield County	2289	27.2	27.2	27.2
	Hartford County	2082	24.8	24.8	52.0
	Litchfield County	352	4.2	4.2	56.2
	Middlesex County	431	5.1	5.1	61.3
	New Haven County	2086	24.8	24.8	86.2
	New London County	627	7.5	7.5	93.6
	Tolland County	325	3.9	3.9	97.5
	Windham County	211	2.5	2.5	100.0
	Total	8403	100.0	100.0	

Reported home location: Town corresponding to home location

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Andover	10	.1	.1	.1
	Ansonia	51	.6	.6	.7
	Ashford	13	.2	.2	.9
	Avon	41	.5	.5	1.4
	Barkhamsted	8	.1	.1	1.5
	Beacon Falls	18	.2	.2	1.7
	Berlin	41	.5	.5	2.2
	Bethany	9	.1	.1	2.3
	Bethel	31	.4	.4	2.6
	Bethlehem	8	.1	.1	2.7
	Bloomfield	34	.4	.4	3.1
	Bolton	11	.1	.1	3.3
	Bozrah	7	.1	.1	3.4
	Branford	60	.7	.7	4.1
	Bridgeport	238	2.8	2.8	6.9
	Bridgewater	4	.0	.0	6.9
	Bristol	117	1.4	1.4	8.3
	Brookfield	26	.3	.3	8.7
	Brooklyn	13	.2	.2	8.8
	Burlington	24	.3	.3	9.1
	Canterbury	7	.1	.1	9.2
	Canton	26	.3	.3	9.5
	Chaplin	5	.1	.1	9.5
	Cheshire	58	.7	.7	10.2
	Chester	12	.1	.1	10.4
	Clinton	33	.4	.4	10.8
	Colchester	31	.4	.4	11.1
	Colebrook	1	.0	.0	11.2
	Columbia	10	.1	.1	11.3
	Cornwall	5	.1	.1	11.3
	Coventry	26	.3	.3	11.6
	Cromwell	30	.4	.4	12.0
	Danbury	125	1.5	1.5	13.5
	Darien	105	1.2	1.2	14.7
	Deep River	11	.1	.1	14.9
	Derby	26	.3	.3	15.2
	Durham	21	.2	.2	15.4
	East Granby	17	.2	.2	15.6
	East Haddam	17	.2	.2	15.8
	East Hampton	34	.4	.4	16.2
	East Hartford	118	1.4	1.4	17.6
	East Haven	48	.6	.6	18.2
	East Lyme	47	.6	.6	18.8
	East Windsor	18	.2	.2	19.0
	Eastford	5	.1	.1	19.0
	Easton	11	.1	.1	19.2
	Ellington	37	.4	.4	19.6
	Enfield	69	.8	.8	20.4
	Essex	28	.3	.3	20.8

Reported home location: Town corresponding to home location (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Fairfield	179	2.1	2.1	22.9
	Farmington	60	.7	.7	23.6
	Franklin	6	.1	.1	23.7
	Glastonbury	72	.9	.9	24.5
	Goshen	5	.1	.1	24.6
	Granby	29	.3	.3	24.9
	Greenwich	171	2.0	2.0	27.0
	Griswold	26	.3	.3	27.3
	Groton	102	1.2	1.2	28.5
	Guilford	44	.5	.5	29.0
	Haddam	19	.2	.2	29.3
	Hamden	144	1.7	1.7	31.0
	Hampton	4	.0	.0	31.0
	Hartford	373	4.4	4.4	35.5
	Hartland	7	.1	.1	35.5
	Harwinton	14	.2	.2	35.7
	Hebron	15	.2	.2	35.9
	Kent	5	.1	.1	35.9
	Killingly	47	.6	.6	36.5
	Killingworth	10	.1	.1	36.6
	Lebanon	14	.2	.2	36.8
	Ledyard	33	.4	.4	37.2
	Lisbon	3	.0	.0	37.2
	Litchfield	17	.2	.2	37.4
	Lyme	8	.1	.1	37.5
	Madison	56	.7	.7	38.2
	Manchester	144	1.7	1.7	39.9
	Mansfield	46	.5	.5	40.4
	Marlborough	15	.2	.2	40.6
	Meriden	120	1.4	1.4	42.0
	Middlebury	9	.1	.1	42.2
	Middlefield	6	.1	.1	42.2
	Middletown	131	1.6	1.6	43.8
	Milford	121	1.4	1.4	45.2
	Monroe	44	.5	.5	45.7
	Montville	23	.3	.3	46.0
	Morris	5	.1	.1	46.1
	Naugatuck	57	.7	.7	46.8
	New Britain	137	1.6	1.6	48.4
	New Canaan	59	.7	.7	49.1
	New Fairfield	28	.3	.3	49.4
	New Hartford	22	.3	.3	49.7
	New Haven	507	6.0	6.0	55.7
	New London	82	1.0	1.0	56.7
	New Milford	52	.6	.6	57.3
	Newington	72	.9	.9	58.2
	Newtown	57	.7	.7	58.8
	Norfolk	3	.0	.0	58.9
	North Branford	20	.2	.2	59.1

Reported home location: Town corresponding to home location (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	North Canaan	4	.0	.0	59.2
	North Haven	57	.7	.7	59.8
	North Stonington	11	.1	.1	60.0
	Norwalk	202	2.4	2.4	62.4
	Norwich	116	1.4	1.4	63.8
	Old Lyme	18	.2	.2	64.0
	Old Saybrook	29	.3	.3	64.3
	Orange	32	.4	.4	64.7
	Oxford	23	.3	.3	65.0
	Plainfield	23	.3	.3	65.3
	Plainville	29	.3	.3	65.6
	Plymouth	18	.2	.2	65.8
	Pomfret	8	.1	.1	65.9
	Portland	25	.3	.3	66.2
	Preston	10	.1	.1	66.3
	Prospect	19	.2	.2	66.5
	Putnam	10	.1	.1	66.7
	Redding	14	.2	.2	66.8
	Ridgefield	63	.7	.7	67.6
	Rocky Hill	50	.6	.6	68.2
	Roxbury	5	.1	.1	68.2
	Salem	2	.0	.0	68.3
	Salisbury	4	.0	.0	68.3
	Scotland	1	.0	.0	68.3
	Seymour	49	.6	.6	68.9
	Sharon	1	.0	.0	68.9
	Shelton	92	1.1	1.1	70.0
	Sherman	13	.2	.2	70.2
	Simsbury	62	.7	.7	70.9
	Somers	10	.1	.1	71.0
	South Windsor	62	.7	.7	71.8
	Southbury	73	.9	.9	72.6
	Southington	85	1.0	1.0	73.6
	Sprague	4	.0	.0	73.7
	Stafford	25	.3	.3	74.0
	Stamford	408	4.9	4.9	78.8
	Sterling	6	.1	.1	78.9
	Stonington	37	.4	.4	79.4
	Stratford	112	1.3	1.3	80.7
	Suffield	24	.3	.3	81.0
	Thomaston	9	.1	.1	81.1
	Thompson	12	.1	.1	81.2
	Tolland	31	.4	.4	81.6
	Torrington	81	1.0	1.0	82.6
	Trumbull	89	1.1	1.1	83.6
	Union	2	.0	.0	83.6
	Vernon	90	1.1	1.1	84.7
	Voluntown	4	.0	.0	84.8
	Wallingford	101	1.2	1.2	86.0

Reported home location: Town corresponding to home location (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Warren	3	.0	.0	86.0
	Washington	12	.1	.1	86.1
	Waterbury	235	2.8	2.8	88.9
	Waterford	43	.5	.5	89.4
	Watertown	34	.4	.4	89.8
	West Hartford	199	2.4	2.4	92.2
	West Haven	114	1.4	1.4	93.6
	Westbrook	25	.3	.3	93.9
	Weston	46	.5	.5	94.4
	Westport	123	1.5	1.5	95.9
	Wethersfield	60	.7	.7	96.6
	Willington	12	.1	.1	96.7
	Wilton	53	.6	.6	97.4
	Winchester	13	.2	.2	97.5
	Windham	45	.5	.5	98.1
	Windsor	61	.7	.7	98.8
	Windsor Locks	36	.4	.4	99.2
	Wolcott	25	.3	.3	99.5
	Woodbridge	10	.1	.1	99.6
	Woodbury	19	.2	.2	99.9
	Woodstock	12	.1	.1	100.0
	Total	8403	100.0	100.0	

Household income 2015: detailed categories

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than $10,000	310	3.7	4.5	4.5
	$10,000-$14,999	291	3.5	4.2	8.6
	$15,000-$24,999	478	5.7	6.9	15.5
	$25,000-$34,999	487	5.8	7.0	22.5
	$35,000-$49,999	656	7.8	9.4	31.9
	$50,000-$59,999	560	6.7	8.0	40.0
	$60,000-$74,999	683	8.1	9.8	49.8
	$75,000-$99,999	986	11.7	14.2	64.0
	$100,000-$149,999	1294	15.4	18.6	82.5
	$150,000-$199,999	556	6.6	8.0	90.5
	$200,000-$249,999	264	3.1	3.8	94.3
	$250,000 or more	395	4.7	5.7	100.0
	Total	6960	82.8	100.0	
Missing	Prefer not to answer	1443	17.2		
Total		8403	100.0		

Household income 2015: broad categories, all respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under $25,000	1122	13.4	15.2	15.2
	$25,000-$49,999	1194	14.2	16.2	31.4
	$50,000-$74,999	1313	15.6	17.8	49.2
	$75,000-$99,999	1026	12.2	13.9	63.1
	$100,000 or more	2728	32.5	36.9	100.0
	Total	7383	87.9	100.0	
Missing	Prefer not to answer	1020	12.1		
Total		8403	100.0		

Willing to participate in future studies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	6369	75.8	75.8	75.8
	No	2034	24.2	24.2	100.0
	Total	8403	100.0	100.0	

Call center completed recruit survey

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	False	7018	83.5	83.5	83.5
	True	1385	16.5	16.5	100.0
	Total	8403	100.0	100.0	

Flag: recruit survey language (web browser)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	English	8386	99.8	99.8	99.8
	Non-english	17	.2	.2	100.0
	Total	8403	100.0	100.0	

Imputed household income 2015: detailed categories

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than $10,000	371	4.4	4.4	4.4
	$10,000-$14,999	355	4.2	4.2	8.6
	$15,000-$24,999	561	6.7	6.7	15.3
	$25,000-$34,999	573	6.8	6.8	22.1
	$35,000-$49,999	786	9.4	9.4	31.5
	$50,000-$59,999	672	8.0	8.0	39.5
	$60,000-$74,999	818	9.7	9.7	49.2
	$75,000-$99,999	1147	13.6	13.6	62.9
	$100,000-$149,999	1582	18.8	18.8	81.7
	$150,000-$199,999	683	8.1	8.1	89.8
	$200,000-$249,999	332	4.0	4.0	93.8
	$250,000 or more	523	6.2	6.2	100.0
	Total	8403	100.0	100.0	

Final Recoded Household number of trips on travel day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	330	3.9	3.9	3.9
	1	61	.7	.7	4.7
	2	864	10.3	10.3	14.9
	3	487	5.8	5.8	20.7
	4	1007	12.0	12.0	32.7
	5	654	7.8	7.8	40.5
	6	830	9.9	9.9	50.4
	7	576	6.9	6.9	57.2
	8	671	8.0	8.0	65.2
	9	418	5.0	5.0	70.2
	10	472	5.6	5.6	75.8
	11	281	3.3	3.3	79.2
	12	344	4.1	4.1	83.2
	13	204	2.4	2.4	85.7
	14	223	2.7	2.7	88.3
	15	160	1.9	1.9	90.2
	16	144	1.7	1.7	91.9
	17	109	1.3	1.3	93.2
	18	98	1.2	1.2	94.4
	19	76	.9	.9	95.3
	20	64	.8	.8	96.1
	21	54	.6	.6	96.7
	22	44	.5	.5	97.2
	23	34	.4	.4	97.6
	24	32	.4	.4	98.0
	25	16	.2	.2	98.2
	26	30	.4	.4	98.6
	27	20	.2	.2	98.8
	28	11	.1	.1	98.9
	29	15	.2	.2	99.1
	30	7	.1	.1	99.2
	31	14	.2	.2	99.4
	32	7	.1	.1	99.5
	33	6	.1	.1	99.5
	34	9	.1	.1	99.6
	35	8	.1	.1	99.7
	36	5	.1	.1	99.8
	37	2	.0	.0	99.8
	39	1	.0	.0	99.8
	40	2	.0	.0	99.8
	41	1	.0	.0	99.9
	42	1	.0	.0	99.9
	43	4	.0	.0	99.9
	45	3	.0	.0	100.0
	47	2	.0	.0	100.0
	51	1	.0	.0	100.0
	52	1	.0	.0	100.0
	Total	8403	100.0	100.0	

Final Recoded Household number of trips on travel day (categories)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no trips)	330	3.9	3.9	3.9
	1	61	.7	.7	4.7
	2	864	10.3	10.3	14.9
	3	487	5.8	5.8	20.7
	4	1007	12.0	12.0	32.7
	5	654	7.8	7.8	40.5
	6	830	9.9	9.9	50.4
	7	576	6.9	6.9	57.2
	8	671	8.0	8.0	65.2
	9	418	5.0	5.0	70.2
	10	472	5.6	5.6	75.8
	11	281	3.3	3.3	79.2
	12	344	4.1	4.1	83.2
	13	204	2.4	2.4	85.7
	14	223	2.7	2.7	88.3
	15	160	1.9	1.9	90.2
	16	144	1.7	1.7	91.9
	17	109	1.3	1.3	93.2
	18	98	1.2	1.2	94.4
	19	76	.9	.9	95.3
	20 or more	394	4.7	4.7	100.0
	Total	8403	100.0	100.0	

Household number of linked trips on travel day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	330	3.9	3.9	3.9
	1	64	.8	.8	4.7
	2	881	10.5	10.5	15.2
	3	491	5.8	5.8	21.0
	4	1028	12.2	12.2	33.3
	5	662	7.9	7.9	41.1
	6	841	10.0	10.0	51.1
	7	579	6.9	6.9	58.0
	8	679	8.1	8.1	66.1
	9	409	4.9	4.9	71.0
	10	466	5.5	5.5	76.5
	11	281	3.3	3.3	79.9
	12	339	4.0	4.0	83.9
	13	206	2.5	2.5	86.4
	14	208	2.5	2.5	88.8
	15	151	1.8	1.8	90.6
	16	152	1.8	1.8	92.4
	17	101	1.2	1.2	93.6
	18	108	1.3	1.3	94.9
	19	70	.8	.8	95.8
	20	54	.6	.6	96.4
	21	53	.6	.6	97.0
	22	39	.5	.5	97.5
	23	29	.3	.3	97.8
	24	29	.3	.3	98.2
	25	17	.2	.2	98.4
	26	28	.3	.3	98.7
	27	19	.2	.2	98.9
	28	8	.1	.1	99.0
	29	13	.2	.2	99.2
	30	9	.1	.1	99.3
	31	12	.1	.1	99.4
	32	7	.1	.1	99.5
	33	5	.1	.1	99.6
	34	7	.1	.1	99.7
	35	5	.1	.1	99.7
	36	5	.1	.1	99.8
	37	3	.0	.0	99.8
	39	1	.0	.0	99.8
	40	1	.0	.0	99.8
	41	3	.0	.0	99.9
	42	2	.0	.0	99.9
	43	1	.0	.0	99.9
	45	3	.0	.0	100.0
	47	2	.0	.0	100.0
	48	1	.0	.0	100.0
	51	1	.0	.0	100.0
	Total	8403	100.0	100.0	

Household number of linked trips on travel day (categories)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no trips)	330	3.9	3.9	3.9
	1	64	.8	.8	4.7
	2	881	10.5	10.5	15.2
	3	491	5.8	5.8	21.0
	4	1028	12.2	12.2	33.3
	5	662	7.9	7.9	41.1
	6	841	10.0	10.0	51.1
	7	579	6.9	6.9	58.0
	8	679	8.1	8.1	66.1
	9	409	4.9	4.9	71.0
	10	466	5.5	5.5	76.5
	11	281	3.3	3.3	79.9
	12	339	4.0	4.0	83.9
	13	206	2.5	2.5	86.4
	14	208	2.5	2.5	88.8
	15	151	1.8	1.8	90.6
	16	152	1.8	1.8	92.4
	17	101	1.2	1.2	93.6
	18	108	1.3	1.3	94.9
	19	70	.8	.8	95.8
	20 or more	357	4.2	4.2	100.0
	Total	8403	100.0	100.0	

Unweighted tabulations of some key variables from the person file.
Total number of person observations is 17481
Please note that while there are no observations for Canaan town, the weighting analysis does account for households and persons living in the town.

Sample segment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Segment 1: Over Sample, low response rate	2774	15.9	15.9	15.9
	Segment 2: Over Sample, medium response rate	1681	9.6	9.6	25.5
	Segment 3: Over Sample, high response rate	985	5.6	5.6	31.1
	Segment 4: Regular Sample, low response rate	1054	6.0	6.0	37.1
	Segment 5: Regular Sample, medium response rate	4578	26.2	26.2	63.3
	Segment 6: Regular Sample, high response rate	6409	36.7	36.7	100.0
	Total	17481	100.0	100.0	

Assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2016-03-15	526	3.0	3.0	3.0
	2016-03-16	546	3.1	3.1	6.1
	2016-03-17	488	2.8	2.8	8.9
	2016-03-22	562	3.2	3.2	12.1
	2016-03-23	489	2.8	2.8	14.9
	2016-03-24	642	3.7	3.7	18.6
	2016-03-29	600	3.4	3.4	22.0
	2016-03-30	530	3.0	3.0	25.1
	2016-03-31	570	3.3	3.3	28.3
	2016-04-05	617	3.5	3.5	31.9
	2016-04-06	557	3.2	3.2	35.0
	2016-04-07	562	3.2	3.2	38.3
	2016-04-19	584	3.3	3.3	41.6
	2016-04-20	500	2.9	2.9	44.5
	2016-04-21	616	3.5	3.5	48.0
	2016-04-26	583	3.3	3.3	51.3
	2016-04-27	569	3.3	3.3	54.6
	2016-04-28	518	3.0	3.0	57.5
	2016-05-03	586	3.4	3.4	60.9
	2016-05-04	593	3.4	3.4	64.3
	2016-05-05	564	3.2	3.2	67.5
	2016-05-10	572	3.3	3.3	70.8
	2016-05-11	563	3.2	3.2	74.0
	2016-05-12	508	2.9	2.9	76.9
	2016-05-17	630	3.6	3.6	80.5
	2016-05-18	519	3.0	3.0	83.5
	2016-05-19	559	3.2	3.2	86.7
	2016-05-24	792	4.5	4.5	91.2
	2016-05-25	752	4.3	4.3	95.5
	2016-05-26	784	4.5	4.5	100.0
	Total	17481	100.0	100.0	

Week number of assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1560	8.9	8.9	8.9
	2	1693	9.7	9.7	18.6
	3	1700	9.7	9.7	28.3
	4	1736	9.9	9.9	38.3
	5	1700	9.7	9.7	48.0
	6	1670	9.6	9.6	57.5
	7	1743	10.0	10.0	67.5
	8	1643	9.4	9.4	76.9
	9	1708	9.8	9.8	86.7
	10	2328	13.3	13.3	100.0
	Total	17481	100.0	100.0	

Household survey status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	17481	100.0	100.0	100.0

Relationship to primary respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Self (derived)	8403	48.1	48.1	48.1
	Husband/Wife/Partner	4490	25.7	25.7	73.8
	Son/Daughter/In-law	3606	20.6	20.6	94.4
	Mother/Father/In-law	267	1.5	1.5	95.9
	Brother/Sister/In-law	119	.7	.7	96.6
	Grandchild	115	.7	.7	97.2
	Other relative	173	1.0	1.0	98.2
	Roommate/Friend	166	.9	.9	99.2
	Household help	17	.1	.1	99.3
	Other	125	.7	.7	100.0
	Total	17481	100.0	100.0	

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	8222	47.0	47.0	47.0
	Female	9259	53.0	53.0	100.0
	Total	17481	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1	123	.7	.7	.7
	1	127	.7	.7	1.4
	2	153	.9	.9	2.3
	3	141	.8	.8	3.1
	4	134	.8	.8	3.9
	5	139	.8	.8	4.7
	6	130	.7	.7	5.4
	7	149	.9	.9	6.3
	8	159	.9	.9	7.2
	9	148	.8	.9	8.1
	10	155	.9	.9	8.9
	11	170	1.0	1.0	9.9
	12	168	1.0	1.0	10.9
	13	169	1.0	1.0	11.9
	14	163	.9	.9	12.8
	15	167	1.0	1.0	13.8
	16	205	1.2	1.2	14.9
	17	182	1.0	1.0	16.0
	18	148	.8	.9	16.8
	19	82	.5	.5	17.3
	20	97	.6	.6	17.9
	21	90	.5	.5	18.4
	22	104	.6	.6	19.0
	23	140	.8	.8	19.8
	24	128	.7	.7	20.5
	25	177	1.0	1.0	21.5
	26	174	1.0	1.0	22.5
	27	146	.8	.8	23.4
	28	182	1.0	1.0	24.4
	29	186	1.1	1.1	25.5
	30	216	1.2	1.2	26.7
	31	200	1.1	1.1	27.9
	32	189	1.1	1.1	29.0
	33	212	1.2	1.2	30.2
	34	187	1.1	1.1	31.2
	35	215	1.2	1.2	32.5
	36	179	1.0	1.0	33.5
	37	177	1.0	1.0	34.5
	38	170	1.0	1.0	35.5
	39	190	1.1	1.1	36.6
	40	181	1.0	1.0	37.6
	41	136	.8	.8	38.4
	42	171	1.0	1.0	39.4
	43	185	1.1	1.1	40.5
	44	192	1.1	1.1	41.6
	45	229	1.3	1.3	42.9
	46	211	1.2	1.2	44.1
	47	198	1.1	1.1	45.2
	48	200	1.1	1.1	46.4

Age (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	49	246	1.4	1.4	47.8
	50	255	1.5	1.5	49.3
	51	255	1.5	1.5	50.7
	52	276	1.6	1.6	52.3
	53	304	1.7	1.7	54.0
	54	306	1.8	1.8	55.8
	55	357	2.0	2.1	57.9
	56	327	1.9	1.9	59.7
	57	342	2.0	2.0	61.7
	58	360	2.1	2.1	63.8
	59	340	1.9	2.0	65.7
	60	377	2.2	2.2	67.9
	61	317	1.8	1.8	69.7
	62	388	2.2	2.2	71.9
	63	351	2.0	2.0	74.0
	64	357	2.0	2.1	76.0
	65	354	2.0	2.0	78.0
	66	324	1.9	1.9	79.9
	67	303	1.7	1.7	81.6
	68	332	1.9	1.9	83.5
	69	324	1.9	1.9	85.4
	70	253	1.4	1.5	86.9
	71	212	1.2	1.2	88.1
	72	228	1.3	1.3	89.4
	73	218	1.2	1.3	90.6
	74	179	1.0	1.0	91.7
	75	164	.9	.9	92.6
	76	130	.7	.7	93.4
	77	131	.7	.8	94.1
	78	116	.7	.7	94.8
	79	96	.5	.6	95.3
	80	109	.6	.6	96.0
	81	72	.4	.4	96.4
	82	75	.4	.4	96.8
	83	90	.5	.5	97.3
	84	74	.4	.4	97.7
	85	65	.4	.4	98.1
	86	60	.3	.3	98.5
	87	44	.3	.3	98.7
	88	51	.3	.3	99.0
	89	42	.2	.2	99.2
	90	36	.2	.2	99.4
	91	29	.2	.2	99.6
	92	27	.2	.2	99.8
	93	17	.1	.1	99.9
	94	6	.0	.0	99.9
	95	3	.0	.0	99.9
	96	3	.0	.0	99.9
	97	3	.0	.0	100.0

Age (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	98	4	.0	.0	100.0
	99 or older	4	.0	.0	100.0
	Total	17410	99.6	100.0	
Missing	Prefer not to answer	71	.4		
Total		17481	100.0		

Age: Broad categories, all respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 5 years old	678	3.9	3.9	3.9
	5-11	1056	6.0	6.0	9.9
	12-15	670	3.8	3.8	13.8
	16-17	387	2.2	2.2	16.0
	18-24	789	4.5	4.5	20.5
	25-34	1870	10.7	10.7	31.2
	35-44	1801	10.3	10.3	41.5
	45-54	2500	14.3	14.3	55.8
	55-64	3531	20.2	20.2	76.0
	65-74	2743	15.7	15.7	91.7
	75-84	1061	6.1	6.1	97.7
	85 years or older	395	2.3	2.3	100.0
	Total	17481	100.0	100.0	

Age 16+: Employment status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	2404	13.8	13.8	13.8
	Employed (full or part time)	7958	45.5	45.5	59.3
	Self-employed	925	5.3	5.3	64.6
	Unpaid volunteer or intern	101	.6	.6	65.1
	Homemaker	659	3.8	3.8	68.9
	Retired	3776	21.6	21.6	90.5
	Not currently employed	1658	9.5	9.5	100.0
	Total	17481	100.0	100.0	

Age 16+ employed: Number of jobs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	8598	49.2	49.2	49.2
	1 job	7991	45.7	45.7	94.9
	2 jobs	753	4.3	4.3	99.2
	3 jobs	99	.6	.6	99.8
	4 jobs	11	.1	.1	99.8
	5 or more jobs	29	.2	.2	100.0
	Total	17481	100.0	100.0	

Age 16+ employed: Number of hours worked per week

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	8598	49.2	49.2	49.2
	50 or more hours	1528	8.7	8.7	57.9
	40-49 hours	4460	25.5	25.5	83.4
	30-39 hours	1384	7.9	7.9	91.4
	20-29 hours	753	4.3	4.3	95.7
	10-19 hours	461	2.6	2.6	98.3
	Fewer than 10 hours	170	1.0	1.0	99.3
	Hours vary greatly from week to week	127	.7	.7	100.0
	Total	17481	100.0	100.0	

Adult (Age 18+): Student status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	2791	16.0	16.0	16.0
	No, not a student	13719	78.5	78.5	94.4
	Yes, full-time student	576	3.3	3.3	97.7
	Yes, part-time student	395	2.3	2.3	100.0
	Total	17481	100.0	100.0	

Child (Age < 18) or Adult Student: Type of school attended

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	13719	78.5	78.5	78.5
	Daycare	175	1.0	1.0	79.5
	In-house nanny/babysitter	76	.4	.4	79.9
	House of friend/relative/babysitter	36	.2	.2	80.1
	Preschool	231	1.3	1.3	81.4
	K-12 public or private school	2056	11.8	11.8	93.2
	K-12 home school (full-time or part-time)	72	.4	.4	93.6
	College, graduate, or professional school	800	4.6	4.6	98.2
	Vocational/technical school	45	.3	.3	98.4
	None	194	1.1	1.1	99.6
	Other	77	.4	.4	100.0
	Total	17481	100.0	100.0	

Adult (Age 18+): Educational attainment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	2791	16.0	16.0	16.0
	Less than high school	387	2.2	2.2	18.2
	High school graduate/GED	2501	14.3	14.3	32.5
	Some college	2096	12.0	12.0	44.5
	Vocational/technical training	579	3.3	3.3	47.8
	Associates degree	1035	5.9	5.9	53.7
	Bachelor degree	4006	22.9	22.9	76.6
	Graduate/post-graduate degree	4086	23.4	23.4	100.0
	Total	17481	100.0	100.0	

Age 16+: Has valid drivers license

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	2404	13.8	13.8	13.8
	Yes	13740	78.6	78.6	92.4
	No	1337	7.6	7.6	100.0
	Total	17481	100.0	100.0	

How often in past month: Ridden transit

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	6-7 days a week	363	2.1	2.1	2.1
	5 days a week	555	3.2	3.2	5.3
	4 days a week	182	1.0	1.0	6.3
	2-3 days a week	541	3.1	3.1	9.4
	1 day a week	236	1.4	1.4	10.7
	A few times per month	1202	6.9	6.9	17.6
	Less than monthly	2443	14.0	14.0	31.6
	Never	11959	68.4	68.4	100.0
	Total	17481	100.0	100.0	

If ever uses transit: How typically pays for transit fare

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	11959	68.4	68.4	68.4
	Free (no cost)	468	2.7	2.7	71.1
	Cash or ticket(s)	4008	22.9	22.9	94.0
	Stored value card	252	1.4	1.4	95.5
	Used pass (any type)	530	3.0	3.0	98.5
	Other	182	1.0	1.0	99.5
	Don't Know	82	.5	.5	100.0
	Total	17481	100.0	100.0	

If typical transit fare payment method is pass: type of transit pass used most often

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	16951	97.0	97.0	97.0
	1 day pass(es)	49	.3	.3	97.2
	3 day pass(es)	1	.0	.0	97.3
	5 day pass(es)	9	.1	.1	97.3
	7 day pass	14	.1	.1	97.4
	Monthly pass	285	1.6	1.6	99.0
	Other transit pass	169	1.0	1.0	100.0
	Don't know	3	.0	.0	100.0
	Total	17481	100.0	100.0	

If typical transit fare is not free: eligible for discounted transit fares

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	12691	72.6	72.6	72.6
	No, pays regular fare	3193	18.3	18.3	90.9
	Yes, youth/student discount	293	1.7	1.7	92.5
	Yes, senior/disability discount	967	5.5	5.5	98.1
	Yes, other type of discount	111	.6	.6	98.7
	Don't know	226	1.3	1.3	100.0
	Total	17481	100.0	100.0	

Student (adult or child, except home school/in-house nanny or sitter): How often travels to school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	14061	80.4	80.4	80.4
	6-7 days a week	203	1.2	1.2	81.6
	5 days a week	2382	13.6	13.6	95.2
	4 days a week	133	.8	.8	96.0
	2-3 days a week	314	1.8	1.8	97.8
	1 day a week	74	.4	.4	98.2
	A few times per month	46	.3	.3	98.5
	Less than monthly	98	.6	.6	99.0
	Never, only takes online classes	170	1.0	1.0	100.0
	Total	17481	100.0	100.0	

Student (adult or child, except home school/in-house nanny or sitter and online-classes): Travel mode to school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	14231	81.4	81.4	81.4
	Walk/jog/wheelchair	230	1.3	1.3	82.7
	Bicycle	29	.2	.2	82.9
	Drive alone	524	3.0	3.0	85.9
	Drive/Carpool with ONLY family/ household member(s)	1030	5.9	5.9	91.8
	Carpool with at least one person NOT in household	85	.5	.5	92.3
	Vanpool	4	.0	.0	92.3
	School bus	1192	6.8	6.8	99.1
	Bus (public transit)	91	.5	.5	99.6
	Train (any rail, subway, monorail)	19	.1	.1	99.7
	Private shuttle bus	13	.1	.1	99.8
	Taxi or other hired car service (e.g. Lyft, Uber)	6	.0	.0	99.8
	Other	27	.2	.2	100.0
	Total	17481	100.0	100.0	

Employed or volunteer: Primary type of workplace

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	8497	48.6	48.6	48.6
	Usually the same location (outside home)	6975	39.9	39.9	88.5
	Workplace regularly varies (different offices or jobsites)	1105	6.3	6.3	94.8
	At home (telecommute or self-employed)	762	4.4	4.4	99.2
	Drives for a living (e.g. bus driver, salesman)	142	.8	.8	100.0
	Total	17481	100.0	100.0	

Employed or volunteer: Primary occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	8497	48.6	48.6	48.6
	Computer, Engineering, & Science	1057	6.0	6.0	54.7
	Construction & Extraction	213	1.2	1.2	55.9
	Education, Legal, Community Service, Arts, & Media	1541	8.8	8.8	64.7
	Farming, Fishing, & Forestry	29	.2	.2	64.9
	Healthcare Practitioners & Technical	956	5.5	5.5	70.3
	Installation, Maintenance, & Repair	189	1.1	1.1	71.4
	Management, Business, & Financial	1471	8.4	8.4	79.8
	Military	27	.2	.2	80.0
	Office & Administrative Support	799	4.6	4.6	84.5
	Production	179	1.0	1.0	85.6
	Sales/ Sales-related	708	4.1	4.1	89.6
	Service	594	3.4	3.4	93.0
	Transportation & Material Moving	133	.8	.8	93.8
	Other	1078	6.2	6.2	99.9
	Don't Know	10	.1	.1	100.0
	Total	17481	100.0	100.0	

Employed or volunteer: Primary employment industry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	8497	48.6	48.6	48.6
	Accommodation & Food Services	363	2.1	2.1	50.7
	Administrative, Support, & Waste Management Services	120	.7	.7	51.4
	Agriculture, Forestry, Fishing, & Hunting	45	.3	.3	51.6
	Arts, Entertainment, & Recreation	339	1.9	1.9	53.6
	Construction	324	1.9	1.9	55.4
	Education Services	1282	7.3	7.3	62.8
	Finance & Insurance	935	5.3	5.3	68.1
	Health Care & Social Assistance	1320	7.6	7.6	75.7
	Information	226	1.3	1.3	76.9
	Management of Companies & Enterprises	113	.6	.6	77.6
	Manufacturing	545	3.1	3.1	80.7
	Military	51	.3	.3	81.0
	Mining, Quarrying, & Oil/Gas Extraction	17	.1	.1	81.1
	Other Services	480	2.7	2.7	83.8
	Professional, Scientific, & Technical Services	687	3.9	3.9	87.8
	Public Administration	179	1.0	1.0	88.8
	Real Estate, Rental, & Leasing	135	.8	.8	89.6
	Retail Trade	477	2.7	2.7	92.3
	Transportation & Warehousing	167	1.0	1.0	93.3
	Utilities	88	.5	.5	93.8
	Wholesale Trade	66	.4	.4	94.1
	Other	1000	5.7	5.7	99.9
	Don't Know	25	.1	.1	100.0
	Total	17481	100.0	100.0	

If travels to fixed or varied workplace (i.e. workplace == 1 or workplace == 2): How often commute to primary workplace

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	9401	53.8	53.8	53.8
	6-7 days a week	1052	6.0	6.0	59.8
	5 days a week	5306	30.4	30.4	90.1
	4 days a week	738	4.2	4.2	94.4
	3 days a week	522	3.0	3.0	97.4
	2 days a week	272	1.6	1.6	98.9
	1 day a week	100	.6	.6	99.5
	Less than weekly	90	.5	.5	100.0
	Total	17481	100.0	100.0	

If commutes: Typical commute mode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	9401	53.8	53.8	53.8
	Walk/jog/wheelchair	236	1.4	1.4	55.1
	Bicycle	59	.3	.3	55.5
	Drive alone	6399	36.6	36.6	92.1
	Drive/Carpool with ONLY family/household member(s)	567	3.2	3.2	95.3
	Carpool with at least one person NOT in household	121	.7	.7	96.0
	Motorcycle/moped/scooter	5	.0	.0	96.0
	Vanpool	17	.1	.1	96.1
	Bus (public transit)	283	1.6	1.6	97.8
	Train (any rail, subway, monorail)	332	1.9	1.9	99.7
	Private shuttle bus	12	.1	.1	99.7
	Paratransit	3	.0	.0	99.7
	Taxi or other hired car service (e.g. Lyft, Uber)	10	.1	.1	99.8
	Other	36	.2	.2	100.0
	Total	17481	100.0	100.0	

Employed or volunteer: Amount of flexibility in primary work schedule

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	8497	48.6	48.6	48.6
	No flexibility (always have to start at a fixed time, time may vary by day or shift)	4495	25.7	25.7	74.3
	Some flexibility (e.g. can start up to 30 minutes earlier/later)	2950	16.9	16.9	91.2
	Complete flexibility (e.g. can set own schedule)	1539	8.8	8.8	100.0
	Total	17481	100.0	100.0	

Respondent is represented by proxy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I am <name> and I am answering this survey	9687	55.4	55.4	55.4
	I am answering this survey for <name> and <name> IS here with me to provide answers	3223	18.4	18.4	73.9
	I am answering this survey for <name> and <name> is NOT here with me to provide answers	4571	26.1	26.1	100.0
	Total	17481	100.0	100.0	

Call center completed diary

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	14919	85.3	85.3	85.3
	Yes	2562	14.7	14.7	100.0
	Total	17481	100.0	100.0	

Flag: diary survey language (web browser)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No, English	17445	99.8	99.8	99.8
	Yes, non-english	36	.2	.2	100.0
	Total	17481	100.0	100.0	

Final Recoded Number of trips made

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2077	11.9	11.9	11.9
	1	362	2.1	2.1	14.0
	2	4557	26.1	26.1	40.0
	3	2045	11.7	11.7	51.7
	4	2752	15.7	15.7	67.5
	5	1636	9.4	9.4	76.8
	6	1464	8.4	8.4	85.2
	7	905	5.2	5.2	90.4
	8	652	3.7	3.7	94.1
	9	357	2.0	2.0	96.1
	10	248	1.4	1.4	97.6
	11	168	1.0	1.0	98.5
	12	109	.6	.6	99.1
	13	59	.3	.3	99.5
	14	33	.2	.2	99.7
	15	21	.1	.1	99.8
	16	12	.1	.1	99.9
	17	8	.0	.0	99.9
	18	6	.0	.0	99.9
	19	3	.0	.0	100.0
	20	1	.0	.0	100.0
	21	1	.0	.0	100.0
	22	2	.0	.0	100.0
	23	2	.0	.0	100.0
	24	1	.0	.0	100.0
	Total	17481	100.0	100.0	

Final Recoded Number of trips made, categories

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2077	11.9	11.9	11.9
	1	362	2.1	2.1	14.0
	2	4557	26.1	26.1	40.0
	3	2045	11.7	11.7	51.7
	4	2752	15.7	15.7	67.5
	5	1636	9.4	9.4	76.8
	6	1464	8.4	8.4	85.2
	7	905	5.2	5.2	90.4
	8	652	3.7	3.7	94.1
	9	357	2.0	2.0	96.1
	10 or more trips	674	3.9	3.9	100.0
	Total	17481	100.0	100.0	

Final Recoded Made trips on travel day after data processing was complete recoded

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	15404	88.1	88.1	88.1
	No	2072	11.9	11.9	100.0
	Yes - No trip records in the trip file	5	.0	.0	100.0
	Total	17481	100.0	100.0	

Final Recoded Where started travel day recoded 3 (at 3 AM)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Home	16337	93.5	93.5	93.5
	Work (Primary)	218	1.2	1.2	94.7
	Home other	232	1.3	1.3	96.0
	Another place, please specify:	694	4.0	4.0	100.0
	Total	17481	100.0	100.0	

Final Recoded Where ended travel day recoded 3 (at 3 AM)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Home	16331	93.4	93.4	93.4
	Work (Primary)	199	1.1	1.1	94.6
	Home other	271	1.6	1.6	96.1
	Another place, please specify:	680	3.9	3.9	100.0
	Total	17481	100.0	100.0	

Number of trips made linked

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2077	11.9	11.9	11.9
	1	368	2.1	2.1	14.0
	2	4691	26.8	26.8	40.8
	3	2058	11.8	11.8	52.6
	4	2756	15.8	15.8	68.4
	5	1641	9.4	9.4	77.7
	6	1422	8.1	8.1	85.9
	7	882	5.0	5.0	90.9
	8	627	3.6	3.6	94.5
	9	336	1.9	1.9	96.4
	10	231	1.3	1.3	97.8
	11	162	.9	.9	98.7
	12	103	.6	.6	99.3
	13	53	.3	.3	99.6
	14	25	.1	.1	99.7
	15	16	.1	.1	99.8
	16	11	.1	.1	99.9
	17	7	.0	.0	99.9
	18	5	.0	.0	99.9
	19	3	.0	.0	100.0
	20	1	.0	.0	100.0
	21	1	.0	.0	100.0
	22	2	.0	.0	100.0
	23	2	.0	.0	100.0
	24	1	.0	.0	100.0
	Total	17481	100.0	100.0	

Number of trips made, categories linked

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2077	11.9	11.9	11.9
	1	368	2.1	2.1	14.0
	2	4691	26.8	26.8	40.8
	3	2058	11.8	11.8	52.6
	4	2756	15.8	15.8	68.4
	5	1641	9.4	9.4	77.7
	6	1422	8.1	8.1	85.9
	7	882	5.0	5.0	90.9
	8	627	3.6	3.6	94.5
	9	336	1.9	1.9	96.4
	10 or more trips	623	3.6	3.6	100.0
	Total	17481	100.0	100.0	

Unweighted tabulations of some key variables from the unlinked trip file.
Total number of unlinked trip observations is 66175.
Please note that while there are no observations for Canaan town, the weighting analysis does account for households and persons living in the town.

Sample segment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Segment 1: Over Sample, low response rate	10247	15.5	15.5	15.5
	Segment 2: Over Sample, medium response rate	6507	9.8	9.8	25.3
	Segment 3: Over Sample, high response rate	3771	5.7	5.7	31.0
	Segment 4: Regular Sample, low response rate	4099	6.2	6.2	37.2
	Segment 5: Regular Sample, medium response rate	17158	25.9	25.9	63.1
	Segment 6: Regular Sample, high response rate	24393	36.9	36.9	100.0
	Total	66175	100.0	100.0	

Week number of assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5779	8.7	8.7	8.7
	2	6330	9.6	9.6	18.3
	3	6394	9.7	9.7	28.0
	4	6447	9.7	9.7	37.7
	5	6416	9.7	9.7	47.4
	6	6433	9.7	9.7	57.1
	7	6673	10.1	10.1	67.2
	8	6365	9.6	9.6	76.8
	9	6478	9.8	9.8	86.6
	10	8860	13.4	13.4	100.0
	Total	66175	100.0	100.0	

Assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2016-03-15	1855	2.8	2.8	2.8
	2016-03-16	2068	3.1	3.1	5.9
	2016-03-17	1856	2.8	2.8	8.7
	2016-03-22	2183	3.3	3.3	12.0
	2016-03-23	1755	2.7	2.7	14.7
	2016-03-24	2392	3.6	3.6	18.3
	2016-03-29	2176	3.3	3.3	21.6
	2016-03-30	2004	3.0	3.0	24.6
	2016-03-31	2214	3.3	3.3	28.0
	2016-04-05	2214	3.3	3.3	31.3
	2016-04-06	2116	3.2	3.2	34.5
	2016-04-07	2117	3.2	3.2	37.7
	2016-04-19	2211	3.3	3.3	41.0
	2016-04-20	1941	2.9	2.9	44.0
	2016-04-21	2264	3.4	3.4	47.4
	2016-04-26	2244	3.4	3.4	50.8
	2016-04-27	2147	3.2	3.2	54.0
	2016-04-28	2042	3.1	3.1	57.1
	2016-05-03	2171	3.3	3.3	60.4
	2016-05-04	2311	3.5	3.5	63.9
	2016-05-05	2191	3.3	3.3	67.2
	2016-05-10	2224	3.4	3.4	70.6
	2016-05-11	2143	3.2	3.2	73.8
	2016-05-12	1998	3.0	3.0	76.8
	2016-05-17	2481	3.7	3.7	80.6
	2016-05-18	1915	2.9	2.9	83.5
	2016-05-19	2082	3.1	3.1	86.6
	2016-05-24	2857	4.3	4.3	90.9
	2016-05-25	3030	4.6	4.6	95.5
	2016-05-26	2973	4.5	4.5	100.0
	Total	66175	100.0	100.0	

Household survey status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	66175	100.0	100.0	100.0

Trip departure time: hour of day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Before 3:00 AM	37	.1	.1	.1
	3:00 - 3:55 AM	102	.2	.2	.2
	4:00 - 4:55 AM	202	.3	.3	.5
	5:00 - 5:55 AM	668	1.0	1.0	1.5
	6:00 - 6:55 AM	2367	3.6	3.6	5.1
	7:00 - 7:55 AM	5261	8.0	8.0	13.1
	8:00 - 8:55 AM	5033	7.6	7.6	20.7
	9:00 - 9:55 AM	3473	5.2	5.2	25.9
	10:00 - 10:55 AM	3520	5.3	5.3	31.2
	11:00 - 11:55 AM	3984	6.0	6.0	37.2
	12:00 - 12:55 PM	4405	6.7	6.7	43.9
	1:00 - 1:55 PM	3886	5.9	5.9	49.8
	2:00 - 2:55 PM	4859	7.3	7.3	57.1
	3:00 - 3:55 PM	5414	8.2	8.2	65.3
	4:00 - 4:55 PM	5415	8.2	8.2	73.5
	5:00 - 5:55 PM	5758	8.7	8.7	82.2
	6:00 - 6:55 PM	4507	6.8	6.8	89.0
	7:00 - 7:55 PM	2989	4.5	4.5	93.5
	8:00 - 8:55 PM	2082	3.1	3.1	96.7
	9:00 - 9:55 PM	1195	1.8	1.8	98.5
	10:00 - 10:55 PM	536	.8	.8	99.3
	11:00 - 11:55 PM	286	.4	.4	99.7
	12:00 - 12:55 PM	100	.2	.2	99.9
	1:00 - 1:55 AM (next day)	48	.1	.1	99.9
	2:00 - 2:55 AM (next day)	48	.1	.1	100.0
	Total	66175	100.0	100.0	

Trip arrival time: hour of day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3:00 - 3:55 AM	77	.1	.1	.1
	4:00 - 4:55 AM	128	.2	.2	.3
	5:00 - 5:55 AM	400	.6	.6	.9
	6:00 - 6:55 AM	1443	2.2	2.2	3.1
	7:00 - 7:55 AM	4571	6.9	6.9	10.0
	8:00 - 8:55 AM	5451	8.2	8.2	18.2
	9:00 - 9:55 AM	3898	5.9	5.9	24.1
	10:00 - 10:55 AM	3453	5.2	5.2	29.3
	11:00 - 11:55 AM	3829	5.8	5.8	35.1
	12:00 - 12:55 PM	4493	6.8	6.8	41.9
	1:00 - 1:55 PM	3934	5.9	5.9	47.9
	2:00 - 2:55 PM	4470	6.8	6.8	54.6
	3:00 - 3:55 PM	5318	8.0	8.0	62.7
	4:00 - 4:55 PM	5221	7.9	7.9	70.5
	5:00 - 5:55 PM	5807	8.8	8.8	79.3
	6:00 - 6:55 PM	5182	7.8	7.8	87.2
	7:00 - 7:55 PM	3494	5.3	5.3	92.4
	8:00 - 8:55 PM	2275	3.4	3.4	95.9
	9:00 - 9:55 PM	1429	2.2	2.2	98.0
	10:00 - 10:55 PM	683	1.0	1.0	99.1
	11:00 - 11:55 PM	343	.5	.5	99.6
	12:00 - 12:55 PM	146	.2	.2	99.8
	1:00 - 1:55 AM (next day)	62	.1	.1	99.9
	2:00 - 2:55 AM (next day)	40	.1	.1	100.0
	After 3:00 AM (next day)	28	.0	.0	100.0
	Total	66175	100.0	100.0	

Total number of travelers on trip including self

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	42026	63.5	63.5	63.5
	2	13243	20.0	20.0	83.5
	3	6493	9.8	9.8	93.3
	4	1634	2.5	2.5	95.8
	5	902	1.4	1.4	97.2
	6	1259	1.9	1.9	99.1
	7	457	.7	.7	99.8
	8	89	.1	.1	99.9
	9	55	.1	.1	100.0
	10	10	.0	.0	100.0
	12	7	.0	.0	100.0
	Total	66175	100.0	100.0	

Household members on trip including self

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	48001	72.5	72.5	72.5
	2	13354	20.2	20.2	92.7
	3	3541	5.4	5.4	98.1
	4	1089	1.6	1.6	99.7
	5	158	.2	.2	100.0
	6	18	.0	.0	100.0
	7	14	.0	.0	100.0
	Total	66175	100.0	100.0	

Non-household members on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nobody (0 people)	55116	83.3	83.3	83.3
	1 person	7061	10.7	10.7	94.0
	2 people	1741	2.6	2.6	96.6
	3 people	534	.8	.8	97.4
	4 people	263	.4	.4	97.8
	5 or more people	1460	2.2	2.2	100.0
	Total	66175	100.0	100.0	

Main way traveled on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Walk/jog/wheelchair	6227	9.4	9.4	9.4
	Bicycle	436	.7	.7	10.1
	Vehicle in household	52651	79.6	79.6	89.6
	Other vehicle (e.g. rental, friend's car)	2345	3.5	3.5	93.2
	Regular taxi or hired car service	77	.1	.1	93.3
	Ride-share taxi/car service (e.g. Uber, Lyft)	38	.1	.1	93.3
	Vanpool	56	.1	.1	93.4
	School bus	1790	2.7	2.7	96.1
	Public (city) bus	1303	2.0	2.0	98.1
	Train (e.g. Amtrak)	88	.1	.1	98.2
	Shuttle (e.g. a hotel's, an airport's)	130	.2	.2	98.4
	Paratransit	67	.1	.1	98.5
	Commuter Rail (e.g. Metro North)	569	.9	.9	99.4
	Subway	60	.1	.1	99.5
	Intercity bus (e.g. Greyhound)	19	.0	.0	99.5
	Ferry/water taxi/boat	4	.0	.0	99.5
	Airplane/helicopter	61	.1	.1	99.6
	Other	254	.4	.4	100.0
	Total	66175	100.0	100.0	

Main way traveled on trip, aggregated

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SOV (single-occupant vehicle)	35074	53.0	53.0	53.0
	Family carpool (HH or Other vehicle, only HH members in travel party)	11575	17.5	17.5	70.5
	Other carpool (HH or Other vehicle, includes at least one non-HH member)	8347	12.6	12.6	83.1
	Walk or Bike	6663	10.1	10.1	93.2
	Taxi (traditional or rideshare)	115	.2	.2	93.3
	Public transit (bus, train, paratransit, commuter rail, subway, intercity bus)	2106	3.2	3.2	96.5
	Other (vanpool, school bus, shuttle, ferry/boat, airplane, other)	2295	3.5	3.5	100.0
	Total	66175	100.0	100.0	

HH or Other Vehicle: Vehicle used

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	11179	16.9	16.9	16.9
	HH vehicle 1	34113	51.5	51.5	68.4
	HH vehicle 2	14770	22.3	22.3	90.8
	HH vehicle 3	2947	4.5	4.5	95.2
	HH vehicle 4	572	.9	.9	96.1
	HH vehicle 5	207	.3	.3	96.4
	HH vehicle 6	34	.1	.1	96.4
	HH vehicle 7	8	.0	.0	96.5
	Rental car	214	.3	.3	96.8
	Car from work	407	.6	.6	97.4
	Friend/relative's car	1693	2.6	2.6	100.0
	Carshare vehicle (e.g. Car2Go)	24	.0	.0	100.0
	Motorcycle/moped/scooter	7	.0	.0	100.0
	Total	66175	100.0	100.0	

HH or Other Vehicle, or Vanpool: If age 16+ and licensed travel party > 1: Was driver or passenger on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Driver	6165	9.3	46.6	46.6
	Passenger	7031	10.6	53.1	99.7
	Both (switched drivers during trip)	42	.1	.3	100.0
	Total	13238	20.0	100.0	
Missing	System	52937	80.0		
Total		66175	100.0		

HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses HOV and travel party > 1: Used HOV lane on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	150	.2	38.7	38.7
	No	238	.4	61.3	100.0
	Total	388	.6	100.0	
Missing	System	65787	99.4		
Total		66175	100.0		

HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses toll road: Toll road used on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	380	.6	27.3	27.3
	No	1010	1.5	72.7	100.0
	Total	1390	2.1	100.0	
Missing	System	64785	97.9		
Total		66175	100.0		

HH or Other vehicle, or Vanpool: If age 16+: Parking location at destination

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Own driveway/garage	16057	24.3	29.9	29.9
	Someone else's driveway	1877	2.8	3.5	33.4
	Parking lot/garage at destination (within 2 blocks)	28788	43.5	53.6	87.0
	Parking lot/garage 2+ blocks away from destination	403	.6	.8	87.8
	On street parking at destination (within 2 blocks)	2504	3.8	4.7	92.4
	On street parking 2+ blocks away from destination	94	.1	.2	92.6
	Park & ride lot	154	.2	.3	92.9
	Didn't park (waited, drop-off, drive-thru)	3167	4.8	5.9	98.8
	Other	651	1.0	1.2	100.0
	Total	53695	81.1	100.0	
Missing	System	12480	18.9		
Total		66175	100.0		

Parked on street or in a lot/garage: If ever pays for parking: How paid for parking at destination

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No, parking was free	1252	1.9	61.6	61.6
	Yes, with cash/tickets	445	.7	21.9	83.5
	Yes, with parking pass	297	.4	14.6	98.1
	No, another person paid or was reimbursed	32	.0	1.6	99.7
	Not sure/don't remember	6	.0	.3	100.0
	Total	2032	3.1	100.0	
Missing	System	64143	96.9		
Total		66175	100.0		

Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit access mode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	64136	96.9	96.9	96.9
	Walked or jogged	1398	2.1	2.1	99.0
	Rode a bike	11	.0	.0	99.0
	Drove and parked a car	150	.2	.2	99.3
	Got dropped off	64	.1	.1	99.4
	Took a taxi/ride-share (e.g. Uber, Lyft)	15	.0	.0	99.4
	Transferred from other transit	134	.2	.2	99.6
	Was already at the destination	214	.3	.3	99.9
	Other	53	.1	.1	100.0
	Total	66175	100.0	100.0	

Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit egress mode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	64136	96.9	96.9	96.9
	Walked or jogged	1378	2.1	2.1	99.0
	Rode a bike	9	.0	.0	99.0
	Drove a parked car	121	.2	.2	99.2
	Got picked up	56	.1	.1	99.3
	Took a taxi /ride-share (e.g. Uber, Lyft)	15	.0	.0	99.3
	Transferred to other transit	228	.3	.3	99.6
	Was already at the destination	175	.3	.3	99.9
	Other	57	.1	.1	100.0
	Total	66175	100.0	100.0	

Public Bus, Commuter Rail, Subway, Train or Intercity Bus: How paid for transit on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	64136	96.9	96.9	96.9
	Free (no cost)	179	.3	.3	97.2
	Cash or ticket(s)	883	1.3	1.3	98.5
	Stored value card	93	.1	.1	98.7
	Used pass (any type)	853	1.3	1.3	100.0
	Not sure/don't remember	3	.0	.0	100.0
	Other	28	.0	.0	100.0
	Total	66175	100.0	100.0	

Count of transit transfers made (derived)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	64136	96.9	96.9	96.9
	0	1816	2.7	2.7	99.7
	1	207	.3	.3	100.0
	2	9	.0	.0	100.0
	3	7	.0	.0	100.0
	Total	66175	100.0	100.0	

Driving distance (miles) from origin to destination (Google estimate) (derived 10 mile increments)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 miles	538	.8	.8	.8
	0 - 10 miles	51831	78.3	78.3	79.2
	10 - 20 miles	7783	11.8	11.8	90.9
	20 - 30 miles	2700	4.1	4.1	95.0
	30 - 40 miles	1295	2.0	2.0	97.0
	40 - 50 miles	811	1.2	1.2	98.2
	50 - 60 miles	464	.7	.7	98.9
	60 - 70 miles	217	.3	.3	99.2
	70 - 80 miles	134	.2	.2	99.4
	80 - 90 miles	71	.1	.1	99.5
	90 - 100 miles	40	.1	.1	99.6
	100 miles or more	274	.4	.4	100.0
	Total	66158	100.0	100.0	
Missing	-999	17	.0		
Total		66175	100.0		

Driving travel time (minutes) from origin to destination (Google estimate) (derived 10 minute increments)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 minutes	1855	2.8	2.8	2.8
	1 - 10 minutes	35217	53.2	53.2	56.0
	10 - 20 minutes	18008	27.2	27.2	83.3
	20 - 30 minutes	5707	8.6	8.6	91.9
	30 - 40 minutes	2276	3.4	3.4	95.3
	40 - 50 minutes	1138	1.7	1.7	97.0
	50 - 60 minutes	773	1.2	1.2	98.2
	60 - 70 minutes	408	.6	.6	98.8
	70 - 80 minutes	232	.4	.4	99.2
	80 - 90 minutes	151	.2	.2	99.4
	90 - 100 minutes	94	.1	.1	99.5
	100 minutes or more	299	.5	.5	100.0
	Total	66158	100.0	100.0	
Missing	-999	17	.0		
Total		66175	100.0		

Final Recoded Primary purpose at trip origin

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Go home	21957	33.2	33.2	33.2
	Go to primary workplace	7867	11.9	11.9	45.1
	Go to other work-related place	2053	3.1	3.1	48.2
	Attend school/class	2433	3.7	3.7	51.8
	Other school-related activity	975	1.5	1.5	53.3
	Grocery shopping	3564	5.4	5.4	58.7
	Do other shopping (e.g. mall, hardware store)	3690	5.6	5.6	64.3
	Run errands (e.g. bank, haircut)	4632	7.0	7.0	71.3
	Go to restaurant/bar/get take-out	3641	5.5	5.5	76.8
	Drop off/pick up/accompany other person	3997	6.0	6.0	82.8
	Exercise (e.g. gym, walk, jog/run)	2933	4.4	4.4	87.3
	Family activity (e.g. child's game)	679	1.0	1.0	88.3
	Medical visit (e.g. doctor, dentist)	1541	2.3	2.3	90.6
	Social (e.g. visit friends/relatives)	1655	2.5	2.5	93.1
	Leisure/entertainment (e.g. movies)	916	1.4	1.4	94.5
	Religious/civic/volunteer	1138	1.7	1.7	96.2
	Vacation/holiday/traveling (e.g. hotel)	85	.1	.1	96.3
	Change travel mode (e.g. wait for bus, change planes)	1072	1.6	1.6	98.0
	Home other	434	.7	.7	98.6
	Go to airport/switch airport	59	.1	.1	98.7
	Other	854	1.3	1.3	100.0
	Total	66175	100.0	100.0	

Final Recoded Primary purpose at trip destination

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Go home	21949	33.2	33.2	33.2
	Go to primary workplace	7848	11.9	11.9	45.0
	Go to other work-related place	2099	3.2	3.2	48.2
	Attend school/class	2508	3.8	3.8	52.0
	Other school-related activity	1001	1.5	1.5	53.5
	Grocery shopping	3574	5.4	5.4	58.9
	Do other shopping (e.g. mall, hardware store)	3702	5.6	5.6	64.5
	Run errands (e.g. bank, haircut)	4647	7.0	7.0	71.5
	Go to restaurant/bar/get take-out	3650	5.5	5.5	77.0
	Drop off/pick up/accompany other person	4018	6.1	6.1	83.1
	Exercise (e.g. gym, walk, jog/run)	2949	4.5	4.5	87.6
	Family activity (e.g. child's game)	700	1.1	1.1	88.6
	Medical visit (e.g. doctor, dentist)	1553	2.3	2.3	91.0
	Social (e.g. visit friends/relatives)	1763	2.7	2.7	93.6
	Leisure/entertainment (e.g. movies)	929	1.4	1.4	95.0
	Religious/civic/volunteer	1143	1.7	1.7	96.8
	Vacation/holiday/traveling (e.g. hotel)	167	.3	.3	97.0
	Change travel mode (e.g. wait for bus, change planes)	1074	1.6	1.6	98.6
	Home other	473	.7	.7	99.4
	Go to airport/switch airport	63	.1	.1	99.4
	Other	365	.6	.6	100.0
	Total	66175	100.0	100.0	

Final Recoded Overall trip purpose

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Home Based Escorting (home to/from drop off/pick up/accompany other person)	4117	6.2	6.2	6.2
	Home Based Meal (home to/from restaurant/bar/get take-out)	2731	4.1	4.1	10.3
	Home Based Other (home to/from any other purpose)	1137	1.7	1.7	12.1
	Home Based Personal Business (home to/from personal business)	10595	16.0	16.0	28.1
	Home Based School (home to/from school/other school related)	4822	7.3	7.3	35.4
	Home Based Shopping (home to/from grocery shopping/other shopping)	6327	9.6	9.6	44.9
	Home Based Social Recreation (home to/from social recreation activity)	3499	5.3	5.3	50.2
	Home Based Work (home to/from work/work-related)	10516	15.9	15.9	66.1
	Home Based Home (home to/from home loop trip)	43	.1	.1	66.2
	Home Based Home Other (home to/from home other)	76	.1	.1	66.3
	Non Home Based (any non-home, non-work to/from any non-home, non work)	14332	21.7	21.7	87.9
	Work Based (work/work related to any/from any non-home purpose)	7959	12.0	12.0	100.0
	Work Based Work (primary workplace to/from primary workplace loop trip)	21	.0	.0	100.0
	Total	66175	100.0	100.0	

Unweighted tabulations of some key variables from the linked trip file.
Total number of linked trip observations is 65103.
Please note that while there are no observations for Canaan town, the weighting analysis does account for households and persons living in the town.

Sample segment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Segment 1: Over Sample, low response rate	9980	15.3	15.3	15.3
	Segment 2: Over Sample, medium response rate	6349	9.8	9.8	25.1
	Segment 3: Over Sample, high response rate	3658	5.6	5.6	30.7
	Segment 4: Regular Sample, low response rate	4038	6.2	6.2	36.9
	Segment 5: Regular Sample, medium response rate	16983	26.1	26.1	63.0
	Segment 6: Regular Sample, high response rate	24095	37.0	37.0	100.0
	Total	65103	100.0	100.0	

Week number of assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5687	8.7	8.7	8.7
	2	6197	9.5	9.5	18.3
	3	6310	9.7	9.7	27.9
	4	6335	9.7	9.7	37.7
	5	6322	9.7	9.7	47.4
	6	6309	9.7	9.7	57.1
	7	6560	10.1	10.1	67.2
	8	6279	9.6	9.6	76.8
	9	6395	9.8	9.8	86.6
	10	8709	13.4	13.4	100.0
	Total	65103	100.0	100.0	

Assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2016-03-15	1825	2.8	2.8	2.8
	2016-03-16	2046	3.1	3.1	5.9
	2016-03-17	1816	2.8	2.8	8.7
	2016-03-22	2130	3.3	3.3	12.0
	2016-03-23	1710	2.6	2.6	14.6
	2016-03-24	2357	3.6	3.6	18.3
	2016-03-29	2148	3.3	3.3	21.6
	2016-03-30	1978	3.0	3.0	24.6
	2016-03-31	2184	3.4	3.4	27.9
	2016-04-05	2176	3.3	3.3	31.3
	2016-04-06	2096	3.2	3.2	34.5
	2016-04-07	2063	3.2	3.2	37.7
	2016-04-19	2187	3.4	3.4	41.0
	2016-04-20	1915	2.9	2.9	44.0
	2016-04-21	2220	3.4	3.4	47.4
	2016-04-26	2194	3.4	3.4	50.8
	2016-04-27	2111	3.2	3.2	54.0
	2016-04-28	2004	3.1	3.1	57.1
	2016-05-03	2127	3.3	3.3	60.3
	2016-05-04	2266	3.5	3.5	63.8
	2016-05-05	2167	3.3	3.3	67.2
	2016-05-10	2172	3.3	3.3	70.5
	2016-05-11	2123	3.3	3.3	73.8
	2016-05-12	1984	3.0	3.0	76.8
	2016-05-17	2445	3.8	3.8	80.6
	2016-05-18	1890	2.9	2.9	83.5
	2016-05-19	2060	3.2	3.2	86.6
	2016-05-24	2817	4.3	4.3	90.9
	2016-05-25	2974	4.6	4.6	95.5
	2016-05-26	2918	4.5	4.5	100.0
	Total	65103	100.0	100.0	

Household survey status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	65103	100.0	100.0	100.0

Indicator of whether the trip is part of a linked trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Linked	64310	98.8	98.8	98.8
	Linked	793	1.2	1.2	100.0
	Total	65103	100.0	100.0	

Unweighted Distributions - Linked Trip File

Linked trip index

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	64310	98.8	98.8	98.8
	1	472	.7	.7	99.5
	2	295	.5	.5	100.0
	3	20	.0	.0	100.0
	4	6	.0	.0	100.0
	Total	65103	100.0	100.0	

How trip got linked

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Linked	64310	98.8	98.8	98.8
	Linked by Change Mode Heuristic	752	1.2	1.2	99.9
	Linked by Same Purpose Heuristic	41	.1	.1	100.0
	Total	65103	100.0	100.0	

Count of legs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unlinked Trip	64310	98.8	98.8	98.8
	Linked Trip with 2 Legs	559	.9	.9	99.6
	Linked Trip with 3 Legs	196	.3	.3	99.9
	Linked Trip with 4 Legs	34	.1	.1	100.0
	Linked Trip with 5 Legs	2	.0	.0	100.0
	Linked Trip with 6 Legs	1	.0	.0	100.0
	Linked Trip with 7 Legs	1	.0	.0	100.0
	Total	65103	100.0	100.0	

Trip departure time: hour of day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Before 3:00 AM	37	.1	.1	.1
	3:00 - 3:55 AM	100	.2	.2	.2
	4:00 - 4:55 AM	200	.3	.3	.5
	5:00 - 5:55 AM	655	1.0	1.0	1.5
	6:00 - 6:55 AM	2300	3.5	3.5	5.1
	7:00 - 7:55 AM	5116	7.9	7.9	12.9
	8:00 - 8:55 AM	4884	7.5	7.5	20.4
	9:00 - 9:55 AM	3424	5.3	5.3	25.7
	10:00 - 10:55 AM	3480	5.3	5.3	31.0
	11:00 - 11:55 AM	3947	6.1	6.1	37.1
	12:00 - 12:55 PM	4382	6.7	6.7	43.8
	1:00 - 1:55 PM	3853	5.9	5.9	49.7
	2:00 - 2:55 PM	4813	7.4	7.4	57.1
	3:00 - 3:55 PM	5348	8.2	8.2	65.3
	4:00 - 4:55 PM	5333	8.2	8.2	73.5
	5:00 - 5:55 PM	5642	8.7	8.7	82.2
	6:00 - 6:55 PM	4418	6.8	6.8	89.0
	7:00 - 7:55 PM	2935	4.5	4.5	93.5
	8:00 - 8:55 PM	2059	3.2	3.2	96.7
	9:00 - 9:55 PM	1176	1.8	1.8	98.5
	10:00 - 10:55 PM	528	.8	.8	99.3
	11:00 - 11:55 PM	282	.4	.4	99.7
	12:00 - 12:55 PM	97	.1	.1	99.9
	1:00 - 1:55 AM (next day)	47	.1	.1	99.9
	2:00 - 2:55 AM (next day)	47	.1	.1	100.0
	Total	65103	100.0	100.0	

Trip arrival time: hour of day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3:00 - 3:55 AM	75	.1	.1	.1
	4:00 - 4:55 AM	124	.2	.2	.3
	5:00 - 5:55 AM	385	.6	.6	.9
	6:00 - 6:55 AM	1369	2.1	2.1	3.0
	7:00 - 7:55 AM	4417	6.8	6.8	9.8
	8:00 - 8:55 AM	5308	8.2	8.2	17.9
	9:00 - 9:55 AM	3855	5.9	5.9	23.9
	10:00 - 10:55 AM	3411	5.2	5.2	29.1
	11:00 - 11:55 AM	3796	5.8	5.8	34.9
	12:00 - 12:55 PM	4472	6.9	6.9	41.8
	1:00 - 1:55 PM	3899	6.0	6.0	47.8
	2:00 - 2:55 PM	4420	6.8	6.8	54.6
	3:00 - 3:55 PM	5248	8.1	8.1	62.6
	4:00 - 4:55 PM	5131	7.9	7.9	70.5
	5:00 - 5:55 PM	5698	8.8	8.8	79.3
	6:00 - 6:55 PM	5095	7.8	7.8	87.1
	7:00 - 7:55 PM	3447	5.3	5.3	92.4
	8:00 - 8:55 PM	2252	3.5	3.5	95.9
	9:00 - 9:55 PM	1414	2.2	2.2	98.0
	10:00 - 10:55 PM	677	1.0	1.0	99.1
	11:00 - 11:55 PM	339	.5	.5	99.6
	12:00 - 12:55 PM	143	.2	.2	99.8
	1:00 - 1:55 AM (next day)	61	.1	.1	99.9
	2:00 - 2:55 AM (next day)	39	.1	.1	100.0
	After 3:00 AM (next day)	28	.0	.0	100.0
	Total	65103	100.0	100.0	

Total number of travelers on trip including self

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	41156	63.2	63.2	63.2
	2	13153	20.2	20.2	83.4
	3	6436	9.9	9.9	93.3
	4	1610	2.5	2.5	95.8
	5	890	1.4	1.4	97.1
	6	1173	1.8	1.8	98.9
	7	490	.8	.8	99.7
	8	113	.2	.2	99.9
	9	63	.1	.1	100.0
	10	12	.0	.0	100.0
	12	7	.0	.0	100.0
	Total	65103	100.0	100.0	

Household members on trip including self

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	46997	72.2	72.2	72.2
	2	13308	20.4	20.4	92.6
	3	3527	5.4	5.4	98.0
	4	1081	1.7	1.7	99.7
	5	158	.2	.2	100.0
	6	18	.0	.0	100.0
	7	14	.0	.0	100.0
	Total	65103	100.0	100.0	

Non-household members on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nobody (0 people)	54139	83.2	83.2	83.2
	1 person	7013	10.8	10.8	93.9
	2 people	1721	2.6	2.6	96.6
	3 people	527	.8	.8	97.4
	4 people	262	.4	.4	97.8
	5 or more people	1441	2.2	2.2	100.0
	Total	65103	100.0	100.0	

HH or Other Vehicle: Vehicle used

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	10467	16.1	16.1	16.1
	HH vehicle 1	33909	52.1	52.1	68.2
	HH vehicle 2	14666	22.5	22.5	90.7
	HH vehicle 3	2924	4.5	4.5	95.2
	HH vehicle 4	568	.9	.9	96.1
	HH vehicle 5	205	.3	.3	96.4
	HH vehicle 6	34	.1	.1	96.4
	HH vehicle 7	8	.0	.0	96.4
	Rental car	212	.3	.3	96.8
	Car from work	405	.6	.6	97.4
	Friend/relative's car	1674	2.6	2.6	100.0
	Carshare vehicle (e.g. Car2Go)	24	.0	.0	100.0
	Motorcycle/moped/scooter	7	.0	.0	100.0
	Total	65103	100.0	100.0	

HH or Other Vehicle, or Vanpool: If age 16+ and licensed travel party > 1: Was driver or passenger on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Driver	6152	9.4	46.8	46.8
	Passenger	6943	10.7	52.9	99.7
	Both (switched drivers during trip)	42	.1	.3	100.0
	Total	13137	20.2	100.0	
Missing	System	51966	79.8		
Total		65103	100.0		

HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses HOV and travel party > 1: Used HOV lane on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	150	.2	38.9	38.9
	No	236	.4	61.1	100.0
	Total	386	.6	100.0	
Missing	System	64717	99.4		
Total		65103	100.0		

HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses toll road: Toll road used on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	379	.6	27.5	27.5
	No	1000	1.5	72.5	100.0
	Total	1379	2.1	100.0	
Missing	System	63724	97.9		
Total		65103	100.0		

HH or Other vehicle, or Vanpool: If age 16+: Parking location at destination

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Own driveway/garage	15962	24.5	29.9	29.9
	Someone else's driveway	1873	2.9	3.5	33.4
	Parking lot/garage at destination (within 2 blocks)	28647	44.0	53.7	87.1
	Parking lot/garage 2+ blocks away from destination	401	.6	.8	87.9
	On street parking at destination (within 2 blocks)	2477	3.8	4.6	92.5
	On street parking 2+ blocks away from destination	94	.1	.2	92.7
	Park & ride lot	130	.2	.2	93.0
	Didn't park (waited, drop-off, drive-thru)	3111	4.8	5.8	98.8
	Other	649	1.0	1.2	100.0
	Total	53344	81.9	100.0	
Missing	System	11759	18.1		
Total		65103	100.0		

Parked on street or in a lot/garage: If ever pays for parking: How paid for parking at destination

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No, parking was free	1231	1.9	63.3	63.3
	Yes, with cash/tickets	415	.6	21.3	84.7
	Yes, with parking pass	261	.4	13.4	98.1
	No, another person paid or was reimbursed	31	.0	1.6	99.7
	Not sure/don't remember	6	.0	.3	100.0
	Total	1944	3.0	100.0	
Missing	System	63159	97.0		
Total		65103	100.0		

Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit access mode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	63194	97.1	97.1	97.1
	Walked or jogged/ Rode a bike	1370	2.1	2.1	99.2
	Drove and parked a car/ Got dropped off	303	.5	.5	99.6
	Took a taxi/ Ride share (e.g. Uber, Lyft)	16	.0	.0	99.7
	Transferred from other transit	101	.2	.2	99.8
	Was already at destination	77	.1	.1	99.9
	Other	42	.1	.1	100.0
	Total	65103	100.0	100.0	

Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit egress mode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	63193	97.1	97.1	97.1
	Walked or jogged/ Rode a bike	1339	2.1	2.1	99.1
	Drove and parked a car/ Got dropped off	268	.4	.4	99.5
	Took a taxi/ Ride share (e.g. Uber, Lyft)	19	.0	.0	99.6
	Transferred from other transit	187	.3	.3	99.9
	Was already at destination	59	.1	.1	99.9
	Other	38	.1	.1	100.0
	Total	65103	100.0	100.0	

Count of transit transfers made

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	63190	97.1	97.1	97.1
	0	1585	2.4	2.4	99.5
	1	293	.5	.5	99.9
	2	24	.0	.0	100.0
	3	9	.0	.0	100.0
	4	2	.0	.0	100.0
	Total	65103	100.0	100.0	

Final Recoded Public Bus, Commuter Rail, Subway, Train or Intercity Bus: How paid for transit on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	63196	97.1	97.1	97.1
	Did not pay	976	1.5	1.5	98.6
	Paid	931	1.4	1.4	100.0
	Total	65103	100.0	100.0	

Primary purpose at trip origin

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Go home	21951	33.7	33.7	33.7
	Go to primary workplace	7862	12.1	12.1	45.8
	Go to other work-related place	2035	3.1	3.1	48.9
	Attend school/class	2428	3.7	3.7	52.6
	Other school-related activity	970	1.5	1.5	54.1
	Grocery shopping	3564	5.5	5.5	59.6
	Do other shopping (e.g. mall, hardware store)	3690	5.7	5.7	65.3
	Run errands (e.g. bank, haircut)	4632	7.1	7.1	72.4
	Go to restaurant/bar/get take-out	3640	5.6	5.6	78.0
	Drop off/pick up/accompany other person	3997	6.1	6.1	84.1
	Exercise (e.g. gym, walk, jog/run)	2931	4.5	4.5	88.6
	Family activity (e.g. child's game)	679	1.0	1.0	89.7
	Medical visit (e.g. doctor, dentist)	1538	2.4	2.4	92.0
	Social (e.g. visit friends/relatives)	1655	2.5	2.5	94.6
	Leisure/entertainment (e.g. movies)	914	1.4	1.4	96.0
	Religious/civic/volunteer	1138	1.7	1.7	97.7
	Vacation/holiday/traveling (e.g. hotel)	84	.1	.1	97.9
	Change travel mode (e.g. wait for bus, change planes)	64	.1	.1	98.0
	Home other	421	.6	.6	98.6
	Go to airport/switch airport	59	.1	.1	98.7
	Other	851	1.3	1.3	100.0
	Total	65103	100.0	100.0	

Primary purpose at trip destination

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Go home	21943	33.7	33.7	33.7
	Go to primary workplace	7843	12.0	12.0	45.8
	Go to other work-related place	2081	3.2	3.2	48.9
	Attend school/class	2503	3.8	3.8	52.8
	Other school-related activity	996	1.5	1.5	54.3
	Grocery shopping	3574	5.5	5.5	59.8
	Do other shopping (e.g. mall, hardware store)	3702	5.7	5.7	65.5
	Run errands (e.g. bank, haircut)	4647	7.1	7.1	72.6
	Go to restaurant/bar/get take-out	3649	5.6	5.6	78.2
	Drop off/pick up/accompany other person	4018	6.2	6.2	84.4
	Exercise (e.g. gym, walk, jog/run)	2947	4.5	4.5	88.9
	Family activity (e.g. child's game)	700	1.1	1.1	90.0
	Medical visit (e.g. doctor, dentist)	1550	2.4	2.4	92.4
	Social (e.g. visit friends/relatives)	1763	2.7	2.7	95.1
	Leisure/entertainment (e.g. movies)	927	1.4	1.4	96.5
	Religious/civic/volunteer	1143	1.8	1.8	98.3
	Vacation/holiday/traveling (e.g. hotel)	166	.3	.3	98.5
	Change travel mode (e.g. wait for bus, change planes)	66	.1	.1	98.6
	Home other	460	.7	.7	99.3
	Go to airport/switch airport	63	.1	.1	99.4
	Other	362	.6	.6	100.0
	Total	65103	100.0	100.0	

Overall trip purpose

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Home Based Escorting (home to/from drop off/pick up/accompany other person)	4123	6.3	6.3	6.3
	Home Based Meal (home to/from restaurant/bar/get take-out)	2752	4.2	4.2	10.6
	Home Based Other (home to/from any other purpose)	567	.9	.9	11.4
	Home Based Personal Business (home to/from personal business)	10641	16.3	16.3	27.8
	Home Based School (home to/from school/other school related)	4986	7.7	7.7	35.4
	Home Based Shopping (home to/from grocery shopping/other shopping)	6350	9.8	9.8	45.2
	Home Based Social Recreation (home to/from social recreation activity)	3533	5.4	5.4	50.6
	Home Based Work (home to/from work/work-related)	10799	16.6	16.6	67.2
	Home Based Home (home to/from home loop trip)	38	.1	.1	67.3
	Home Based Home Other (home to/from home other)	67	.1	.1	67.4
	Non Home Based (any non-home, non-work to/from any non-home, non work)	13581	20.9	20.9	88.2
	Work Based (work/work related to any/from any non-home purpose)	7650	11.8	11.8	100.0
	Work Based Work (primary workplace to/from primary workplace loop trip)	16	.0	.0	100.0
	Total	65103	100.0	100.0	

Main way traveled on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Walk/jog/wheelchair	5721	8.8	8.8	8.8
	Bicycle	422	.6	.6	9.4
	Vehicle in household	52314	80.4	80.4	89.8
	Other vehicle (e.g. rental, friend's car)	2322	3.6	3.6	93.4
	Regular taxi or hired car service	69	.1	.1	93.5
	Ride-share taxi/car service (e.g. Uber, Lyft)	35	.1	.1	93.5
	Vanpool	55	.1	.1	93.6
	School bus	1789	2.7	2.7	96.4
	Public (city) bus	1226	1.9	1.9	98.2
	Train (e.g. Amtrak)	86	.1	.1	98.4
	Shuttle (e.g. a hotel's, an airport's)	100	.2	.2	98.5
	Paratransit	59	.1	.1	98.6
	Commuter Rail (e.g. Metro North)	536	.8	.8	99.4
	Subway	40	.1	.1	99.5
	Intercity bus (e.g. Greyhound)	19	.0	.0	99.5
	Ferry/water taxi/boat	4	.0	.0	99.5
	Airplane/helicopter	61	.1	.1	99.6
	Other	245	.4	.4	100.0
	Total	65103	100.0	100.0	

Final Recoded Main way traveled on trip, aggregated

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SOV (single-occupant vehicle)	34869	53.6	53.6	53.6
	Family carpool (HH or Other vehicle, only HH members in travel party)	11466	17.6	17.6	71.2
	Other carpool (HH or Other vehicle, includes at least one non-HH member)	8301	12.8	12.8	83.9
	Walk or Bike	6143	9.4	9.4	93.4
	Taxi (traditional or rideshare)	104	.2	.2	93.5
	Public transit (bus, train, paratransit, commuter rail, subway, intercity bus)	1966	3.0	3.0	96.5
	Other (vanpool, school bus, shuttle, ferry/boat, airplane, other)	2254	3.5	3.5	100.0
	Total	65103	100.0	100.0	

Unweighted tabulations of some key variables from the vehicle file.
Total number of vehicle observations is 14540.
Please note that while there are no observations for Canaan town, the weighting analysis does account for households and persons living in the town.

Sample segment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Segment 1: Over Sample, low response rate	1532	10.5	10.5	10.5
	Segment 2: Over Sample, medium response rate	1349	9.3	9.3	19.8
	Segment 3: Over Sample, high response rate	814	5.6	5.6	25.4
	Segment 4: Regular Sample, low response rate	809	5.6	5.6	31.0
	Segment 5: Regular Sample, medium response rate	4012	27.6	27.6	58.6
	Segment 6: Regular Sample, high response rate	6024	41.4	41.4	100.0
	Total	14540	100.0	100.0	

Household survey status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	14540	100.0	100.0	100.0

Vehicle year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1980 or earlier	184	1.3	1.3	1.3
	1981	11	.1	.1	1.3
	1982	7	.0	.0	1.4
	1983	14	.1	.1	1.5
	1984	15	.1	.1	1.6
	1985	20	.1	.1	1.7
	1986	17	.1	.1	1.8
	1987	31	.2	.2	2.1
	1988	28	.2	.2	2.2
	1989	34	.2	.2	2.5
	1990	37	.3	.3	2.7
	1991	32	.2	.2	3.0
	1992	38	.3	.3	3.2
	1993	65	.4	.4	3.7
	1994	62	.4	.4	4.1
	1995	127	.9	.9	5.0
	1996	132	.9	.9	5.9
	1997	197	1.4	1.4	7.2
	1998	257	1.8	1.8	9.0
	1999	297	2.0	2.0	11.0
	2000	399	2.7	2.7	13.8
	2001	482	3.3	3.3	17.1
	2002	511	3.5	3.5	20.6
	2003	643	4.4	4.4	25.0
	2004	707	4.9	4.9	29.9
	2005	765	5.3	5.3	35.2
	2006	813	5.6	5.6	40.7
	2007	804	5.5	5.5	46.3
	2008	896	6.2	6.2	52.4
	2009	720	5.0	5.0	57.4
	2010	921	6.3	6.3	63.7
	2011	811	5.6	5.6	69.3
	2012	975	6.7	6.7	76.0
	2013	942	6.5	6.5	82.5
	2014	1004	6.9	6.9	89.4
	2015	1044	7.2	7.2	96.6
	2016	498	3.4	3.4	100.0
	Total	14540	100.0	100.0	

Vehicle make

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Acura	250	1.7	1.7	1.7
	Alfa Romeo	2	.0	.0	1.7
	AM General	1	.0	.0	1.7
	AMC	1	.0	.0	1.7
	Audi	290	2.0	2.0	3.7
	BMW	422	2.9	2.9	6.6
	Buick	265	1.8	1.8	8.5
	Cadillac	111	.8	.8	9.2
	Chevrolet	1031	7.1	7.1	16.3
	Chrysler	213	1.5	1.5	17.8
	Daewoo	1	.0	.0	17.8
	Dodge	401	2.8	2.8	20.6
	Eagle	1	.0	.0	20.6
	Ferrari	1	.0	.0	20.6
	Fiat	10	.1	.1	20.6
	Ford	1365	9.4	9.4	30.0
	Freightliner	3	.0	.0	30.0
	GEM	1	.0	.0	30.0
	Geo	8	.1	.1	30.1
	GMC	218	1.5	1.5	31.6
	Honda	1833	12.6	12.6	44.2
	Hummer	8	.1	.1	44.3
	Hyundai	526	3.6	3.6	47.9
	Infiniti	108	.7	.7	48.6
	Isuzu	6	.0	.0	48.7
	Jaguar	34	.2	.2	48.9
	Jeep	548	3.8	3.8	52.7
	Kia	168	1.2	1.2	53.8
	Land Rover	30	.2	.2	54.0
	Lexus	279	1.9	1.9	55.9
	Lincoln	78	.5	.5	56.5
	Lotus	3	.0	.0	56.5
	Maserati	3	.0	.0	56.5
	Mazda	310	2.1	2.1	58.7
	Mercedes-Benz	239	1.6	1.6	60.3
	Mercury	111	.8	.8	61.1
	Merkur	1	.0	.0	61.1
	MINI	60	.4	.4	61.5
	Mitsubishi	63	.4	.4	61.9
	Motorcycle	222	1.5	1.5	63.4
	Nissan	870	6.0	6.0	69.4
	Oldsmobile	26	.2	.2	69.6
	Other	236	1.6	1.6	71.2
	Peugeot	1	.0	.0	71.2
	Plymouth	18	.1	.1	71.4
	Pontiac	96	.7	.7	72.0
	Porsche	56	.4	.4	72.4
	Ram	15	.1	.1	72.5
	Saab	89	.6	.6	73.1

Vehicle make (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Saturn	101	.7	.7	73.8
	Scion	32	.2	.2	74.0
	smart	7	.0	.0	74.1
	Subaru	1102	7.6	7.6	81.7
	Suzuki	24	.2	.2	81.8
	Tesla	7	.0	.0	81.9
	Toyota	1905	13.1	13.1	95.0
	Volkswagen	415	2.9	2.9	97.8
	Volvo	314	2.2	2.2	100.0
	VPG	1	.0	.0	100.0
	Total	14540	100.0	100.0	

Vehicle model

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 series	11	.1	.1	.1
	1500	13	.1	.1	.2
	2 series	4	.0	.0	.2
	200	8	.1	.1	.2
	240	5	.0	.0	.3
	2500	2	.0	.0	.3
	3 series	200	1.4	1.4	1.7
	300	24	.2	.2	1.8
	3000GT	1	.0	.0	1.8
	300C	8	.1	.1	1.9
	300M	6	.0	.0	1.9
	300S	3	.0	.0	2.0
	308 GTSI	1	.0	.0	2.0
	350Z	4	.0	.0	2.0
	370Z	2	.0	.0	2.0
	380	1	.0	.0	2.0
	4 series	6	.0	.0	2.1
	4Runner	65	.4	.4	2.5
	5 series	71	.5	.5	3.0
	500	6	.0	.0	3.0
	500 ABARTH	2	.0	.0	3.0
	500c	2	.0	.0	3.1
	500X	1	.0	.0	3.1
	560	1	.0	.0	3.1
	6 series	4	.0	.0	3.1
	626	4	.0	.0	3.1
	7 series	5	.0	.0	3.2
	740 Series	2	.0	.0	3.2
	850 Series	11	.1	.1	3.3
	9-2X	1	.0	.0	3.3
	9-3	52	.4	.4	3.6
	9-3X	1	.0	.0	3.6
	9-5	17	.1	.1	3.7
	9-7X	2	.0	.0	3.8
	900	10	.1	.1	3.8

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	9000	1	.0	.0	3.8
	911	22	.2	.2	4.0
	924	1	.0	.0	4.0
	940 Series	2	.0	.0	4.0
	944	2	.0	.0	4.0
	960 Series	3	.0	.0	4.0
	968	2	.0	.0	4.1
	A3	23	.2	.2	4.2
	A4	104	.7	.7	4.9
	A5	17	.1	.1	5.0
	A6	58	.4	.4	5.4
	A7	6	.0	.0	5.5
	A8	5	.0	.0	5.5
	Acadia	35	.2	.2	5.8
	Accent	48	.3	.3	6.1
	Accord	518	3.6	3.6	9.6
	Accord Crosstour	6	.0	.0	9.7
	Aerio	1	.0	.0	9.7
	Alero	7	.0	.0	9.7
	Allante	2	.0	.0	9.8
	allroad	6	.0	.0	9.8
	Altima	247	1.7	1.7	11.5
	Amanti	2	.0	.0	11.5
	AMG GT	1	.0	.0	11.5
	Armada	2	.0	.0	11.5
	Astra	1	.0	.0	11.5
	Astro	9	.1	.1	11.6
	ATS	6	.0	.0	11.6
	Aura	12	.1	.1	11.7
	Aurora	4	.0	.0	11.8
	Avalanche	10	.1	.1	11.8
	Avalon	62	.4	.4	12.2
	Avalon Hybrid	1	.0	.0	12.3
	Avenger	14	.1	.1	12.4
	Aveo	11	.1	.1	12.4
	Aviator	2	.0	.0	12.4
	Azera	10	.1	.1	12.5
	B-Class	2	.0	.0	12.5
	B-Series	8	.1	.1	12.6
	B9 Tribeca	2	.0	.0	12.6
	Baja	6	.0	.0	12.6
	Beetle	10	.1	.1	12.7
	Blazer	26	.2	.2	12.9
	Bonneville	5	.0	.0	12.9
	Borrego	1	.0	.0	12.9
	Boxster	14	.1	.1	13.0
	Breeze	1	.0	.0	13.0
	Bronco	2	.0	.0	13.0
	Brougham	2	.0	.0	13.1

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	C-Class	64	.4	.4	13.5
	C-Max Energi	5	.0	.0	13.5
	C-Max Hybrid	8	.1	.1	13.6
	C10	2	.0	.0	13.6
	C1500	15	.1	.1	13.7
	C20	1	.0	.0	13.7
	C2500	4	.0	.0	13.7
	C30	6	.0	.0	13.8
	C70	13	.1	.1	13.9
	Cabrio	4	.0	.0	13.9
	Cadenza	1	.0	.0	13.9
	Caliber	12	.1	.1	14.0
	Camaro	14	.1	.1	14.1
	Camry	461	3.2	3.2	17.2
	Camry Solara	16	.1	.1	17.4
	Canyon	14	.1	.1	17.5
	Caprice Classic	2	.0	.0	17.5
	Captiva	2	.0	.0	17.5
	Captiva Sport	1	.0	.0	17.5
	Caravan	32	.2	.2	17.7
	Caravelle	1	.0	.0	17.7
	Catera	2	.0	.0	17.7
	Cavalier	32	.2	.2	18.0
	Cayenne	7	.0	.0	18.0
	Cayman	1	.0	.0	18.0
	CC	11	.1	.1	18.1
	Celebrity	1	.0	.0	18.1
	Celica	8	.1	.1	18.1
	Celica Supra	1	.0	.0	18.1
	Century	41	.3	.3	18.4
	Challenger	3	.0	.0	18.5
	Charger	13	.1	.1	18.5
	Cherokee	80	.6	.6	19.1
	Cirrus	5	.0	.0	19.1
	City Golf	2	.0	.0	19.1
	Civic	450	3.1	3.1	22.2
	CJ7	1	.0	.0	22.2
	CL	1	.0	.0	22.2
	CL-Class	1	.0	.0	22.3
	CLA-Class	2	.0	.0	22.3
	Classic	1	.0	.0	22.3
	CLK-Class	5	.0	.0	22.3
	Club Wagon	2	.0	.0	22.3
	Cobalt	48	.3	.3	22.7
	Colorado	35	.2	.2	22.9
	Commander	6	.0	.0	22.9
	Compass	28	.2	.2	23.1
	Concorde	8	.1	.1	23.2
	Continental	5	.0	.0	23.2

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Contour	2	.0	.0	23.2
	Cooper	51	.4	.4	23.6
	Cooper Countryman	8	.1	.1	23.6
	Corolla	300	2.1	2.1	25.7
	Corvette	19	.1	.1	25.8
	Cougar	2	.0	.0	25.8
	CR-V	405	2.8	2.8	28.6
	Cressida	1	.0	.0	28.6
	Crossfire	1	.0	.0	28.6
	Crosstour	7	.0	.0	28.7
	Crown Victoria	18	.1	.1	28.8
	Cruze	40	.3	.3	29.1
	Cruze Limited	1	.0	.0	29.1
	CT 200h	11	.1	.1	29.2
	CTS	27	.2	.2	29.4
	CTS-V	1	.0	.0	29.4
	cube	8	.1	.1	29.4
	Cutlass	4	.0	.0	29.4
	Cutlass Ciera	3	.0	.0	29.5
	CX-5	39	.3	.3	29.7
	CX-7	10	.1	.1	29.8
	CX-9	17	.1	.1	29.9
	D100 Pickup	1	.0	.0	29.9
	D150 Pickup	1	.0	.0	29.9
	D250 Pickup	2	.0	.0	30.0
	Dakota	55	.4	.4	30.3
	Dart	9	.1	.1	30.4
	Deville	23	.2	.2	30.6
	Diamante	3	.0	.0	30.6
	Discovery	1	.0	.0	30.6
	Discovery II	2	.0	.0	30.6
	Discovery Sport	1	.0	.0	30.6
	DTS	8	.1	.1	30.7
	Durango	40	.3	.3	30.9
	E-Class	66	.5	.5	31.4
	e-Golf	3	.0	.0	31.4
	E350	2	.0	.0	31.4
	E450 Super Duty	2	.0	.0	31.4
	Echo	5	.0	.0	31.5
	Eclipse	9	.1	.1	31.5
	Eclipse Spyder	2	.0	.0	31.5
	Econoline	24	.2	.2	31.7
	Econoline Wagon	1	.0	.0	31.7
	Edge	44	.3	.3	32.0
	Eighty Eight	2	.0	.0	32.0
	EL	1	.0	.0	32.0
	El Camino	1	.0	.0	32.0
	Elantra	145	1.0	1.0	33.0
	Elantra Coupe	5	.0	.0	33.1

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Elantra GT	6	.0	.0	33.1
	Elantra Touring	11	.1	.1	33.2
	Eldorado	4	.0	.0	33.2
	Element	22	.2	.2	33.4
	Elise	2	.0	.0	33.4
	Enclave	16	.1	.1	33.5
	Encore	10	.1	.1	33.6
	Endeavor	5	.0	.0	33.6
	Entourage	3	.0	.0	33.6
	Envoy	11	.1	.1	33.7
	Envoy XL	5	.0	.0	33.7
	Envoy XUV	3	.0	.0	33.7
	Eos	11	.1	.1	33.8
	Equinox	83	.6	.6	34.4
	Equus	1	.0	.0	34.4
	ES 300	26	.2	.2	34.6
	ES 300h	3	.0	.0	34.6
	ES 330	19	.1	.1	34.7
	ES 350	41	.3	.3	35.0
	Escalade	2	.0	.0	35.0
	Escalade ESV	2	.0	.0	35.0
	Escalade Hybrid	1	.0	.0	35.0
	Escape	159	1.1	1.1	36.1
	Escape Hybrid	5	.0	.0	36.2
	Escort	14	.1	.1	36.3
	Escort ZX2	1	.0	.0	36.3
	EuroVan	3	.0	.0	36.3
	EX35	2	.0	.0	36.3
	Excel	1	.0	.0	36.3
	Excursion	2	.0	.0	36.3
	EXP	1	.0	.0	36.3
	Expedition	20	.1	.1	36.5
	Expedition EL	1	.0	.0	36.5
	Explorer	123	.8	.8	37.3
	Explorer Sport	1	.0	.0	37.3
	Explorer Sport Trac	9	.1	.1	37.4
	Express	14	.1	.1	37.5
	F-150	176	1.2	1.2	38.7
	F-150 Heritage	2	.0	.0	38.7
	F-250	44	.3	.3	39.0
	F-350	36	.2	.2	39.3
	F-450	3	.0	.0	39.3
	Fiesta	22	.2	.2	39.4
	Firebird	6	.0	.0	39.5
	Fit	82	.6	.6	40.0
	Five Hundred	7	.0	.0	40.1
	FJ Cruiser	4	.0	.0	40.1
	Flex	9	.1	.1	40.2
	Focus	147	1.0	1.0	41.2

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Forenza	2	.0	.0	41.2
	Forester	335	2.3	2.3	43.5
	Forte	17	.1	.1	43.6
	Forte Koup	2	.0	.0	43.6
	Forte5	2	.0	.0	43.7
	fortwo	4	.0	.0	43.7
	Fox	1	.0	.0	43.7
	FR-S	1	.0	.0	43.7
	Freestar	1	.0	.0	43.7
	Freestyle	11	.1	.1	43.8
	Frontier	53	.4	.4	44.1
	Fusion	122	.8	.8	45.0
	Fusion Energi	3	.0	.0	45.0
	FX35	10	.1	.1	45.1
	FX50	1	.0	.0	45.1
	G10	1	.0	.0	45.1
	G1500	1	.0	.0	45.1
	G20	2	.0	.0	45.1
	G20 SportVan	2	.0	.0	45.1
	G2500 Rally	1	.0	.0	45.1
	G2500 Vandura	1	.0	.0	45.1
	G3 Wave	2	.0	.0	45.2
	G35	16	.1	.1	45.3
	G35x	8	.1	.1	45.3
	G37	3	.0	.0	45.3
	G37x	16	.1	.1	45.4
	G5	2	.0	.0	45.5
	G6	15	.1	.1	45.6
	G8	2	.0	.0	45.6
	Galant	14	.1	.1	45.7
	Genesis	5	.0	.0	45.7
	Genesis Coupe	1	.0	.0	45.7
	Ghibli	1	.0	.0	45.7
	GL-Class	11	.1	.1	45.8
	GLA-Class	2	.0	.0	45.8
	GLE-Class	2	.0	.0	45.8
	GLK-Class	10	.1	.1	45.9
	Golf	36	.2	.2	46.1
	Grand Am	18	.1	.1	46.3
	Grand Caravan	58	.4	.4	46.7
	Grand Cherokee	204	1.4	1.4	48.1
	Grand Marquis	29	.2	.2	48.3
	Grand Prix	9	.1	.1	48.3
	Grand Vitara	6	.0	.0	48.4
	Grand Voyager	2	.0	.0	48.4
	GranTurismo	1	.0	.0	48.4
	GS 300	5	.0	.0	48.4
	GS 350	12	.1	.1	48.5
	GT-R	1	.0	.0	48.5

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	GTI	27	.2	.2	48.7
	GTO	2	.0	.0	48.7
	GX 460	4	.0	.0	48.7
	GX 470	3	.0	.0	48.8
	H2	3	.0	.0	48.8
	H2 SUT	1	.0	.0	48.8
	H3	3	.0	.0	48.8
	HHR	13	.1	.1	48.9
	Highlander	134	.9	.9	49.8
	Hombre	1	.0	.0	49.8
	HR-V	7	.0	.0	49.9
	HS 250h	1	.0	.0	49.9
	i3	2	.0	.0	49.9
	I30	11	.1	.1	50.0
	I35	4	.0	.0	50.0
	i8	1	.0	.0	50.0
	ILX	13	.1	.1	50.1
	Impala	77	.5	.5	50.6
	Impala Limited	4	.0	.0	50.7
	Impreza	161	1.1	1.1	51.8
	Insight	9	.1	.1	51.8
	Integra	8	.1	.1	51.9
	Intrepid	8	.1	.1	51.9
	Intrigue	5	.0	.0	52.0
	Ion	14	.1	.1	52.1
	iQ	2	.0	.0	52.1
	IS 250	22	.2	.2	52.2
	IS 300	1	.0	.0	52.2
	IS 350	3	.0	.0	52.3
	J30	1	.0	.0	52.3
	Jetta	169	1.2	1.2	53.4
	Jimmy	4	.0	.0	53.5
	Jimmy or Envoy	2	.0	.0	53.5
	Journey	9	.1	.1	53.5
	Juke	5	.0	.0	53.6
	JX35	1	.0	.0	53.6
	K1500	4	.0	.0	53.6
	K2500	1	.0	.0	53.6
	K3500	1	.0	.0	53.6
	Kizashi	1	.0	.0	53.6
	L Series	12	.1	.1	53.7
	LaCrosse	49	.3	.3	54.0
	Lancer	11	.1	.1	54.1
	Lancer Evolution	1	.0	.0	54.1
	Lancer Sportback	1	.0	.0	54.1
	Land Cruiser	4	.0	.0	54.2
	Lanos	1	.0	.0	54.2
	LEAF	5	.0	.0	54.2
	Lebaron	1	.0	.0	54.2

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Legacy	188	1.3	1.3	55.5
	Legend	1	.0	.0	55.5
	LeSabre	49	.3	.3	55.8
	LHS	1	.0	.0	55.8
	Liberty	61	.4	.4	56.3
	LR2	3	.0	.0	56.3
	LR3	5	.0	.0	56.3
	LR4	4	.0	.0	56.3
	LS	1	.0	.0	56.4
	LS 400	3	.0	.0	56.4
	LS 430	4	.0	.0	56.4
	LS 460	5	.0	.0	56.4
	LTD Crown Victoria	1	.0	.0	56.4
	Lucerne	25	.2	.2	56.6
	Lumina	11	.1	.1	56.7
	LX 470	3	.0	.0	56.7
	M-Class	20	.1	.1	56.9
	M3	7	.0	.0	56.9
	M35	11	.1	.1	57.0
	M35x	2	.0	.0	57.0
	M37	1	.0	.0	57.0
	M37x	2	.0	.0	57.0
	M5	2	.0	.0	57.0
	M6	1	.0	.0	57.0
	Macan	4	.0	.0	57.1
	Magnum	3	.0	.0	57.1
	Malibu	105	.7	.7	57.8
	Malibu Maxx	5	.0	.0	57.8
	Mariner	11	.1	.1	57.9
	Mark LT	2	.0	.0	57.9
	Mark VII	1	.0	.0	57.9
	Mark VIII	4	.0	.0	58.0
	Marquis	1	.0	.0	58.0
	Matrix	26	.2	.2	58.1
	Maxima	79	.5	.5	58.7
	Mazda3	100	.7	.7	59.4
	Mazda5	13	.1	.1	59.5
	Mazda6	48	.3	.3	59.8
	Mazdaspeed3	2	.0	.0	59.8
	MDX	60	.4	.4	60.2
	Metro	1	.0	.0	60.2
	Milan	6	.0	.0	60.3
	Millenia	2	.0	.0	60.3
	Mirage	3	.0	.0	60.3
	MKC	3	.0	.0	60.3
	MKS	6	.0	.0	60.4
	MKX	10	.1	.1	60.4
	MKZ	16	.1	.1	60.5
	Model S	7	.0	.0	60.6

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Montana	1	.0	.0	60.6
	Monte Carlo	10	.1	.1	60.7
	Montego	4	.0	.0	60.7
	Monterey	1	.0	.0	60.7
	Montero	2	.0	.0	60.7
	Montero Sport	2	.0	.0	60.7
	Mountaineer	20	.1	.1	60.9
	MPV	4	.0	.0	60.9
	MR2 Spyder	1	.0	.0	60.9
	Murano	60	.4	.4	61.3
	Mustang	62	.4	.4	61.7
	Mustang Shelby GT500	4	.0	.0	61.8
	MV-1	1	.0	.0	61.8
	MX-5 Miata	22	.2	.2	61.9
	MX-6	1	.0	.0	61.9
	Navigator	4	.0	.0	62.0
	Navigator L	2	.0	.0	62.0
	Neon	21	.1	.1	62.1
	New Beetle	17	.1	.1	62.2
	Nitro	3	.0	.0	62.3
	NV200	1	.0	.0	62.3
	NV2500HD	1	.0	.0	62.3
	NV3500	1	.0	.0	62.3
	NX300h	3	.0	.0	62.3
	Odyssey	145	1.0	1.0	63.3
	Optima	28	.2	.2	63.5
	Other	788	5.4	5.4	68.9
	Outback	316	2.2	2.2	71.1
	Outlander	8	.1	.1	71.1
	Outlander Sport	1	.0	.0	71.1
	Outlook	2	.0	.0	71.2
	P30	1	.0	.0	71.2
	Pacifica	14	.1	.1	71.3
	Panamera	2	.0	.0	71.3
	Park Avenue	19	.1	.1	71.4
	Passat	87	.6	.6	72.0
	Pathfinder	54	.4	.4	72.4
	Patriot	30	.2	.2	72.6
	Pickup	16	.1	.1	72.7
	Pilot	114	.8	.8	73.5
	Prelude	3	.0	.0	73.5
	Previa	2	.0	.0	73.5
	Prius	184	1.3	1.3	74.8
	Prius c	18	.1	.1	74.9
	Prius Plug-In	10	.1	.1	75.0
	Prius v	15	.1	.1	75.1
	Prizm	13	.1	.1	75.2
	Probe	2	.0	.0	75.2
	Protege	14	.1	.1	75.3

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PT Cruiser	29	.2	.2	75.5
	Q3	2	.0	.0	75.5
	Q40	1	.0	.0	75.5
	Q5	31	.2	.2	75.7
	Q50	3	.0	.0	75.7
	Q60	3	.0	.0	75.7
	Q7	10	.1	.1	75.8
	Quattroporte	1	.0	.0	75.8
	Quest	9	.1	.1	75.9
	QX4	2	.0	.0	75.9
	QX50	1	.0	.0	75.9
	QX56	1	.0	.0	75.9
	QX60	2	.0	.0	75.9
	R-Class	1	.0	.0	75.9
	R20	1	.0	.0	75.9
	Rabbit	8	.1	.1	76.0
	Rainier	2	.0	.0	76.0
	Ram Pickup	80	.6	.6	76.6
	Ram Van	7	.0	.0	76.6
	RamCharger	1	.0	.0	76.6
	Range Rover	5	.0	.0	76.6
	Range Rover Evoque	4	.0	.0	76.7
	Range Rover Sport	5	.0	.0	76.7
	Ranger	92	.6	.6	77.3
	RAV4	205	1.4	1.4	78.7
	RAV4 EV	2	.0	.0	78.8
	RC 350	1	.0	.0	78.8
	RDX	40	.3	.3	79.0
	Reatta	1	.0	.0	79.1
	Regal	21	.1	.1	79.2
	Reliant	1	.0	.0	79.2
	Rendezvous	4	.0	.0	79.2
	Renegade	3	.0	.0	79.3
	Ridgeline	19	.1	.1	79.4
	Rio	12	.1	.1	79.5
	RL	10	.1	.1	79.5
	RLX	1	.0	.0	79.5
	Roadmaster	1	.0	.0	79.5
	Rodeo	2	.0	.0	79.6
	Rogue	125	.9	.9	80.4
	Rogue Select	8	.1	.1	80.5
	Rondo	2	.0	.0	80.5
	Routan	4	.0	.0	80.5
	RS6	1	.0	.0	80.5
	RSX	11	.1	.1	80.6
	RX 300	15	.1	.1	80.7
	RX 330	12	.1	.1	80.8
	RX 350	61	.4	.4	81.2
	RX 400h	6	.0	.0	81.2

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	RX 450h	4	.0	.0	81.3
	RX-7	2	.0	.0	81.3
	RX-8	1	.0	.0	81.3
	S Series	29	.2	.2	81.5
	S-Class	11	.1	.1	81.6
	S-Type	5	.0	.0	81.6
	S10	48	.3	.3	81.9
	S15	1	.0	.0	81.9
	S2000	8	.1	.1	82.0
	S4	9	.1	.1	82.1
	S40	25	.2	.2	82.2
	S5	2	.0	.0	82.2
	S6	1	.0	.0	82.2
	S60	59	.4	.4	82.7
	S60 Inscription	1	.0	.0	82.7
	S70	11	.1	.1	82.7
	S80	17	.1	.1	82.9
	S90	1	.0	.0	82.9
	Sable	32	.2	.2	83.1
	Safari	1	.0	.0	83.1
	Santa Fe	86	.6	.6	83.7
	Savana	8	.1	.1	83.7
	SC 300	1	.0	.0	83.7
	SC 400	1	.0	.0	83.7
	SC 430	1	.0	.0	83.8
	Sebring	34	.2	.2	84.0
	Sedona	4	.0	.0	84.0
	Sentra	104	.7	.7	84.7
	Sephia	5	.0	.0	84.8
	Sequoia	9	.1	.1	84.8
	Seville	5	.0	.0	84.9
	Sienna	114	.8	.8	85.6
	Sierra	54	.4	.4	86.0
	Sierra Classic	1	.0	.0	86.0
	Silverado	151	1.0	1.0	87.1
	Silverado Classic	1	.0	.0	87.1
	Sky	1	.0	.0	87.1
	SL-Class	10	.1	.1	87.1
	SLK-Class	9	.1	.1	87.2
	Solstice	4	.0	.0	87.2
	Sonata	138	.9	.9	88.2
	Sonata Hybrid	9	.1	.1	88.2
	Sonic	9	.1	.1	88.3
	Sonoma	8	.1	.1	88.4
	Sorento	25	.2	.2	88.5
	Soul	25	.2	.2	88.7
	Spark	4	.0	.0	88.7
	Spectra	8	.1	.1	88.8
	Spider	2	.0	.0	88.8

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sportage	33	.2	.2	89.0
	Sprinter 2500	1	.0	.0	89.0
	Sprinter 3500	1	.0	.0	89.0
	SRX	12	.1	.1	89.1
	SS	1	.0	.0	89.1
	Stealth	1	.0	.0	89.1
	Step Van	3	.0	.0	89.2
	Stratus	14	.1	.1	89.3
	STS	6	.0	.0	89.3
	Suburban	34	.2	.2	89.5
	Sundance	1	.0	.0	89.5
	Sunfire	12	.1	.1	89.6
	Supra	1	.0	.0	89.6
	SX4	1	.0	.0	89.6
	SX4 Sedan	1	.0	.0	89.6
	SX4 Sport	1	.0	.0	89.6
	Tacoma	125	.9	.9	90.5
	Tahoe	31	.2	.2	90.7
	Taurus	111	.8	.8	91.5
	tC	11	.1	.1	91.6
	Tempo	3	.0	.0	91.6
	Tercel	1	.0	.0	91.6
	Terrain	35	.2	.2	91.8
	Thunderbird	8	.1	.1	91.9
	Tiburon	4	.0	.0	91.9
	Tiguan	12	.1	.1	92.0
	Titan	5	.0	.0	92.0
	TL	64	.4	.4	92.5
	TLX	11	.1	.1	92.5
	Torrent	3	.0	.0	92.6
	Touareg	5	.0	.0	92.6
	Town & Country	74	.5	.5	93.1
	Town Car	17	.1	.1	93.2
	Tracker	7	.0	.0	93.3
	TrailBlazer	34	.2	.2	93.5
	TrailBlazer EXT	5	.0	.0	93.5
	Trans Sport	1	.0	.0	93.5
	Transit Connect	7	.0	.0	93.6
	Transit Van	4	.0	.0	93.6
	Traverse	32	.2	.2	93.8
	Trax	3	.0	.0	93.9
	Tribeca	10	.1	.1	93.9
	Tribute	15	.1	.1	94.0
	Trooper	3	.0	.0	94.1
	Truck	1	.0	.0	94.1
	TSX	28	.2	.2	94.3
	TT	12	.1	.1	94.3
	Tucson	38	.3	.3	94.6
	Tundra	46	.3	.3	94.9

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Typhoon	1	.0	.0	94.9
	Uplander	3	.0	.0	94.9
	V40	2	.0	.0	95.0
	V50	5	.0	.0	95.0
	V60	3	.0	.0	95.0
	V70	26	.2	.2	95.2
	V70 XC	8	.1	.1	95.2
	V90	1	.0	.0	95.3
	Van	1	.0	.0	95.3
	Vanagon	1	.0	.0	95.3
	Veloster	6	.0	.0	95.3
	Venture	6	.0	.0	95.4
	Venza	15	.1	.1	95.5
	Veracruz	1	.0	.0	95.5
	Verano	18	.1	.1	95.6
	Versa	53	.4	.4	95.9
	Versa Note	6	.0	.0	96.0
	Vibe	13	.1	.1	96.1
	Villager	3	.0	.0	96.1
	Vision	1	.0	.0	96.1
	Volt	11	.1	.1	96.2
	Voyager	6	.0	.0	96.2
	VUE	26	.2	.2	96.4
	Wagoneer	1	.0	.0	96.4
	Windstar	14	.1	.1	96.5
	Wrangler	95	.7	.7	97.2
	Wrangler Unlimited	29	.2	.2	97.4
	WRX	1	.0	.0	97.4
	X-Type	12	.1	.1	97.4
	X1	15	.1	.1	97.6
	X3	27	.2	.2	97.7
	X5	29	.2	.2	97.9
	X6	2	.0	.0	98.0
	xA	3	.0	.0	98.0
	xB	5	.0	.0	98.0
	XC60	18	.1	.1	98.1
	XC70	48	.3	.3	98.5
	XC90	38	.3	.3	98.7
	xD	9	.1	.1	98.8
	XF	3	.0	.0	98.8
	XG350	6	.0	.0	98.8
	XJ6	1	.0	.0	98.9
	XJ8	5	.0	.0	98.9
	XJS	2	.0	.0	98.9
	XK8	2	.0	.0	98.9
	XL-7	2	.0	.0	98.9
	XLR	1	.0	.0	98.9
	XR4	1	.0	.0	98.9
	Xterra	28	.2	.2	99.1

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	XTS	1	.0	.0	99.1
	XV Crosstrek	55	.4	.4	99.5
	Yaris	34	.2	.2	99.8
	Yukon	7	.0	.0	99.8
	Yukon XL	9	.1	.1	99.9
	Z3	12	.1	.1	99.9
	Z4	7	.0	.0	100.0
	Zephyr	1	.0	.0	100.0
	Total	14540	100.0	100.0	

Vehicle has a toll transponder

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	8325	57.3	57.3	57.3
	Yes	6215	42.7	42.7	100.0
	Total	14540	100.0	100.0	

Appendix Q

Main Study Weighted Data Tabulations

Weighted tabulations of some key variables from the household file.
Total number of households is 1355849.
Please note that while there are no observations for Canaan town, the weighting analysis does account for households and persons living in the town.

Sample segment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Segment 1: Over Sample, low response rate	214103	15.8	15.8	15.8
	Segment 2: Over Sample, medium response rate	78284	5.8	5.8	21.6
	Segment 3: Over Sample, high response rate	36060	2.7	2.7	24.2
	Segment 4: Regular Sample, low response rate	101764	7.5	7.5	31.7
	Segment 5: Regular Sample, medium response rate	415213	30.6	30.6	62.4
	Segment 6: Regular Sample, high response rate	510426	37.6	37.6	100.0
	Total	1355849	100.0	100.0	

Week number of assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	122011	9.0	9.0	9.0
	2	128224	9.5	9.5	18.5
	3	138345	10.2	10.2	28.7
	4	137421	10.1	10.1	38.8
	5	132617	9.8	9.8	48.6
	6	128894	9.5	9.5	58.1
	7	135387	10.0	10.0	68.1
	8	122951	9.1	9.1	77.1
	9	139753	10.3	10.3	87.4
	10	170246	12.6	12.6	100.0
	Total	1355849	100.0	100.0	

Assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2016-03-15	39799	2.9	2.9	2.9
	2016-03-16	43023	3.2	3.2	6.1
	2016-03-17	39188	2.9	2.9	9.0
	2016-03-22	40359	3.0	3.0	12.0
	2016-03-23	38040	2.8	2.8	14.8
	2016-03-24	49826	3.7	3.7	18.5
	2016-03-29	47049	3.5	3.5	21.9
	2016-03-30	45831	3.4	3.4	25.3
	2016-03-31	45464	3.4	3.4	28.7
	2016-04-05	45860	3.4	3.4	32.0
	2016-04-06	43190	3.2	3.2	35.2
	2016-04-07	48371	3.6	3.6	38.8
	2016-04-19	46851	3.5	3.5	42.3
	2016-04-20	37785	2.8	2.8	45.0
	2016-04-21	47981	3.5	3.5	48.6
	2016-04-26	43449	3.2	3.2	51.8
	2016-04-27	44704	3.3	3.3	55.1
	2016-04-28	40741	3.0	3.0	58.1
	2016-05-03	46524	3.4	3.4	61.5
	2016-05-04	43404	3.2	3.2	64.7
	2016-05-05	45459	3.4	3.4	68.1
	2016-05-10	43461	3.2	3.2	71.3
	2016-05-11	40986	3.0	3.0	74.3
	2016-05-12	38503	2.8	2.8	77.1
	2016-05-17	50475	3.7	3.7	80.9
	2016-05-18	46179	3.4	3.4	84.3
	2016-05-19	43100	3.2	3.2	87.4
	2016-05-24	56829	4.2	4.2	91.6
	2016-05-25	52929	3.9	3.9	95.5
	2016-05-26	60489	4.5	4.5	100.0
	Total	1355849	100.0	100.0	

Household survey status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	1355849	100.0	100.0	100.0

Household used transit on travel day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	False (household made 0 transit trips)	1215154	89.6	89.6	89.6
	True (household made 1+ transit trips)	140695	10.4	10.4	100.0
	Total	1355849	100.0	100.0	

Weighted Distributions - Household File

Household number of vehicles

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no vehicles)	121597	9.0	9.0	9.0
	1	442638	32.6	32.6	41.6
	2	518022	38.2	38.2	79.8
	3	192985	14.2	14.2	94.1
	4	57503	4.2	4.2	98.3
	5	15718	1.2	1.2	99.5
	6	5418	.4	.4	99.9
	7	899	.1	.1	99.9
	8	956	.1	.1	100.0
	9	113	.0	.0	100.0
	Total	1355849	100.0	100.0	

Household number of vehicles (categories)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no vehicles)	121597	9.0	9.0	9.0
	1	442638	32.6	32.6	41.6
	2	518022	38.2	38.2	79.8
	3 or more vehicles	273592	20.2	20.2	100.0
	Total	1355849	100.0	100.0	

Household number of bicycles

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no bicycles)	668222	49.3	49.3	49.3
	1	248194	18.3	18.3	67.6
	2	206671	15.2	15.2	82.8
	3	98987	7.3	7.3	90.1
	4	70189	5.2	5.2	95.3
	5 or more bicycles	63586	4.7	4.7	100.0
	Total	1355849	100.0	100.0	

Household size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 (I am the only person)	374214	27.6	27.6	27.6
	2	446464	32.9	32.9	60.5
	3	221469	16.3	16.3	76.9
	4	196253	14.5	14.5	91.3
	5	81221	6.0	6.0	97.3
	6	25426	1.9	1.9	99.2
	7	8262	.6	.6	99.8
	8	1710	.1	.1	99.9
	9	830	.1	.1	100.0
	Total	1355849	100.0	100.0	

Household size (categories)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 (I am the only person)	374214	27.6	27.6	27.6
	2	446464	32.9	32.9	60.5
	3	221469	16.3	16.3	76.9
	4	196253	14.5	14.5	91.3
	5 or more people	117449	8.7	8.7	100.0
	Total	1355849	100.0	100.0	

Number of adults in household age 18+

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 (I am the only adult)	443284	32.7	32.7	32.7
	2	658293	48.6	48.6	81.2
	3	175057	12.9	12.9	94.2
	4	66628	4.9	4.9	99.1
	5	9694	.7	.7	99.8
	6	2893	.2	.2	100.0
	Total	1355849	100.0	100.0	

Number of students (i.e. valid "schooltype" person variable - excludes None) in household

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	808813	59.7	59.7	59.7
	1	247782	18.3	18.3	77.9
	2	197803	14.6	14.6	92.5
	3	82307	6.1	6.1	98.6
	4	13050	1.0	1.0	99.6
	5	4135	.3	.3	99.9
	6	1960	.1	.1	100.0
	Total	1355849	100.0	100.0	

Number of adult students (age 18+ and valid "schooltype" person variable - excludes None) in household

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1110144	81.9	81.9	81.9
	1	200838	14.8	14.8	96.7
	2	41292	3.0	3.0	99.7
	3	3575	.3	.3	100.0
	Total	1355849	100.0	100.0	

Number of child students (age <18 and valid "schooltype" person variable - excludes None) in household

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	946016	69.8	69.8	69.8
	1	208766	15.4	15.4	85.2
	2	145378	10.7	10.7	95.9
	3	44103	3.3	3.3	99.1
	4	8963	.7	.7	99.8
	5	2622	.2	.2	100.0
	Total	1355849	100.0	100.0	

Number of children in household under age 18

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no children)	926552	68.3	68.3	68.3
	1	211492	15.6	15.6	83.9
	2	150242	11.1	11.1	95.0
	3	50166	3.7	3.7	98.7
	4	13378	1.0	1.0	99.7
	5	3277	.2	.2	99.9
	6	742	.1	.1	100.0
	Total	1355849	100.0	100.0	

Number of children in household under age 18 (categories)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no children)	926552	68.3	68.3	68.3
	1	211492	15.6	15.6	83.9
	2	150242	11.1	11.1	95.0
	3 or more children	67563	5.0	5.0	100.0
	Total	1355849	100.0	100.0	

Number of workers in household: employed full or part time, self-employed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	339644	25.1	25.1	25.1
	1	515182	38.0	38.0	63.0
	2	401798	29.6	29.6	92.7
	3	77127	5.7	5.7	98.4
	4	18638	1.4	1.4	99.7
	5	2253	.2	.2	99.9
	6	1207	.1	.1	100.0
	Total	1355849	100.0	100.0	

Number of workers in household: employed full or part time, self-employed (categories)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no workers)	339644	25.1	25.1	25.1
	1	515182	38.0	38.0	63.0
	2	401798	29.6	29.6	92.7
	3 or more workers	99225	7.3	7.3	100.0
	Total	1355849	100.0	100.0	

Number of licensed drivers in household

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	67060	4.9	4.9	4.9
	1	469254	34.6	34.6	39.6
	2	631430	46.6	46.6	86.1
	3	141824	10.5	10.5	96.6
	4	37938	2.8	2.8	99.4
	5	6234	.5	.5	99.8
	6	2110	.2	.2	100.0
	Total	1355849	100.0	100.0	

Residence tenure status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Own/Buying (paying mortgage)	910531	67.2	68.3	68.3
	Rent	404524	29.8	30.3	98.6
	Provided by job or military	2604	.2	.2	98.8
	Other	16158	1.2	1.2	100.0
	Total	1333816	98.4	100.0	
Missing	Prefer not to answer	22033	1.6		
Total		1355849	100.0		

Residence type of structure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single-family house (detached house)	824167	60.8	60.8	60.8
	Duplex or Townhouse (attached house)	109186	8.1	8.1	68.8
	Multi-family house (3 or fewer apartments)	99496	7.3	7.3	76.2
	Building with 3 or fewer apartments/condos	30518	2.3	2.3	78.4
	Building with 4 or more apartments/condos	280454	20.7	20.7	99.1
	Mobile home/trailer	4749	.4	.4	99.5
	Dorm or institutional housing	4156	.3	.3	99.8
	Other (including boat, RV, van, etc.)	3124	.2	.2	100.0
	Total	1355849	100.0	100.0	

Reported home location: County corresponding to home location

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Fairfield County	333209	24.6	24.6	24.6
	Hartford County	346526	25.6	25.6	50.1
	Litchfield County	66278	4.9	4.9	55.0
	Middlesex County	67142	5.0	5.0	60.0
	New Haven County	337340	24.9	24.9	84.9
	New London County	107963	8.0	8.0	92.8
	Tolland County	55837	4.1	4.1	96.9
	Windham County	41553	3.1	3.1	100.0
	Total	1355849	100.0	100.0	

Reported home location: Town corresponding to home location

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Andover	1695	.1	.1	.1
	Ansonia	5815	.4	.4	.6
	Ashford	2738	.2	.2	.8
	Avon	6756	.5	.5	1.3
	Barkhamsted	1560	.1	.1	1.4
	Beacon Falls	4117	.3	.3	1.7
	Berlin	9197	.7	.7	2.4
	Bethany	1135	.1	.1	2.4
	Bethel	6963	.5	.5	2.9
	Bethlehem	1498	.1	.1	3.1
	Bloomfield	4143	.3	.3	3.4
	Bolton	1380	.1	.1	3.5
	Bozrah	900	.1	.1	3.5
	Branford	9135	.7	.7	4.2
	Bridgeport	46705	3.4	3.4	7.7
	Bridgewater	645	.0	.0	7.7
	Bristol	23003	1.7	1.7	9.4
	Brookfield	6208	.5	.5	9.9
	Brooklyn	3135	.2	.2	10.1
	Burlington	4495	.3	.3	10.4
	Canterbury	1445	.1	.1	10.5
	Canton	4416	.3	.3	10.8
	Chaplin	1321	.1	.1	10.9
	Cheshire	11467	.8	.8	11.8
	Chester	1562	.1	.1	11.9
	Clinton	5268	.4	.4	12.3
	Colchester	7907	.6	.6	12.9
	Colebrook	148	.0	.0	12.9
	Columbia	1046	.1	.1	13.0
	Cornwall	694	.1	.1	13.0
	Coventry	4611	.3	.3	13.4
	Cromwell	4761	.4	.4	13.7
	Danbury	27676	2.0	2.0	15.7
	Darien	8512	.6	.6	16.4
	Deep River	1067	.1	.1	16.5
	Derby	4909	.4	.4	16.8
	Durham	2805	.2	.2	17.0
	East Granby	2059	.2	.2	17.2
	East Haddam	2723	.2	.2	17.4
	East Hampton	7146	.5	.5	17.9
	East Hartford	20491	1.5	1.5	19.4
	East Haven	8695	.6	.6	20.1
	East Lyme	7135	.5	.5	20.6
	East Windsor	2538	.2	.2	20.8
	Eastford	639	.0	.0	20.8
	Easton	2023	.1	.1	21.0
	Ellington	6121	.5	.5	21.4
	Enfield	10814	.8	.8	22.2
	Essex	3506	.3	.3	22.5

Reported home location: Town corresponding to home location (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Fairfield	19447	1.4	1.4	23.9
	Farmington	11104	.8	.8	24.7
	Franklin	1322	.1	.1	24.8
	Glastonbury	8983	.7	.7	25.5
	Goshen	990	.1	.1	25.6
	Granby	5165	.4	.4	25.9
	Greenwich	18887	1.4	1.4	27.3
	Griswold	4440	.3	.3	27.7
	Groton	17274	1.3	1.3	28.9
	Guilford	7435	.5	.5	29.5
	Haddam	3155	.2	.2	29.7
	Hamden	21414	1.6	1.6	31.3
	Hampton	828	.1	.1	31.4
	Hartford	59283	4.4	4.4	35.7
	Hartland	1530	.1	.1	35.8
	Harwinton	2232	.2	.2	36.0
	Hebron	2615	.2	.2	36.2
	Kent	500	.0	.0	36.2
	Killingly	9695	.7	.7	37.0
	Killingworth	1428	.1	.1	37.1
	Lebanon	2647	.2	.2	37.3
	Ledyard	5011	.4	.4	37.6
	Lisbon	676	.0	.0	37.7
	Litchfield	3028	.2	.2	37.9
	Lyme	1076	.1	.1	38.0
	Madison	6859	.5	.5	38.5
	Manchester	22237	1.6	1.6	40.1
	Mansfield	7722	.6	.6	40.7
	Marlborough	4713	.3	.3	41.0
	Meriden	20244	1.5	1.5	42.5
	Middlebury	2252	.2	.2	42.7
	Middlefield	642	.0	.0	42.7
	Middletown	20446	1.5	1.5	44.3
	Milford	19606	1.4	1.4	45.7
	Monroe	6094	.4	.4	46.1
	Montville	5453	.4	.4	46.6
	Morris	1040	.1	.1	46.6
	Naugatuck	16130	1.2	1.2	47.8
	New Britain	23467	1.7	1.7	49.5
	New Canaan	5079	.4	.4	49.9
	New Fairfield	4442	.3	.3	50.3
	New Hartford	4821	.4	.4	50.6
	New Haven	66434	4.9	4.9	55.5
	New London	12935	1.0	1.0	56.5
	New Milford	10133	.7	.7	57.2
	Newington	13334	1.0	1.0	58.2
	Newtown	10472	.8	.8	59.0
	Norfolk	511	.0	.0	59.0
	North Branford	2910	.2	.2	59.2

Reported home location: Town corresponding to home location (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	North Canaan	967	.1	.1	59.3
	North Haven	8201	.6	.6	59.9
	North Stonington	1436	.1	.1	60.0
	Norwalk	29645	2.2	2.2	62.2
	Norwich	20272	1.5	1.5	63.7
	Old Lyme	2192	.2	.2	63.8
	Old Saybrook	4502	.3	.3	64.2
	Orange	6789	.5	.5	64.7
	Oxford	4009	.3	.3	65.0
	Plainfield	4491	.3	.3	65.3
	Plainville	4372	.3	.3	65.6
	Plymouth	2517	.2	.2	65.8
	Pomfret	1277	.1	.1	65.9
	Portland	4622	.3	.3	66.2
	Preston	1625	.1	.1	66.4
	Prospect	3233	.2	.2	66.6
	Putnam	2209	.2	.2	66.8
	Redding	3722	.3	.3	67.0
	Ridgefield	9427	.7	.7	67.7
	Rocky Hill	8089	.6	.6	68.3
	Roxbury	1185	.1	.1	68.4
	Salem	155	.0	.0	68.4
	Salisbury	629	.0	.0	68.5
	Scotland	297	.0	.0	68.5
	Seymour	7977	.6	.6	69.1
	Sharon	158	.0	.0	69.1
	Shelton	14900	1.1	1.1	70.2
	Sherman	1641	.1	.1	70.3
	Simsbury	11375	.8	.8	71.2
	Somers	2279	.2	.2	71.3
	South Windsor	8745	.6	.6	72.0
	Southbury	11340	.8	.8	72.8
	Southington	17959	1.3	1.3	74.1
	Sprague	958	.1	.1	74.2
	Stafford	4536	.3	.3	74.5
	Stamford	54392	4.0	4.0	78.5
	Sterling	1604	.1	.1	78.7
	Stonington	6869	.5	.5	79.2
	Stratford	21689	1.6	1.6	80.8
	Suffield	3153	.2	.2	81.0
	Thomaston	1356	.1	.1	81.1
	Thompson	2335	.2	.2	81.3
	Tolland	5498	.4	.4	81.7
	Torrington	16768	1.2	1.2	82.9
	Trumbull	16157	1.2	1.2	84.1
	Union	567	.0	.0	84.2
	Vernon	15766	1.2	1.2	85.3
	Voluntown	1037	.1	.1	85.4
	Wallingford	20937	1.5	1.5	86.9

Reported home location: Town corresponding to home location (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Warren	470	.0	.0	87.0
	Washington	1746	.1	.1	87.1
	Waterbury	43226	3.2	3.2	90.3
	Waterford	6644	.5	.5	90.8
	Watertown	6232	.5	.5	91.2
	West Hartford	32477	2.4	2.4	93.6
	West Haven	17979	1.3	1.3	95.0
	Westbrook	3509	.3	.3	95.2
	Weston	3254	.2	.2	95.5
	Westport	9649	.7	.7	96.2
	Wethersfield	7475	.6	.6	96.7
	Willington	2001	.1	.1	96.9
	Wilton	6224	.5	.5	97.3
	Winchester	3125	.2	.2	97.6
	Windham	7000	.5	.5	98.1
	Windsor	9993	.7	.7	98.8
	Windsor Locks	5161	.4	.4	99.2
	Wolcott	3677	.3	.3	99.5
	Woodbridge	1414	.1	.1	99.6
	Woodbury	3324	.2	.2	99.8
	Woodstock	2538	.2	.2	100.0
	Total	1355849	100.0	100.0	

Household income 2015: detailed categories

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than $10,000	65479	4.8	5.8	5.8
	$10,000-$14,999	47356	3.5	4.2	9.9
	$15,000-$24,999	95535	7.0	8.4	18.3
	$25,000-$34,999	92850	6.8	8.2	26.5
	$35,000-$49,999	128314	9.5	11.3	37.7
	$50,000-$59,999	86815	6.4	7.6	45.4
	$60,000-$74,999	98092	7.2	8.6	54.0
	$75,000-$99,999	155148	11.4	13.6	67.6
	$100,000-$149,999	195795	14.4	17.2	84.8
	$150,000-$199,999	88760	6.5	7.8	92.6
	$200,000-$249,999	38509	2.8	3.4	96.0
	$250,000 or more	45255	3.3	4.0	100.0
	Total	1137906	83.9	100.0	
Missing	Prefer not to answer	217943	16.1		
Total		1355849	100.0		

Household income 2015: broad categories, all respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under $25,000	217236	16.0	18.0	18.0
	$25,000-$49,999	229361	16.9	19.1	37.1
	$50,000-$74,999	196995	14.5	16.4	53.5
	$75,000-$99,999	160086	11.8	13.3	66.8
	$100,000 or more	400166	29.5	33.2	100.0
	Total	1203844	88.8	100.0	
Missing	Prefer not to answer	152005	11.2		
Total		1355849	100.0		

Willing to participate in future studies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1044569	77.0	77.0	77.0
	No	311280	23.0	23.0	100.0
	Total	1355849	100.0	100.0	

Call center completed recruit survey

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	False	1163698	85.8	85.8	85.8
	True	192151	14.2	14.2	100.0
	Total	1355849	100.0	100.0	

Flag: recruit survey language (web browser)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	English	1353355	99.8	99.8	99.8
	Non-english	2494	.2	.2	100.0
	Total	1355849	100.0	100.0	

Imputed household income 2015: detailed categories

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than $10,000	77006	5.7	5.7	5.7
	$10,000-$14,999	56071	4.1	4.1	9.8
	$15,000-$24,999	110825	8.2	8.2	18.0
	$25,000-$34,999	106144	7.8	7.8	25.8
	$35,000-$49,999	148838	11.0	11.0	36.8
	$50,000-$59,999	104334	7.7	7.7	44.5
	$60,000-$74,999	119340	8.8	8.8	53.3
	$75,000-$99,999	178175	13.1	13.1	66.4
	$100,000-$149,999	234931	17.3	17.3	83.8
	$150,000-$199,999	107235	7.9	7.9	91.7
	$200,000-$249,999	48198	3.6	3.6	95.2
	$250,000 or more	64754	4.8	4.8	100.0
	Total	1355849	100.0	100.0	

Final Recoded Household number of trips on travel day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	43521	3.2	3.2	3.2
	1	9389	.7	.7	3.9
	2	121868	9.0	9.0	12.9
	3	71701	5.3	5.3	18.2
	4	141540	10.4	10.4	28.6
	5	99944	7.4	7.4	36.0
	6	130480	9.6	9.6	45.6
	7	84349	6.2	6.2	51.8
	8	110086	8.1	8.1	60.0
	9	69658	5.1	5.1	65.1
	10	77222	5.7	5.7	70.8
	11	44752	3.3	3.3	74.1
	12	63989	4.7	4.7	78.8
	13	35055	2.6	2.6	81.4
	14	41932	3.1	3.1	84.5
	15	30570	2.3	2.3	86.7
	16	28849	2.1	2.1	88.9
	17	21741	1.6	1.6	90.5
	18	19808	1.5	1.5	91.9
	19	15651	1.2	1.2	93.1
	20	10517	.8	.8	93.9
	21	10334	.8	.8	94.6
	22	9715	.7	.7	95.3
	23	7249	.5	.5	95.9
	24	7674	.6	.6	96.4
	25	5197	.4	.4	96.8
	26	7740	.6	.6	97.4
	27	3624	.3	.3	97.7
	28	2964	.2	.2	97.9
	29	3285	.2	.2	98.1
	30	2404	.2	.2	98.3
	31	5027	.4	.4	98.7
	32	1941	.1	.1	98.8
	33	1461	.1	.1	98.9
	34	1987	.1	.1	99.1
	35	3121	.2	.2	99.3
	36	1476	.1	.1	99.4
	37	714	.1	.1	99.5
	39	611	.0	.0	99.5
	40	1051	.1	.1	99.6
	41	627	.0	.0	99.6
	42	576	.0	.0	99.7
	43	1664	.1	.1	99.8
	45	1017	.1	.1	99.9
	47	1196	.1	.1	100.0
	51	98	.0	.0	100.0
	52	475	.0	.0	100.0
	Total	1355849	100.0	100.0	

Final Recoded Household number of trips on travel day (categories)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no trips)	43521	3.2	3.2	3.2
	1	9389	.7	.7	3.9
	2	121868	9.0	9.0	12.9
	3	71701	5.3	5.3	18.2
	4	141540	10.4	10.4	28.6
	5	99944	7.4	7.4	36.0
	6	130480	9.6	9.6	45.6
	7	84349	6.2	6.2	51.8
	8	110086	8.1	8.1	60.0
	9	69658	5.1	5.1	65.1
	10	77222	5.7	5.7	70.8
	11	44752	3.3	3.3	74.1
	12	63989	4.7	4.7	78.8
	13	35055	2.6	2.6	81.4
	14	41932	3.1	3.1	84.5
	15	30570	2.3	2.3	86.7
	16	28849	2.1	2.1	88.9
	17	21741	1.6	1.6	90.5
	18	19808	1.5	1.5	91.9
	19	15651	1.2	1.2	93.1
	20 or more	93742	6.9	6.9	100.0
	Total	1355849	100.0	100.0	

Household number of linked trips on travel day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	43521	3.2	3.2	3.2
	1	9711	.7	.7	3.9
	2	124727	9.2	9.2	13.1
	3	72028	5.3	5.3	18.4
	4	143279	10.6	10.6	29.0
	5	101225	7.5	7.5	36.5
	6	134180	9.9	9.9	46.4
	7	83536	6.2	6.2	52.5
	8	110910	8.2	8.2	60.7
	9	69927	5.2	5.2	65.9
	10	75429	5.6	5.6	71.4
	11	45299	3.3	3.3	74.8
	12	63900	4.7	4.7	79.5
	13	35394	2.6	2.6	82.1
	14	40337	3.0	3.0	85.1
	15	27535	2.0	2.0	87.1
	16	28901	2.1	2.1	89.2
	17	22458	1.7	1.7	90.9
	18	20794	1.5	1.5	92.4
	19	14977	1.1	1.1	93.5
	20	9412	.7	.7	94.2
	21	10243	.8	.8	95.0
	22	9545	.7	.7	95.7
	23	6428	.5	.5	96.2
	24	6431	.5	.5	96.6
	25	5127	.4	.4	97.0
	26	7032	.5	.5	97.5
	27	3672	.3	.3	97.8
	28	2352	.2	.2	98.0
	29	3630	.3	.3	98.2
	30	3183	.2	.2	98.5
	31	4366	.3	.3	98.8
	32	1325	.1	.1	98.9
	33	1786	.1	.1	99.0
	34	1745	.1	.1	99.2
	35	2000	.1	.1	99.3
	36	1476	.1	.1	99.4
	37	1743	.1	.1	99.5
	39	611	.0	.0	99.6
	40	21	.0	.0	99.6
	41	1321	.1	.1	99.7
	42	1265	.1	.1	99.8
	43	281	.0	.0	99.8
	45	1017	.1	.1	99.9
	47	1196	.1	.1	100.0
	48	475	.0	.0	100.0
	51	98	.0	.0	100.0
	Total	1355849	100.0	100.0	

Household number of linked trips on travel day (categories)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 (no trips)	43521	3.2	3.2	3.2
	1	9711	.7	.7	3.9
	2	124727	9.2	9.2	13.1
	3	72028	5.3	5.3	18.4
	4	143279	10.6	10.6	29.0
	5	101225	7.5	7.5	36.5
	6	134180	9.9	9.9	46.4
	7	83536	6.2	6.2	52.5
	8	110910	8.2	8.2	60.7
	9	69927	5.2	5.2	65.9
	10	75429	5.6	5.6	71.4
	11	45299	3.3	3.3	74.8
	12	63900	4.7	4.7	79.5
	13	35394	2.6	2.6	82.1
	14	40337	3.0	3.0	85.1
	15	27535	2.0	2.0	87.1
	16	28901	2.1	2.1	89.2
	17	22458	1.7	1.7	90.9
	18	20794	1.5	1.5	92.4
	19	14977	1.1	1.1	93.5
	20 or more	87781	6.5	6.5	100.0
	Total	1355849	100.0	100.0	

Weighted tabulations of some key variables from the person file.
Total number of persons is 3354206.
Please note that while there are no observations for Canaan town, the weighting analysis does account for households and persons living in the town.

Sample segment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Segment 1: Over Sample, low response rate	498348	14.9	14.9	14.9
	Segment 2: Over Sample, medium response rate	214043	6.4	6.4	21.2
	Segment 3: Over Sample, high response rate	100909	3.0	3.0	24.2
	Segment 4: Regular Sample, low response rate	226927	6.8	6.8	31.0
	Segment 5: Regular Sample, medium response rate	1012802	30.2	30.2	61.2
	Segment 6: Regular Sample, high response rate	1301176	38.8	38.8	100.0
	Total	3354206	100.0	100.0	

Assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2016-03-15	89348	2.7	2.7	2.7
	2016-03-16	111051	3.3	3.3	6.0
	2016-03-17	93645	2.8	2.8	8.8
	2016-03-22	96372	2.9	2.9	11.6
	2016-03-23	97404	2.9	2.9	14.5
	2016-03-24	129689	3.9	3.9	18.4
	2016-03-29	109852	3.3	3.3	21.7
	2016-03-30	104241	3.1	3.1	24.8
	2016-03-31	108120	3.2	3.2	28.0
	2016-04-05	109666	3.3	3.3	31.3
	2016-04-06	104779	3.1	3.1	34.4
	2016-04-07	106273	3.2	3.2	37.6
	2016-04-19	122791	3.7	3.7	41.2
	2016-04-20	82492	2.5	2.5	43.7
	2016-04-21	124974	3.7	3.7	47.4
	2016-04-26	109212	3.3	3.3	50.7
	2016-04-27	107043	3.2	3.2	53.9
	2016-04-28	103341	3.1	3.1	57.0
	2016-05-03	108379	3.2	3.2	60.2
	2016-05-04	110124	3.3	3.3	63.5
	2016-05-05	115905	3.5	3.5	66.9
	2016-05-10	109401	3.3	3.3	70.2
	2016-05-11	93474	2.8	2.8	73.0
	2016-05-12	96878	2.9	2.9	75.9
	2016-05-17	133373	4.0	4.0	79.8
	2016-05-18	109670	3.3	3.3	83.1
	2016-05-19	127570	3.8	3.8	86.9
	2016-05-24	146757	4.4	4.4	91.3
	2016-05-25	136020	4.1	4.1	95.3
	2016-05-26	156362	4.7	4.7	100.0
	Total	3354206	100.0	100.0	

Week number of assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	294044	8.8	8.8	8.8
	2	323465	9.6	9.6	18.4
	3	322213	9.6	9.6	28.0
	4	320718	9.6	9.6	37.6
	5	330257	9.8	9.8	47.4
	6	319596	9.5	9.5	57.0
	7	334409	10.0	10.0	66.9
	8	299752	8.9	8.9	75.9
	9	370612	11.0	11.0	86.9
	10	439139	13.1	13.1	100.0
	Total	3354206	100.0	100.0	

Household survey status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	3354206	100.0	100.0	100.0

Relationship to primary respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Self (derived)	1355849	40.4	40.4	40.4
	Husband/Wife/Partner	659164	19.7	19.7	60.1
	Son/Daughter/In-law	962250	28.7	28.7	88.8
	Mother/Father/In-law	74433	2.2	2.2	91.0
	Brother/Sister/In-law	41007	1.2	1.2	92.2
	Grandchild	45254	1.3	1.3	93.6
	Other relative	67874	2.0	2.0	95.6
	Roommate/Friend	80046	2.4	2.4	98.0
	Household help	4712	.1	.1	98.1
	Other	63617	1.9	1.9	100.0
	Total	3354206	100.0	100.0	

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	1597341	47.6	47.6	47.6
	Female	1756865	52.4	52.4	100.0
	Total	3354206	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1	30472	.9	.9	.9
	1	34796	1.0	1.0	2.0
	2	40733	1.2	1.2	3.2
	3	38289	1.1	1.1	4.3
	4	36301	1.1	1.1	5.4
	5	42123	1.3	1.3	6.7
	6	38330	1.1	1.1	7.8
	7	39988	1.2	1.2	9.0
	8	45318	1.4	1.4	10.4
	9	39596	1.2	1.2	11.5
	10	42620	1.3	1.3	12.8
	11	41346	1.2	1.2	14.1
	12	45113	1.3	1.3	15.4
	13	43087	1.3	1.3	16.7
	14	44563	1.3	1.3	18.0
	15	40750	1.2	1.2	19.3
	16	47841	1.4	1.4	20.7
	17	42983	1.3	1.3	22.0
	18	63683	1.9	1.9	23.9
	19	32509	1.0	1.0	24.8
	20	46643	1.4	1.4	26.2
	21	33931	1.0	1.0	27.3
	22	37549	1.1	1.1	28.4
	23	51386	1.5	1.5	29.9
	24	41186	1.2	1.2	31.2
	25	39582	1.2	1.2	32.3
	26	43101	1.3	1.3	33.6
	27	36334	1.1	1.1	34.7
	28	38495	1.1	1.2	35.9
	29	38985	1.2	1.2	37.0
	30	47531	1.4	1.4	38.5
	31	38343	1.1	1.1	39.6
	32	32531	1.0	1.0	40.6
	33	45694	1.4	1.4	41.9
	34	39242	1.2	1.2	43.1
	35	52253	1.6	1.6	44.7
	36	39076	1.2	1.2	45.8
	37	42966	1.3	1.3	47.1
	38	40895	1.2	1.2	48.4
	39	45575	1.4	1.4	49.7
	40	46733	1.4	1.4	51.1
	41	30601	.9	.9	52.0
	42	43471	1.3	1.3	53.3
	43	49380	1.5	1.5	54.8
	44	48077	1.4	1.4	56.2
	45	51128	1.5	1.5	57.8
	46	52192	1.6	1.6	59.3
	47	39377	1.2	1.2	60.5
	48	39443	1.2	1.2	61.7

Age (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	49	49498	1.5	1.5	63.2
	50	55643	1.7	1.7	64.8
	51	61829	1.8	1.8	66.7
	52	59885	1.8	1.8	68.5
	53	57601	1.7	1.7	70.2
	54	64951	1.9	1.9	72.2
	55	46806	1.4	1.4	73.6
	56	38891	1.2	1.2	74.7
	57	46502	1.4	1.4	76.1
	58	42486	1.3	1.3	77.4
	59	46528	1.4	1.4	78.8
	60	44807	1.3	1.3	80.1
	61	34363	1.0	1.0	81.1
	62	45148	1.3	1.4	82.5
	63	43077	1.3	1.3	83.8
	64	42505	1.3	1.3	85.1
	65	44176	1.3	1.3	86.4
	66	36221	1.1	1.1	87.5
	67	36345	1.1	1.1	88.5
	68	41421	1.2	1.2	89.8
	69	38439	1.1	1.2	90.9
	70	30969	.9	.9	91.9
	71	26460	.8	.8	92.7
	72	26097	.8	.8	93.4
	73	24243	.7	.7	94.2
	74	21540	.6	.6	94.8
	75	19086	.6	.6	95.4
	76	18265	.5	.5	95.9
	77	15469	.5	.5	96.4
	78	12497	.4	.4	96.8
	79	10456	.3	.3	97.1
	80	12570	.4	.4	97.4
	81	7511	.2	.2	97.7
	82	7732	.2	.2	97.9
	83	10171	.3	.3	98.2
	84	7271	.2	.2	98.4
	85	9427	.3	.3	98.7
	86	8149	.2	.2	98.9
	87	5108	.2	.2	99.1
	88	5483	.2	.2	99.3
	89	6717	.2	.2	99.5
	90	5158	.2	.2	99.6
	91	3720	.1	.1	99.7
	92	3774	.1	.1	99.8
	93	1907	.1	.1	99.9
	94	714	.0	.0	99.9
	95	317	.0	.0	99.9
	96	565	.0	.0	100.0
	97	385	.0	.0	100.0

Age (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	98	659	.0	.0	100.0
	99 or older	612	.0	.0	100.0
	Total	3342293	99.6	100.0	
Missing	Prefer not to answer	11913	.4		
Total		3354206	100.0		

Age: Broad categories, all respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 5 years old	180590	5.4	5.4	5.4
	5-11	291398	8.7	8.7	14.1
	12-15	174012	5.2	5.2	19.3
	16-17	90824	2.7	2.7	22.0
	18-24	306887	9.1	9.1	31.1
	25-34	399942	11.9	11.9	43.0
	35-44	440649	13.1	13.1	56.2
	45-54	534997	16.0	16.0	72.1
	55-64	433136	12.9	12.9	85.0
	65-74	327537	9.8	9.8	94.8
	75-84	121463	3.6	3.6	98.4
	85 years or older	52770	1.6	1.6	100.0
	Total	3354206	100.0	100.0	

Age 16+: Employment status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	646000	19.3	19.3	19.3
	Employed (full or part time)	1496744	44.6	44.6	63.9
	Self-employed	146473	4.4	4.4	68.2
	Unpaid volunteer or intern	17594	.5	.5	68.8
	Homemaker	131558	3.9	3.9	72.7
	Retired	473248	14.1	14.1	86.8
	Not currently employed	442590	13.2	13.2	100.0
	Total	3354206	100.0	100.0	

Age 16+ employed: Number of jobs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	1710989	51.0	51.0	51.0
	1 job	1471686	43.9	43.9	94.9
	2 jobs	141014	4.2	4.2	99.1
	3 jobs	23884	.7	.7	99.8
	4 jobs	2437	.1	.1	99.9
	5 or more jobs	4196	.1	.1	100.0
	Total	3354206	100.0	100.0	

Age 16+ employed: Number of hours worked per week

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	1710989	51.0	51.0	51.0
	50 or more hours	262958	7.8	7.8	58.8
	40-49 hours	810577	24.2	24.2	83.0
	30-39 hours	264395	7.9	7.9	90.9
	20-29 hours	155814	4.6	4.6	95.5
	10-19 hours	95460	2.8	2.8	98.4
	Fewer than 10 hours	33300	1.0	1.0	99.4
	Hours vary greatly from week to week	20712	.6	.6	100.0
	Total	3354206	100.0	100.0	

Adult (Age 18+): Student status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	736824	22.0	22.0	22.0
	No, not a student	2323236	69.3	69.3	91.2
	Yes, full-time student	191782	5.7	5.7	96.9
	Yes, part-time student	102364	3.1	3.1	100.0
	Total	3354206	100.0	100.0	

Child (Age < 18) or Adult Student: Type of school attended

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	2323236	69.3	69.3	69.3
	Daycare	44429	1.3	1.3	70.6
	In-house nanny/babysitter	21700	.6	.6	71.2
	House of friend/relative/babysitter	10067	.3	.3	71.5
	Preschool	63291	1.9	1.9	73.4
	K-12 public or private school	549232	16.4	16.4	89.8
	K-12 home school (full-time or part-time)	20990	.6	.6	90.4
	College, graduate, or professional school	226727	6.8	6.8	97.2
	Vocational/technical school	17988	.5	.5	97.7
	None	56030	1.7	1.7	99.4
	Other	20516	.6	.6	100.0
	Total	3354206	100.0	100.0	

Adult (Age 18+): Educational attainment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	736824	22.0	22.0	22.0
	Less than high school	111550	3.3	3.3	25.3
	High school graduate/GED	537254	16.0	16.0	41.3
	Some college	402866	12.0	12.0	53.3
	Vocational/technical training	106615	3.2	3.2	56.5
	Associates degree	181963	5.4	5.4	61.9
	Bachelor degree	689432	20.6	20.6	82.5
	Graduate/post-graduate degree	587701	17.5	17.5	100.0
	Total	3354206	100.0	100.0	

Age 16+: Has valid drivers license

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	646000	19.3	19.3	19.3
	Yes	2353165	70.2	70.2	89.4
	No	355041	10.6	10.6	100.0
	Total	3354206	100.0	100.0	

How often in past month: Ridden transit

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	6-7 days a week	100272	3.0	3.0	3.0
	5 days a week	111989	3.3	3.3	6.3
	4 days a week	42703	1.3	1.3	7.6
	2-3 days a week	109283	3.3	3.3	10.9
	1 day a week	43886	1.3	1.3	12.2
	A few times per month	193051	5.8	5.8	17.9
	Less than monthly	412579	12.3	12.3	30.2
	Never	2340444	69.8	69.8	100.0
	Total	3354206	100.0	100.0	

If ever uses transit: How typically pays for transit fare

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	2340444	69.8	69.8	69.8
	Free (no cost)	124145	3.7	3.7	73.5
	Cash or ticket(s)	722902	21.6	21.6	95.0
	Stored value card	31970	1.0	1.0	96.0
	Used pass (any type)	90489	2.7	2.7	98.7
	Other	28374	.8	.8	99.5
	Don't Know	15882	.5	.5	100.0
	Total	3354206	100.0	100.0	

If typical transit fare payment method is pass: type of transit pass used most often

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	3263717	97.3	97.3	97.3
	1 day pass(es)	11073	.3	.3	97.6
	3 day pass(es)	112	.0	.0	97.6
	5 day pass(es)	1222	.0	.0	97.7
	7 day pass	3350	.1	.1	97.8
	Monthly pass	47019	1.4	1.4	99.2
	Other transit pass	26434	.8	.8	100.0
	Don't know	1280	.0	.0	100.0
	Total	3354206	100.0	100.0	

If typical transit fare is not free: eligible for discounted transit fares

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	2508845	74.8	74.8	74.8
	No, pays regular fare	592370	17.7	17.7	92.5
	Yes, youth/student discount	70441	2.1	2.1	94.6
	Yes, senior/disability discount	119942	3.6	3.6	98.1
	Yes, other type of discount	16781	.5	.5	98.6
	Don't know	45826	1.4	1.4	100.0
	Total	3354206	100.0	100.0	

Student (adult or child, except home school/in-house nanny or sitter): How often travels to school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	2421955	72.2	72.2	72.2
	6-7 days a week	57882	1.7	1.7	73.9
	5 days a week	645038	19.2	19.2	93.2
	4 days a week	41087	1.2	1.2	94.4
	2-3 days a week	81165	2.4	2.4	96.8
	1 day a week	18638	.6	.6	97.4
	A few times per month	12966	.4	.4	97.7
	Less than monthly	25063	.7	.7	98.5
	Never, only takes online classes	50411	1.5	1.5	100.0
	Total	3354206	100.0	100.0	

Student (adult or child, except home school/in-house nanny or sitter and online-classes): Travel mode to school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	2472366	73.7	73.7	73.7
	Walk/jog/wheelchair	68665	2.0	2.0	75.8
	Bicycle	8198	.2	.2	76.0
	Drive alone	143433	4.3	4.3	80.3
	Drive/Carpool with ONLY family/ household member(s)	262608	7.8	7.8	88.1
	Carpool with at least one person NOT in household	22471	.7	.7	88.8
	Vanpool	601	.0	.0	88.8
	School bus	328992	9.8	9.8	98.6
	Bus (public transit)	28739	.9	.9	99.5
	Train (any rail, subway, monorail)	4840	.1	.1	99.6
	Private shuttle bus	5215	.2	.2	99.8
	Taxi or other hired car service (e.g. Lyft, Uber)	1740	.1	.1	99.8
	Other	6339	.2	.2	100.0
	Total	3354206	100.0	100.0	

Employed or volunteer: Primary type of workplace

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	1693396	50.5	50.5	50.5
	Usually the same location (outside home)	1297918	38.7	38.7	89.2
	Workplace regularly varies (different offices or jobsites)	214081	6.4	6.4	95.6
	At home (telecommute or self-employed)	119282	3.6	3.6	99.1
	Drives for a living (e.g. bus driver, salesman)	29529	.9	.9	100.0
	Total	3354206	100.0	100.0	

Employed or volunteer: Primary occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	1693396	50.5	50.5	50.5
	Computer, Engineering, & Science	185192	5.5	5.5	56.0
	Construction & Extraction	45902	1.4	1.4	57.4
	Education, Legal, Community Service, Arts, & Media	276210	8.2	8.2	65.6
	Farming, Fishing, & Forestry	4704	.1	.1	65.8
	Healthcare Practitioners & Technical	167610	5.0	5.0	70.7
	Installation, Maintenance, & Repair	39973	1.2	1.2	71.9
	Management, Business, & Financial	232935	6.9	6.9	78.9
	Military	5683	.2	.2	79.1
	Office & Administrative Support	145208	4.3	4.3	83.4
	Production	35063	1.0	1.0	84.4
	Sales/ Sales-related	138476	4.1	4.1	88.6
	Service	134267	4.0	4.0	92.6
	Transportation & Material Moving	27778	.8	.8	93.4
	Other	217913	6.5	6.5	99.9
	Don't Know	3896	.1	.1	100.0
	Total	3354206	100.0	100.0	

Employed or volunteer: Primary employment industry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	1693396	50.5	50.5	50.5
	Accommodation & Food Services	95154	2.8	2.8	53.3
	Administrative, Support, & Waste Management Services	24646	.7	.7	54.1
	Agriculture, Forestry, Fishing, & Hunting	7416	.2	.2	54.3
	Arts, Entertainment, & Recreation	53290	1.6	1.6	55.9
	Construction	64046	1.9	1.9	57.8
	Education Services	232722	6.9	6.9	64.7
	Finance & Insurance	149804	4.5	4.5	69.2
	Health Care & Social Assistance	240256	7.2	7.2	76.3
	Information	38894	1.2	1.2	77.5
	Management of Companies & Enterprises	17825	.5	.5	78.0
	Manufacturing	103979	3.1	3.1	81.1
	Military	11402	.3	.3	81.5
	Mining, Quarrying, & Oil/Gas Extraction	2629	.1	.1	81.6
	Other Services	99638	3.0	3.0	84.5
	Professional, Scientific, & Technical Services	103433	3.1	3.1	87.6
	Public Administration	28384	.8	.8	88.5
	Real Estate, Rental, & Leasing	18995	.6	.6	89.0
	Retail Trade	93614	2.8	2.8	91.8
	Transportation & Warehousing	30345	.9	.9	92.7
	Utilities	22086	.7	.7	93.4
	Wholesale Trade	11675	.3	.3	93.7
	Other	200720	6.0	6.0	99.7
	Don't Know	9857	.3	.3	100.0
	Total	3354206	100.0	100.0	

If travels to fixed or varied workplace (i.e. workplace == 1 or workplace == 2): How often commute to primary workplace

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	1842207	54.9	54.9	54.9
	6-7 days a week	233951	7.0	7.0	61.9
	5 days a week	958796	28.6	28.6	90.5
	4 days a week	137243	4.1	4.1	94.6
	3 days a week	98409	2.9	2.9	97.5
	2 days a week	52509	1.6	1.6	99.1
	1 day a week	16221	.5	.5	99.6
	Less than weekly	14870	.4	.4	100.0
	Total	3354206	100.0	100.0	

If commutes: Typical commute mode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	1842207	54.9	54.9	54.9
	Walk/jog/wheelchair	42082	1.3	1.3	56.2
	Bicycle	9285	.3	.3	56.5
	Drive alone	1178208	35.1	35.1	91.6
	Drive/Carpool with ONLY family/household member(s)	128753	3.8	3.8	95.4
	Carpool with at least one person NOT in household	26068	.8	.8	96.2
	Motorcycle/moped/scooter	686	.0	.0	96.2
	Vanpool	2994	.1	.1	96.3
	Bus (public transit)	70417	2.1	2.1	98.4
	Train (any rail, subway, monorail)	40461	1.2	1.2	99.6
	Private shuttle bus	3391	.1	.1	99.7
	Paratransit	434	.0	.0	99.7
	Taxi or other hired car service (e.g. Lyft, Uber)	2856	.1	.1	99.8
	Other	6364	.2	.2	100.0
	Total	3354206	100.0	100.0	

Employed or volunteer: Amount of flexibility in primary work schedule

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	1693396	50.5	50.5	50.5
	No flexibility (always have to start at a fixed time, time may vary by day or shift)	902242	26.9	26.9	77.4
	Some flexibility (e.g. can start up to 30 minutes earlier/later)	517598	15.4	15.4	92.8
	Complete flexibility (e.g. can set own schedule)	240970	7.2	7.2	100.0
	Total	3354206	100.0	100.0	

Respondent is represented by proxy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I am <name> and I am answering this survey	1623802	48.4	48.4	48.4
	I am answering this survey for <name> and <name> IS here with me to provide answers	640730	19.1	19.1	67.5
	I am answering this survey for <name> and <name> is NOT here with me to provide answers	1089674	32.5	32.5	100.0
	Total	3354206	100.0	100.0	

Call center completed diary

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	2916329	86.9	86.9	86.9
	Yes	437877	13.1	13.1	100.0
	Total	3354206	100.0	100.0	

Flag: diary survey language (web browser)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No, English	3348158	99.8	99.8	99.8
	Yes, non-english	6048	.2	.2	100.0
	Total	3354206	100.0	100.0	

Final Recoded Number of trips made

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	458725	13.7	13.7	13.7
	1	83274	2.5	2.5	16.2
	2	934863	27.9	27.9	44.0
	3	391724	11.7	11.7	55.7
	4	508861	15.2	15.2	70.9
	5	289129	8.6	8.6	79.5
	6	244797	7.3	7.3	86.8
	7	151509	4.5	4.5	91.3
	8	118532	3.5	3.5	94.8
	9	57842	1.7	1.7	96.6
	10	43173	1.3	1.3	97.9
	11	30082	.9	.9	98.8
	12	15909	.5	.5	99.2
	13	10121	.3	.3	99.5
	14	4769	.1	.1	99.7
	15	3233	.1	.1	99.8
	16	2143	.1	.1	99.8
	17	2214	.1	.1	99.9
	18	1117	.0	.0	99.9
	19	774	.0	.0	100.0
	20	114	.0	.0	100.0
	21	137	.0	.0	100.0
	22	51	.0	.0	100.0
	23	952	.0	.0	100.0
	24	161	.0	.0	100.0
	Total	3354206	100.0	100.0	

Final Recoded Number of trips made, categories

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	458725	13.7	13.7	13.7
	1	83274	2.5	2.5	16.2
	2	934863	27.9	27.9	44.0
	3	391724	11.7	11.7	55.7
	4	508861	15.2	15.2	70.9
	5	289129	8.6	8.6	79.5
	6	244797	7.3	7.3	86.8
	7	151509	4.5	4.5	91.3
	8	118532	3.5	3.5	94.8
	9	57842	1.7	1.7	96.6
	10 or more trips	114951	3.4	3.4	100.0
	Total	3354206	100.0	100.0	

Final Recoded Made trips on travel day after data processing was complete recoded

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	2895481	86.3	86.3	86.3
	No	457641	13.6	13.6	100.0
	Yes - No trip records in the trip file	1084	.0	.0	100.0
	Total	3354206	100.0	100.0	

Final Recoded Where started travel day recoded 3 (at 3 AM)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Home	3106415	92.6	92.6	92.6
	Work (Primary)	53671	1.6	1.6	94.2
	Home other	51313	1.5	1.5	95.7
	Another place, please specify:	142808	4.3	4.3	100.0
	Total	3354206	100.0	100.0	

Final Recoded Where ended travel day recoded 3 (at 3 AM)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Home	3113855	92.8	92.8	92.8
	Work (Primary)	43318	1.3	1.3	94.1
	Home other	57110	1.7	1.7	95.8
	Another place, please specify:	139923	4.2	4.2	100.0
	Total	3354206	100.0	100.0	

Number of trips made linked

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	458725	13.7	13.7	13.7
	1	84490	2.5	2.5	16.2
	2	960621	28.6	28.6	44.8
	3	390220	11.6	11.6	56.5
	4	509097	15.2	15.2	71.6
	5	287775	8.6	8.6	80.2
	6	242049	7.2	7.2	87.4
	7	146094	4.4	4.4	91.8
	8	113498	3.4	3.4	95.2
	9	53727	1.6	1.6	96.8
	10	40828	1.2	1.2	98.0
	11	29660	.9	.9	98.9
	12	14853	.4	.4	99.3
	13	9050	.3	.3	99.6
	14	3380	.1	.1	99.7
	15	2823	.1	.1	99.8
	16	2047	.1	.1	99.8
	17	2185	.1	.1	99.9
	18	896	.0	.0	99.9
	19	774	.0	.0	100.0
	20	114	.0	.0	100.0
	21	137	.0	.0	100.0
	22	51	.0	.0	100.0
	23	952	.0	.0	100.0
	24	161	.0	.0	100.0
	Total	3354206	100.0	100.0	

Number of trips made, categories linked

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	458725	13.7	13.7	13.7
	1	84490	2.5	2.5	16.2
	2	960621	28.6	28.6	44.8
	3	390220	11.6	11.6	56.5
	4	509097	15.2	15.2	71.6
	5	287775	8.6	8.6	80.2
	6	242049	7.2	7.2	87.4
	7	146094	4.4	4.4	91.8
	8	113498	3.4	3.4	95.2
	9	53727	1.6	1.6	96.8
	10 or more trips	107911	3.2	3.2	100.0
	Total	3354206	100.0	100.0	

Weighted tabulations of some key variables from the unlinked trip file.
Total number of unlinked trips is 11946597

Please note that while there are no observations for Canaan town, the weighting analysis does account for households and persons living in the town.

Sample segment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Segment 1: Over Sample, low response rate	1598249	13.4	13.4	13.4
	Segment 2: Over Sample, medium response rate	763148	6.4	6.4	19.8
	Segment 3: Over Sample, high response rate	360850	3.0	3.0	22.8
	Segment 4: Regular Sample, low response rate	818213	6.8	6.8	29.6
	Segment 5: Regular Sample, medium response rate	3683197	30.8	30.8	60.5
	Segment 6: Regular Sample, high response rate	4722939	39.5	39.5	100.0
	Total	11946597	100.0	100.0	

Week number of assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1027847	8.6	8.6	8.6
	2	1128014	9.4	9.4	18.0
	3	1182220	9.9	9.9	27.9
	4	1136218	9.5	9.5	37.5
	5	1083692	9.1	9.1	46.5
	6	1132342	9.5	9.5	56.0
	7	1200428	10.0	10.0	66.1
	8	1095290	9.2	9.2	75.2
	9	1324371	11.1	11.1	86.3
	10	1636174	13.7	13.7	100.0
	Total	11946597	100.0	100.0	

Assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2016-03-15	309489	2.6	2.6	2.6
	2016-03-16	394259	3.3	3.3	5.9
	2016-03-17	324098	2.7	2.7	8.6
	2016-03-22	363146	3.0	3.0	11.6
	2016-03-23	321868	2.7	2.7	14.3
	2016-03-24	443000	3.7	3.7	18.0
	2016-03-29	416660	3.5	3.5	21.5
	2016-03-30	377036	3.2	3.2	24.7
	2016-03-31	388525	3.3	3.3	27.9
	2016-04-05	354897	3.0	3.0	30.9
	2016-04-06	419651	3.5	3.5	34.4
	2016-04-07	361670	3.0	3.0	37.5
	2016-04-19	413417	3.5	3.5	40.9
	2016-04-20	307373	2.6	2.6	43.5
	2016-04-21	362903	3.0	3.0	46.5
	2016-04-26	380524	3.2	3.2	49.7
	2016-04-27	373584	3.1	3.1	52.8
	2016-04-28	378234	3.2	3.2	56.0
	2016-05-03	345695	2.9	2.9	58.9
	2016-05-04	404932	3.4	3.4	62.3
	2016-05-05	449801	3.8	3.8	66.1
	2016-05-10	386700	3.2	3.2	69.3
	2016-05-11	340606	2.9	2.9	72.1
	2016-05-12	367985	3.1	3.1	75.2
	2016-05-17	500849	4.2	4.2	79.4
	2016-05-18	372904	3.1	3.1	82.5
	2016-05-19	450619	3.8	3.8	86.3
	2016-05-24	529958	4.4	4.4	90.7
	2016-05-25	555975	4.7	4.7	95.4
	2016-05-26	550242	4.6	4.6	100.0
	Total	11946597	100.0	100.0	

Household survey status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	11946597	100.0	100.0	100.0

Trip departure time: hour of day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Before 3:00 AM	9433	.1	.1	.1
	3:00 - 3:55 AM	21888	.2	.2	.3
	4:00 - 4:55 AM	35719	.3	.3	.6
	5:00 - 5:55 AM	114314	1.0	1.0	1.5
	6:00 - 6:55 AM	456257	3.8	3.8	5.3
	7:00 - 7:55 AM	1055830	8.8	8.8	14.2
	8:00 - 8:55 AM	965701	8.1	8.1	22.3
	9:00 - 9:55 AM	569482	4.8	4.8	27.0
	10:00 - 10:55 AM	558250	4.7	4.7	31.7
	11:00 - 11:55 AM	624253	5.2	5.2	36.9
	12:00 - 12:55 PM	716518	6.0	6.0	42.9
	1:00 - 1:55 PM	647728	5.4	5.4	48.3
	2:00 - 2:55 PM	893555	7.5	7.5	55.8
	3:00 - 3:55 PM	997736	8.4	8.4	64.2
	4:00 - 4:55 PM	1030018	8.6	8.6	72.8
	5:00 - 5:55 PM	1039593	8.7	8.7	81.5
	6:00 - 6:55 PM	832595	7.0	7.0	88.5
	7:00 - 7:55 PM	552884	4.6	4.6	93.1
	8:00 - 8:55 PM	395947	3.3	3.3	96.4
	9:00 - 9:55 PM	235299	2.0	2.0	98.4
	10:00 - 10:55 PM	95419	.8	.8	99.2
	11:00 - 11:55 PM	57945	.5	.5	99.7
	12:00 - 12:55 PM	19039	.2	.2	99.8
	1:00 - 1:55 AM (next day)	8418	.1	.1	99.9
	2:00 - 2:55 AM (next day)	12777	.1	.1	100.0
	Total	11946597	100.0	100.0	

Trip arrival time: hour of day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3:00 - 3:55 AM	17764	.1	.1	.1
	4:00 - 4:55 AM	22586	.2	.2	.3
	5:00 - 5:55 AM	69444	.6	.6	.9
	6:00 - 6:55 AM	268229	2.2	2.2	3.2
	7:00 - 7:55 AM	928933	7.8	7.8	10.9
	8:00 - 8:55 AM	1048650	8.8	8.8	19.7
	9:00 - 9:55 AM	670060	5.6	5.6	25.3
	10:00 - 10:55 AM	545866	4.6	4.6	29.9
	11:00 - 11:55 AM	591209	4.9	4.9	34.8
	12:00 - 12:55 PM	726803	6.1	6.1	40.9
	1:00 - 1:55 PM	656163	5.5	5.5	46.4
	2:00 - 2:55 PM	790265	6.6	6.6	53.0
	3:00 - 3:55 PM	1006682	8.4	8.4	61.5
	4:00 - 4:55 PM	985918	8.3	8.3	69.7
	5:00 - 5:55 PM	1065562	8.9	8.9	78.6
	6:00 - 6:55 PM	967463	8.1	8.1	86.7
	7:00 - 7:55 PM	636043	5.3	5.3	92.1
	8:00 - 8:55 PM	425704	3.6	3.6	95.6
	9:00 - 9:55 PM	276870	2.3	2.3	97.9
	10:00 - 10:55 PM	125259	1.0	1.0	99.0
	11:00 - 11:55 PM	61923	.5	.5	99.5
	12:00 - 12:55 PM	31768	.3	.3	99.8
	1:00 - 1:55 AM (next day)	10847	.1	.1	99.9
	2:00 - 2:55 AM (next day)	10170	.1	.1	99.9
	After 3:00 AM (next day)	6417	.1	.1	100.0
	Total	11946597	100.0	100.0	

Total number of travelers on trip including self

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6904857	57.8	57.8	57.8
	2	2442048	20.4	20.4	78.2
	3	1425552	11.9	11.9	90.2
	4	433883	3.6	3.6	93.8
	5	252342	2.1	2.1	95.9
	6	324801	2.7	2.7	98.6
	7	106550	.9	.9	99.5
	8	29954	.3	.3	99.8
	9	18820	.2	.2	99.9
	10	5079	.0	.0	100.0
	12	2711	.0	.0	100.0
	Total	11946597	100.0	100.0	

Household members on trip including self

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8052259	67.4	67.4	67.4
	2	2566119	21.5	21.5	88.9
	3	890355	7.5	7.5	96.3
	4	361239	3.0	3.0	99.4
	5	60504	.5	.5	99.9
	6	10698	.1	.1	100.0
	7	5423	.0	.0	100.0
	Total	11946597	100.0	100.0	

Non-household members on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nobody (0 people)	9679448	81.0	81.0	81.0
	1 person	1348343	11.3	11.3	92.3
	2 people	363917	3.0	3.0	95.4
	3 people	116009	1.0	1.0	96.3
	4 people	73946	.6	.6	96.9
	5 or more people	364933	3.1	3.1	100.0
	Total	11946597	100.0	100.0	

Main way traveled on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Walk/jog/wheelchair	1077515	9.0	9.0	9.0
	Bicycle	81830	.7	.7	9.7
	Vehicle in household	9312766	78.0	78.0	87.7
	Other vehicle (e.g. rental, friend's car)	499206	4.2	4.2	91.8
	Regular taxi or hired car service	10123	.1	.1	91.9
	Ride-share taxi/car service (e.g. Uber, Lyft)	4792	.0	.0	92.0
	Vanpool	6510	.1	.1	92.0
	School bus	471776	3.9	3.9	96.0
	Public (city) bus	294251	2.5	2.5	98.4
	Train (e.g. Amtrak)	9728	.1	.1	98.5
	Shuttle (e.g. a hotel's, an airport's)	23865	.2	.2	98.7
	Paratransit	10717	.1	.1	98.8
	Commuter Rail (e.g. Metro North)	74976	.6	.6	99.4
	Subway	4646	.0	.0	99.5
	Intercity bus (e.g. Greyhound)	3312	.0	.0	99.5
	Ferry/water taxi/boat	376	.0	.0	99.5
	Airplane/helicopter	11194	.1	.1	99.6
	Other	49014	.4	.4	100.0
	Total	11946597	100.0	100.0	

Main way traveled on trip, aggregated

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SOV (single-occupant vehicle)	5700503	47.7	47.7	47.7
	Family carpool (HH or Other vehicle, only HH members in travel party)	2438985	20.4	20.4	68.1
	Other carpool (HH or Other vehicle, includes at least one non-HH member)	1672483	14.0	14.0	82.1
	Walk or Bike	1159345	9.7	9.7	91.8
	Taxi (traditional or rideshare)	14915	.1	.1	92.0
	Public transit (bus, train, paratransit, commuter rail, subway, intercity bus)	397630	3.3	3.3	95.3
	Other (vanpool, school bus, shuttle, ferry/boat, airplane, other)	562735	4.7	4.7	100.0
	Total	11946597	100.0	100.0	

HH or Other Vehicle: Vehicle used

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	2134625	17.9	17.9	17.9
	HH vehicle 1	5805832	48.6	48.6	66.5
	HH vehicle 2	2697351	22.6	22.6	89.0
	HH vehicle 3	623664	5.2	5.2	94.3
	HH vehicle 4	126411	1.1	1.1	95.3
	HH vehicle 5	44669	.4	.4	95.7
	HH vehicle 6	13726	.1	.1	95.8
	HH vehicle 7	1112	.0	.0	95.8
	Rental car	28292	.2	.2	96.1
	Car from work	86585	.7	.7	96.8
	Friend/relative's car	377780	3.2	3.2	99.9
	Carshare vehicle (e.g. Car2Go)	5151	.0	.0	100.0
	Motorcycle/moped/scooter	1398	.0	.0	100.0
	Total	11946597	100.0	100.0	

HH or Other Vehicle, or Vanpool: If age 16+ and licensed travel party > 1: Was driver or passenger on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Driver	1068717	8.9	44.5	44.5
	Passenger	1324234	11.1	55.1	99.5
	Both (switched drivers during trip)	10906	.1	.5	100.0
	Total	2403856	20.1	100.0	
Missing	System	9542741	79.9		
Total		11946597	100.0		

HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses HOV and travel party > 1: Used HOV lane on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	25548	.2	41.0	41.0
	No	36766	.3	59.0	100.0
	Total	62314	.5	100.0	
Missing	System	11884283	99.5		
Total		11946597	100.0		

HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses toll road: Toll road used on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	51031	.4	25.9	25.9
	No	146200	1.2	74.1	100.0
	Total	197231	1.7	100.0	
Missing	System	11749366	98.3		
Total		11946597	100.0		

HH or Other vehicle, or Vanpool: If age 16+: Parking location at destination

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Own driveway/garage	2874416	24.1	30.3	30.3
	Someone else's driveway	363741	3.0	3.8	34.2
	Parking lot/garage at destination (within 2 blocks)	4937945	41.3	52.1	86.3
	Parking lot/garage 2+ blocks away from destination	64598	.5	.7	87.0
	On street parking at destination (within 2 blocks)	442509	3.7	4.7	91.6
	On street parking 2+ blocks away from destination	14960	.1	.2	91.8
	Park & ride lot	28274	.2	.3	92.1
	Didn't park (waited, drop-off, drive-thru)	627104	5.2	6.6	98.7
	Other	121781	1.0	1.3	100.0
	Total	9475328	79.3	100.0	
Missing	System	2471268	20.7		
Total		11946597	100.0		

Parked on street or in a lot/garage: If ever pays for parking: How paid for parking at destination

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No, parking was free	202855	1.7	61.2	61.2
	Yes, with cash/tickets	69468	.6	21.0	82.2
	Yes, with parking pass	53531	.4	16.1	98.3
	No, another person paid or was reimbursed	4602	.0	1.4	99.7
	Not sure/don't remember	1025	.0	.3	100.0
	Total	331480	2.8	100.0	
Missing	System	11615117	97.2		
Total		11946597	100.0		

Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit access mode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	11559684	96.8	96.8	96.8
	Walked or jogged	267389	2.2	2.2	99.0
	Rode a bike	1747	.0	.0	99.0
	Drove and parked a car	22737	.2	.2	99.2
	Got dropped off	8841	.1	.1	99.3
	Took a taxi/ride-share (e.g. Uber, Lyft)	2744	.0	.0	99.3
	Transferred from other transit	39308	.3	.3	99.6
	Was already at the destination	34800	.3	.3	99.9
	Other	9348	.1	.1	100.0
	Total	11946597	100.0	100.0	

Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit egress mode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	11559684	96.8	96.8	96.8
	Walked or jogged	263473	2.2	2.2	99.0
	Rode a bike	1674	.0	.0	99.0
	Drove a parked car	18414	.2	.2	99.1
	Got picked up	7964	.1	.1	99.2
	Took a taxi /ride-share (e.g. Uber, Lyft)	3166	.0	.0	99.2
	Transferred to other transit	55631	.5	.5	99.7
	Was already at the destination	26007	.2	.2	99.9
	Other	10582	.1	.1	100.0
	Total	11946597	100.0	100.0	

Public Bus, Commuter Rail, Subway, Train or Intercity Bus: How paid for transit on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	11559684	96.8	96.8	96.8
	Free (no cost)	33329	.3	.3	97.0
	Cash or ticket(s)	175212	1.5	1.5	98.5
	Stored value card	19528	.2	.2	98.7
	Used pass (any type)	151860	1.3	1.3	99.9
	Not sure/don't remember	876	.0	.0	99.9
	Other	6107	.1	.1	100.0
	Total	11946597	100.0	100.0	

Count of transit transfers made (derived)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	11559684	96.8	96.8	96.8
	0	344463	2.9	2.9	99.6
	1	39328	.3	.3	100.0
	2	1858	.0	.0	100.0
	3	1263	.0	.0	100.0
	Total	11946597	100.0	100.0	

Driving distance (miles) from origin to destination (Google estimate) (derived 10 mile increments)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 miles	113906	1.0	1.0	1.0
	0 - 10 miles	9396660	78.7	78.7	79.6
	10 - 20 miles	1376498	11.5	11.5	91.2
	20 - 30 miles	514466	4.3	4.3	95.5
	30 - 40 miles	223248	1.9	1.9	97.3
	40 - 50 miles	136760	1.1	1.1	98.5
	50 - 60 miles	74886	.6	.6	99.1
	60 - 70 miles	36244	.3	.3	99.4
	70 - 80 miles	19074	.2	.2	99.6
	80 - 90 miles	11240	.1	.1	99.7
	90 - 100 miles	6315	.1	.1	99.7
	100 miles or more	33518	.3	.3	100.0
	Total	11942815	100.0	100.0	
Missing	-999	3781	.0		
Total		11946597	100.0		

Driving travel time (minutes) from origin to destination (Google estimate) (derived 10 minute increments)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 minutes	334795	2.8	2.8	2.8
	1 - 10 minutes	6358812	53.2	53.2	56.0
	10 - 20 minutes	3270877	27.4	27.4	83.4
	20 - 30 minutes	1034308	8.7	8.7	92.1
	30 - 40 minutes	437407	3.7	3.7	95.8
	40 - 50 minutes	207518	1.7	1.7	97.5
	50 - 60 minutes	140750	1.2	1.2	98.7
	60 - 70 minutes	53154	.4	.4	99.1
	70 - 80 minutes	30510	.3	.3	99.4
	80 - 90 minutes	26072	.2	.2	99.6
	90 - 100 minutes	11294	.1	.1	99.7
	100 minutes or more	37319	.3	.3	100.0
	Total	11942815	100.0	100.0	
Missing	-999	3781	.0		
Total		11946597	100.0		

Final Recoded Primary purpose at trip origin

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Go home	4025130	33.7	33.7	33.7
	Go to primary workplace	1396243	11.7	11.7	45.4
	Go to other work-related place	356637	3.0	3.0	48.4
	Attend school/class	642163	5.4	5.4	53.7
	Other school-related activity	203549	1.7	1.7	55.4
	Grocery shopping	599053	5.0	5.0	60.5
	Do other shopping (e.g. mall, hardware store)	616341	5.2	5.2	65.6
	Run errands (e.g. bank, haircut)	716298	6.0	6.0	71.6
	Go to restaurant/bar/get take-out	603061	5.0	5.0	76.7
	Drop off/pick up/accompany other person	866266	7.3	7.3	83.9
	Exercise (e.g. gym, walk, jog/run)	472421	4.0	4.0	87.9
	Family activity (e.g. child's game)	142087	1.2	1.2	89.1
	Medical visit (e.g. doctor, dentist)	249991	2.1	2.1	91.1
	Social (e.g. visit friends/relatives)	286462	2.4	2.4	93.5
	Leisure/entertainment (e.g. movies)	153421	1.3	1.3	94.8
	Religious/civic/volunteer	168685	1.4	1.4	96.2
	Vacation/holiday/traveling (e.g. hotel)	11913	.1	.1	96.3
	Change travel mode (e.g. wait for bus, change planes)	180457	1.5	1.5	97.9
	Home other	85397	.7	.7	98.6
	Go to airport/switch airport	11067	.1	.1	98.7
	Other	159954	1.3	1.3	100.0
	Total	11946597	100.0	100.0	

Final Recoded Primary purpose at trip destination

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Go home	4032234	33.8	33.8	33.8
	Go to primary workplace	1385890	11.6	11.6	45.4
	Go to other work-related place	364283	3.0	3.0	48.4
	Attend school/class	666255	5.6	5.6	54.0
	Other school-related activity	210782	1.8	1.8	55.7
	Grocery shopping	601176	5.0	5.0	60.8
	Do other shopping (e.g. mall, hardware store)	619111	5.2	5.2	66.0
	Run errands (e.g. bank, haircut)	719348	6.0	6.0	72.0
	Go to restaurant/bar/get take-out	605285	5.1	5.1	77.0
	Drop off/pick up/accompany other person	871347	7.3	7.3	84.3
	Exercise (e.g. gym, walk, jog/run)	475521	4.0	4.0	88.3
	Family activity (e.g. child's game)	144870	1.2	1.2	89.5
	Medical visit (e.g. doctor, dentist)	251368	2.1	2.1	91.6
	Social (e.g. visit friends/relatives)	309697	2.6	2.6	94.2
	Leisure/entertainment (e.g. movies)	155046	1.3	1.3	95.5
	Religious/civic/volunteer	170250	1.4	1.4	97.0
	Vacation/holiday/traveling (e.g. hotel)	23661	.2	.2	97.2
	Change travel mode (e.g. wait for bus, change planes)	180914	1.5	1.5	98.7
	Home other	91195	.8	.8	99.4
	Go to airport/switch airport	11550	.1	.1	99.5
	Other	56813	.5	.5	100.0
	Total	11946597	100.0	100.0	

Final Recoded Overall trip purpose

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Home Based Escorting (home to/from drop off/pick up/accompany other person)	917520	7.7	7.7	7.7
	Home Based Meal (home to/from restaurant/bar/get take-out)	439872	3.7	3.7	11.4
	Home Based Other (home to/from any other purpose)	198687	1.7	1.7	13.0
	Home Based Personal Business (home to/from personal business)	1670548	14.0	14.0	27.0
	Home Based School (home to/from school/other school related)	1200200	10.0	10.0	37.1
	Home Based Shopping (home to/from grocery shopping/other shopping)	1072885	9.0	9.0	46.0
	Home Based Social Recreation (home to/from social recreation activity)	641043	5.4	5.4	51.4
	Home Based Work (home to/from work/work-related)	1890657	15.8	15.8	67.2
	Home Based Home (home to/from home loop trip)	7603	.1	.1	67.3
	Home Based Home Other (home to/from home other)	10744	.1	.1	67.4
	Non Home Based (any non-home, non-work to/from any non-home, non work)	2520162	21.1	21.1	88.5
	Work Based (work/work related to any/from any non-home purpose)	1373341	11.5	11.5	100.0
	Work Based Work (primary workplace to/from primary workplace loop trip)	3334	.0	.0	100.0
	Total	11946597	100.0	100.0	

Weighted tabulations of some key variables from the linked trip file.
Total number of linked trips is 11770987
Please note that while there are no observations for Canaan town, the weighting analysis does account for households and persons living in the town.

Sample segment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Segment 1: Over Sample, low response rate	1558537	13.2	13.2	13.2
	Segment 2: Over Sample, medium response rate	744586	6.3	6.3	19.6
	Segment 3: Over Sample, high response rate	352174	3.0	3.0	22.6
	Segment 4: Regular Sample, low response rate	808085	6.9	6.9	29.4
	Segment 5: Regular Sample, medium response rate	3645658	31.0	31.0	60.4
	Segment 6: Regular Sample, high response rate	4661946	39.6	39.6	100.0
	Total	11770987	100.0	100.0	

Week number of assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1008673	8.6	8.6	8.6
	2	1105866	9.4	9.4	18.0
	3	1166952	9.9	9.9	27.9
	4	1112259	9.4	9.4	37.3
	5	1070718	9.1	9.1	46.4
	6	1116890	9.5	9.5	55.9
	7	1184300	10.1	10.1	66.0
	8	1085699	9.2	9.2	75.2
	9	1307647	11.1	11.1	86.3
	10	1611983	13.7	13.7	100.0
	Total	11770987	100.0	100.0	

Assigned travel date

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2016-03-15	304916	2.6	2.6	2.6
	2016-03-16	385664	3.3	3.3	5.9
	2016-03-17	318093	2.7	2.7	8.6
	2016-03-22	352684	3.0	3.0	11.6
	2016-03-23	314382	2.7	2.7	14.2
	2016-03-24	438800	3.7	3.7	18.0
	2016-03-29	410489	3.5	3.5	21.5
	2016-03-30	372482	3.2	3.2	24.6
	2016-03-31	383981	3.3	3.3	27.9
	2016-04-05	350880	3.0	3.0	30.9
	2016-04-06	410920	3.5	3.5	34.3
	2016-04-07	350459	3.0	3.0	37.3
	2016-04-19	411235	3.5	3.5	40.8
	2016-04-20	301360	2.6	2.6	43.4
	2016-04-21	358123	3.0	3.0	46.4
	2016-04-26	372251	3.2	3.2	49.6
	2016-04-27	369093	3.1	3.1	52.7
	2016-04-28	375546	3.2	3.2	55.9
	2016-05-03	338449	2.9	2.9	58.8
	2016-05-04	398172	3.4	3.4	62.2
	2016-05-05	447678	3.8	3.8	66.0
	2016-05-10	381842	3.2	3.2	69.2
	2016-05-11	338004	2.9	2.9	72.1
	2016-05-12	365853	3.1	3.1	75.2
	2016-05-17	491213	4.2	4.2	79.4
	2016-05-18	368943	3.1	3.1	82.5
	2016-05-19	447490	3.8	3.8	86.3
	2016-05-24	523470	4.4	4.4	90.8
	2016-05-25	547973	4.7	4.7	95.4
	2016-05-26	540540	4.6	4.6	100.0
	Total	11770987	100.0	100.0	

Household survey status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	11770987	100.0	100.0	100.0

Indicator of whether the trip is part of a linked trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Linked	11636943	98.9	98.9	98.9
	Linked	134044	1.1	1.1	100.0
	Total	11770987	100.0	100.0	

Weighted Distributions - Linked Trip File

Linked trip index

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	11636943	98.9	98.9	98.9
	1	83422	.7	.7	99.6
	2	47373	.4	.4	100.0
	3	2449	.0	.0	100.0
	4	801	.0	.0	100.0
	Total	11770987	100.0	100.0	

How trip got linked

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Linked	11636943	98.9	98.9	98.9
	Linked by Change Mode Heuristic	127708	1.1	1.1	99.9
	Linked by Same Purpose Heuristic	6336	.1	.1	100.0
	Total	11770987	100.0	100.0	

Count of legs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unlinked Trip	11636943	98.9	98.9	98.9
	Linked Trip with 2 Legs	101196	.9	.9	99.7
	Linked Trip with 3 Legs	24573	.2	.2	99.9
	Linked Trip with 4 Legs	7992	.1	.1	100.0
	Linked Trip with 5 Legs	189	.0	.0	100.0
	Linked Trip with 6 Legs	30	.0	.0	100.0
	Linked Trip with 7 Legs	65	.0	.0	100.0
	Total	11770987	100.0	100.0	

Trip departure time: hour of day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Before 3:00 AM	9433	.1	.1	.1
	3:00 - 3:55 AM	21692	.2	.2	.3
	4:00 - 4:55 AM	35593	.3	.3	.6
	5:00 - 5:55 AM	112948	1.0	1.0	1.5
	6:00 - 6:55 AM	445116	3.8	3.8	5.3
	7:00 - 7:55 AM	1028047	8.7	8.7	14.0
	8:00 - 8:55 AM	939312	8.0	8.0	22.0
	9:00 - 9:55 AM	562758	4.8	4.8	26.8
	10:00 - 10:55 AM	552297	4.7	4.7	31.5
	11:00 - 11:55 AM	619089	5.3	5.3	36.8
	12:00 - 12:55 PM	713134	6.1	6.1	42.8
	1:00 - 1:55 PM	642228	5.5	5.5	48.3
	2:00 - 2:55 PM	883427	7.5	7.5	55.8
	3:00 - 3:55 PM	984882	8.4	8.4	64.1
	4:00 - 4:55 PM	1012925	8.6	8.6	72.7
	5:00 - 5:55 PM	1023195	8.7	8.7	81.4
	6:00 - 6:55 PM	821795	7.0	7.0	88.4
	7:00 - 7:55 PM	545930	4.6	4.6	93.1
	8:00 - 8:55 PM	392848	3.3	3.3	96.4
	9:00 - 9:55 PM	232705	2.0	2.0	98.4
	10:00 - 10:55 PM	94622	.8	.8	99.2
	11:00 - 11:55 PM	57429	.5	.5	99.7
	12:00 - 12:55 PM	18811	.2	.2	99.8
	1:00 - 1:55 AM (next day)	8211	.1	.1	99.9
	2:00 - 2:55 AM (next day)	12560	.1	.1	100.0
	Total	11770987	100.0	100.0	

Trip arrival time: hour of day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3:00 - 3:55 AM	17568	.1	.1	.1
	4:00 - 4:55 AM	22206	.2	.2	.3
	5:00 - 5:55 AM	67930	.6	.6	.9
	6:00 - 6:55 AM	255663	2.2	2.2	3.1
	7:00 - 7:55 AM	900515	7.7	7.7	10.7
	8:00 - 8:55 AM	1021987	8.7	8.7	19.4
	9:00 - 9:55 AM	665149	5.7	5.7	25.1
	10:00 - 10:55 AM	539704	4.6	4.6	29.7
	11:00 - 11:55 AM	586341	5.0	5.0	34.6
	12:00 - 12:55 PM	723769	6.1	6.1	40.8
	1:00 - 1:55 PM	650170	5.5	5.5	46.3
	2:00 - 2:55 PM	779943	6.6	6.6	52.9
	3:00 - 3:55 PM	992638	8.4	8.4	61.4
	4:00 - 4:55 PM	967614	8.2	8.2	69.6
	5:00 - 5:55 PM	1051195	8.9	8.9	78.5
	6:00 - 6:55 PM	957030	8.1	8.1	86.6
	7:00 - 7:55 PM	629253	5.3	5.3	92.0
	8:00 - 8:55 PM	422858	3.6	3.6	95.6
	9:00 - 9:55 PM	274749	2.3	2.3	97.9
	10:00 - 10:55 PM	124747	1.1	1.1	99.0
	11:00 - 11:55 PM	61407	.5	.5	99.5
	12:00 - 12:55 PM	31540	.3	.3	99.8
	1:00 - 1:55 AM (next day)	10639	.1	.1	99.9
	2:00 - 2:55 AM (next day)	9954	.1	.1	99.9
	After 3:00 AM (next day)	6417	.1	.1	100.0
	Total	11770987	100.0	100.0	

Total number of travelers on trip including self

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6776340	57.6	57.6	57.6
	2	2421170	20.6	20.6	78.1
	3	1413148	12.0	12.0	90.1
	4	427095	3.6	3.6	93.8
	5	248049	2.1	2.1	95.9
	6	306109	2.6	2.6	98.5
	7	111271	.9	.9	99.4
	8	35098	.3	.3	99.7
	9	22859	.2	.2	99.9
	10	7137	.1	.1	100.0
	12	2711	.0	.0	100.0
	Total	11770987	100.0	100.0	

Household members on trip including self

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7897141	67.1	67.1	67.1
	2	2550004	21.7	21.7	88.8
	3	887183	7.5	7.5	96.3
	4	360035	3.1	3.1	99.3
	5	60504	.5	.5	99.9
	6	10698	.1	.1	100.0
	7	5423	.0	.0	100.0
	Total	11770987	100.0	100.0	

Non-household members on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nobody (0 people)	9521649	80.9	80.9	80.9
	1 person	1337742	11.4	11.4	92.3
	2 people	361232	3.1	3.1	95.3
	3 people	114824	1.0	1.0	96.3
	4 people	73156	.6	.6	96.9
	5 or more people	362385	3.1	3.1	100.0
	Total	11770987	100.0	100.0	

HH or Other Vehicle: Vehicle used

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	2023645	17.2	17.2	17.2
	HH vehicle 1	5768146	49.0	49.0	66.2
	HH vehicle 2	2680053	22.8	22.8	89.0
	HH vehicle 3	619840	5.3	5.3	94.2
	HH vehicle 4	125550	1.1	1.1	95.3
	HH vehicle 5	44484	.4	.4	95.7
	HH vehicle 6	13726	.1	.1	95.8
	HH vehicle 7	1112	.0	.0	95.8
	Rental car	28095	.2	.2	96.0
	Car from work	86322	.7	.7	96.8
	Friend/relative's car	373466	3.2	3.2	99.9
	Carshare vehicle (e.g. Car2Go)	5151	.0	.0	100.0
	Motorcycle/moped/scooter	1398	.0	.0	100.0
	Total	11770987	100.0	100.0	

HH or Other Vehicle, or Vanpool: If age 16+ and licensed travel party > 1: Was driver or passenger on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Driver	1064978	9.0	44.7	44.7
	Passenger	1308223	11.1	54.9	99.5
	Both (switched drivers during trip)	10906	.1	.5	100.0
	Total	2384107	20.3	100.0	
Missing	System	9386880	79.7		
Total		11770987	100.0		

HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses HOV and travel party > 1: Used HOV lane on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	25548	.2	41.1	41.1
	No	36623	.3	58.9	100.0
	Total	62171	.5	100.0	
Missing	System	11708816	99.5		
Total		11770987	100.0		

HH or Other vehicle, Vanpool, Taxi or Rideshare: If ever uses toll road: Toll road used on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	50991	.4	26.1	26.1
	No	144284	1.2	73.9	100.0
	Total	195275	1.7	100.0	
Missing	System	11575712	98.3		
Total		11770987	100.0		

HH or Other vehicle, or Vanpool: If age 16+: Parking location at destination

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Own driveway/garage	2859897	24.3	30.4	30.4
	Someone else's driveway	362951	3.1	3.9	34.2
	Parking lot/garage at destination (within 2 blocks)	4915145	41.8	52.2	86.5
	Parking lot/garage 2+ blocks away from destination	63814	.5	.7	87.1
	On street parking at destination (within 2 blocks)	434558	3.7	4.6	91.8
	On street parking 2+ blocks away from destination	14960	.1	.2	91.9
	Park & ride lot	24769	.2	.3	92.2
	Didn't park (waited, drop-off, drive-thru)	614896	5.2	6.5	98.7
	Other	121625	1.0	1.3	100.0
	Total	9412615	80.0	100.0	
Missing	System	2358372	20.0		
Total		11770987	100.0		

Parked on street or in a lot/garage: If ever pays for parking: How paid for parking at destination

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No, parking was free	199399	1.7	62.3	62.3
	Yes, with cash/tickets	65719	.6	20.5	82.8
	Yes, with parking pass	49400	.4	15.4	98.3
	No, another person paid or was reimbursed	4558	.0	1.4	99.7
	Not sure/don't remember	1025	.0	.3	100.0
	Total	320100	2.7	100.0	
Missing	System	11450887	97.3		
Total		11770987	100.0		

Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit access mode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	11405739	96.9	96.9	96.9
	Walked or jogged/ Rode a bike	262770	2.2	2.2	99.1
	Drove and parked a car/ Got dropped off	42887	.4	.4	99.5
	Took a taxi/ Ride share (e.g. Uber, Lyft)	2755	.0	.0	99.5
	Transferred from other transit	30616	.3	.3	99.8
	Was already at destination	17046	.1	.1	99.9
	Other	9174	.1	.1	100.0
	Total	11770987	100.0	100.0	

Public Bus, Commuter Rail, Subway, Train or Intercity Bus: Transit egress mode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	11405651	96.9	96.9	96.9
	Walked or jogged/ Rode a bike	254720	2.2	2.2	99.1
	Drove and parked a car/ Got dropped off	39578	.3	.3	99.4
	Took a taxi/ Ride share (e.g. Uber, Lyft)	3504	.0	.0	99.4
	Transferred from other transit	47590	.4	.4	99.8
	Was already at destination	11048	.1	.1	99.9
	Other	8897	.1	.1	100.0
	Total	11770987	100.0	100.0	

Count of transit transfers made

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	11405433	96.9	96.9	96.9
	0	305786	2.6	2.6	99.5
	1	52945	.4	.4	99.9
	2	5084	.0	.0	100.0
	3	1569	.0	.0	100.0
	4	170	.0	.0	100.0
	Total	11770987	100.0	100.0	

Final Recoded Public Bus, Commuter Rail, Subway, Train or Intercity Bus: How paid for transit on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	11406040	96.9	96.9	96.9
	Did not pay	176305	1.5	1.5	98.4
	Paid	188641	1.6	1.6	100.0
	Total	11770987	100.0	100.0	

Primary purpose at trip origin

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Go home	4024428	34.2	34.2	34.2
	Go to primary workplace	1395821	11.9	11.9	46.0
	Go to other work-related place	354765	3.0	3.0	49.1
	Attend school/class	640830	5.4	5.4	54.5
	Other school-related activity	202864	1.7	1.7	56.2
	Grocery shopping	599053	5.1	5.1	61.3
	Do other shopping (e.g. mall, hardware store)	616341	5.2	5.2	66.6
	Run errands (e.g. bank, haircut)	716298	6.1	6.1	72.6
	Go to restaurant/bar/get take-out	602981	5.1	5.1	77.8
	Drop off/pick up/accompany other person	866266	7.4	7.4	85.1
	Exercise (e.g. gym, walk, jog/run)	472219	4.0	4.0	89.1
	Family activity (e.g. child's game)	142087	1.2	1.2	90.3
	Medical visit (e.g. doctor, dentist)	249807	2.1	2.1	92.5
	Social (e.g. visit friends/relatives)	286462	2.4	2.4	94.9
	Leisure/entertainment (e.g. movies)	153245	1.3	1.3	96.2
	Religious/civic/volunteer	168685	1.4	1.4	97.6
	Vacation/holiday/traveling (e.g. hotel)	11829	.1	.1	97.7
	Change travel mode (e.g. wait for bus, change planes)	13337	.1	.1	97.8
	Home other	83877	.7	.7	98.6
	Go to airport/switch airport	11067	.1	.1	98.7
	Other	158724	1.3	1.3	100.0
	Total	11770987	100.0	100.0	

Primary purpose at trip destination

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Go home	4031531	34.2	34.2	34.2
	Go to primary workplace	1385468	11.8	11.8	46.0
	Go to other work-related place	362410	3.1	3.1	49.1
	Attend school/class	664923	5.6	5.6	54.7
	Other school-related activity	210097	1.8	1.8	56.5
	Grocery shopping	601176	5.1	5.1	61.6
	Do other shopping (e.g. mall, hardware store)	619111	5.3	5.3	66.9
	Run errands (e.g. bank, haircut)	719348	6.1	6.1	73.0
	Go to restaurant/bar/get take-out	605205	5.1	5.1	78.2
	Drop off/pick up/accompany other person	871347	7.4	7.4	85.6
	Exercise (e.g. gym, walk, jog/run)	475319	4.0	4.0	89.6
	Family activity (e.g. child's game)	144870	1.2	1.2	90.8
	Medical visit (e.g. doctor, dentist)	251184	2.1	2.1	93.0
	Social (e.g. visit friends/relatives)	309697	2.6	2.6	95.6
	Leisure/entertainment (e.g. movies)	154870	1.3	1.3	96.9
	Religious/civic/volunteer	170250	1.4	1.4	98.4
	Vacation/holiday/traveling (e.g. hotel)	23577	.2	.2	98.6
	Change travel mode (e.g. wait for bus, change planes)	13794	.1	.1	98.7
	Home other	89675	.8	.8	99.4
	Go to airport/switch airport	11550	.1	.1	99.5
	Other	55583	.5	.5	100.0
	Total	11770987	100.0	100.0	

Overall trip purpose

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Home Based Escorting (home to/from drop off/pick up/accompany other person)	918984	7.8	7.8	7.8
	Home Based Meal (home to/from restaurant/bar/get take-out)	442878	3.8	3.8	11.6
	Home Based Other (home to/from any other purpose)	101715	.9	.9	12.4
	Home Based Personal Business (home to/from personal business)	1677705	14.3	14.3	26.7
	Home Based School (home to/from school/other school related)	1237547	10.5	10.5	37.2
	Home Based Shopping (home to/from grocery shopping/other shopping)	1078234	9.2	9.2	46.4
	Home Based Social Recreation (home to/from social recreation activity)	644986	5.5	5.5	51.8
	Home Based Work (home to/from work/work-related)	1930429	16.4	16.4	68.2
	Home Based Home (home to/from home loop trip)	7021	.1	.1	68.3
	Home Based Home Other (home to/from home other)	9437	.1	.1	68.4
	Non Home Based (any non-home, non-work to/from any non-home, non work)	2388755	20.3	20.3	88.7
	Work Based (work/work related to any/from any non-home purpose)	1330382	11.3	11.3	100.0
	Work Based Work (primary workplace to/from primary workplace loop trip)	2912	.0	.0	100.0
	Total	11770987	100.0	100.0	

Main way traveled on trip

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Walk/jog/wheelchair	999486	8.5	8.5	8.5
	Bicycle	80108	.7	.7	9.2
	Vehicle in household	9252911	78.6	78.6	87.8
	Other vehicle (e.g. rental, friend's car)	494431	4.2	4.2	92.0
	Regular taxi or hired car service	9498	.1	.1	92.1
	Ride-share taxi/car service (e.g. Uber, Lyft)	4244	.0	.0	92.1
	Vanpool	6398	.1	.1	92.2
	School bus	471483	4.0	4.0	96.2
	Public (city) bus	279509	2.4	2.4	98.5
	Train (e.g. Amtrak)	9498	.1	.1	98.6
	Shuttle (e.g. a hotel's, an airport's)	18404	.2	.2	98.8
	Paratransit	10175	.1	.1	98.9
	Commuter Rail (e.g. Metro North)	69341	.6	.6	99.4
	Subway	3285	.0	.0	99.5
	Intercity bus (e.g. Greyhound)	3312	.0	.0	99.5
	Ferry/water taxi/boat	376	.0	.0	99.5
	Airplane/helicopter	11194	.1	.1	99.6
	Other	47333	.4	.4	100.0
	Total	11770987	100.0	100.0	

Final Recoded Main way traveled on trip, aggregated

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SOV (single-occupant vehicle)	5673387	48.2	48.2	48.2
	Family carpool (HH or Other vehicle, only HH members in travel party)	2411361	20.5	20.5	68.7
	Other carpool (HH or Other vehicle, includes at least one non-HH member)	1662594	14.1	14.1	82.8
	Walk or Bike	1079594	9.2	9.2	92.0
	Taxi (traditional or rideshare)	13741	.1	.1	92.1
	Public transit (bus, train, paratransit, commuter rail, subway, intercity bus)	375122	3.2	3.2	95.3
	Other (vanpool, school bus, shuttle, ferry/boat, airplane, other)	555188	4.7	4.7	100.0
	Total	11770987	100.0	100.0	

Weighted tabulations of some key variables from the vehicle file.
Total number of vehicles is 2413703
Please note that while there are no observations for Canaan town, the weighting analysis does account for households and persons living in the town.

Sample segment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Segment 1: Over Sample, low response rate	215929	8.9	8.9	8.9
	Segment 2: Over Sample, medium response rate	129746	5.4	5.4	14.3
	Segment 3: Over Sample, high response rate	71943	3.0	3.0	17.3
	Segment 4: Regular Sample, low response rate	146679	6.1	6.1	23.4
	Segment 5: Regular Sample, medium response rate	759052	31.4	31.4	54.8
	Segment 6: Regular Sample, high response rate	1090354	45.2	45.2	100.0
	Total	2413703	100.0	100.0	

Household survey status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete	2413703	100.0	100.0	100.0

Vehicle year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1980 or earlier	24964	1.0	1.0	1.0
	1981	2626	.1	.1	1.1
	1982	914	.0	.0	1.2
	1983	1989	.1	.1	1.3
	1984	2673	.1	.1	1.4
	1985	2568	.1	.1	1.5
	1986	2606	.1	.1	1.6
	1987	4862	.2	.2	1.8
	1988	4021	.2	.2	2.0
	1989	3916	.2	.2	2.1
	1990	5361	.2	.2	2.3
	1991	5623	.2	.2	2.6
	1992	6590	.3	.3	2.8
	1993	9471	.4	.4	3.2
	1994	9141	.4	.4	3.6
	1995	23326	1.0	1.0	4.6
	1996	24518	1.0	1.0	5.6
	1997	33761	1.4	1.4	7.0
	1998	42583	1.8	1.8	8.8
	1999	47996	2.0	2.0	10.8
	2000	68275	2.8	2.8	13.6
	2001	83446	3.5	3.5	17.0
	2002	89749	3.7	3.7	20.8
	2003	115381	4.8	4.8	25.5
	2004	114174	4.7	4.7	30.3
	2005	141081	5.8	5.8	36.1
	2006	137996	5.7	5.7	41.8
	2007	138798	5.8	5.8	47.6
	2008	153762	6.4	6.4	53.9
	2009	120604	5.0	5.0	58.9
	2010	145738	6.0	6.0	65.0
	2011	138234	5.7	5.7	70.7
	2012	156601	6.5	6.5	77.2
	2013	147634	6.1	6.1	83.3
	2014	156588	6.5	6.5	89.8
	2015	167085	6.9	6.9	96.7
	2016	79047	3.3	3.3	100.0
	Total	2413703	100.0	100.0	

Vehicle make

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Acura	40508	1.7	1.7	1.7
	Alfa Romeo	98	.0	.0	1.7
	AM General	52	.0	.0	1.7
	AMC	451	.0	.0	1.7
	Audi	39073	1.6	1.6	3.3
	BMW	55681	2.3	2.3	5.6
	Buick	39060	1.6	1.6	7.2
	Cadillac	17594	.7	.7	8.0
	Chevrolet	188674	7.8	7.8	15.8
	Chrysler	40815	1.7	1.7	17.5
	Daewoo	134	.0	.0	17.5
	Dodge	81763	3.4	3.4	20.9
	Eagle	171	.0	.0	20.9
	Ferrari	114	.0	.0	20.9
	Fiat	1026	.0	.0	20.9
	Ford	230285	9.5	9.5	30.5
	Freightliner	489	.0	.0	30.5
	GEM	181	.0	.0	30.5
	Geo	1187	.0	.0	30.5
	GMC	43628	1.8	1.8	32.4
	Honda	315512	13.1	13.1	45.4
	Hummer	1443	.1	.1	45.5
	Hyundai	85812	3.6	3.6	49.0
	Infiniti	15607	.6	.6	49.7
	Isuzu	546	.0	.0	49.7
	Jaguar	4679	.2	.2	49.9
	Jeep	94219	3.9	3.9	53.8
	Kia	34974	1.4	1.4	55.3
	Land Rover	3871	.2	.2	55.4
	Lexus	31648	1.3	1.3	56.7
	Lincoln	10730	.4	.4	57.2
	Lotus	418	.0	.0	57.2
	Maserati	117	.0	.0	57.2
	Mazda	54875	2.3	2.3	59.5
	Mercedes-Benz	29886	1.2	1.2	60.7
	Mercury	17240	.7	.7	61.4
	Merkur	78	.0	.0	61.4
	MINI	9340	.4	.4	61.8
	Mitsubishi	11232	.5	.5	62.3
	Motorcycle	36971	1.5	1.5	63.8
	Nissan	152672	6.3	6.3	70.1
	Oldsmobile	3426	.1	.1	70.3
	Other	33910	1.4	1.4	71.7
	Peugeot	161	.0	.0	71.7
	Plymouth	3557	.1	.1	71.8
	Pontiac	15759	.7	.7	72.5
	Porsche	6025	.2	.2	72.7
	Ram	1729	.1	.1	72.8
	Saab	11231	.5	.5	73.3

Vehicle make (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Saturn	20080	.8	.8	74.1
	Scion	5896	.2	.2	74.4
	smart	950	.0	.0	74.4
	Subaru	182429	7.6	7.6	81.9
	Suzuki	4627	.2	.2	82.1
	Tesla	892	.0	.0	82.2
	Toyota	316167	13.1	13.1	95.3
	Volkswagen	72597	3.0	3.0	98.3
	Volvo	41142	1.7	1.7	100.0
	VPG	271	.0	.0	100.0
	Total	2413703	100.0	100.0	

Vehicle model

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 series	1315	.1	.1	.1
	1500	1603	.1	.1	.1
	2 series	442	.0	.0	.1
	200	1142	.0	.0	.2
	240	1610	.1	.1	.3
	2500	127	.0	.0	.3
	3 series	28026	1.2	1.2	1.4
	300	4751	.2	.2	1.6
	3000GT	25	.0	.0	1.6
	300C	1405	.1	.1	1.7
	300M	1249	.1	.1	1.7
	300S	906	.0	.0	1.8
	308 GTSI	114	.0	.0	1.8
	350Z	242	.0	.0	1.8
	370Z	248	.0	.0	1.8
	380	140	.0	.0	1.8
	4 series	1433	.1	.1	1.9
	4Runner	12679	.5	.5	2.4
	5 series	8174	.3	.3	2.7
	500	763	.0	.0	2.8
	500 ABARTH	156	.0	.0	2.8
	500c	124	.0	.0	2.8
	500X	83	.0	.0	2.8
	560	33	.0	.0	2.8
	6 series	475	.0	.0	2.8
	626	319	.0	.0	2.8
	7 series	494	.0	.0	2.8
	740 Series	288	.0	.0	2.8
	850 Series	1584	.1	.1	2.9
	9-2X	151	.0	.0	2.9
	9-3	6505	.3	.3	3.2
	9-3X	35	.0	.0	3.2
	9-5	2436	.1	.1	3.3
	9-7X	351	.0	.0	3.3
	900	1066	.0	.0	3.3
	9000	24	.0	.0	3.3
	911	2403	.1	.1	3.4
	924	20	.0	.0	3.4
	940 Series	523	.0	.0	3.5
	944	492	.0	.0	3.5
	960 Series	535	.0	.0	3.5
	968	75	.0	.0	3.5
	A3	2262	.1	.1	3.6
	A4	15519	.6	.6	4.2
	A5	2577	.1	.1	4.3
	A6	7650	.3	.3	4.7
	A7	652	.0	.0	4.7
	A8	454	.0	.0	4.7
	Acadia	6661	.3	.3	5.0

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Accent	9308	.4	.4	5.4
	Accord	85675	3.5	3.5	8.9
	Accord Crosstour	843	.0	.0	9.0
	Aerio	104	.0	.0	9.0
	Alero	1066	.0	.0	9.0
	Allante	133	.0	.0	9.0
	allroad	641	.0	.0	9.0
	Altima	45128	1.9	1.9	10.9
	Amanti	132	.0	.0	10.9
	AMG GT	34	.0	.0	10.9
	Armada	287	.0	.0	10.9
	Astra	43	.0	.0	10.9
	Astro	1403	.1	.1	11.0
	ATS	1095	.0	.0	11.0
	Aura	5373	.2	.2	11.3
	Aurora	769	.0	.0	11.3
	Avalanche	3095	.1	.1	11.4
	Avalon	9015	.4	.4	11.8
	Avalon Hybrid	102	.0	.0	11.8
	Avenger	2965	.1	.1	11.9
	Aveo	1682	.1	.1	12.0
	Aviator	694	.0	.0	12.0
	Azera	1053	.0	.0	12.1
	B-Class	198	.0	.0	12.1
	B-Series	1376	.1	.1	12.1
	B9 Tribeca	147	.0	.0	12.1
	Baja	948	.0	.0	12.2
	Beetle	1350	.1	.1	12.2
	Blazer	3938	.2	.2	12.4
	Bonneville	921	.0	.0	12.4
	Borrego	100	.0	.0	12.4
	Boxster	1458	.1	.1	12.5
	Breeze	132	.0	.0	12.5
	Bronco	798	.0	.0	12.5
	Brougham	258	.0	.0	12.5
	C-Class	8770	.4	.4	12.9
	C-Max Energi	1129	.0	.0	12.9
	C-Max Hybrid	1131	.0	.0	13.0
	C10	354	.0	.0	13.0
	C1500	1588	.1	.1	13.1
	C20	106	.0	.0	13.1
	C2500	600	.0	.0	13.1
	C30	671	.0	.0	13.1
	C70	1333	.1	.1	13.2
	Cabrio	513	.0	.0	13.2
	Cadenza	90	.0	.0	13.2
	Caliber	2855	.1	.1	13.3
	Camaro	3171	.1	.1	13.5
	Camry	73471	3.0	3.0	16.5

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Camry Solara	2041	.1	.1	16.6
	Canyon	2401	.1	.1	16.7
	Caprice Classic	112	.0	.0	16.7
	Captiva	343	.0	.0	16.7
	Captiva Sport	222	.0	.0	16.7
	Caravan	6264	.3	.3	17.0
	Caravelle	160	.0	.0	17.0
	Catera	875	.0	.0	17.0
	Cavalier	5192	.2	.2	17.2
	Cayenne	435	.0	.0	17.3
	Cayman	196	.0	.0	17.3
	CC	1949	.1	.1	17.3
	Celebrity	41	.0	.0	17.3
	Celica	1542	.1	.1	17.4
	Celica Supra	138	.0	.0	17.4
	Century	5282	.2	.2	17.6
	Challenger	164	.0	.0	17.6
	Charger	2464	.1	.1	17.7
	Cherokee	13783	.6	.6	18.3
	Cirrus	544	.0	.0	18.3
	City Golf	289	.0	.0	18.3
	Civic	76444	3.2	3.2	21.5
	CJ7	85	.0	.0	21.5
	CL	20	.0	.0	21.5
	CL-Class	134	.0	.0	21.5
	CLA-Class	144	.0	.0	21.5
	Classic	49	.0	.0	21.5
	CLK-Class	631	.0	.0	21.6
	Club Wagon	1190	.0	.0	21.6
	Cobalt	11706	.5	.5	22.1
	Colorado	9697	.4	.4	22.5
	Commander	1622	.1	.1	22.6
	Compass	4524	.2	.2	22.7
	Concorde	2804	.1	.1	22.9
	Continental	461	.0	.0	22.9
	Contour	238	.0	.0	22.9
	Cooper	8181	.3	.3	23.2
	Cooper Countryman	881	.0	.0	23.3
	Corolla	48135	2.0	2.0	25.3
	Corvette	1954	.1	.1	25.3
	Cougar	136	.0	.0	25.3
	CR-V	69476	2.9	2.9	28.2
	Cressida	99	.0	.0	28.2
	Crossfire	94	.0	.0	28.2
	Crosstour	693	.0	.0	28.3
	Crown Victoria	5649	.2	.2	28.5
	Cruze	9903	.4	.4	28.9
	Cruze Limited	130	.0	.0	28.9
	CT 200h	1064	.0	.0	29.0

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	CTS	4640	.2	.2	29.2
	CTS-V	166	.0	.0	29.2
	cube	1457	.1	.1	29.2
	Cutlass	652	.0	.0	29.2
	Cutlass Ciera	222	.0	.0	29.3
	CX-5	6350	.3	.3	29.5
	CX-7	1019	.0	.0	29.6
	CX-9	2798	.1	.1	29.7
	D100 Pickup	100	.0	.0	29.7
	D150 Pickup	224	.0	.0	29.7
	D250 Pickup	167	.0	.0	29.7
	Dakota	9568	.4	.4	30.1
	Dart	1287	.1	.1	30.1
	Deville	3796	.2	.2	30.3
	Diamante	1017	.0	.0	30.3
	Discovery	106	.0	.0	30.3
	Discovery II	145	.0	.0	30.4
	Discovery Sport	57	.0	.0	30.4
	DTS	810	.0	.0	30.4
	Durango	10685	.4	.4	30.8
	E-Class	6882	.3	.3	31.1
	e-Golf	282	.0	.0	31.1
	E350	219	.0	.0	31.1
	E450 Super Duty	247	.0	.0	31.1
	Echo	433	.0	.0	31.2
	Eclipse	1104	.0	.0	31.2
	Eclipse Spyder	228	.0	.0	31.2
	Econoline	4104	.2	.2	31.4
	Econoline Wagon	341	.0	.0	31.4
	Edge	7561	.3	.3	31.7
	Eighty Eight	248	.0	.0	31.7
	EL	145	.0	.0	31.7
	El Camino	23	.0	.0	31.7
	Elantra	24303	1.0	1.0	32.7
	Elantra Coupe	352	.0	.0	32.8
	Elantra GT	1027	.0	.0	32.8
	Elantra Touring	1357	.1	.1	32.9
	Eldorado	514	.0	.0	32.9
	Element	2230	.1	.1	33.0
	Elise	245	.0	.0	33.0
	Enclave	3170	.1	.1	33.1
	Encore	3054	.1	.1	33.2
	Endeavor	1154	.0	.0	33.3
	Entourage	1077	.0	.0	33.3
	Envoy	3565	.1	.1	33.5
	Envoy XL	1188	.0	.0	33.5
	Envoy XUV	789	.0	.0	33.6
	Eos	1990	.1	.1	33.6
	Equinox	13371	.6	.6	34.2

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Equus	41	.0	.0	34.2
	ES 300	3455	.1	.1	34.3
	ES 300h	293	.0	.0	34.4
	ES 330	1988	.1	.1	34.4
	ES 350	3449	.1	.1	34.6
	Escalade	246	.0	.0	34.6
	Escalade ESV	126	.0	.0	34.6
	Escalade Hybrid	177	.0	.0	34.6
	Escape	28033	1.2	1.2	35.8
	Escape Hybrid	458	.0	.0	35.8
	Escort	2117	.1	.1	35.9
	Escort ZX2	103	.0	.0	35.9
	EuroVan	226	.0	.0	35.9
	EX35	1050	.0	.0	35.9
	Excel	43	.0	.0	35.9
	Excursion	317	.0	.0	35.9
	EXP	218	.0	.0	36.0
	Expedition	3236	.1	.1	36.1
	Expedition EL	31	.0	.0	36.1
	Explorer	20439	.8	.8	36.9
	Explorer Sport	269	.0	.0	36.9
	Explorer Sport Trac	1563	.1	.1	37.0
	Express	1868	.1	.1	37.1
	F-150	27890	1.2	1.2	38.2
	F-150 Heritage	142	.0	.0	38.2
	F-250	6116	.3	.3	38.5
	F-350	6462	.3	.3	38.8
	F-450	322	.0	.0	38.8
	Fiesta	4256	.2	.2	39.0
	Firebird	1427	.1	.1	39.0
	Fit	9884	.4	.4	39.4
	Five Hundred	1684	.1	.1	39.5
	FJ Cruiser	568	.0	.0	39.5
	Flex	1690	.1	.1	39.6
	Focus	21409	.9	.9	40.5
	Forenza	78	.0	.0	40.5
	Forester	51163	2.1	2.1	42.6
	Forte	2944	.1	.1	42.7
	Forte Koup	345	.0	.0	42.7
	Forte5	457	.0	.0	42.8
	fortwo	626	.0	.0	42.8
	Fox	120	.0	.0	42.8
	FR-S	215	.0	.0	42.8
	Freestar	61	.0	.0	42.8
	Freestyle	3636	.2	.2	42.9
	Frontier	7446	.3	.3	43.3
	Fusion	19172	.8	.8	44.1
	Fusion Energi	1038	.0	.0	44.1
	FX35	1955	.1	.1	44.2

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	FX50	111	.0	.0	44.2
	G10	165	.0	.0	44.2
	G1500	680	.0	.0	44.2
	G20	67	.0	.0	44.2
	G20 SportVan	664	.0	.0	44.2
	G2500 Rally	384	.0	.0	44.3
	G2500 Vandura	65	.0	.0	44.3
	G3 Wave	350	.0	.0	44.3
	G35	2014	.1	.1	44.4
	G35x	1187	.0	.0	44.4
	G37	299	.0	.0	44.4
	G37x	1911	.1	.1	44.5
	G5	235	.0	.0	44.5
	G6	2000	.1	.1	44.6
	G8	196	.0	.0	44.6
	Galant	2401	.1	.1	44.7
	Genesis	751	.0	.0	44.7
	Genesis Coupe	112	.0	.0	44.7
	Ghibli	58	.0	.0	44.7
	GL-Class	1460	.1	.1	44.8
	GLA-Class	93	.0	.0	44.8
	GLE-Class	179	.0	.0	44.8
	GLK-Class	694	.0	.0	44.8
	Golf	5558	.2	.2	45.1
	Grand Am	2239	.1	.1	45.2
	Grand Caravan	13744	.6	.6	45.7
	Grand Cherokee	34841	1.4	1.4	47.2
	Grand Marquis	3242	.1	.1	47.3
	Grand Prix	1365	.1	.1	47.4
	Grand Vitara	1666	.1	.1	47.4
	Grand Voyager	443	.0	.0	47.5
	GranTurismo	38	.0	.0	47.5
	GS 300	742	.0	.0	47.5
	GS 350	989	.0	.0	47.5
	GT-R	64	.0	.0	47.5
	GTI	4332	.2	.2	47.7
	GTO	324	.0	.0	47.7
	GX 460	206	.0	.0	47.7
	GX 470	234	.0	.0	47.7
	H2	718	.0	.0	47.8
	H2 SUT	135	.0	.0	47.8
	H3	564	.0	.0	47.8
	HHR	1793	.1	.1	47.9
	Highlander	20440	.8	.8	48.7
	Hombre	150	.0	.0	48.7
	HR-V	1737	.1	.1	48.8
	HS 250h	56	.0	.0	48.8
	i3	188	.0	.0	48.8
	I30	2481	.1	.1	48.9

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I35	601	.0	.0	48.9
	i8	91	.0	.0	48.9
	ILX	1379	.1	.1	49.0
	Impala	12982	.5	.5	49.5
	Impala Limited	1063	.0	.0	49.6
	Impreza	23265	1.0	1.0	50.5
	Insight	942	.0	.0	50.6
	Integra	1264	.1	.1	50.6
	Intrepid	1993	.1	.1	50.7
	Intrigue	361	.0	.0	50.7
	Ion	2159	.1	.1	50.8
	iQ	304	.0	.0	50.8
	IS 250	3411	.1	.1	51.0
	IS 300	101	.0	.0	51.0
	IS 350	549	.0	.0	51.0
	J30	251	.0	.0	51.0
	Jetta	33904	1.4	1.4	52.4
	Jimmy	987	.0	.0	52.5
	Jimmy or Envoy	1189	.0	.0	52.5
	Journey	2733	.1	.1	52.6
	Juke	788	.0	.0	52.7
	JX35	169	.0	.0	52.7
	K1500	1713	.1	.1	52.7
	K2500	216	.0	.0	52.7
	K3500	110	.0	.0	52.7
	Kizashi	511	.0	.0	52.8
	L Series	3071	.1	.1	52.9
	LaCrosse	6692	.3	.3	53.2
	Lancer	2451	.1	.1	53.3
	Lancer Evolution	331	.0	.0	53.3
	Lancer Sportback	132	.0	.0	53.3
	Land Cruiser	828	.0	.0	53.3
	Lanos	134	.0	.0	53.3
	LEAF	770	.0	.0	53.4
	Lebaron	115	.0	.0	53.4
	Legacy	41640	1.7	1.7	55.1
	Legend	370	.0	.0	55.1
	LeSabre	7264	.3	.3	55.4
	LHS	20	.0	.0	55.4
	Liberty	10694	.4	.4	55.9
	LR2	269	.0	.0	55.9
	LR3	1017	.0	.0	55.9
	LR4	412	.0	.0	55.9
	LS	165	.0	.0	55.9
	LS 400	332	.0	.0	55.9
	LS 430	1765	.1	.1	56.0
	LS 460	1454	.1	.1	56.1
	LTD Crown Victoria	384	.0	.0	56.1
	Lucerne	2911	.1	.1	56.2

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Lumina	1676	.1	.1	56.3
	LX 470	719	.0	.0	56.3
	M-Class	2616	.1	.1	56.4
	M3	1418	.1	.1	56.5
	M35	1090	.0	.0	56.5
	M35x	64	.0	.0	56.5
	M37	13	.0	.0	56.5
	M37x	136	.0	.0	56.5
	M5	201	.0	.0	56.5
	M6	267	.0	.0	56.6
	Macan	292	.0	.0	56.6
	Magnum	470	.0	.0	56.6
	Malibu	17878	.7	.7	57.3
	Malibu Maxx	630	.0	.0	57.4
	Mariner	1114	.0	.0	57.4
	Mark LT	259	.0	.0	57.4
	Mark VII	43	.0	.0	57.4
	Mark VIII	566	.0	.0	57.4
	Marquis	37	.0	.0	57.4
	Matrix	4093	.2	.2	57.6
	Maxima	14776	.6	.6	58.2
	Mazda3	15605	.6	.6	58.9
	Mazda5	2654	.1	.1	59.0
	Mazda6	11616	.5	.5	59.5
	Mazdaspeed3	535	.0	.0	59.5
	MDX	11950	.5	.5	60.0
	Metro	125	.0	.0	60.0
	Milan	390	.0	.0	60.0
	Millenia	139	.0	.0	60.0
	Mirage	878	.0	.0	60.0
	MKC	409	.0	.0	60.1
	MKS	1440	.1	.1	60.1
	MKX	616	.0	.0	60.1
	MKZ	2178	.1	.1	60.2
	Model S	892	.0	.0	60.3
	Montana	189	.0	.0	60.3
	Monte Carlo	1828	.1	.1	60.4
	Montego	387	.0	.0	60.4
	Monterey	91	.0	.0	60.4
	Montero	308	.0	.0	60.4
	Montero Sport	238	.0	.0	60.4
	Mountaineer	4887	.2	.2	60.6
	MPV	550	.0	.0	60.6
	MR2 Spyder	125	.0	.0	60.6
	Murano	10543	.4	.4	61.1
	Mustang	11746	.5	.5	61.5
	Mustang Shelby GT500	438	.0	.0	61.6
	MV-1	271	.0	.0	61.6
	MX-5 Miata	2709	.1	.1	61.7

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MX-6	101	.0	.0	61.7
	Navigator	1340	.1	.1	61.7
	Navigator L	286	.0	.0	61.8
	Neon	4306	.2	.2	61.9
	New Beetle	2029	.1	.1	62.0
	Nitro	565	.0	.0	62.0
	NV200	153	.0	.0	62.1
	NV2500HD	161	.0	.0	62.1
	NV3500	438	.0	.0	62.1
	NX300h	253	.0	.0	62.1
	Odyssey	34328	1.4	1.4	63.5
	Optima	6433	.3	.3	63.8
	Other	128815	5.3	5.3	69.1
	Outback	48683	2.0	2.0	71.1
	Outlander	943	.0	.0	71.2
	Outlander Sport	24	.0	.0	71.2
	Outlook	754	.0	.0	71.2
	P30	73	.0	.0	71.2
	Pacifica	2711	.1	.1	71.3
	Panamera	176	.0	.0	71.3
	Park Avenue	2363	.1	.1	71.4
	Passat	15469	.6	.6	72.1
	Pathfinder	9787	.4	.4	72.5
	Patriot	5863	.2	.2	72.7
	Pickup	3047	.1	.1	72.8
	Pilot	22096	.9	.9	73.8
	Prelude	408	.0	.0	73.8
	Previa	154	.0	.0	73.8
	Prius	28619	1.2	1.2	75.0
	Prius c	6560	.3	.3	75.2
	Prius Plug-In	2033	.1	.1	75.3
	Prius v	2335	.1	.1	75.4
	Prizm	2100	.1	.1	75.5
	Probe	229	.0	.0	75.5
	Protege	3405	.1	.1	75.7
	PT Cruiser	6166	.3	.3	75.9
	Q3	87	.0	.0	75.9
	Q40	15	.0	.0	75.9
	Q5	4057	.2	.2	76.1
	Q50	614	.0	.0	76.1
	Q60	107	.0	.0	76.1
	Q7	2090	.1	.1	76.2
	Quattroporte	20	.0	.0	76.2
	Quest	1416	.1	.1	76.3
	QX4	527	.0	.0	76.3
	QX50	98	.0	.0	76.3
	QX56	169	.0	.0	76.3
	QX60	221	.0	.0	76.3
	R-Class	184	.0	.0	76.3

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	R20	370	.0	.0	76.3
	Rabbit	812	.0	.0	76.4
	Rainier	222	.0	.0	76.4
	Ram Pickup	13787	.6	.6	76.9
	Ram Van	910	.0	.0	77.0
	RamCharger	100	.0	.0	77.0
	Range Rover	649	.0	.0	77.0
	Range Rover Evoque	849	.0	.0	77.0
	Range Rover Sport	366	.0	.0	77.1
	Ranger	14299	.6	.6	77.6
	RAV4	35784	1.5	1.5	79.1
	RAV4 EV	480	.0	.0	79.2
	RC 350	40	.0	.0	79.2
	RDX	6469	.3	.3	79.4
	Reatta	128	.0	.0	79.4
	Regal	3287	.1	.1	79.6
	Reliant	54	.0	.0	79.6
	Rendezvous	473	.0	.0	79.6
	Renegade	465	.0	.0	79.6
	Ridgeline	2538	.1	.1	79.7
	Rio	2094	.1	.1	79.8
	RL	1852	.1	.1	79.9
	RLX	114	.0	.0	79.9
	Roadmaster	114	.0	.0	79.9
	Rodeo	138	.0	.0	79.9
	Rogue	20858	.9	.9	80.8
	Rogue Select	877	.0	.0	80.8
	Rondo	327	.0	.0	80.8
	Routan	1021	.0	.0	80.8
	RS6	39	.0	.0	80.8
	RSX	1510	.1	.1	80.9
	RX 300	1468	.1	.1	81.0
	RX 330	1244	.1	.1	81.0
	RX 350	5539	.2	.2	81.2
	RX 400h	512	.0	.0	81.3
	RX 450h	566	.0	.0	81.3
	RX-7	245	.0	.0	81.3
	RX-8	34	.0	.0	81.3
	S Series	3557	.1	.1	81.5
	S-Class	2732	.1	.1	81.6
	S-Type	520	.0	.0	81.6
	S10	6687	.3	.3	81.9
	S15	120	.0	.0	81.9
	S2000	1115	.0	.0	81.9
	S4	1468	.1	.1	82.0
	S40	2721	.1	.1	82.1
	S5	114	.0	.0	82.1
	S6	48	.0	.0	82.1
	S60	7576	.3	.3	82.4

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	S60 Inscription	275	.0	.0	82.4
	S70	1450	.1	.1	82.5
	S80	2389	.1	.1	82.6
	S90	201	.0	.0	82.6
	Sable	6099	.3	.3	82.8
	Safari	42	.0	.0	82.8
	Santa Fe	11967	.5	.5	83.3
	Savana	1693	.1	.1	83.4
	SC 300	21	.0	.0	83.4
	SC 400	13	.0	.0	83.4
	SC 430	89	.0	.0	83.4
	Sebring	5189	.2	.2	83.6
	Sedona	785	.0	.0	83.7
	Sentra	17593	.7	.7	84.4
	Sephia	1346	.1	.1	84.4
	Sequoia	2316	.1	.1	84.5
	Seville	486	.0	.0	84.6
	Sienna	22176	.9	.9	85.5
	Sierra	10554	.4	.4	85.9
	Sierra Classic	331	.0	.0	85.9
	Silverado	28964	1.2	1.2	87.1
	Silverado Classic	21	.0	.0	87.1
	Sky	146	.0	.0	87.1
	SL-Class	1053	.0	.0	87.2
	SLK-Class	760	.0	.0	87.2
	Solstice	379	.0	.0	87.2
	Sonata	22710	.9	.9	88.2
	Sonata Hybrid	1318	.1	.1	88.2
	Sonic	717	.0	.0	88.3
	Sonoma	2393	.1	.1	88.4
	Sorento	7346	.3	.3	88.7
	Soul	4066	.2	.2	88.8
	Spark	1032	.0	.0	88.9
	Spectra	976	.0	.0	88.9
	Spider	98	.0	.0	88.9
	Sportage	6925	.3	.3	89.2
	Sprinter 2500	196	.0	.0	89.2
	Sprinter 3500	103	.0	.0	89.2
	SRX	2010	.1	.1	89.3
	SS	137	.0	.0	89.3
	Stealth	139	.0	.0	89.3
	Step Van	349	.0	.0	89.3
	Stratus	4177	.2	.2	89.5
	STS	554	.0	.0	89.5
	Suburban	9894	.4	.4	89.9
	Sundance	124	.0	.0	89.9
	Sunfire	1719	.1	.1	90.0
	Supra	58	.0	.0	90.0
	SX4	144	.0	.0	90.0

Vehicle model (continued)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SX4 Sedan	272	.0	.0	90.0
	SX4 Sport	134	.0	.0	90.0
	Tacoma	20299	.8	.8	90.9
	Tahoe	5020	.2	.2	91.1
	Taurus	18865	.8	.8	91.9
	tC	1709	.1	.1	91.9
	Tempo	463	.0	.0	92.0
	Tercel	1052	.0	.0	92.0
	Terrain	5649	.2	.2	92.2
	Thunderbird	761	.0	.0	92.3
	Tiburon	791	.0	.0	92.3
	Tiguan	1672	.1	.1	92.4
	Titan	1149	.0	.0	92.4
	TL	8298	.3	.3	92.8
	TLX	1179	.0	.0	92.8
	Torrent	462	.0	.0	92.8
	Touareg	746	.0	.0	92.9
	Town & Country	13930	.6	.6	93.4
	Town Car	1634	.1	.1	93.5
	Tracker	1223	.1	.1	93.5
	TrailBlazer	4015	.2	.2	93.7
	TrailBlazer EXT	988	.0	.0	93.8
	Trans Sport	803	.0	.0	93.8
	Transit Connect	1464	.1	.1	93.8
	Transit Van	1997	.1	.1	93.9
	Traverse	6592	.3	.3	94.2
	Trax	239	.0	.0	94.2
	Tribeca	2029	.1	.1	94.3
	Tribute	3296	.1	.1	94.4
	Trooper	259	.0	.0	94.4
	Truck	297	.0	.0	94.5
	TSX	5825	.2	.2	94.7
	TT	1261	.1	.1	94.8
	Tucson	6721	.3	.3	95.0
	Tundra	7668	.3	.3	95.3
	Typhoon	173	.0	.0	95.4
	Uplander	96	.0	.0	95.4
	V40	364	.0	.0	95.4
	V50	808	.0	.0	95.4
	V60	251	.0	.0	95.4
	V70	3812	.2	.2	95.6
	V70 XC	598	.0	.0	95.6
	V90	25	.0	.0	95.6
	Van	325	.0	.0	95.6
	Vanagon	89	.0	.0	95.6
	Veloster	1441	.1	.1	95.7
	Venture	834	.0	.0	95.7
	Venza	1760	.1	.1	95.8
	Veracruz	68	.0	.0	95.8

Vehicle model (continued)

	Frequency	Percent	Valid Percent	Cumulative Percent
Verano	3032	.1	.1	95.9
Versa	11173	.5	.5	96.4
Versa Note	640	.0	.0	96.4
Vibe	2918	.1	.1	96.5
Villager	349	.0	.0	96.5
Vision	171	.0	.0	96.5
Volt	1668	.1	.1	96.6
Voyager	922	.0	.0	96.7
VUE	3956	.2	.2	96.8
Wagoneer	43	.0	.0	96.8
Windstar	1193	.0	.0	96.9
Wrangler	14937	.6	.6	97.5
Wrangler Unlimited	5777	.2	.2	97.7
WRX	184	.0	.0	97.7
X-Type	1995	.1	.1	97.8
X1	1202	.0	.0	97.9
X3	2873	.1	.1	98.0
X5	4162	.2	.2	98.2
X6	219	.0	.0	98.2
xA	229	.0	.0	98.2
xB	601	.0	.0	98.2
XC60	1869	.1	.1	98.3
XC70	5193	.2	.2	98.5
XC90	6544	.3	.3	98.8
xD	2722	.1	.1	98.9
XF	458	.0	.0	98.9
XG350	987	.0	.0	98.9
XJ6	86	.0	.0	98.9
XJ8	506	.0	.0	99.0
XJS	233	.0	.0	99.0
XK8	243	.0	.0	99.0
XL-7	221	.0	.0	99.0
XLR	130	.0	.0	99.0
XR4	78	.0	.0	99.0
Xterra	4779	.2	.2	99.2
XTS	108	.0	.0	99.2
XV Crosstrek	8931	.4	.4	99.6
Yaris	5433	.2	.2	99.8
Yukon	633	.0	.0	99.8
Yukon XL	2056	.1	.1	99.9
Z3	1228	.1	.1	100.0
Z4	792	.0	.0	100.0
Zephyr	178	.0	.0	100.0
Total	2413703	100.0	100.0	

Vehicle has a toll transponder

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	1469251	60.9	60.9	60.9
	Yes	944452	39.1	39.1	100.0
	Total	2413703	100.0	100.0	

Appendix R

Connecticut Travel Trends Handout

What is the Connecticut Statewide Transportation Study?

The study collected information on average daily travel behavior of representative group of residents in the state of Connecticut including how they travel, where they go, why they travel, and how long it takes. Additionally, the study collected household and person level demographic information.

How are the statistics compiled?

The statistics were generated using travel survey data from the 2016 Connecticut Statewide Transportation Study. All statistics reported are based on weighting analysis to match characteristics of CT residents from the 2009-2013 American Community Survey.

What else should I know about the statistics reported?

Where appropriate, imputed, or logically estimated, values are utilized to supplement the collected data from the survey. As with any survey, the statistics are subject to error and bias.

How can I learn more about the study?

Please visit:
ct.gov/dot/cwp/view.asp?a =1383&Q=586922
for more information.

CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CT Household Transportation Study

Western CT COG Statistics

Key Travel Characteristics

How many trips do CT Residents make on an average weekday?

Total individual trips made is about 2.0 million. These are made by nearly 0.6 million CT residents residing in 0.2 million households.

2.0M

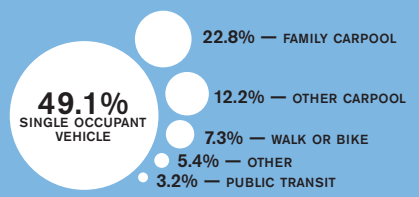
0.6M

0.2M

9.31
AVERAGE NUMBER OF TRIPS MADE DAILY BY A HOUSEHOLD

3.59
AVERAGE NUMBER OF TRIPS MADE DAILY BY A PERSON

How do they travel?

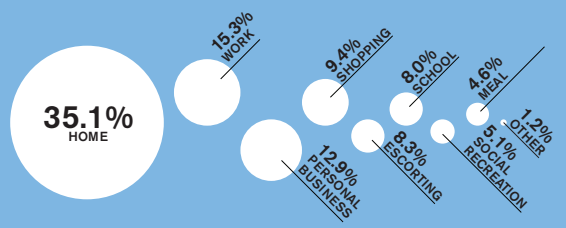


How long do they travel for?

23.5 MINS
AVERAGE REPORTED GENERAL TRAVEL DURATION

33.2 MINS
AVERAGE REPORTED WORK TRAVEL DURATION

Why do they travel?



Key Household Characteristics

What is the composition of households?

2.60
AVERAGE NUMBER OF PERSONS

1.28
AVERAGE NUMBER OF WORKERS

0.64
AVERAGE NUMBER OF CHILDREN

What is the profile of vehicle ownership?

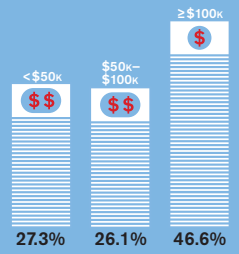
6.5%
0 VEHICLE HOUSEHOLDS

30.0%
1 VEHICLE HOUSEHOLDS

41.4%
2 VEHICLE HOUSEHOLDS

22.1%
3+ VEHICLE HOUSEHOLDS

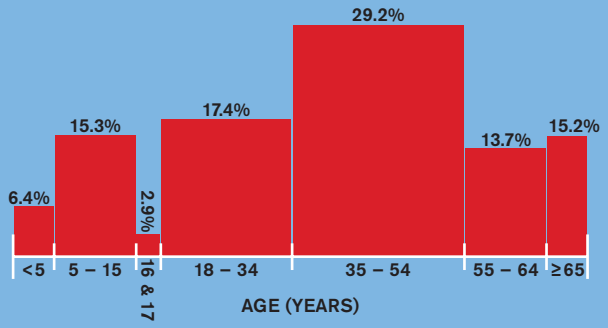
What is the distribution of household income?



What are the different housing types?

Key Person Characteristics

What is the age distribution of residents?

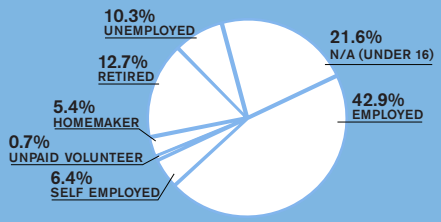


What is the gender profile?

52.3% FEMALE

47.7% MALE

What is the distribution of employment status?



What is the distribution of driver's license status?

21.6%
NOT APPLICABLE (AGE LESS THAN 16)

70.1%
HAVE A DRIVER'S LICENSE

8.3%
NO DRIVER'S LICENSE

What is the Connecticut Statewide Transportation Study?

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ct.gov/dot/cwp/view.asp?a =1383&Q=586922
for more information.

CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CT Household Transportation Study

South Western MPO Statistics

Key Travel Characteristics

How many trips do CT Residents make on an average weekday?

Total individual trips made is about 1.2 million. These are made by nearly 0.3 million CT residents residing in 0.1 million households.

1.2M

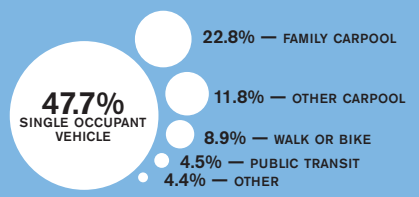
0.3M

0.1M

9.16
AVERAGE NUMBER OF TRIPS MADE DAILY BY A HOUSEHOLD

3.56
AVERAGE NUMBER OF TRIPS MADE DAILY BY A PERSON

How do they travel?

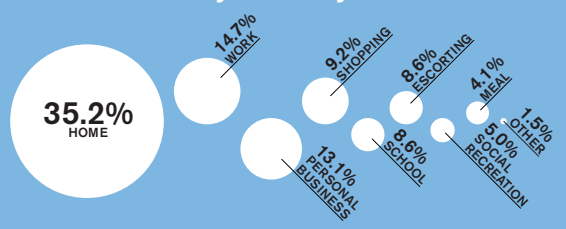


How long do they travel for?

23.4 MINS
AVERAGE REPORTED GENERAL TRAVEL DURATION

33.8 MINS
AVERAGE REPORTED WORK TRAVEL DURATION

Why do they travel?



Key Household Characteristics

What is the composition of households?

2.57
AVERAGE NUMBER OF PERSONS

1.23
AVERAGE NUMBER OF WORKERS

0.64
AVERAGE NUMBER OF CHILDREN

What is the profile of vehicle ownership?

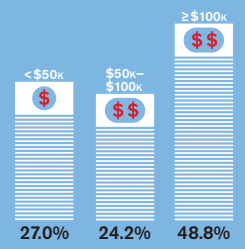
7.4%
0 VEHICLE HOUSEHOLDS

32.4%
1 VEHICLE HOUSEHOLDS

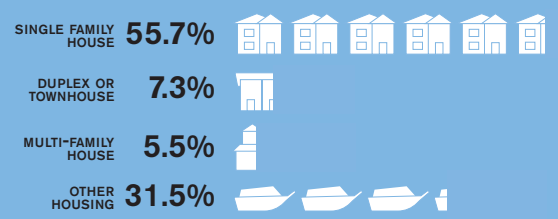
40.4%
2 VEHICLE HOUSEHOLDS

19.7%
3+ VEHICLE HOUSEHOLDS

What is the distribution of household income?

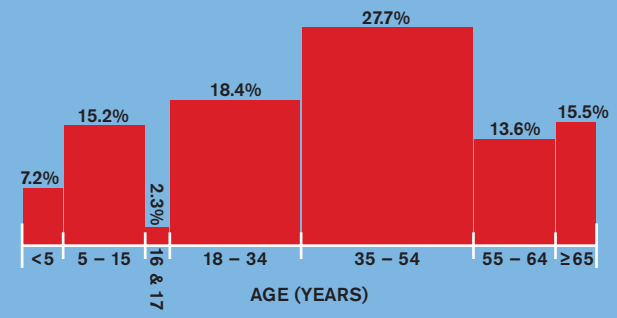


What are the different housing types?



Key Person Characteristics

What is the age distribution of residents?

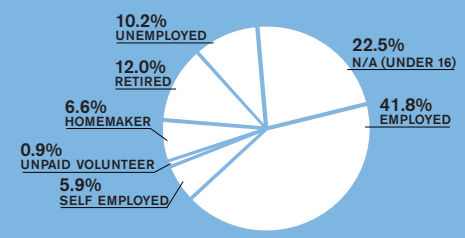


What is the gender profile?

52.4% FEMALE

47.6% MALE

What is the distribution of employment status?



What is the distribution of driver's license status?

22.5%
NOT APPLICABLE (AGE LESS THAN 16)

68.7%
HAVE A DRIVER'S LICENSE

8.8%
NO DRIVER'S LICENSE

What is the Connecticut Statewide Transportation Study?

The study collected information on average daily travel behavior of representative group of residents in the state of Connecticut including how they travel, where they go, why they travel, and how long it takes. Additionally, the study collected household and person level demographic information.

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ct.gov/dot/cwp/view.asp?a =1383&Q=586922
for more information.

CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CT Household Transportation Study

Housatonic Valley MPO Statistics

Key Travel Characteristics

How many trips do CT Residents make on an average weekday?

Total individual trips made is about 0.8 million. These are made by nearly 0.2 million CT residents residing in 0.1 million households.

0.8M

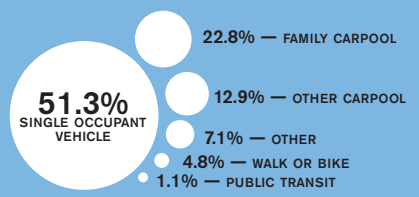
0.2M

0.1M

9.57
AVERAGE NUMBER OF TRIPS MADE DAILY BY A HOUSEHOLD

3.64
AVERAGE NUMBER OF TRIPS MADE DAILY BY A PERSON

How do they travel?

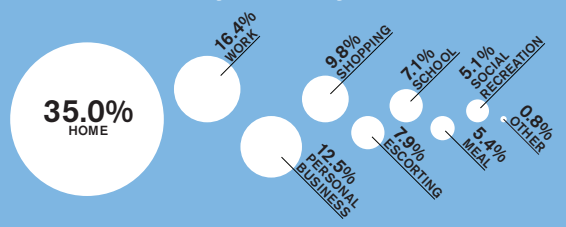


How long do they travel for?

23.8 MINS
AVERAGE REPORTED GENERAL TRAVEL DURATION

32.2 MINS
AVERAGE REPORTED WORK TRAVEL DURATION

Why do they travel?



Key Household Characteristics

What is the composition of households?

2.63
AVERAGE NUMBER OF PERSONS

1.36
AVERAGE NUMBER OF WORKERS

0.63
AVERAGE NUMBER OF CHILDREN

What is the profile of vehicle ownership?

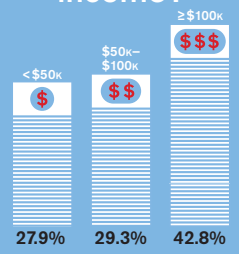
5.0%
0 VEHICLE HOUSEHOLDS

26.1%
1 VEHICLE HOUSEHOLDS

42.9%
2 VEHICLE HOUSEHOLDS

26.0%
3+ VEHICLE HOUSEHOLDS

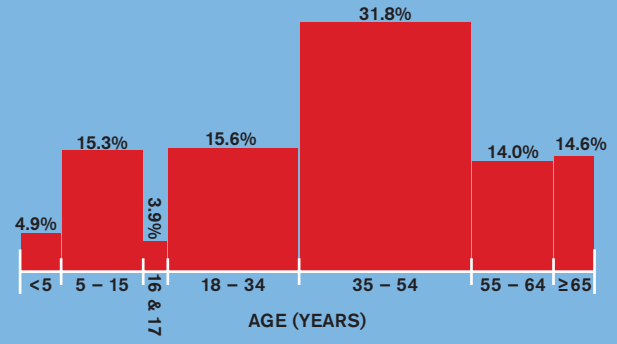
What is the distribution of household income?



What are the different housing types?

Key Person Characteristics

What is the age distribution of residents?

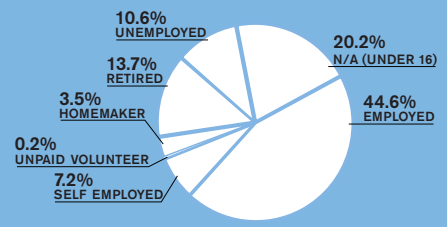


What is the gender profile?

52.1% FEMALE

47.9% MALE

What is the distribution of employment status?



What is the distribution of driver's license status?

20.2%
NOT APPLICABLE (AGE LESS THAN 16)

72.4%
HAVE A DRIVER'S LICENSE

7.4%
NO DRIVER'S LICENSE

What is the Connecticut Statewide Transportation Study?

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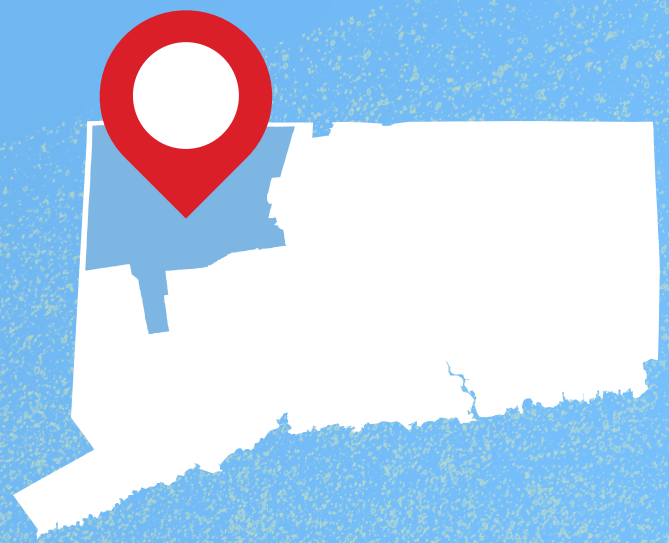
CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CT Household Transportation Study

Northwest Hills COG Statistics



Key Travel Characteristics

How many trips do CT Residents make on an average weekday?

Total individual trips made is about 0.4 million. These are made by nearly 0.1 million CT residents residing in 0.05 million households.

0.4M

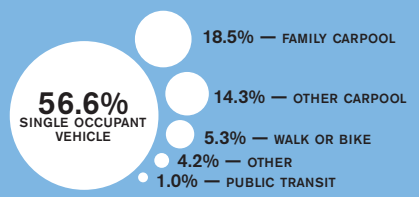
0.1M

0.05M

7.68
AVERAGE NUMBER OF TRIPS MADE DAILY BY A HOUSEHOLD

3.26
AVERAGE NUMBER OF TRIPS MADE DAILY BY A PERSON

How do they travel?

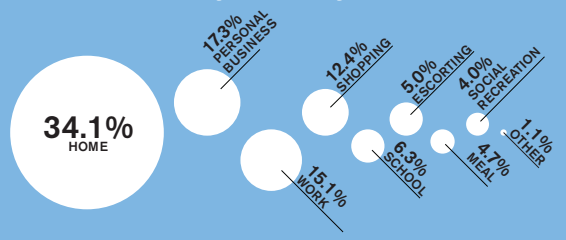


How long do they travel for?

23.5 MINS
AVERAGE REPORTED GENERAL TRAVEL DURATION

31.5 MINS
AVERAGE REPORTED WORK TRAVEL DURATION

Why do they travel?



Key Household Characteristics

What is the composition of households?

2.36
AVERAGE NUMBER OF PERSONS

1.21
AVERAGE NUMBER OF WORKERS

0.42
AVERAGE NUMBER OF CHILDREN

What is the profile of vehicle ownership?

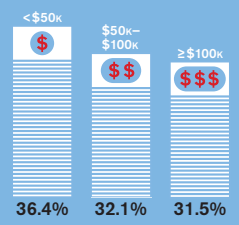
5.5%
0 VEHICLE HOUSEHOLDS

29.3%
1 VEHICLE HOUSEHOLDS

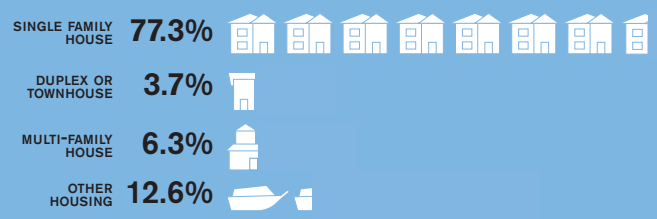
40.8%
2 VEHICLE HOUSEHOLDS

24.5%
3+ VEHICLE HOUSEHOLDS

What is the distribution of household income?

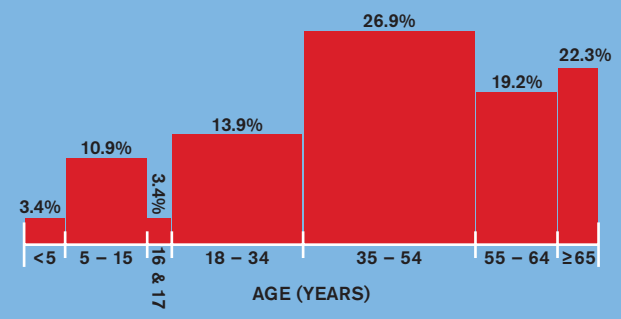


What are the different housing types?



Key Person Characteristics

What is the age distribution of residents?

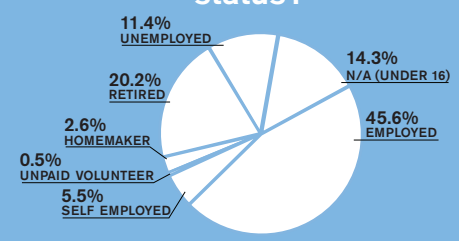


What is the gender profile?

46.6% FEMALE

53.4% MALE

What is the distribution of employment status?



What is the distribution of driver's license status?

14.3%
NOT APPLICABLE (AGE LESS THAN 16)

78.3%
HAVE A DRIVER'S LICENSE

7.4%
NO DRIVER'S LICENSE

What is the Connecticut Statewide Transportation Study?

The study collected information on average daily travel behavior of representative group of residents in the state of Connecticut including how they travel, where they go, why they travel, and how long it takes. Additionally, the study collected household and person level demographic information.

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CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CT Household Transportation Study

Naugatuck Valley COG Statistics

Key Travel Characteristics

How many trips do CT Residents make on an average weekday?

Total individual trips made is about 1.4 million. These are made by nearly 0.4 million CT residents residing in 0.2 million households.

1.4M

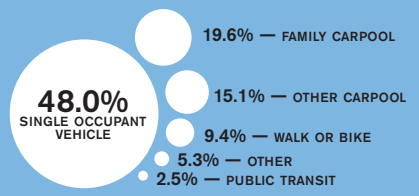
0.4M

0.2M

8.38
AVERAGE NUMBER OF TRIPS MADE DAILY BY A HOUSEHOLD

3.40
AVERAGE NUMBER OF TRIPS MADE DAILY BY A PERSON

How do they travel?

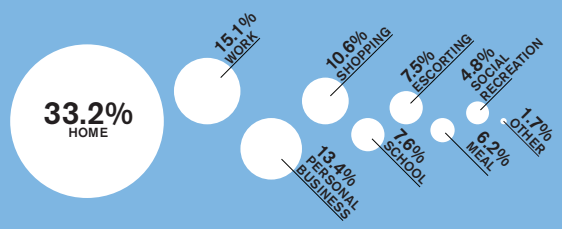


How long do they travel for?

23.6 MINS
AVERAGE REPORTED GENERAL TRAVEL DURATION

28.9 MINS
AVERAGE REPORTED WORK TRAVEL DURATION

Why do they travel?



Key Household Characteristics

What is the composition of households?

2.47
AVERAGE NUMBER OF PERSONS

1.18
AVERAGE NUMBER OF WORKERS

0.58
AVERAGE NUMBER OF CHILDREN

What is the profile of vehicle ownership?

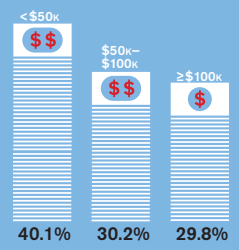
8.7%
0 VEHICLE HOUSEHOLDS

32.8%
1 VEHICLE HOUSEHOLDS

37.3%
2 VEHICLE HOUSEHOLDS

21.2%
3+ VEHICLE HOUSEHOLDS

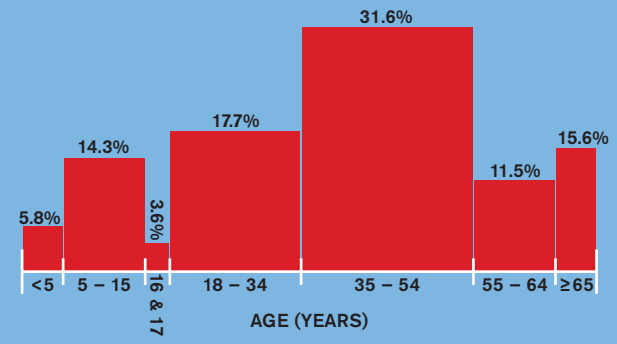
What is the distribution of household income?



What are the different housing types?

Key Person Characteristics

What is the age distribution of residents?

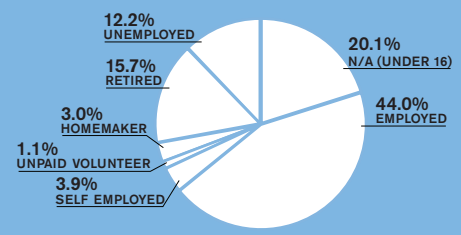


What is the gender profile?

50.1% FEMALE

49.9% MALE

What is the distribution of employment status?



What is the distribution of driver's license status?

20.1%
NOT APPLICABLE (AGE LESS THAN 16)

70.1%
HAVE A DRIVER'S LICENSE

9.8%
NO DRIVER'S LICENSE

What is the Connecticut Statewide Transportation Study?

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CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CT Household Transportation Study

Central Naugatuck Valley MPO Statistics

Key Travel Characteristics

How many trips do CT Residents make on an average weekday?

Total individual trips made is about 1.1 million. These are made by nearly 0.3 million CT residents residing in 0.1 million households.

1.1M

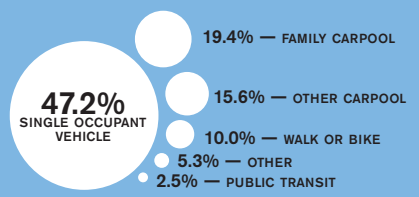
0.3M

0.1M

8.22
AVERAGE NUMBER OF TRIPS MADE DAILY BY A HOUSEHOLD

3.33
AVERAGE NUMBER OF TRIPS MADE DAILY BY A PERSON

How do they travel?

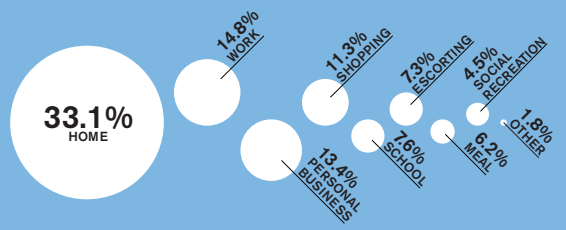


How long do they travel for?

24.0 MINS
AVERAGE REPORTED GENERAL TRAVEL DURATION

28.7 MINS
AVERAGE REPORTED WORK TRAVEL DURATION

Why do they travel?



Key Household Characteristics

What is the composition of households?

2.47
AVERAGE NUMBER OF PERSONS

1.17
AVERAGE NUMBER OF WORKERS

0.58
AVERAGE NUMBER OF CHILDREN

What is the profile of vehicle ownership?

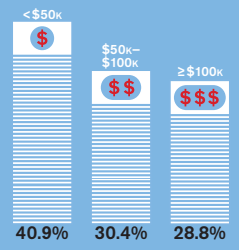
9.0%
0 VEHICLE HOUSEHOLDS

33.2%
1 VEHICLE HOUSEHOLDS

37.3%
2 VEHICLE HOUSEHOLDS

20.5%
3+ VEHICLE HOUSEHOLDS

What is the distribution of household income?



What are the different housing types?

Key Person Characteristics

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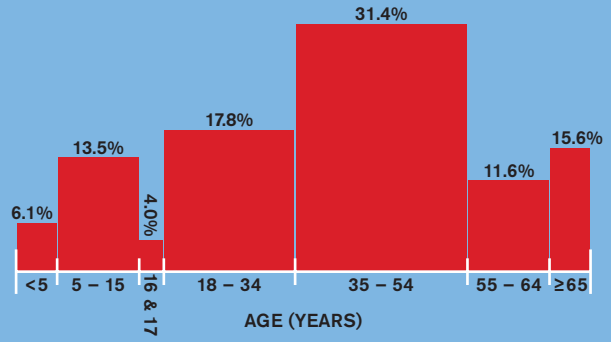
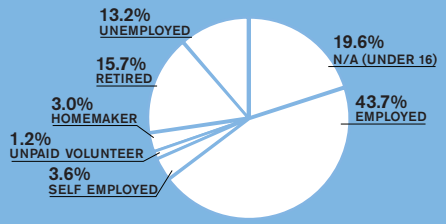


What is the gender profile?

50.3% FEMALE

49.7% MALE

What is the distribution of employment status?



What is the distribution of driver's license status?

19.6%
NOT APPLICABLE (AGE LESS THAN 16)

69.4%
HAVE A DRIVER'S LICENSE

11.1%
NO DRIVER'S LICENSE

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CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CT Household Transportation Study

Greater Bridgeport Valley MPO Statistics

Key Travel Characteristics

How many trips do CT Residents make on an average weekday?

Total individual trips made is about 1.3 million. These are made by nearly 0.4 million CT residents residing in 0.1 million households.

1.3M

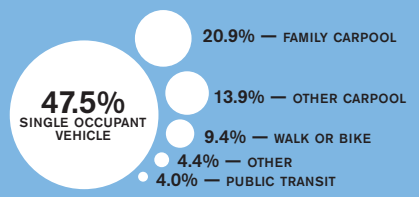
0.4M

0.1M

9.13
AVERAGE NUMBER OF TRIPS MADE DAILY BY A HOUSEHOLD

3.51
AVERAGE NUMBER OF TRIPS MADE DAILY BY A PERSON

How do they travel?

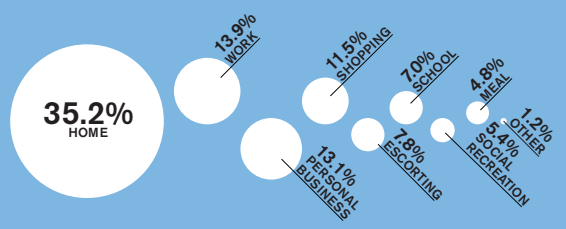


How long do they travel for?

24.5 MINS
AVERAGE REPORTED GENERAL TRAVEL DURATION

33.8 MINS
AVERAGE REPORTED WORK TRAVEL DURATION

Why do they travel?



Key Household Characteristics

What is the composition of households?

2.60
AVERAGE NUMBER OF PERSONS

1.21
AVERAGE NUMBER OF WORKERS

0.63
AVERAGE NUMBER OF CHILDREN

What is the profile of vehicle ownership?

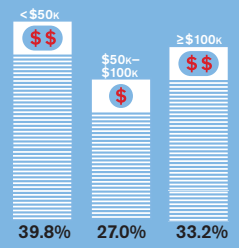
10.7%
0 VEHICLE HOUSEHOLDS

33.2%
1 VEHICLE HOUSEHOLDS

36.1%
2 VEHICLE HOUSEHOLDS

20.0%
3+ VEHICLE HOUSEHOLDS

What is the distribution of household income?



What are the different housing types?

SINGLE FAMILY HOUSE **59.5%**

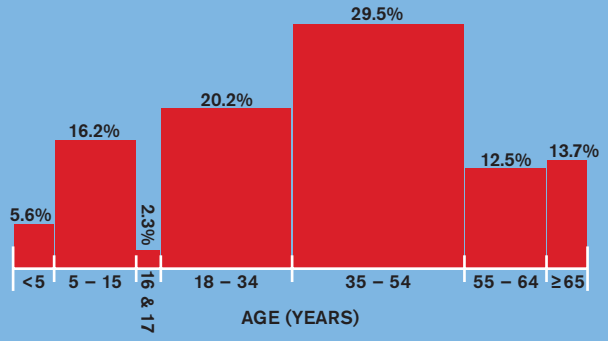
DUPLEX OR TOWNHOUSE **8.0%**

MULTI-FAMILY HOUSE **10.2%**

OTHER HOUSING **22.3%**

Key Person Characteristics

What is the age distribution of residents?

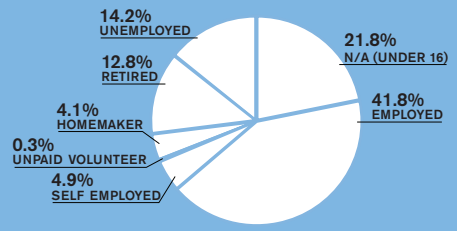


What is the gender profile?

53.9% FEMALE

46.1% MALE

What is the distribution of employment status?



What is the distribution of driver's license status?

21.8%
NOT APPLICABLE (AGE LESS THAN 16)

67.3%
HAVE A DRIVER'S LICENSE

10.9%
NO DRIVER'S LICENSE

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CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CT Household Transportation Study

Valley Towns Statistics

Key Travel Characteristics

How many trips do CT Residents make on an average weekday?

Total individual trips made is about 0.3 million. These are made by nearly 0.1 million CT residents residing in 0.03 million households.

0.3M

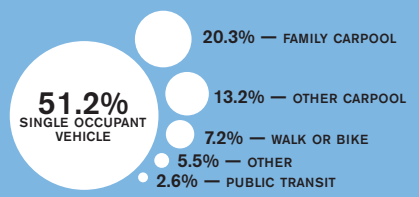
0.1M

0.03M

9.06
AVERAGE NUMBER OF TRIPS MADE DAILY BY A HOUSEHOLD

3.65
AVERAGE NUMBER OF TRIPS MADE DAILY BY A PERSON

How do they travel?

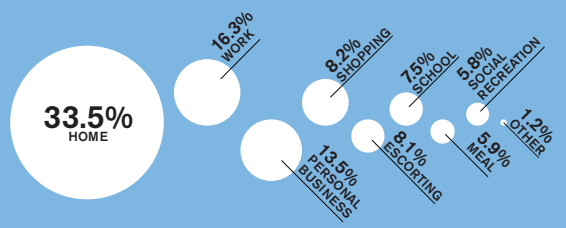


How long do they travel for?

21.7 MINS
AVERAGE REPORTED GENERAL TRAVEL DURATION

29.7 MINS
AVERAGE REPORTED WORK TRAVEL DURATION

Why do they travel?



Key Household Characteristics

What is the composition of households?

2.49
AVERAGE NUMBER OF PERSONS

1.24
AVERAGE NUMBER OF WORKERS

0.59
AVERAGE NUMBER OF CHILDREN

What is the profile of vehicle ownership?

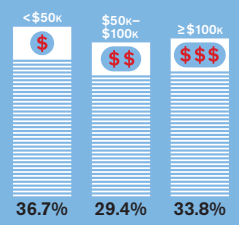
7.4%
0 VEHICLE HOUSEHOLDS

31.2%
1 VEHICLE HOUSEHOLDS

37.5%
2 VEHICLE HOUSEHOLDS

23.9%
3+ VEHICLE HOUSEHOLDS

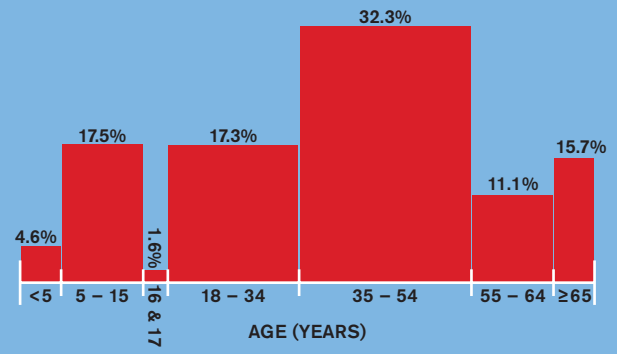
What is the distribution of household income?



What are the different housing types?

Key Person Characteristics

What is the age distribution of residents?

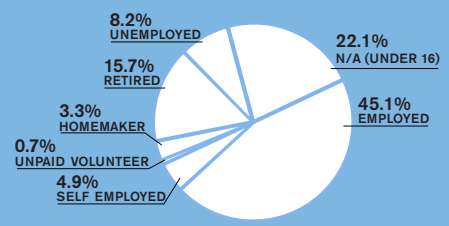


What is the gender profile?

49.1% FEMALE

50.9% MALE

What is the distribution of employment status?



What is the distribution of driver's license status?

22.1%
NOT APPLICABLE (AGE LESS THAN 16)

73.3%
HAVE A DRIVER'S LICENSE

4.6%
NO DRIVER'S LICENSE

What is the Connecticut Statewide Transportation Study?

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Please visit:
ct.gov/dot/cwp/view.asp?a =1383&Q=586922
for more information.

CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CT Household Transportation Study

CT Metropolitan COG Statistics

Key Travel Characteristics

How many trips do CT Residents make on an average weekday?

Total individual trips made is about 1.0 million. These are made by nearly 0.3 million CT residents residing in 0.1 million households.

1.0M

0.3M

0.1M

9.15
AVERAGE NUMBER OF TRIPS MADE DAILY BY A HOUSEHOLD

3.47
AVERAGE NUMBER OF TRIPS MADE DAILY BY A PERSON

How do they travel?

46.4% SINGLE OCCUPANT VEHICLE

- 21.1% — FAMILY CARPOOL
- 14.1% — OTHER CARPOOL
- 10.0% — WALK OR BIKE
- 4.4% — PUBLIC TRANSIT
- 4.1% — OTHER

How long do they travel for?

25.3 MINS
AVERAGE REPORTED GENERAL TRAVEL DURATION

35.3 MINS
AVERAGE REPORTED WORK TRAVEL DURATION

Why do they travel?

35.7% HOME

- 13.2% WORK
- 13.0% PERSONAL BUSINESS
- 12.5% SHOPPING
- 7.7% ESCORTING
- 6.9% SCHOOL
- 5.3% SOCIAL RECREATION
- 4.5% MEAL
- 1.2% OTHER

Key Household Characteristics

What is the composition of households?

2.63
AVERAGE NUMBER OF PERSONS

1.20
AVERAGE NUMBER OF WORKERS

0.64
AVERAGE NUMBER OF CHILDREN

What is the profile of vehicle ownership?

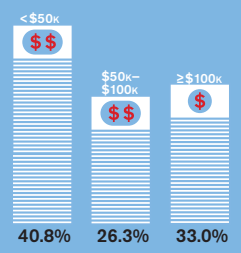
11.7%
0 VEHICLE HOUSEHOLDS

33.8%
1 VEHICLE HOUSEHOLDS

35.7%
2 VEHICLE HOUSEHOLDS

18.9%
3+ VEHICLE HOUSEHOLDS

What is the distribution of household income?

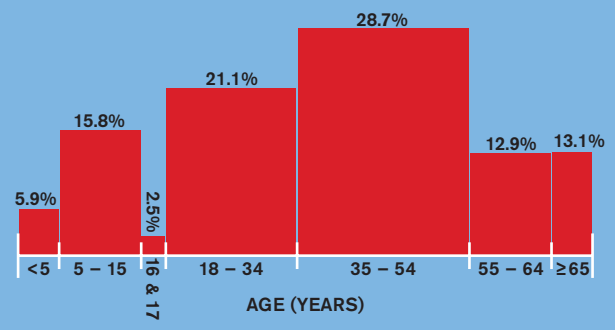


What are the different housing types?

SINGLE FAMILY HOUSE	58.6%
DUPLEX OR TOWNHOUSE	7.7%
MULTI-FAMILY HOUSE	10.6%
OTHER HOUSING	23.0%

Key Person Characteristics

What is the age distribution of residents?

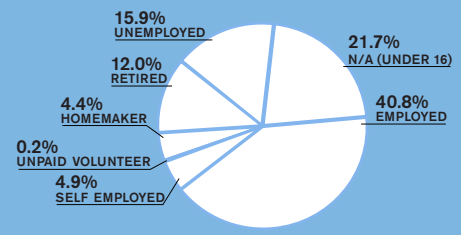


What is the gender profile?

55.2% FEMALE

44.8% MALE

What is the distribution of employment status?



What is the distribution of driver's license status?

21.7%
NOT APPLICABLE (AGE LESS THAN 16)

65.6%
HAVE A DRIVER'S LICENSE

12.7%
NO DRIVER'S LICENSE

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CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CT Household Transportation Study

South Central CT Regional COG/MPO Statistics

Key Travel Characteristics

How many trips do CT Residents make on an average weekday?

Total individual trips made is about 1.8 million. These are made by nearly 0.5 million CT residents residing in 0.2 million households.

1.8M

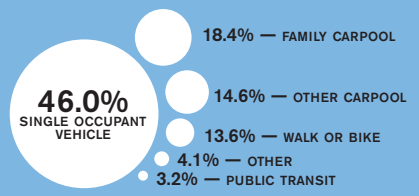
0.5M

0.2M

8.14
AVERAGE NUMBER OF TRIPS MADE DAILY BY A HOUSEHOLD

3.39
AVERAGE NUMBER OF TRIPS MADE DAILY BY A PERSON

How do they travel?

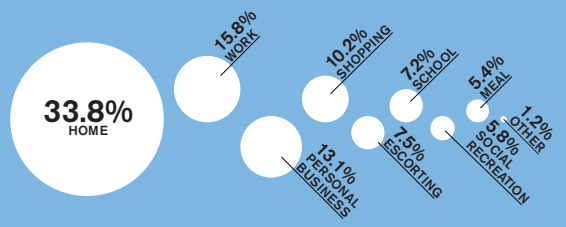


How long do they travel for?

21.3 MINS
AVERAGE REPORTED GENERAL TRAVEL DURATION

24.8 MINS
AVERAGE REPORTED WORK TRAVEL DURATION

Why do they travel?



Key Household Characteristics

What is the composition of households?

2.40
AVERAGE NUMBER OF PERSONS

1.18
AVERAGE NUMBER OF WORKERS

0.47
AVERAGE NUMBER OF CHILDREN

What is the profile of vehicle ownership?

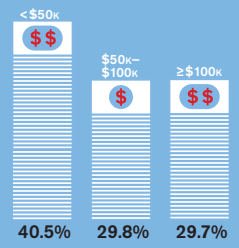
11.6%
0 VEHICLE HOUSEHOLDS

35.4%
1 VEHICLE HOUSEHOLDS

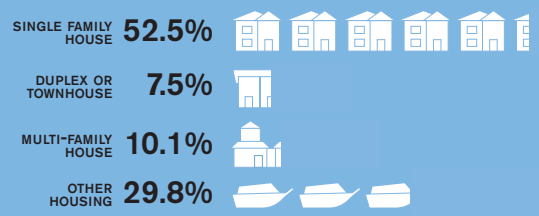
36.0%
2 VEHICLE HOUSEHOLDS

17.1%
3+ VEHICLE HOUSEHOLDS

What is the distribution of household income?

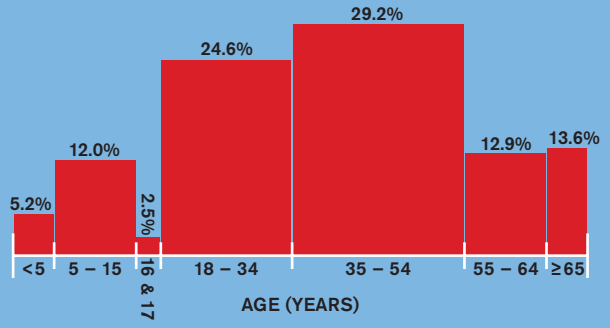


What are the different housing types?



Key Person Characteristics

What is the age distribution of residents?

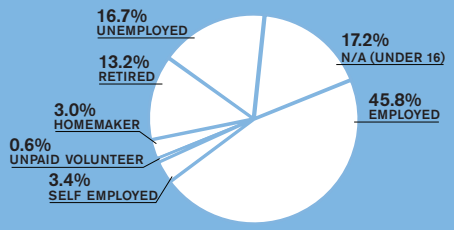


What is the gender profile?

53.1% FEMALE

46.9% MALE

What is the distribution of employment status?



What is the distribution of driver's license status?

17.2%
NOT APPLICABLE (AGE LESS THAN 16)

70.5%
HAVE A DRIVER'S LICENSE

12.3%
NO DRIVER'S LICENSE

What is the Connecticut Statewide Transportation Study?

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CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CT Household Transportation Study

Capitol Region COG/MPO Statistics

Key Travel Characteristics

How many trips do CT Residents make on an average weekday?

Total individual trips made is about 3.2 million. These are made by nearly 0.9 million CT residents residing in 0.4 million households.

3.2M

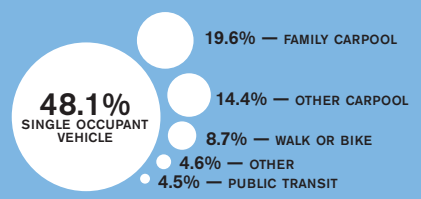
0.9M

0.4M

8.62
AVERAGE NUMBER OF TRIPS MADE DAILY BY A HOUSEHOLD

3.52
AVERAGE NUMBER OF TRIPS MADE DAILY BY A PERSON

How do they travel?

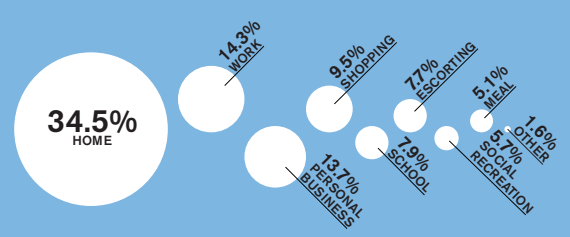


How long do they travel for?

22.6 MINS
AVERAGE REPORTED GENERAL TRAVEL DURATION

28.5 MINS
AVERAGE REPORTED WORK TRAVEL DURATION

Why do they travel?



Key Household Characteristics

What is the composition of households?

2.45
AVERAGE NUMBER OF PERSONS

1.20
AVERAGE NUMBER OF WORKERS

0.52
AVERAGE NUMBER OF CHILDREN

What is the profile of vehicle ownership?

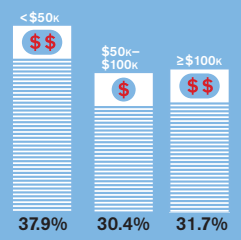
10.1%
0 VEHICLE HOUSEHOLDS

33.4%
1 VEHICLE HOUSEHOLDS

37.9%
2 VEHICLE HOUSEHOLDS

18.6%
3+ VEHICLE HOUSEHOLDS

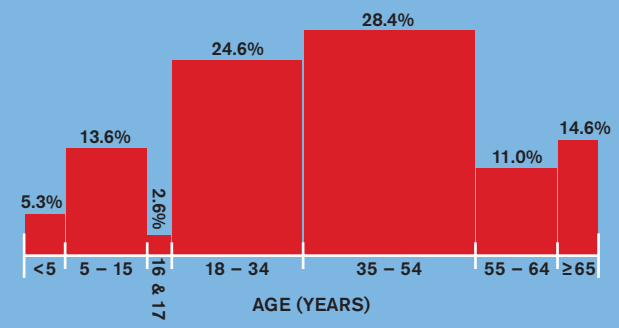
What is the distribution of household income?



What are the different housing types?

Key Person Characteristics

What is the age distribution of residents?

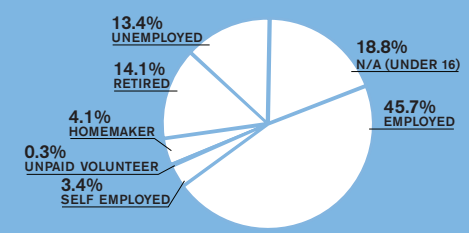


What is the gender profile?

53.2% FEMALE

46.8% MALE

What is the distribution of employment status?



What is the distribution of driver's license status?

18.8%
NOT APPLICABLE (AGE LESS THAN 16)

69.1%
HAVE A DRIVER'S LICENSE

12.1%
NO DRIVER'S LICENSE

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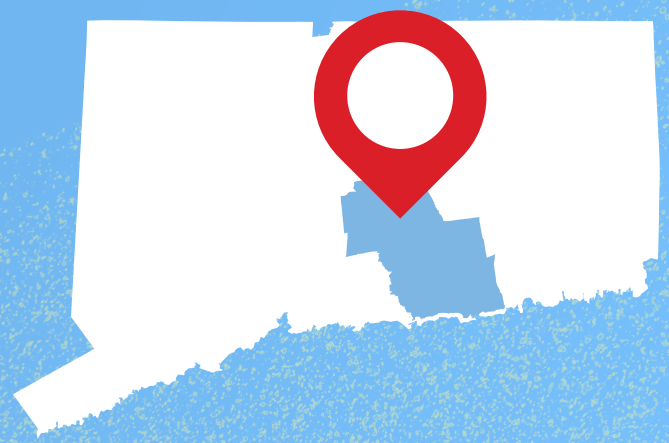
CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CT Household Transportation Study

Lower CT River Valley COG/MPO Statistics



Key Travel Characteristics

How many trips do CT Residents make on an average weekday?

Total individual trips made is about 0.6 million. These are made by nearly 0.2 million CT residents residing in 0.1 million households.

0.6M

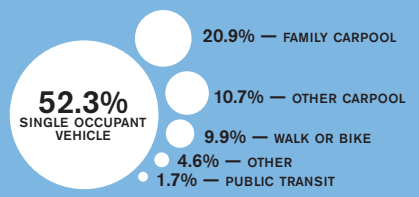
0.2M

0.1M

8.77
AVERAGE NUMBER OF TRIPS MADE DAILY BY A HOUSEHOLD

3.70
AVERAGE NUMBER OF TRIPS MADE DAILY BY A PERSON

How do they travel?

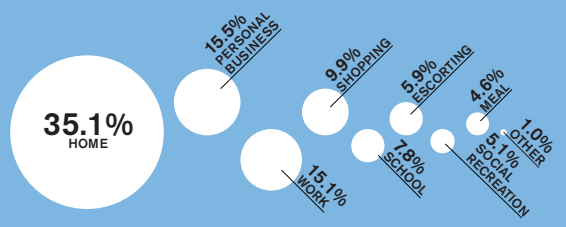


How long do they travel for?

22.0 MINS
AVERAGE REPORTED GENERAL TRAVEL DURATION

29.8 MINS
AVERAGE REPORTED WORK TRAVEL DURATION

Why do they travel?



Key Household Characteristics

What is the composition of households?

2.37
AVERAGE NUMBER OF PERSONS

1.24
AVERAGE NUMBER OF WORKERS

0.50
AVERAGE NUMBER OF CHILDREN

What is the profile of vehicle ownership?

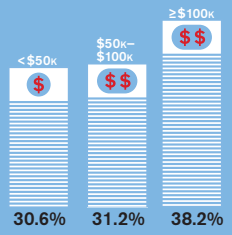
4.6%
0 VEHICLE HOUSEHOLDS

29.4%
1 VEHICLE HOUSEHOLDS

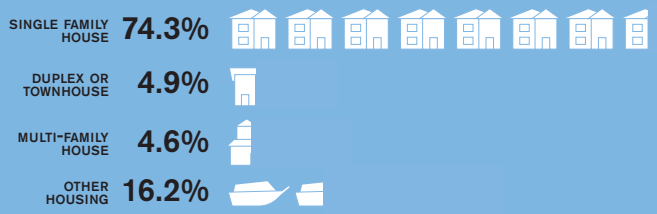
41.4%
2 VEHICLE HOUSEHOLDS

24.6%
3+ VEHICLE HOUSEHOLDS

What is the distribution of household income?



What are the different housing types?



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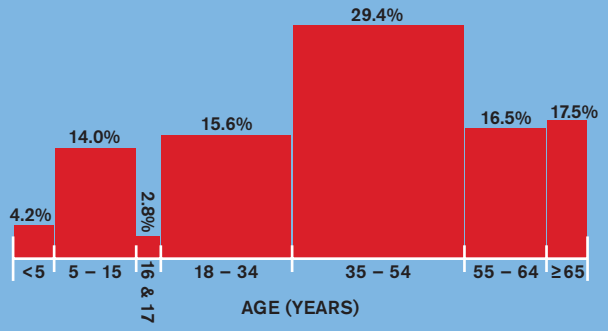
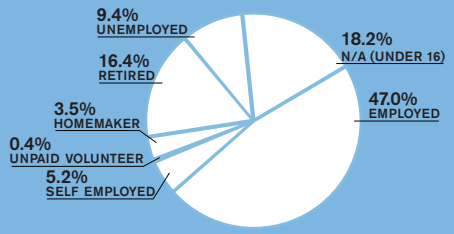


What is the gender profile?

52.0% FEMALE

48.0% MALE

What is the distribution of employment status?



What is the distribution of driver's license status?

18.2%
NOT APPLICABLE (AGE LESS THAN 16)

76.0%
HAVE A DRIVER'S LICENSE

5.8%
NO DRIVER'S LICENSE

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CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CT Household Transportation Study

Southeastern CT COG/MPO Statistics

Key Travel Characteristics

How many trips do CT Residents make on an average weekday?

Total individual trips made is about 1.0 million. These are made by nearly 0.3 million CT residents residing in 0.1 million households.

1.0M

0.3M

0.1M

9.19
AVERAGE NUMBER OF TRIPS MADE DAILY BY A HOUSEHOLD

3.79
AVERAGE NUMBER OF TRIPS MADE DAILY BY A PERSON

How do they travel?

46.2% SINGLE OCCUPANT VEHICLE

- 21.2% — FAMILY CARPOOL
- 17.8% — OTHER CARPOOL
- 7.9% — WALK OR BIKE
- 5.4% — OTHER
- 1.4% — PUBLIC TRANSIT

How long do they travel for?

22.5 MINS
AVERAGE REPORTED GENERAL TRAVEL DURATION

31.3 MINS
AVERAGE REPORTED WORK TRAVEL DURATION

Why do they travel?

32.2% HOME

- 15.0% WORK
- 14.8% PERSONAL BUSINESS
- 12.1% SHOPPING
- 6.9% SCHOOL
- 6.3% ESCORTING
- 5.9% MEAL
- 5.0% SOCIAL RECREATION
- 1.8% OTHER

Key Household Characteristics

What is the composition of households?

2.42
AVERAGE NUMBER OF PERSONS

1.20
AVERAGE NUMBER OF WORKERS

0.49
AVERAGE NUMBER OF CHILDREN

What is the profile of vehicle ownership?

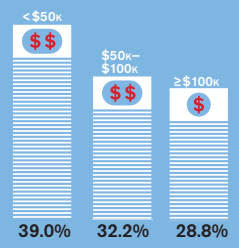
8.1%
0 VEHICLE HOUSEHOLDS

32.9%
1 VEHICLE HOUSEHOLDS

38.0%
2 VEHICLE HOUSEHOLDS

21.0%
3+ VEHICLE HOUSEHOLDS

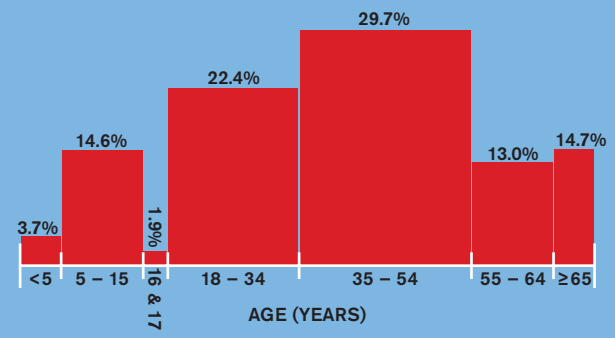
What is the distribution of household income?



What are the different housing types?

Key Person Characteristics

What is the age distribution of residents?

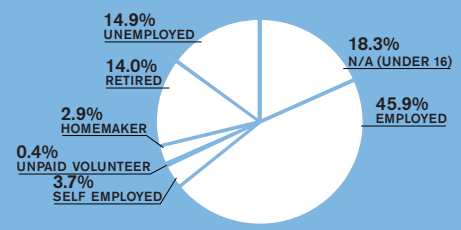


What is the gender profile?

51.6% FEMALE

48.4% MALE

What is the distribution of employment status?



What is the distribution of driver's license status?

18.3%
NOT APPLICABLE (AGE LESS THAN 16)

70.4%
HAVE A DRIVER'S LICENSE

11.3%
NO DRIVER'S LICENSE

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How can I learn more about the study?

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ct.gov/dot/cwp/view.asp?a =1383&Q=586922
for more information.

CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CT Household Transportation Study

Northeastern CT COG Statistics

Key Travel Characteristics

How many trips do CT Residents make on an average weekday?

Total individual trips made is about 0.3 million. These are made by nearly 0.1 million CT residents residing in 0.04 million households.

0.3M

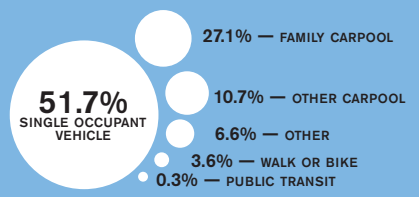
0.1M

0.04M

8.41
AVERAGE NUMBER OF TRIPS MADE DAILY BY A HOUSEHOLD

3.36
AVERAGE NUMBER OF TRIPS MADE DAILY BY A PERSON

How do they travel?

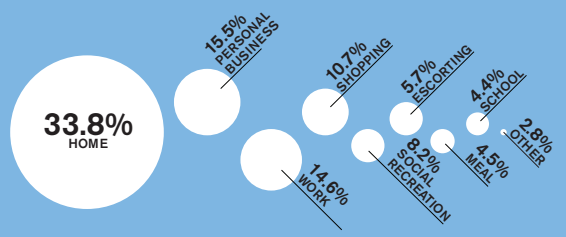


How long do they travel for?

22.8 MINS
AVERAGE REPORTED GENERAL TRAVEL DURATION

27.9 MINS
AVERAGE REPORTED WORK TRAVEL DURATION

Why do they travel?



Key Household Characteristics

What is the composition of households?

2.50
AVERAGE NUMBER OF PERSONS

1.26
AVERAGE NUMBER OF WORKERS

0.55
AVERAGE NUMBER OF CHILDREN

What is the profile of vehicle ownership?

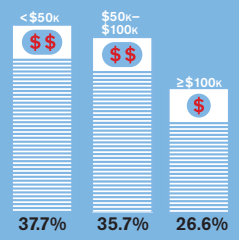
5.4%
0 VEHICLE HOUSEHOLDS

29.2%
1 VEHICLE HOUSEHOLDS

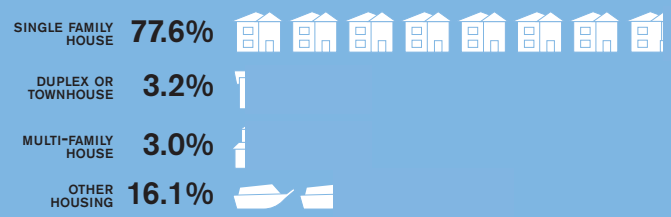
39.2%
2 VEHICLE HOUSEHOLDS

26.3%
3+ VEHICLE HOUSEHOLDS

What is the distribution of household income?

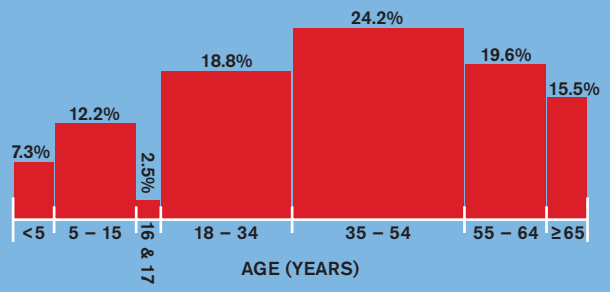


What are the different housing types?



Key Person Characteristics

What is the age distribution of residents?

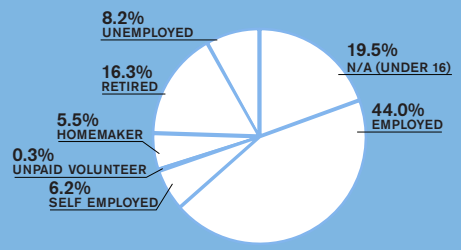


What is the gender profile?

51.8% FEMALE

48.2% MALE

What is the distribution of employment status?



What is the distribution of driver's license status?

19.5%
NOT APPLICABLE (AGE LESS THAN 16)

73.1%
HAVE A DRIVER'S LICENSE

7.4%
NO DRIVER'S LICENSE

What is the Connecticut Statewide Transportation Study?

The study collected information on average daily travel behavior of representative group of residents in the state of Connecticut including how they travel, where they go, why they travel, and how long it takes. Additionally, the study collected household and person level demographic information.

How are the statistics compiled?

The statistics were generated using travel survey data from the 2016 Connecticut Statewide Transportation Study. All statistics reported are based on weighting analysis to match characteristics of CT residents from the 2009-2013 American Community Survey.

What else should I know about the statistics reported?

Where appropriate, imputed, or logically estimated, values are utilized to supplement the collected data from the survey. As with any survey, the statistics are subject to error and bias.

How can I learn more about the study?

Please visit:
ct.gov/dot/cwp/view.asp?a =1383&Q=586922
for more information.

CONNECTICUT STATEWIDE
TRANSPORTATION STUDY

CT Household Transportation Study

Statewide Statistics

Key Travel Characteristics

How many trips do CT Residents make on an average weekday?

Total individual trips made is about 11.8 million. These are made by nearly 3.4 million CT residents residing in 1.4 million households.

11.8M

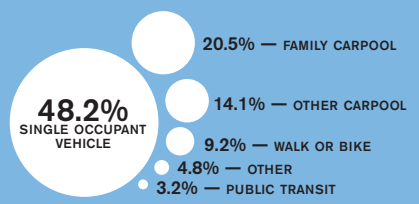
3.4M

1.4M

8.68
AVERAGE NUMBER OF TRIPS MADE DAILY BY A HOUSEHOLD

3.51
AVERAGE NUMBER OF TRIPS MADE DAILY BY A PERSON

How do they travel?



How long do they travel for?

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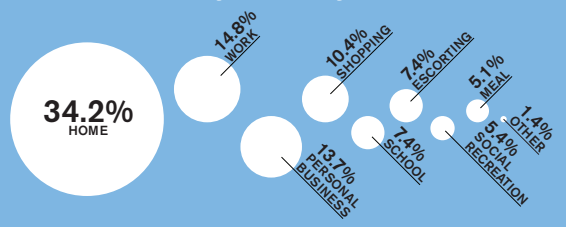
AVERAGE REPORTED GENERAL TRAVEL DURATION

29.7 MINS
AVERAGE REPORTED WORK TRAVEL DURATION

Why do they travel?



Key Household Characteristics

What is the composition of households?

2.47
AVERAGE NUMBER OF PERSONS

1.21
AVERAGE NUMBER OF WORKERS

0.54
AVERAGE NUMBER OF CHILDREN

What is the profile of vehicle ownership?

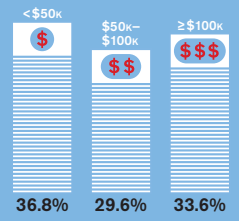
9.0%
0 VEHICLE HOUSEHOLDS

32.6%
1 VEHICLE HOUSEHOLDS

38.2%
2 VEHICLE HOUSEHOLDS

20.2%
3+ VEHICLE HOUSEHOLDS

What is the distribution of household income?



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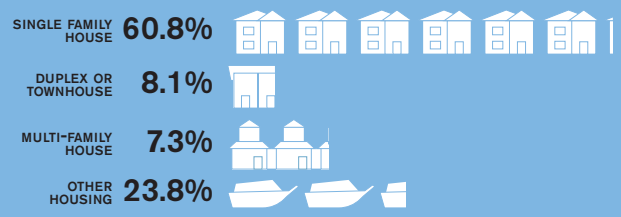
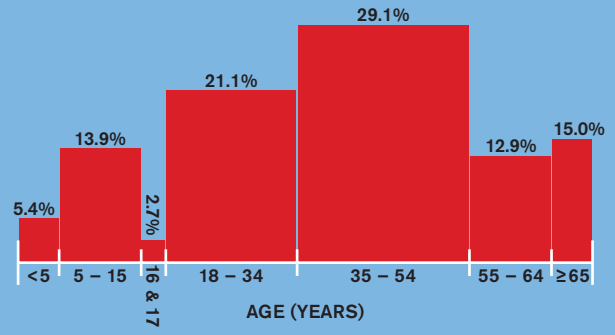


Key Person Characteristics

What is the age distribution of residents?

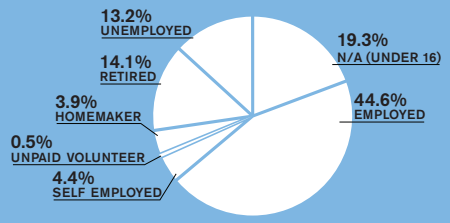


What is the gender profile?

52.4% FEMALE

47.6% MALE

What is the distribution of employment status?



What is the distribution of driver's license status?

19.3%
NOT APPLICABLE (AGE LESS THAN 16)

70.2%
HAVE A DRIVER'S LICENSE

10.6%
NO DRIVER'S LICENSE