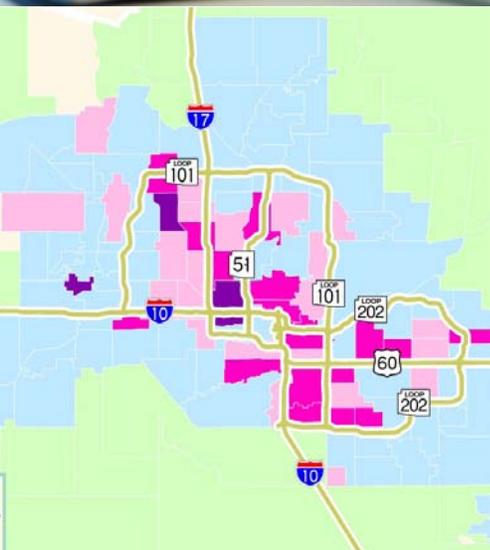


Analysis of Add-on 2008 National Household Travel Survey (NHTS) Dataset (Version 2) for MAG Region



JANUARY 2012



**MARICOPA
ASSOCIATION of
GOVERNMENTS**

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Commonly Used Acronyms

| Acronym | Meaning |
|----------------|--|
| ARC | Atlanta Regional Commission |
| ASCII | American Standard Code for Information Interchange |
| BTS | Bureau of Transportation Statistics |
| CATI | Computer Aided Telephone Interview |
| CPS | Current Population Survey |
| CTPP | Census Transportation Planning Product |
| DBF | Database File |
| DOT | Department of Transportation |
| FHWA | Federal Highway Administration |
| MAG | Maricopa Association of Governments |
| MTC | Metropolitan Transportation Commission |
| MSA | Metropolitan Statistical Area |
| MSG | Marketing Systems Group |
| NHTS | National Household Travel Survey |
| NHTSA | National Highway Traffic Safety Administration |
| PAG | Pima Association of Governments |
| QA | Quality Assurance |
| QC | Quality Control |
| RDD | Random Digit Dialing |
| SANDAG | San Diego Association of Governments |
| SAS® | Statistical Analysis System |
| USDOT | United States Department of Transportation |
| VMT | Vehicle Miles Traveled |
| WESTAT | WESTAT Research Company |

Abstract

The National Household Travel Survey (NHTS) 2008-2009 sample included 4707 households for the MAG region (consisting of samples from National Survey and Add-on Survey). The survey has data on households, persons, vehicles and trips by all modes of transportation. Most of the data for MAG region was collected in the Fall of 2008. MAG has received data in early 2010 and is using it for Travel Forecasting model's recalibration, estimation and validation.

MAG conducted extensive analysis for the purposes of analyzing data applicability for estimation of MAG activity-based model and trip based four step modeling procedures maintained by MAG. Main direction of the performed analyses included:

- Analysis of the geo-coding results and quality control checks for reasonableness and consistency.
- Analysis of spatial and temporal data consistency on both tour and trip levels.
- Analysis of value ranges and distributional characteristics of the data values.
- Cross tabulations and multi-field comparisons.
- Comparisons and trend analysis with 2001 MAG household survey, other regional surveys, census data, ACS and CTPP data.
- Imputation of school and work locations where applicable.
- Other tasks as were required for the purposes of data application.

Some of the identified deficiencies included insufficient representation of transit users, certain biases in the raw data sample in terms of special data distribution. Overall, the performed analysis demonstrated general applicability of the survey data for analytical purposes as well as for the purposes of models estimation, calibration and validation. The applicability of dataset for various modeling applications was analyzed and relevant issues were investigated.



1. Introduction to National Household Travel Survey

1.1 A Brief History of NHTS

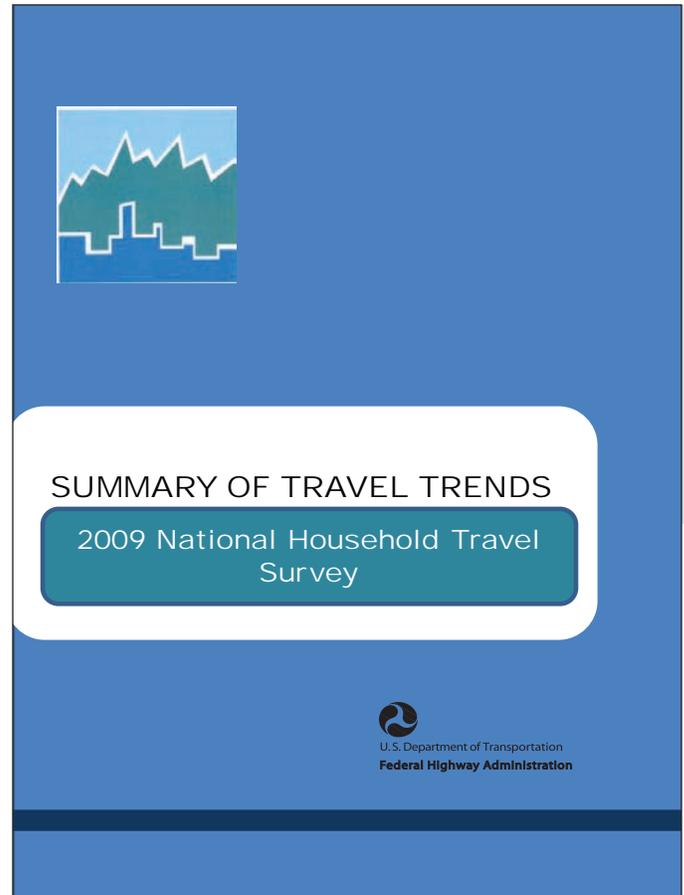
The National Household Travel Survey (NHTS) has been periodically conducted in United States since 1969. The 1969, 1977 and 1983 surveys were sampled from the Current Population Survey (CPS) by the US Census Bureau. Over the course of time, the survey has evolved with increasing household participation, embraced new technologies, and matched transportation policy, improved on data quality and its utility despite limited funding. The 1990 US NHTS for example, engaged a list assisted Random Digit Dialing (RDD) sample frame and a computer-assisted telephone interview (CATI), a potential improvement in conducting large scale surveys [1, 2, 3].

The user base has grown significantly, which includes local transportation agencies. The US NHTS Add-On Program allows states and metropolitan areas to purchase additional samples for local planning and policy applications. The program was started in 1990, and has doubled in size each year. In 2008, 19 States and metropolitan areas have purchased over 130,000 NHTS samples. With the national sample, the total sample size for the 2008 US NHTS is close to 150,000 households.

1.2 Evolution of NHTS

For any household travel survey, poor household participation rates have been a continuing problem for reasons like privacy concerns, survey length, barriers to telephone contact (like caller-ID), etc. Since the need to capture travel behavior continues to be a motivation for NHTS, participation rates have been improving despite changes in demographics and new trends in travel behavior (Nationwide VMT has declined during recession, for example). Hence NHTS has had to methodologically evolve to improve response rates [1, 2, 3]. When NHTS was conducted in 2008, some of the improvements that were made to improve response rates were: in expanding the recall window (up to 7 days), and reducing the interview burden by streamlining the questionnaire.

A challenge with any household travel survey is the survey non-response. Non-response is a concern because some demographic groups may not be analyzed with the same confidence as others, thus introducing a potential bias in the survey results. The NHTS is particularly susceptible to error associated with non-response for several reasons including initial household contact by telephone, household respondents being required to maintain a travel diary prior to the extended interviews, head of household filling in information for other household members, etc.



Unit (household) non-response in the US NHTS, according to literature available, was attributed to:

- a. Number of drivers.
- b. Number of vehicles.
- c. Region of the country.
- d. Density of population.

Recent research funded by US DOT indicates that the populations that are less likely to respond to a travel survey may travel less than responders. Response rates are important because they may indicate a bias in non-response. New technologies like the use of GPS (to record trips among survey participants) can dramatically reduce the loss of what might typically be unreported trips, but these technologies also have their own limitations and they don't address the initial bias due to low response rates in general for some segments of the population. In 2001, the NHTS program has attempted to compensate for non-response by raising the number of initial call attempts from nine to fifteen. This increase in contact attempts has helped to determine whether the number is a household or not. To improve response rates during the 2008 survey, cell phone test samples were also included.

1.2.1 Non-Response Weighting and Adjustment with NHTS

NHTS program has incorporated improvements to non-response research and data collection. The NHTS program evolved with a better understanding, quantifying, and adjusting the data to account for non-response bias. Earlier versions of NHTS attempted to address non-response (which is an evolving process) focusing on minor population based adjustments during weighting and expansion process (The various steps involved in weighting process are discussed in Chapter 3 of this report).

Historically, the weights were based upon US Census Bureau’s Current Population Survey (CPS) estimates. Until the 1990 survey, weighting was performed only at the household level. From 1995 survey onwards, weights were developed at household level, person level, and vehicle level and at trips level. It should however be noted that CPS estimates include people in nursing homes, dormitories, military bases and other group quarters which are actually excluded from household travel surveys. A correction factor was later developed and applied to the control totals, prior to developing weights.

1.3 2008-2009 NHTS for Arizona

The 2008-2009 NHTS was conducted at a national level and in twenty specific areas (referred to as add-on areas), as shown in *Table 1-1*. The survey was conducted from April 2008 through May 2009. *Table 1-2* and *Figure 1-1* represent the number of surveys within the MAG region completed by month within the timeframe mentioned above.

| Study Area | Sample Size* |
|--------------------|----------------|
| National Study | 26,250 |
| Tucson, AZ | 2,285 |
| Phoenix, AZ | 4,286 |
| California | 18,000 |
| Florida | 14,000 |
| Georgia | 7,000 |
| Iowa | 2,000 |
| Cedar Rapids, IA | 1,200 |
| Indiana | 2,857 |
| North Carolina | 5,000 |
| Piedmont Region-NC | 5,000 |
| Omaha, NE | 1,200 |
| New York | 14,102 |
| South Carolina | 4,500 |
| South Dakota | 1,500 |
| Tennessee | 2,000 |
| Virginia | 14,342 |
| Vermont | 1,500 |
| Wisconsin | 1,200 |
| Texas | 20,000 |
| Total | 148,222 |

Table 1-1 2008-2009 NHTS Sample Size

* These are households for which at least half of the adult household members complete the interview. The actual collected sample size might be different than the value in this table.

Source: 2009 NHTS Users Guide Version 1

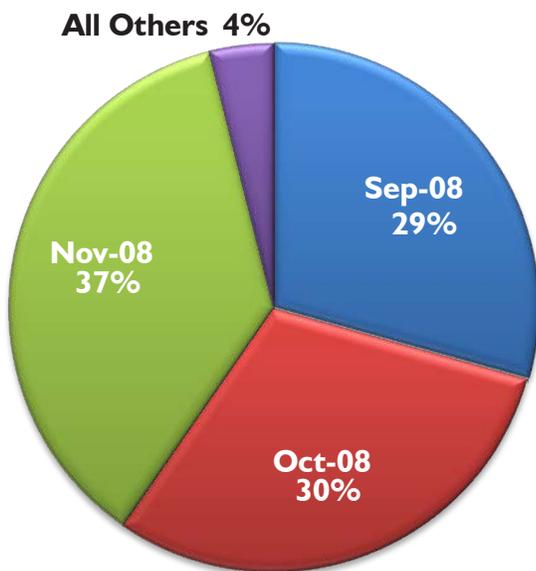


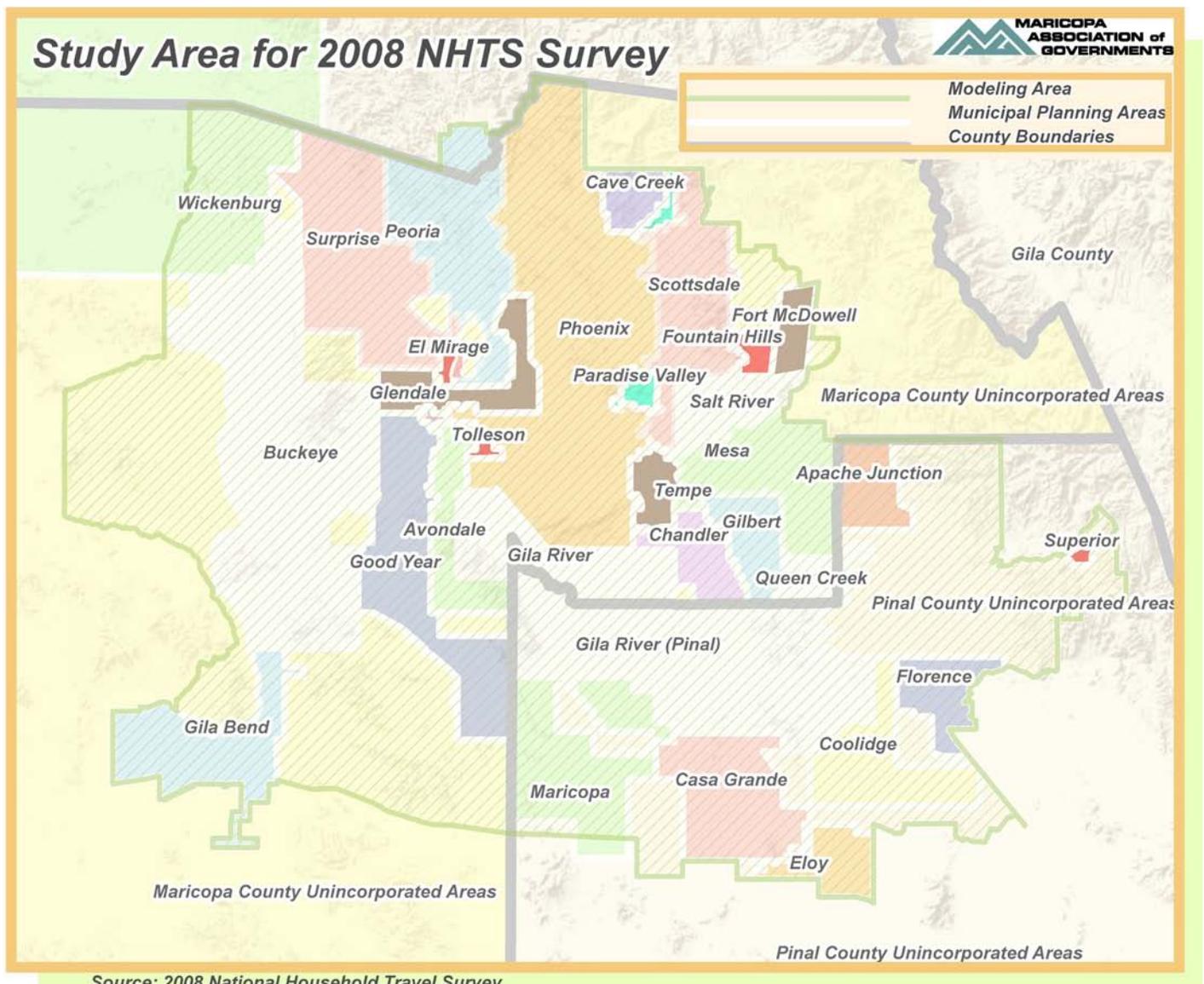
Figure 1-1 Chart of NHTS (2008-2009) Surveyed Trips Completed by Month

| Number of Surveyed Trips Completed by Month | |
|---|---------------|
| Mar-08 | 4 |
| Apr-08 | 54 |
| May-08 | 175 |
| Jun-08 | 192 |
| Jul-08 | 147 |
| Aug-08 | 139 |
| Sep-08 | 11,236 |
| Oct-08 | 11,585 |
| Nov-08 | 13,976 |
| Dec-08 | 382 |
| Jan-09 | 77 |
| Feb-09 | 70 |
| Mar-09 | 242 |
| Apr-09 | 20 |
| Total | 38,299 |

Table 1-2 NHTS (2008-2009) Surveyed Trips Completed by Month for MAG Area

As indicated in *Table 1-2*, about 96 percent of surveys were conducted in the Fall 2008 as per the MAG request for the temporal composition of NHTS sample. The study area for Phoenix, or the MAG region is shown in *Map 1-1*. The survey was expected to capture the travel trend

and variations among various socio-economic and ethnic groups. A detailed description of survey instrument, methodology, data analysis results and observations are presented in subsequent chapters of this report.



Map I-1 Study Area for 2008-2009 NHTS

2. Survey Methodology

The NHTS was conducted at the national level and in twenty specific study areas (add-on areas), including Phoenix and Tucson, Arizona. The main phases of data collection include the following:

- Sample Design.
- Advance Notification.
- Recruitment.
- Travel Data Retrieval.
- Data Processing.
- Geocoding.

2.1 Sample Design and Performance

A dual frame “list-assisted” random digit dialing (RDD) sample design was used to select respondents (having landlines) for the national study [1]. Cell-phone only households were not covered in the add-on sample, but were part of the national sample. Data from this group of households was not incorporated into final NHTS dataset [12]. The Phoenix sample includes Maricopa and Pinal Counties in Arizona. According to WESTAT, a consultant to FHWA, Marketing Systems Group (MSG) was the vendor used to select the sample [1, 3, 6, 10].

For the Phoenix add-on sample, an overwhelming majority of the surveys were conducted at MAG’s request during Fall 2008 during the period between Labor Day and Thanksgiving. The target sample size for Tucson area was 2,285 and for Phoenix, the number was 4,286. Nationally however, the data collection period ranged from April 2008 through May 2009. Each household was assigned a travel day, which could be any day of the week (including weekends). Travel diaries for the household were provided and respondents were instructed to record each trip made by eligible members from that household.

A household interview was considered complete, if 50 percent or more of the eligible adults (at least 18 years old), complete the interview. The NHTS team recruited all household members at least 5 years of age and attempted separate interviews for each (by proxy for the 5-15 year olds). In addition, one child from a household (aged from 5-15) received a special section of the interview about safe routes to school. The final count for useable households for the Phoenix region was 4,427, as the number of households that completed the survey was higher than the target number of 4,286. With the inclusion of national samples, the number of usable households was 4,707.

Under a list-assisted RDD approach, a sampling frame of 100-number banks was created from the known area codes in the specified target area. These numbers may or may not be listed in the local telephone directories.



To initiate a telephone interview, only listed telephone numbers were selected. A count of listed telephone numbers from the above 100-number bank was determined. From each 100-number bank, at least one phone number should have been listed, to be included in the sample frame. If a 100-number bank did not have any listed phone number, then it was discarded [3, 6].

For Phoenix’s RDD frame (including Maricopa and Pinal Counties), the number of 100-number banks was 38,966, which translated to 3,896,600 telephone numbers in frame. Out of these numbers, an estimated 1,553,578 numbers belonged to residential telephone households. From the sampling frame, telephone numbers were randomly drawn. The sampled telephone numbers were further processed to exclude non-working and business numbers. The remaining unpurged numbers were included into the Computer Aided Telephone Interview (CATI) system for initiating contact with households.

For the add-on study, the sampling frame was divided into explicit strata with designated targets. For each stratum—which could have been a county (or groups of counties), zip codes or census tracts, data sorting was made based upon the following:

- Metropolitan Statistical Area
- Household Income (Income categorized into four quartiles)
- Type of Location (Central City, Urban Fringe, Rural or Town)
- Percent Minorities (Black, Hispanic, and Native American)

Sampling frames were unique for each three-month period, allowing for a refreshing of the frame and adjustment of sampling rates as needed over the course of a full

12-month data collection period. The final quarter sample size was updated based upon response rates from previous quarters. For Arizona sites, sample size for each quarter was not the same; majority surveys sought to capture respondent travel behavior during Fall 2008. The NHTS Surveys completed by each month are as shown in *Table 2-1* and *Figure 2-1* respectively.

Number of Responses: As mentioned previously, the target sample size for Tucson area was 2,285 and for Phoenix, the number was 4,286. The number of retrievals for Tucson area was 2,361 and the corresponding number for Phoenix was 4,707.

| Number of Surveys Completed by Month | |
|--------------------------------------|--------------|
| Mar-08 | 1 |
| Apr-08 | 5 |
| May-08 | 17 |
| Jun-08 | 24 |
| Jul-08 | 22 |
| Aug-08 | 20 |
| Sep-08 | 1,396 |
| Oct-08 | 1,426 |
| Nov-08 | 1,709 |
| Dec-08 | 39 |
| Jan-09 | 6 |
| Feb-09 | 9 |
| Mar-09 | 28 |
| Apr-09 | 5 |
| Total | 4,707 |

Table 2-1 Number of Surveys Completed by Month

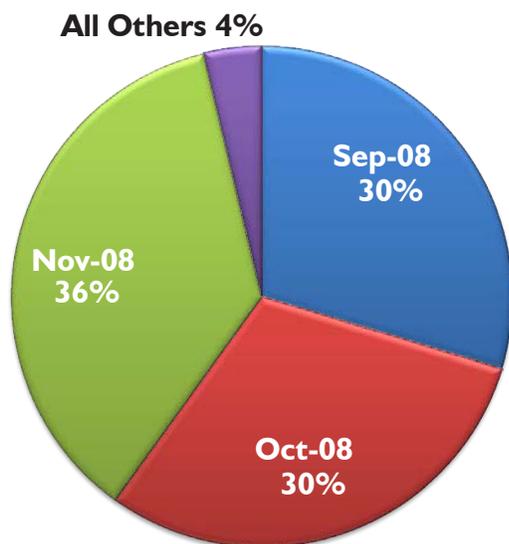
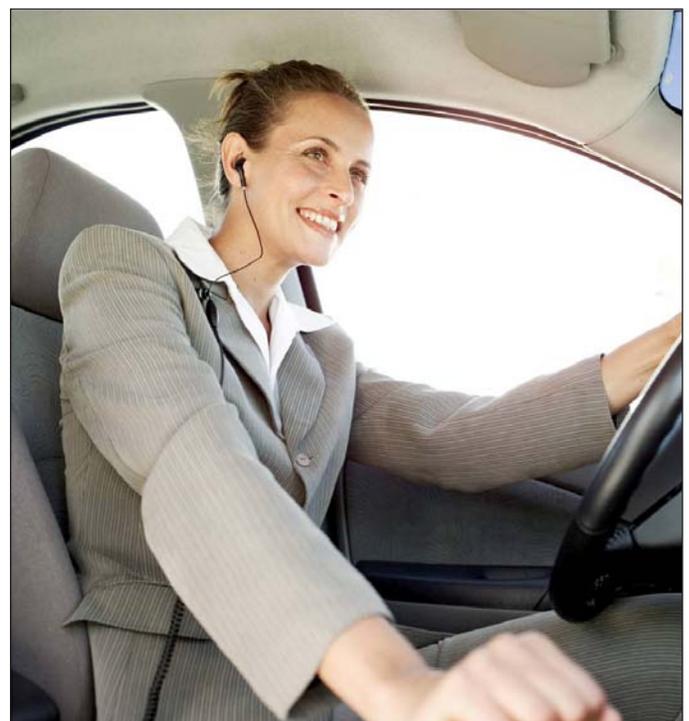


Figure 2-1 Number of Surveys Completed by Month

Household Response Rates: The response rate was the ratio between completed interviews and total eligible sample called on the telephone. The response rate was calculated for recruitment, then retrieval. The overall response rate was the product of retrieval rate and recruitment rate. The response rate for Phoenix sample was 23.3 percent, which was higher than the value for national sample-18.4 percent. The response rate for most of add-on samples was expected to be lower than the response rate for other surveys, because of the differences in methodology and the target population [8].

Identification of Non-Response Bias: Non-response bias in a survey dataset was because of non-participation of certain individuals from a study universe. Non-response adjustment was made prior to the release of the dataset (discussed in Chapter 3). However, to determine the extent of survey bias, a few variables from the NHTS dataset were compared to a few datasets, including the 2006-2008 American Community Survey (ACS), the 2000 Census Transportation Planning Product (CTPP) and the 2001 MAG Household Travel Survey. These comparisons attempted to identify if certain sub-groups of the population were selected/participated in the survey. There were a host of comparisons that were made, but only a few are mentioned in the following tables to identify areas of under-sampling (or non-response). The discussion below does not necessarily identify survey biases but rather points out to substantial discrepancies between different surveys. Comparison with 2010 Census data will be done to further analyze survey dataset biases.



Household Size: From *Figure 2-2* and *Table 2-2* (below), it is evident that the percentage of two-person households is lower than from other surveys (2000 Census, 2001 Household Travel Survey and 2008 ACS).

The percentage of one-person households and four-plus person households is comparable to 2008 ACS. The percentage of three-person households was almost the same as the other surveys.

Household Distributions by Household Size

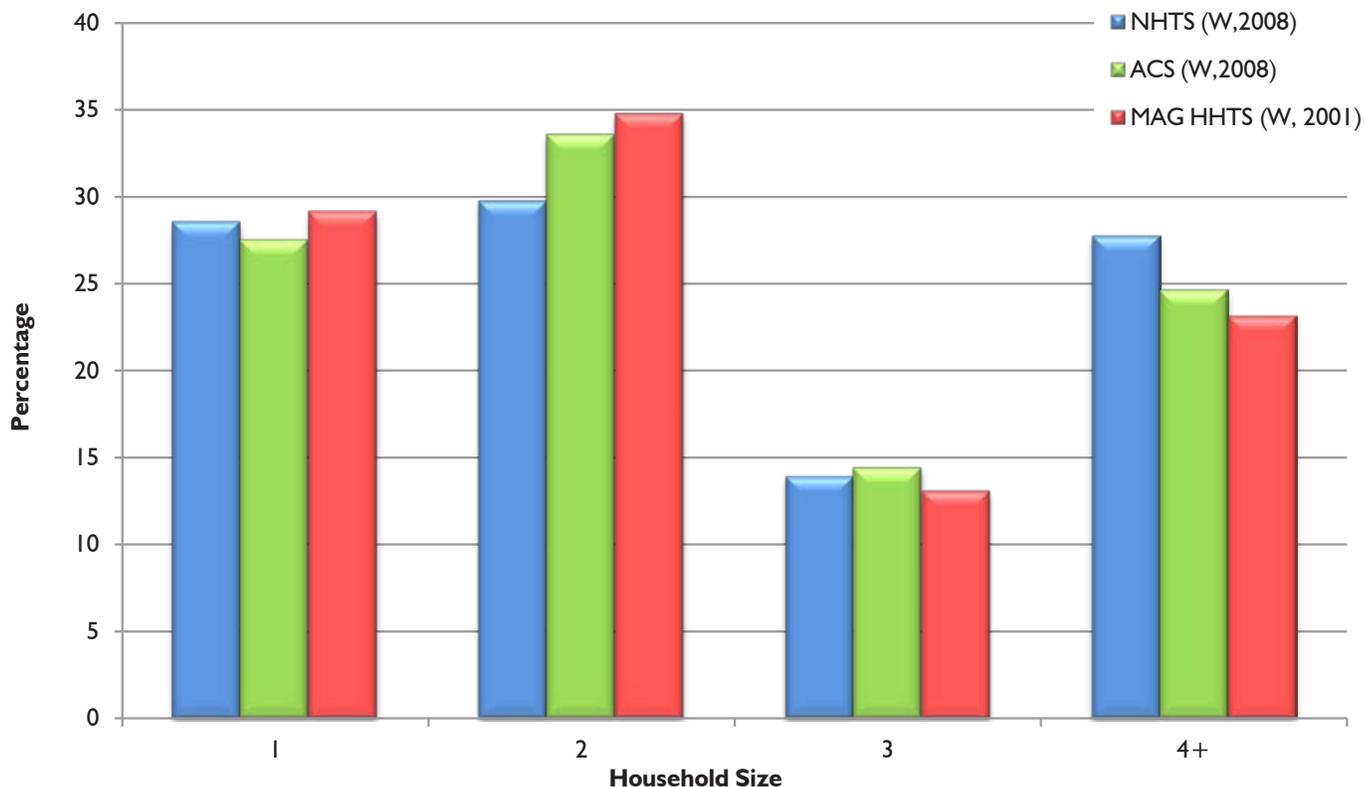


Figure 2-2 Household Distributions by Household Size

| Household Size | NHTS (W,2008) | MAG HHTS (W,2001) | CTPP (2000) | ACS (W,2008) |
|----------------|---------------|-------------------|-------------|--------------|
| 1 | 28.58% | 29.11% | 24.49% | 27.46% |
| 2 | 29.76% | 34.73% | 33.85% | 33.53% |
| 3 | 13.93% | 13.06% | 15.12% | 14.40% |
| 4+ | 27.74% | 23.10% | 26.53% | 24.61% |

Table 2-2 Household Size in Different Surveys

Household Income: From *Figure 2-3* and *Table 2-3* (below), it is clear that except for perhaps an under-sampling for the income category of less than 10,000

dollars and households with income category of more than 75,000 dollars, households within other income categories compare well with ACS data.

Household Distributions by Household Income (Weighted)

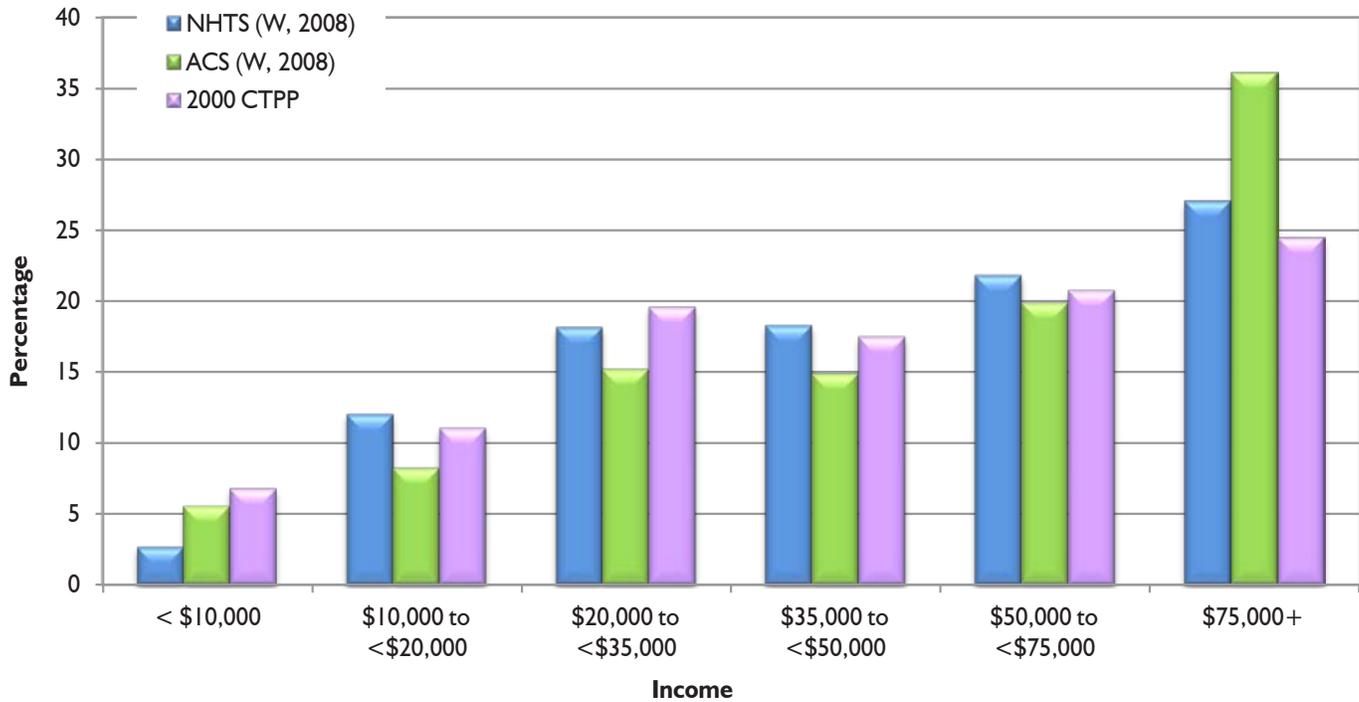


Figure 2-3 Household Distributions by Household Income

| Income* | NHTS (W, 2008) | CTPP(2000) | ACS (W,2008) |
|-----------------------|----------------|------------|--------------|
| < \$10,000 | 2.69 % | 6.80 % | 5.58 % |
| \$10,000 to <\$20,000 | 12.05 % | 11.06 % | 8.29 % |
| \$20,000 to <\$35,000 | 18.14 % | 19.54 % | 15.20 % |
| \$35,000 to <\$50,000 | 18.27 % | 17.46 % | 14.91 % |
| \$50,000 to <\$75,000 | 21.81% | 20.72 % | 19.91 % |
| \$75,000+ | 27.03 % | 24.42 % | 36.10 % |

* Data consolidation to the above income categories was not possible using 2001 MAG Household Travel Survey because Income Classes were different.

Table 2-3 Household Income in Multiple Surveys

Respondent Age: Figure 2-4 and Table 2-4 (below) indicate that the percentage of people between ages 21 to 61, is higher than in the ACS 2008 sample. This age cohort is

the population most likely to undertake trips, when compared to other age groups.

Respondent's Age Distribution (Weighted)

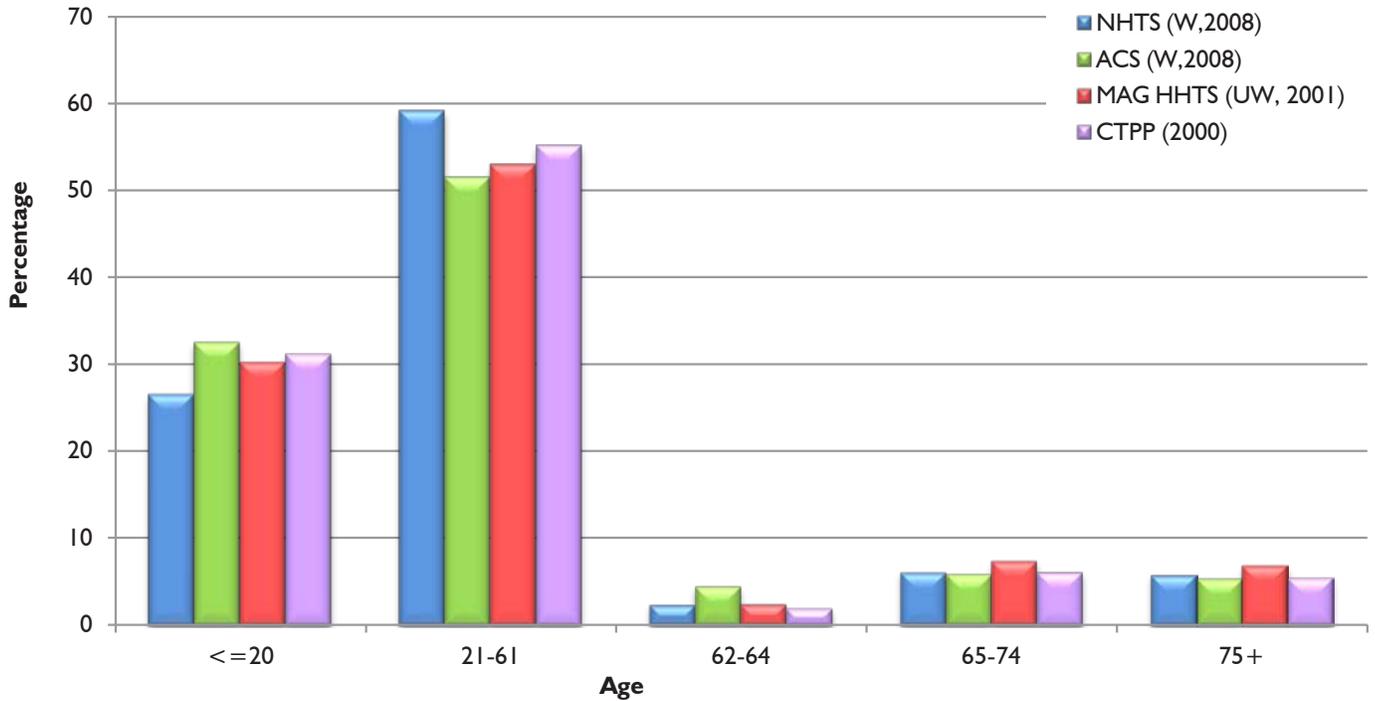


Figure 2-4 Respondents' Age Distribution

| Age Distribution Across Multiple Surveys | | | | |
|--|----------------|----------------|--------------------|----------------|
| Age | NHTS (W,2008) | CTPP 2000 | MAG HHTS (UW,2001) | ACS (W,2008) |
| <=20 | 26.59% | 31.18% | 30.20% | 32.54% |
| 21-61 | 59.09% | 55.12% | 52.91% | 51.53% |
| 62-64 | 2.37% | 2.01% | 2.49% | 4.53% |
| 65-74 | 6.13% | 6.18% | 7.44% | 5.95% |
| 75+ | 5.81% | 5.50% | 6.95% | 5.45% |
| Total | 100.00% | 100.00% | 100.00% | 100.00% |

Table 2-4 Respondent's Age Distribution Across Multiple Surveys

Workers per Household: *Figure 2-5 and Table 2-5* (below) indicate that there was a higher percentage of households with one worker, when compared to previous

surveys (2000 Census, 2001 Household Travel Survey and 2006-2008 ACS).

Distributions of Household Workers (Weighted)

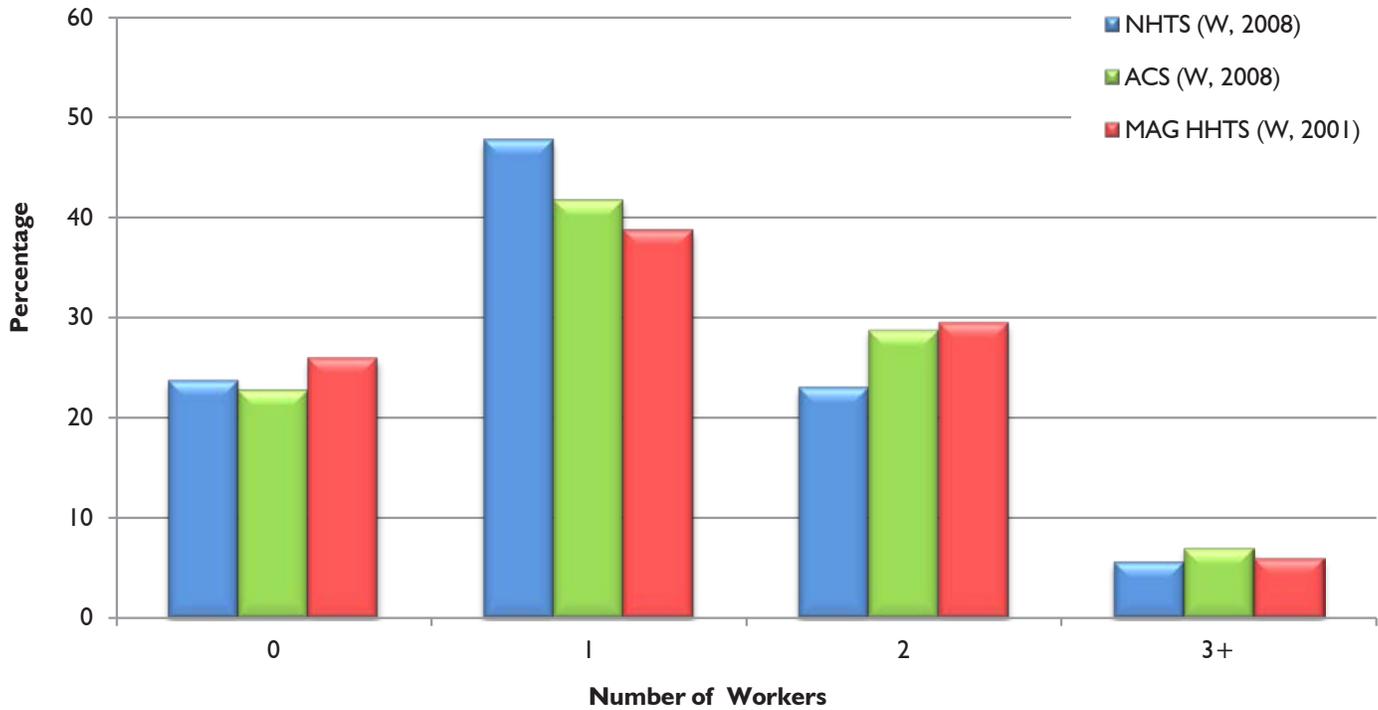


Figure 2-5 Distribution of Household Workers in Multiple Surveys

| Household Workers | NHTS (W,2008) | MAG HHTS (W,2001) | CTPP 2000 | ACS (W,2008) |
|-------------------|---------------|-------------------|-----------|--------------|
| 0 | 23.67% | 25.93% | 25.03% | 22.69% |
| 1 | 47.71% | 38.67% | 36.98% | 41.68% |
| 2 | 22.99% | 29.44% | 30.55% | 28.68% |
| 3+ | 5.62% | 5.96% | 7.44% | 6.95% |

Table 2-5 Distribution of Household Workers in Multiple Surveys

Vehicle Ownership: *Figure 2-6 and Table 2-6* (below) confirm that the distribution for vehicle ownership is in agreement with 2008 ACS.

Household Ethnicity: From *Figure 2-7 and Table 2-7* (next page), it is clear that there was an under-sampling of Hispanic households, when compared to previous surveys (2000 Census, 2001 Household Travel Survey and 2006-2008 ACS). Percent of white households was the highest in the 2008 NHTS when compared to

other surveys. Segments like low-income households and Hispanic households should be sampled more, in the forthcoming household travel surveys for the MAG region. Pilot studies could be commissioned prior to the original survey, concentrating on these household segments. Since pilot studies are supposed to familiarize survey staff and the respondents, they may not have been included in the final data set. For the 2008 NHTS, there is no record of any pilot study in the literature provided to MAG.

Household Distributions by Vehicle Availability (Weighted)

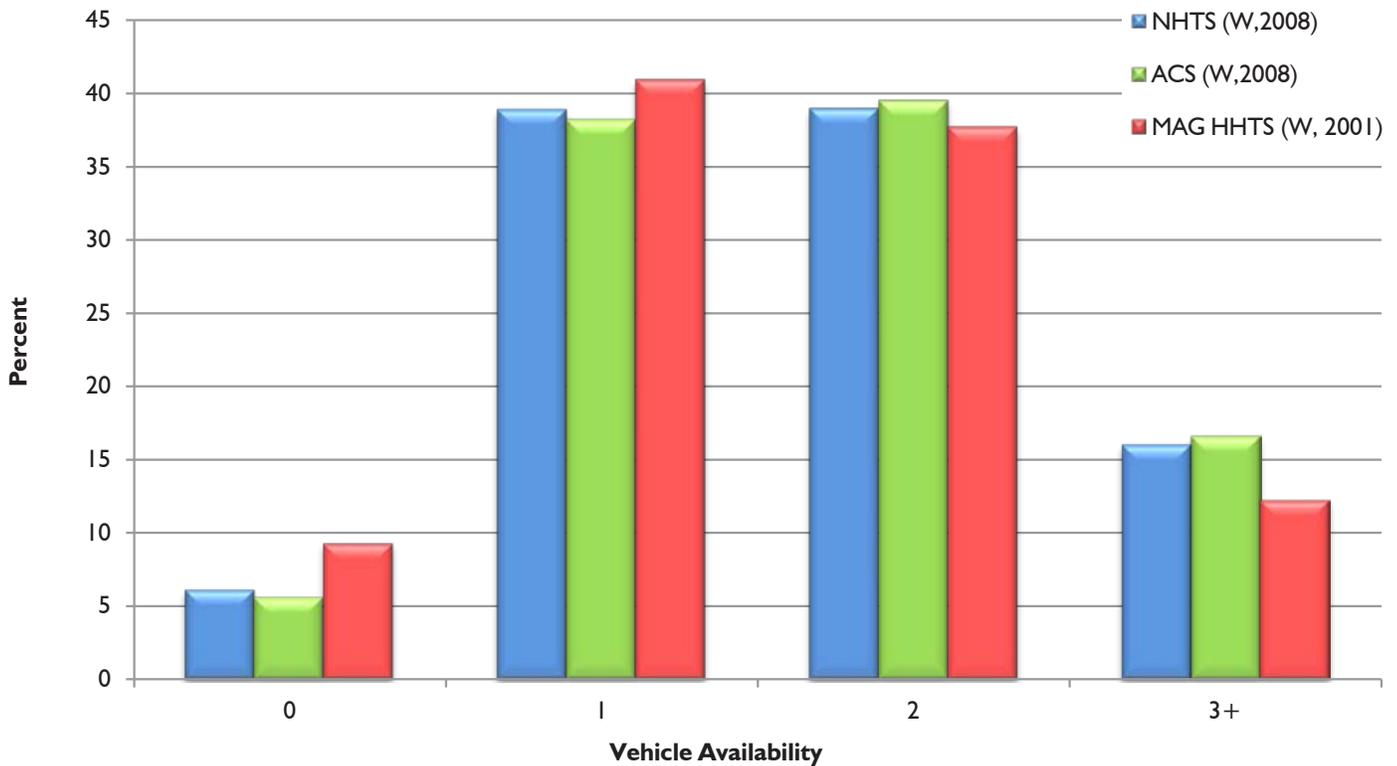


Figure 2-6 Household Distribution by Vehicle Availability

| Household Vehicles | NHTS (W,2008) | MAG HHTS (W,2001) | CTPP (2000) | ACS (W, 2008) |
|--------------------|---------------|-------------------|-------------|---------------|
| 0 | 6.16% | 6.40% | 6.85% | 5.64% |
| 1 | 38.87% | 40.30% | 38.51% | 38.21% |
| 2 | 38.96% | 39.90% | 40.28% | 39.52% |
| 3+ | 16.01% | 13.40% | 14.36% | 16.62% |

Table 2-6 Vehicle Availability in Households Across Multiple Surveys

2.2 Advance Notification

All the households from the sample frame were mailed an advance letter and brochure, followed by recruitment calls. The purpose of the brochure was to provide detailed information about the survey and to provide answers to commonly asked questions. The advance letter carried a five dollar incentive and introduced the household to NHTS. NHTS team members provided guidance to MAG staff about the best way of notifying the public about the survey. They have forwarded an FHWA press release (*Appendix A*) to MAG. MAG press release was finalized following an internal review (*Appendix B*). The project website was also referenced.

2.3 Recruitment and Respondent Packet Mailing

The first group of advance letters for MAG region was mailed in August of 2008. Approximately ten days later, recruitment calls began. The purpose of the recruitment interview was to finalize the participation of each selected household and collect household demographics. The interview was conducted using Computer Aided Telephone Interviewing (CATI) technology. Following recruitment, personalized diaries were prepared for each household and were promptly mailed. Recruitment calls began late August 2008. The recruitment instrument performed well based on the number of non-responses for each question

Variation of Household Ethnicity (Weighted)

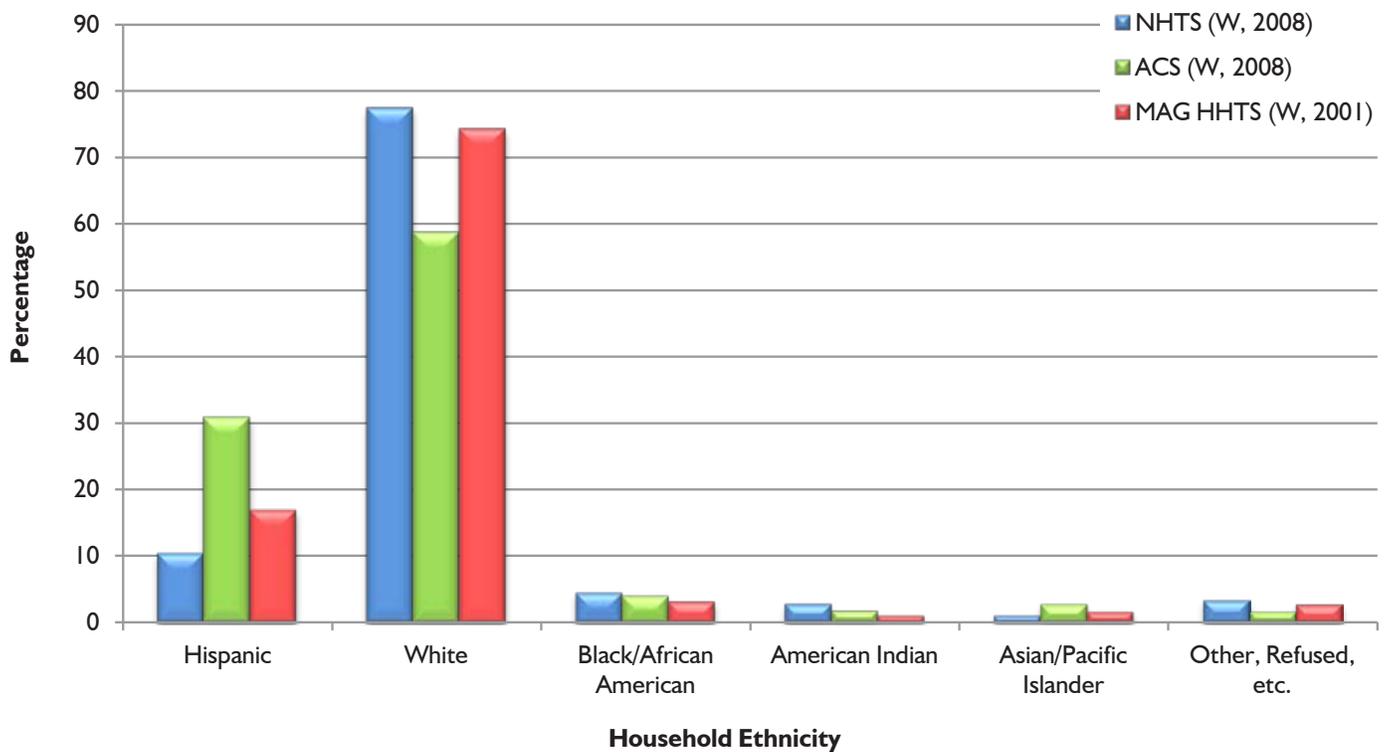


Figure 2-7 Variation in Household Ethnicity Across Surveys

| Household Ethnicity | NHTS (W,2008) | MAG HHTS (W,2001) | CTPP 2000 | ACS (W, 2008) |
|------------------------|---------------|-------------------|-----------|---------------|
| Hispanic | 10.54% | 17.20% | 24.85% | 30.87% |
| White | 77.49% | 73.90% | 66.19% | 58.63% |
| Black/African American | 4.59% | 3.20% | 3.46% | 4.10% |
| American Indian | 2.86% | 1.00% | 3.40% | 1.86% |
| Asian/Pacific Islander | 1.09% | 1.70% | 2.11% | 2.86% |
| Other, Refused, etc. | 3.43% | 2.90% | 0.00% | 1.68% |

Table 2-7 Variation in Household Ethnicity Across Multiple Surveys

within the Household Table, Person Table, Vehicle Table, Location Table and Trip Table. On average, a recruitment interview lasted ten minutes per household.

2.4 Reminder Calls and Retrieval

Reminder calls were made to all recruited households prior to their assigned travel period. The purpose of each call was to confirm that each household had received its packet and to answer any last minute questions the household might have. Retrieval calls began from April 2008 and continued through May 2009. As mentioned in Section 2.1, the target sample size for Tucson area was 2,285 and for Phoenix, the number was 4,286. The number of retrievals for Tucson area was 2,361 and the corresponding number for Phoenix is 4,707. On average, a retrieval interview lasted 18 minutes per household.

2.5 Distribution of Travel Days

Recruited households were asked to report all travel made by household members for one day, which can be any day of the week (including weekends). Household members included people for whom the sampled household is their primary place of residence. Household members could be temporarily away on business, vacation, etc. Visitors and students (who reside at school but were visiting their parents' home) were not considered as household members. The survey team collected interviews from household people aged 5 and older within 7 days of the reported travel date.

2.6 Data Processing

The methodology that was followed by NHTS Survey team to process recruitment and retrieval interviews, is something that MAG staff is currently unaware of at this point. NHTS has not provided detailed process recruitment and retrieval interview methodology to MAG staff (such as methods of assigning day of the week, targeted retrieval goal, targeted proportion of sample for each day of the week, etc.).

2.7 Geocoding

Geocoding of the home and location destinations in the dataset took place in two general stages – one performed by FHWA's consultant, and the second performed by MAG. The consultant geocoded home addresses soon

after sample generation. Those that were not geocoded were investigated and corrected during the recruitment interview. A 100% complete match was achieved for the home addresses. Work and school addresses for all household members were collected during the recruitment interview. The addresses that were not geocoded were investigated and corrected during reminder and retrieval calls. Ninety-five percent of the work and school addresses traveled to, were successfully geocoded. All other addresses (non-home, non-work and non-school) were forwarded to MAG for geo-coding.

| Location Type | Unweighted Geocoded Records | Weighted Geocoded Records |
|----------------------------|-----------------------------|---------------------------|
| Home locations | 4,707 | 1,461,700 |
| Work locations | 4,289 | 2,065,735 |
| Trip destination locations | 36,528 | 3,576,380,190 |

Table 2-8 Summary of Geocoded Records

The consultant implemented quality control procedures to improve the accuracy. The main procedure involved in sorting geocoded locations by county, and displaying all geocoded points for a particular county. Any points falling outside the county boundaries were verified and re-geocoded if necessary. The final data file contains a geo-coding quality control variable that identifies the action taken on a particular record, the quality control check performed, and/or the outcome of the check.

After the consultant provided geographic coordinates—latitude, longitude in WGS84 (World Geodetic System 1984) coordinate system for home locations, work locations and trip destination locations, MAG staff created point features which correspond to the latitudes and longitudes of the three datasets. *Table 2-8* above summarizes results of the process of creating spatial footprints of locations. MAG also performed quality assurance procedures. All locations we mapped and overlaid with county layers for Arizona, as well as a layer with US states boundaries.

2.8 Quality Control

The data summarizing demographic and travel behavior characteristics for 4,707 households were subjected to both manual and electronic quality checks. Among these checks were compliance to variable ranges, data type, logical consistency and quality standards. These checks are documented in *Appendix A*.

3. Weighting and Expansion

Although the sample was randomly selected, not all sampled households agreed to participate, nor did all households that agreed to participate actually complete the survey, causing a non-response bias in the data set. For the purpose of statistical analysis, suitable weights should be developed and included in the dataset such that a weighted sample is representative of the population. The aim of the weighting process was to ensure that the data structure was made similar to the population structure so that unbiased estimates are obtained. In the data expansion process, survey data was expanded to regional totals.

WESTAT®, Urban Institute and Battelle/MORPACE International, Inc., were among FHWA’s contractors, who developed weights for the survey data, followed by its expansion using population control totals from Census Bureau’s Current Population Survey. Household-based weights and person-based weights were developed prior to the development of expansion factors, and were incorporated into the delivered dataset.

The survey captured demographic and travel behavior characteristics of the 4,707 households within Maricopa County. These households reported having 9,869 members who made trips; had a combined auto ownership of 9,211 vehicles; reported a total of 38299 trips. When expanded, the data represents 1,461,700 households in Maricopa County. The purpose of this chapter is to document the procedures for weighting and expanding the data. The previous approaches to weighting and expansion (as part of 2001 MAG Household Travel Survey and 2001 NHTS) are mentioned in *Appendix M*. The approach taken by FHWA’s consultants for the latest data is discussed in the following sections.

3.1 Initial Weighting performed by FHWA’s Consultants

Estimates were generated both at the national level and for each specified add-on area separately. Base weights at household level, person level, vehicle level and at trip level were developed. Household-level weights represent all households within the study area. Vehicle level weights represent all vehicles in the study area. Person level weights represent all persons in the study area. The travel day trip level weights represent all trips in the designated time period in the study area. Trip weights (from the trip file) are annualized person weights.

These weights were designed to be unbiased estimates for each add-on area. To reduce sampling error and bias, non-



response adjustments and post-stratification adjustments were performed by FHWA’s consultants. The primary set of household weights are the “useable household” weights (and not weights based upon overall household responses). As noted in Chapter 2, these are the households in which at least fifty percent of adults in the household complete the interview. The development of weighting methodology is discussed in the following section.

3.2 Initial Household Weight

The base weight was the reciprocal of the probability of selection of each telephone number from the RDD sample, for add-on areas. There are two components associated with the probability of household selection for RDD surveys: Sampling rate and the landline telephone number factor (for each household). If a household has multiple residential household numbers, then the probability of its selection increased, which was captured by base weight. If household samples from national sample are combined with household samples from add-on areas (which was the case with the Phoenix samples), then a composite initial household weight could be computed.

The composite initial household weight was computed based on the joint probability of selecting the household from either of these sampling frames. Probability of selecting the household from either of these frames was computed by using set theory from mathematics, $A \cup B = A + B - (A \cap B)$. The equation would read thus: Overall probability of selecting the household = probability of selecting the household from national sample + probability of selecting the household from add on sample – product of both probabilities.

3.3 Adjustment for Non-response

Every household survey experiences non-response to a certain extent, which introduces a bias in responses. To correct this bias, an adjustment to non-response was required. The adjustment was performed at two levels: Screener level and Interview level. In both the cases, data was grouped at some geographic unit and cells with very small response rates (where rates are about one-third of the median response rate values) were identified for adjustment. Another guidance being, cells consolidated at any geographic level should not have values less than thirty [1], as cells with low values were indicative of high variability.

If cell values are verified to be at least thirty, base weights were then applied to all cells. Then non-response adjustments that are equal to the inverse of base weighted response rates were computed for cells with small response rates. Following the adjustment, if any cell value remains less than thirty, then collapsing was done to a higher level, following which the non-response adjustment process was revisited iteratively. This iterative process was handled by a categorical search algorithm called CHAID (Chi-squared Automatic Interaction Detector). The variables that were selected for weighting process [1] were as follows:

- a. Type of location (downtown, rural, etc.).
- b. Median household income.
- c. Median years of education.
- d. Percent owner occupied housing.
- e. Percent college graduates.
- f. Percent in age groups (as grouped in survey).
- g. Household size.
- h. Ethnicity/race.
- i. Home ownership.
- j. Household vehicle ownership.

3.3.1 Adjustments for Under-coverage

About 2% to 4% of US households do not have a telephone and hence were not covered in a household travel survey. This under-coverage was adjusted through a post-stratification process called “raking”, which follows weighting. In the raking process, weights were iteratively adjusted to independent control totals for various demographic categories. The process ensured that the sum total of weights for the sampled households equals the corresponding independent control totals for all households, from various sources. Raking to census totals is the standard practice for large scale surveys. When the first version of NHTS data was made available, the control totals were based upon 2007 ACS data. However, when the second version of NHTS data was released, the control totals were based upon 2008 ACS data. The totals for ACS data are based upon Census Bureau’s Current Population Survey.



3.3.2 Differences between Weighting and Raking

A brief description of the differences between weighting and raking process is discussed here. The aim of weighting process is to ensure that the sample data structure is made similar to the population structure so that unbiased estimates are obtained. The only caveat is that sample size should be large, so that bias does not get propagated. The disadvantage of weighting is that it reduces the precision of estimates, which means an increase in its variance. Confidence intervals will be wider for statistical significance tests.

The aim of raking process is to ensure that the marginal distribution of two sets of variables remains identical. Raking is widely seen as an alternative to cell weighting [16]. Sometimes it is used to supplement weighting. Raking process has a number of dimensions. The weights are adjusted to equal the totals within the cells for each dimension in an iterative process, until the process converges and every dimension’s cell totals equal the independent control totals. The advantages of raking are straight-forward. Very little knowledge of target sample totals is needed; sample size can be small and the variance is ensured to be low. But, the biggest disadvantage is that the joint distribution of variables (for control totals representing population) is compromised, which introduces bias. Hence it is a good practice to reduce the bias through weighting, followed by raking.

3.4 Child Weighting Factor

As mentioned in Section 2.1 of Chapter 2, one child (between the ages of 5-15) from a household was randomly selected regarding safe routes to school, and was requested to complete a special section of the survey. Using that response, a special weighting factor was generated to ensure that all children in the household are accounted for.

3.5 NHTS Data Reweighting

NHTS data tables were released in the month of March 2010. FHWA issued guidance in the month of May 2010 regarding data reweighting, using the newly released 2008 American Community Survey (ACS), which was not available at the time the original weights were processed. The data enhancement was necessary because of the difference in the number of nationwide transit trips reported by NHTS and by FTA's National Transit Database (NTD). The data review and enhancement process was completed by the end of September 2010. FHWA shared a copy of reweighting procedure with each add-on partner including MAG, whose salient features are discussed in the following section.

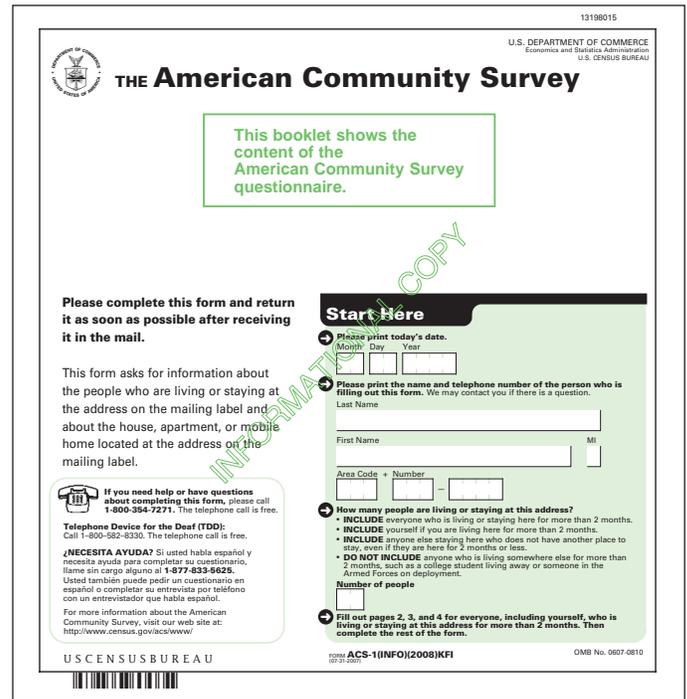
3.6 FHWA's New Procedure for Weighting and Expansion Factors

FHWA's Consultants have reweighted NHTS data with a new set of control totals from ACS 2008 database. When the initial version was released, weighting was performed using the ACS 2007 database. Based upon a nationwide feedback, data enhancement was necessary as some areas (like the state of Florida) indicated a huge under-reporting of transit trips. The original weighting steps (when the initial version of 2008 NHTS data was released) were as follows (6):

1. Construction of Base Weights-Reciprocals of telephone frame sampling rates.
2. Construction of Jack-knife replicate weights-Using subsets of available data.
3. Household level non-response adjustments-Developed for each sample group.
4. Composition of household non-response adjusted base weights by "domain"-Domains can be the quarter of travel date.
5. Household level raking.
6. Person level non-response adjustments.
7. Construction of person-level weights.

During the reweighting process, Steps 5, 6 and 7 have undergone the changes as listed below.

The revised Step 5 was as follows: Additional raking dimensions were added, trimming and re-raking were performed at *household level* (described in Section 3 of FHWA Re-weighting guidance). Trimming is employed if the statistic is sensitive to outliers. To change the value of mean, certain outliers were eliminated, before the raking process is commenced. Arizona sample consisted of samples from add-on areas of Phoenix and Tucson, while those from rest of the state were from the national sample. The following dimensions were considered:



- CBSA (Core Based Statistical Area) Add-on-area Sub-region.
- Add-on area Black.
- Add-on area Hispanic.
- Add-on area Owner/Rental.
- Add-on area Number of Vehicles.
- Month.
- Day of Week.
- HH Size*Worker.

The processes governing the revised Step 5 were as follows:

- a. Prior to additional raking, diagnostics were run (using pre-rake diagnostic software) to identify cells with few observations that had large adjustment factors.
- b. The software provided guidance to implement collapsing rules; It identified cells having a very high or very low weight value.
- c. Trimming was performed within sample design cells (sampling strata), but not on cells of new raking dimensions. Trimming occurred where household weight was at least 3 times the median household base weight or was one-third the median household base weight.
- d. Prior to each raking step, there can be at the most one trimming step. Besides the above, sample units from the national study was combined with sample units for the add-on study, if they exist for the area.

- e. Household raking steps were done until they are within 5,000 of the household control totals.
- f. If convergence failed (after a maximum of 5 iterations), the first remedial step would be to locate problematic cells and collapse categories of the marginal control totals selectively.
- g. Household Control totals for all dimensions were derived from one-year 2008 estimates where possible, using 2006-2008 three year estimates where necessary to impute distributions for areas for which 2008 one-year estimates were not available. Household totals matched the individual state totals within each of the add-on region or Census Divisions. That is, raking was performed separately for each add-on region or Census Division, but household totals by State were maintained.

units from the national study were combined with sample units for the add-on study, if they exist for the area.

- e. Person raking steps were done until they were within 10,000 persons from the control totals.
- f. If convergence failed (usually at 5 iterations), the first remedial step was to locate problematic cells and collapse categories of the marginal control totals selectively.
- g. Person Control totals for all dimensions used in person-level raking was from Census population estimates for July 2008. These are Census model based estimates coming from Census 2000. Household totals will match the individual state totals within each of the add-on regions or Census Divisions. That is, raking was performed separately for each add-on region or Census Division, but household totals by State were maintained.

Step 6—Remains the same as previous (when version 1 was developed).

The revised Step 7 was as follows: Additional raking dimensions, trimming and re-raking at *person level* (described in Section 5 of FHWA reweighting guidance). Arizona sample consisted of samples from add-on areas of Phoenix and Tucson, while those from rest of the state were from the national sample. The following dimensions were considered:

- CBSA (Core Based Statistical Area) Add-on-area Sub-region.
- Add-on area crossed with race.
- Add-on area crossed with ethnicity.
- Add-on area crossed with sex and age group.
- Month Pair.
- Day of week.

The processes governing the revised Step 7 were as follows:

- a. Prior to additional raking, diagnostics were run (using pre-rake diagnostic software) to identify cells with few observations that have large adjustment factors.
- b. The software provided guidance to implement collapsing rules; It identified cells having a very high or very low weight value.
- c. Trimming was performed within sample design cells (sampling strata), but not on cells with new raking dimensions. Trimming occurred where person weights are at least 3 times the median person base weight or is one-third the median person base weight.
- d. Prior to each raking step, there can be at the most one trimming step. Besides the above, sample

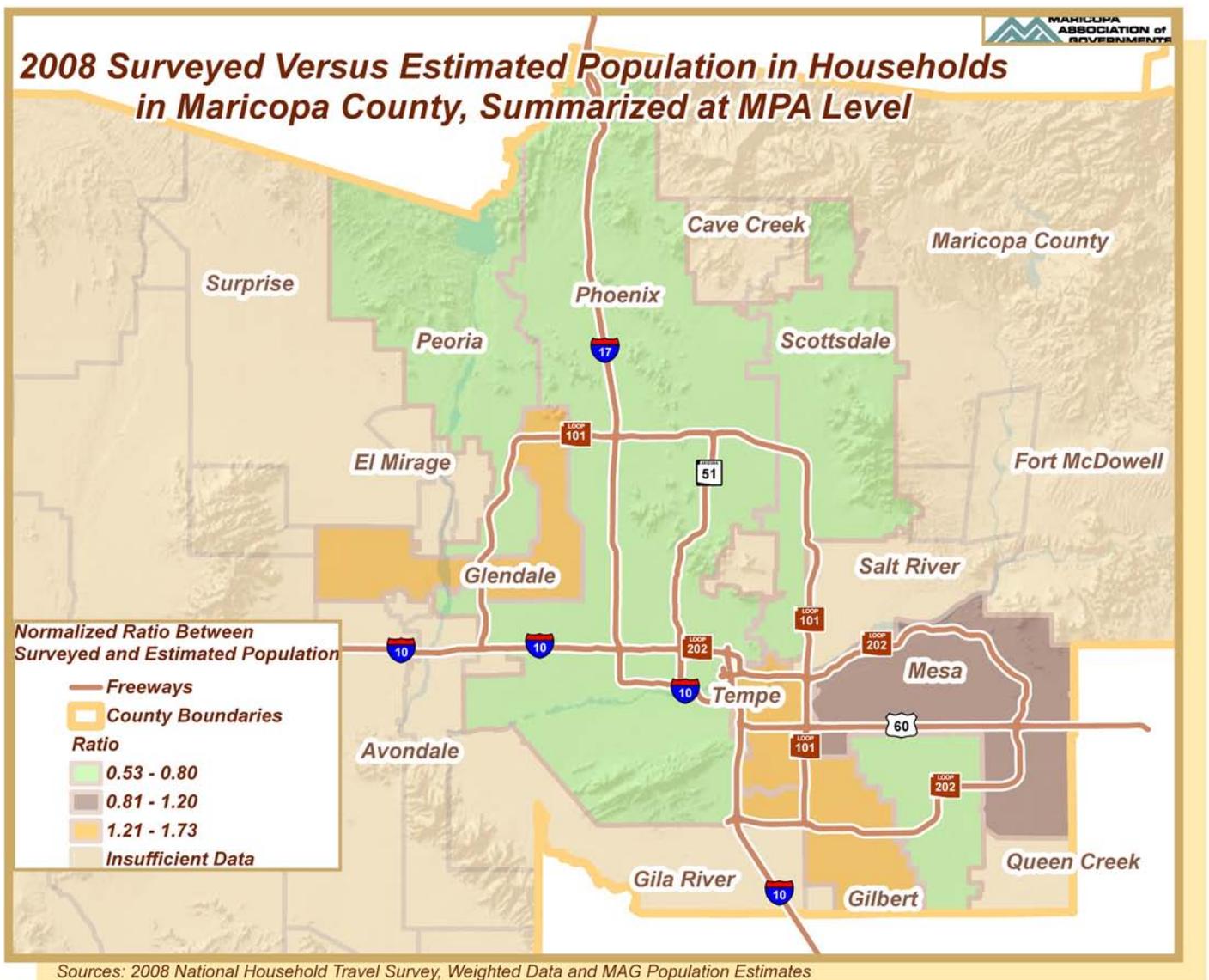
4. Analysis of Household Data

4.1 Household Survey Results

NHTS team clarified that a household where at least 50 percent of all household members complete the extended interview can be considered “useable”. A total of 4,707 households have participated in the add-on survey for the region. In this Chapter, household demographic data such as household size, vehicle ownership, number of workers, total income, dwelling type, home ownership, internet access, etc will be presented. The distributions of important variables within each of these tables will be presented initially, followed by cross classification relationships between important variables (within household table) and corresponding comparisons with previous surveys.

The weighted population in households within Maricopa County was summarized by MPA (Municipal Planning Areas) and was compared to the actual demographic data base, compiled by MAG socio-economic division. The total residential households in NHTS and in the MAG database were 1,412,000 and 1,459,596 respectively. The ratio between those totals was used to normalize the MPA level data in some of the subsequent data analysis.

Map 4-1 illustrates the results of the spatial comparison. Data analysis suggests that Mesa has a surveyed versus actual household population ratio close to 1.0, after applying normalization. For a thorough understanding of the data trends in the cities with big population, a



Map 4-1 Spatial Comparison between Surveyed and Actual Population in Households

comparison was needed at a smaller level of geography, since micro level trends can be masked at the MPA level of aggregation. A comparison was done between weighted residential population in Maricopa County and MAG population estimates. The total surveyed population (with the exception of Guadalupe and Fort McDowell) was divided by the total estimated population and normalization factor was determined. Further, a ratio between surveyed and estimated residential population was calculated at MPA level and this ratio was normalized using the above mentioned factor. The results of this analysis are presented in a map. The largest MPAs where sorted in descending order of their population. The largest cities (including those listed above) where 85% of Maricopa county population resides were mapped in orange, brown and green. Green areas depict possible under-sampling, orange areas show possible oversampling and the brown zone is right size sampling. The smallest MPAs where the remaining 15% of the county population resides are shown in yellow. No attempt was made to evaluate the sample sizes for them because of insufficient data.

4.2 Variation of Trip Reporting Ratio for Households

The survey was conducted from April 2008 through April 2009. *Table 1-1* represents the number of trips reported by month, while *Table 2-1* represents the number of households surveyed by month (within the timeframe mentioned above). The 4,707 households (household table) had a total of 11,302 persons. However, the persons file has only 9,869 records-having excluded children less than 5 years of age. Out of these, only 9,315 persons have reported making trips on assigned travel date as per trips file. The trips file indicated only a total of 4,378 households (out of 4,707 household records in household table) from where trips were reported. Households that have not reported any travel on the assigned date are an indication of variability in travel (for example, a household with retirees). Even among the households reporting trips, some of them were presumed to have been made by visitors. Households which reported trips made potentially by visitors were identified in the process described herein.

Variation of Trip Reporting Ratio of Households

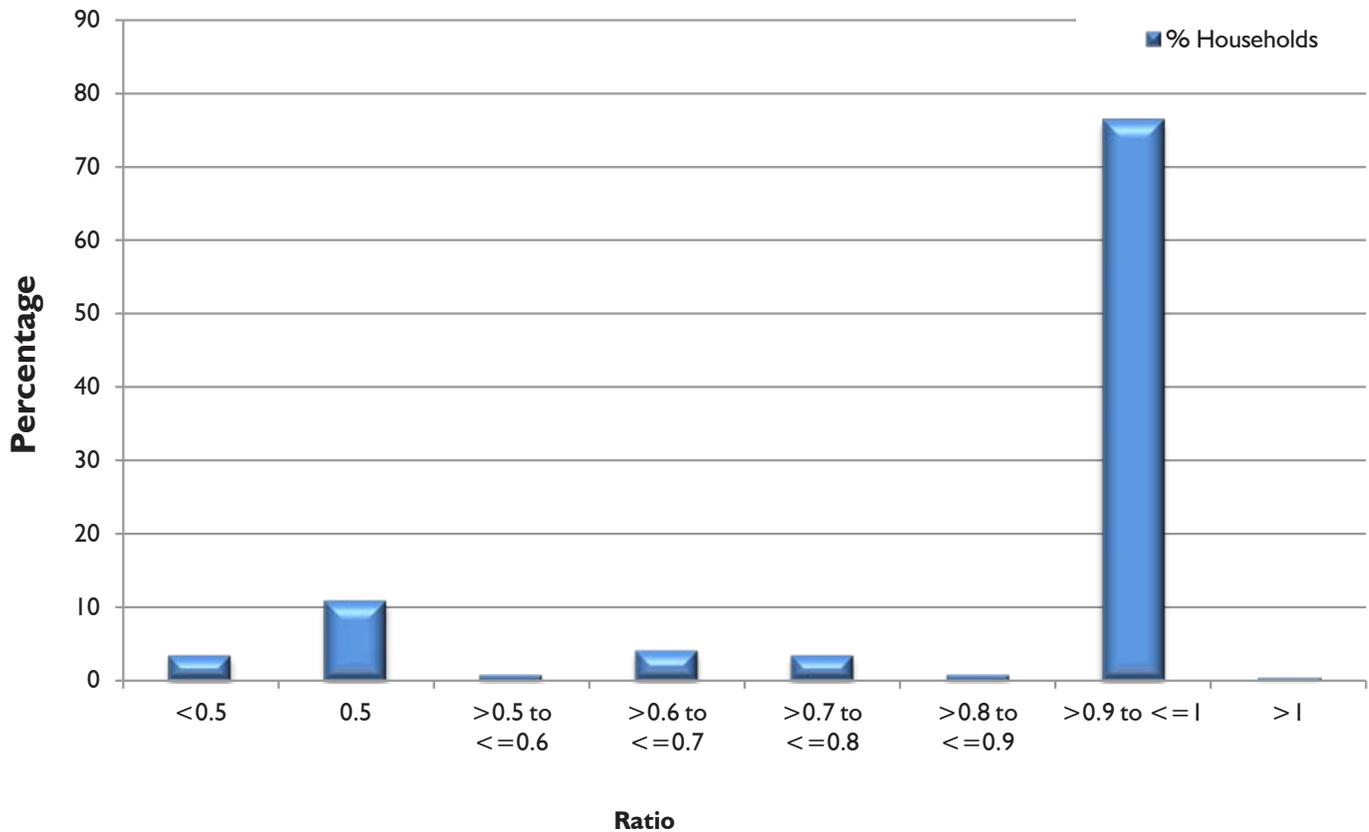
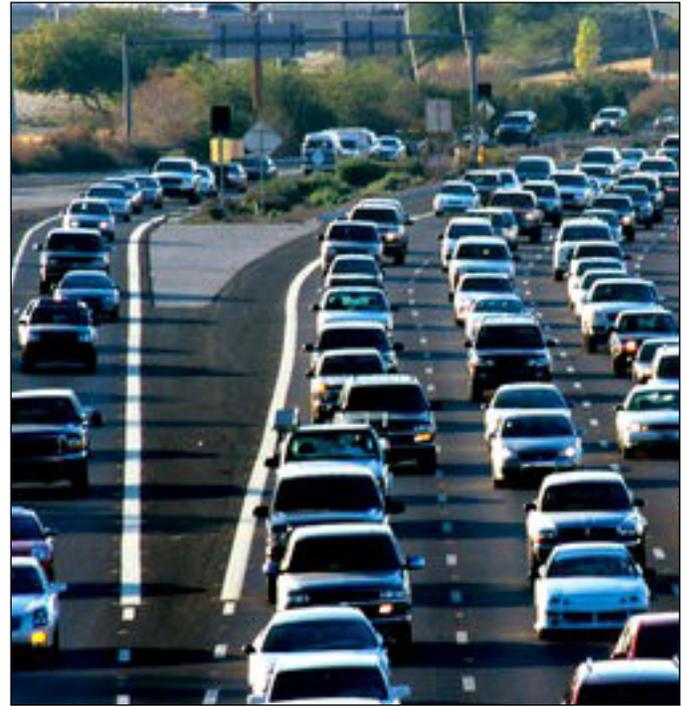


Figure 4-1 Variation of Trip Reporting Ratio of Households

Table 4-1 indicates the variation in the ratio of the highest person ID reporting trips from a household to the total household size. This ratio is different than household useability ratio (defined as the one in which person interviews were completed for at least fifty percent of adult household members). The percentage variation is shown in *Figure 4-1*.

From *Table 4-1*, there are fifteen households where the ratio of the highest person ID reporting trips from a household to the total household size is more than one. The household ID's (of these fifteen households) are 23653870, 24809937, 25043457, 25320345, 27428777, 34899601, 39778028, 40405843, 42391043, 55104805, 56276950, 65098408, 66414256, 68257019 and 69835919.



| Highest Trip reporting Person ID from a HH/Total HH Size | Number of Households |
|--|----------------------|
| <0.5 | 150 |
| 0.5 | 476 |
| >0.5 to <=0.6 | 34 |
| >0.6 to <=0.7 | 179 |
| >0.7 to <=0.8 | 149 |
| >0.8 to <=0.9 | 34 |
| >0.9 to <=1 | 3,341 |
| >1 | 15 |
| Total | 4,378 |

Table 4-1 Variation of Trip Reporting Ratio for Households

To further illustrate the point, the reported household size for Household ID 23653870 was four—which means at the most person ID's 1, 2, 3 and 4 might have reported trips in trips table (assuming all persons are at least five years of age and have made trips on assigned travel date). From the trips table however, person ID's 1 and 5 have reported trips when there was no possibility of any trips reported by person ID 5 for this household (It is understood that person ID's 2 and 3 did not report trips either because their age was less than five or because they did not undertake trips altogether). A potential reason for this could be that these fifteen households might have reported trips made by visitors. Person ID 5 for the above mentioned household could have been a visitor. Such trip records for these households might have been cleaned up by MAG's consultant for Activity Based Model.

4.3 Household Size

The relevant question from the survey instrument is as follows:

- C3. To help us understand the things that impact your travel choices, I have a few questions about your household. Including yourself, how many people live in your household? Please do **not** include anyone who usually lives somewhere else or is just visiting, such as a college student away at school.
(HHNUMPPL)

NUMBER OF PEOPLE|_|_|_|
 REFUSED -7
 DON'T KNOW -8

Table 4-2 shows unweighted results. The average household size (weighted) is 2.68, while the average household size (unweighted) is 2.40. The average household size (weighted data) was 2.46 from 2001 MAG Household travel survey while the average household size (unweighted data) was 2.49. It is clear that the average household size has increased from 2001 to 2008. When compared to 2001 MAG Household travel survey, the 2008 NHTS survey captured more two-person households, and a fewer number of households of four or more persons (unweighted data).

| Household Size | NHTS (UW,2008) | MAG HHTS (UW,2001) |
|----------------|----------------|--------------------|
| 1 | 1,116 | 1,105 |
| 2 | 2,067 | 1,426 |
| 3 | 619 | 534 |
| 4+ | 905 | 952 |
| Total | 4,707 | 4,018 |

Table 4-2 Size of Households in Different Surveys

Household Distributions by Household Size (Unweighted)

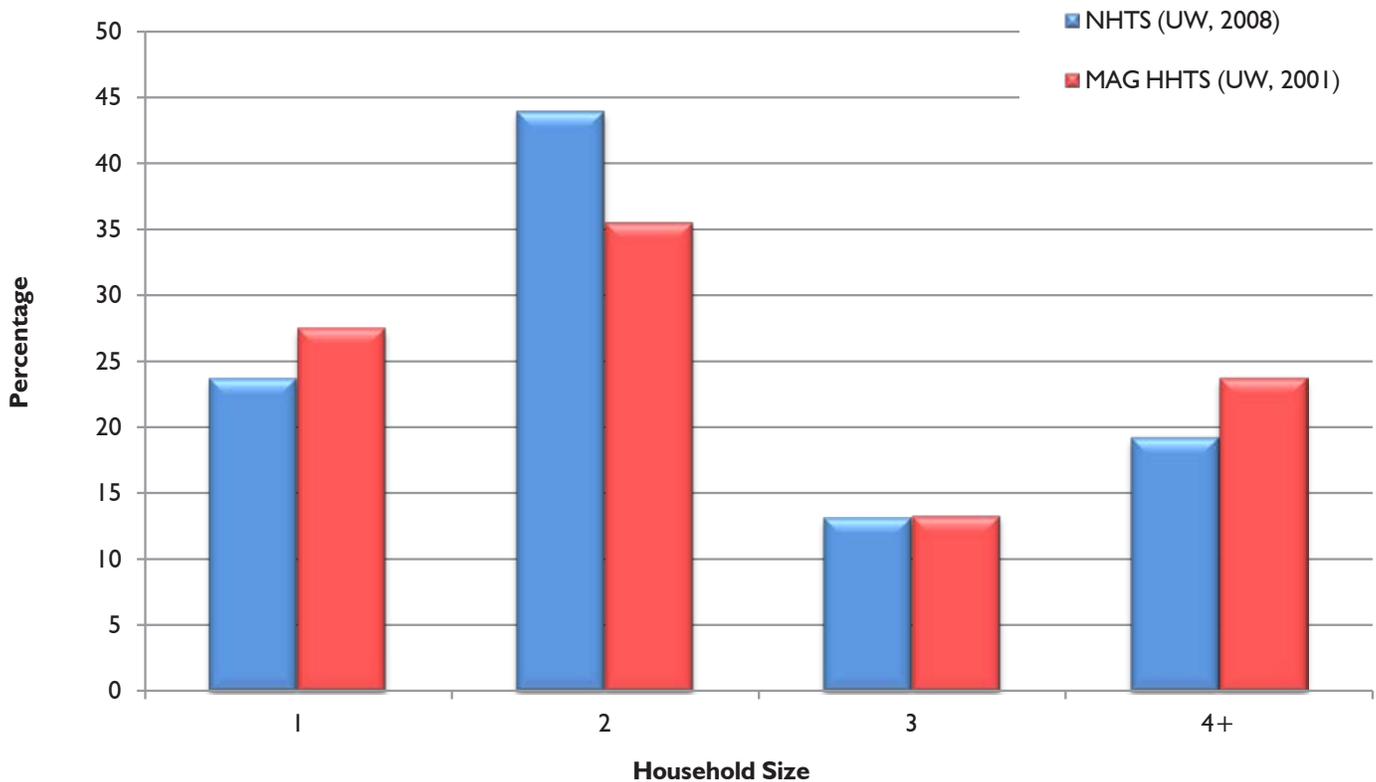


Figure 4-2 Household Distributions by Household Size

However, weighted data indicated an increase in one person households and a decrease in two person households (Figure 4-3 and Table 4-3 respectively) when compared to Census 2000 data. This is one of the few examples

from NHTS dataset in which weighted and unweighted data show quite different distributions. However, the distribution of unweighted and weighted data from 2001 MAG household travel survey was almost identical.

Household Distributions by Household Size (Weighted)

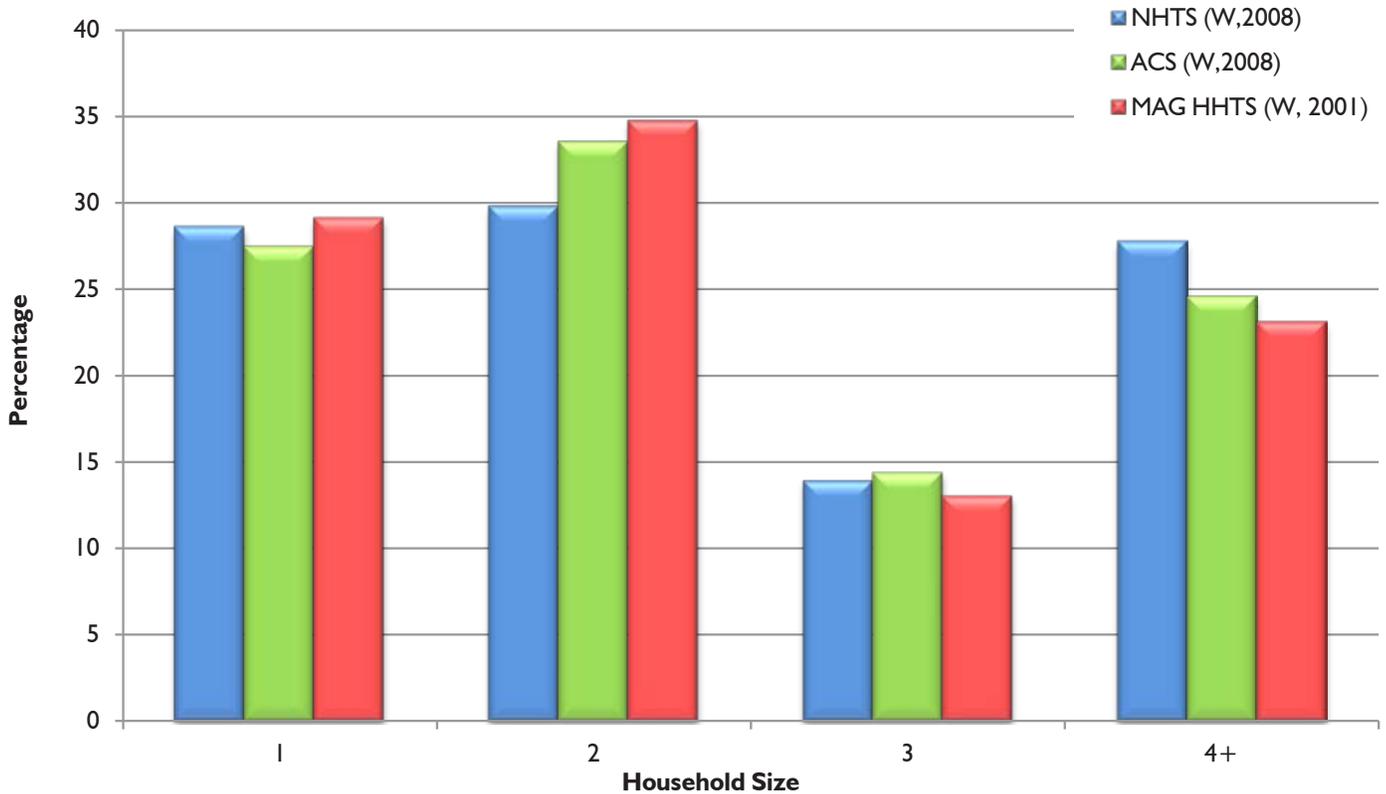
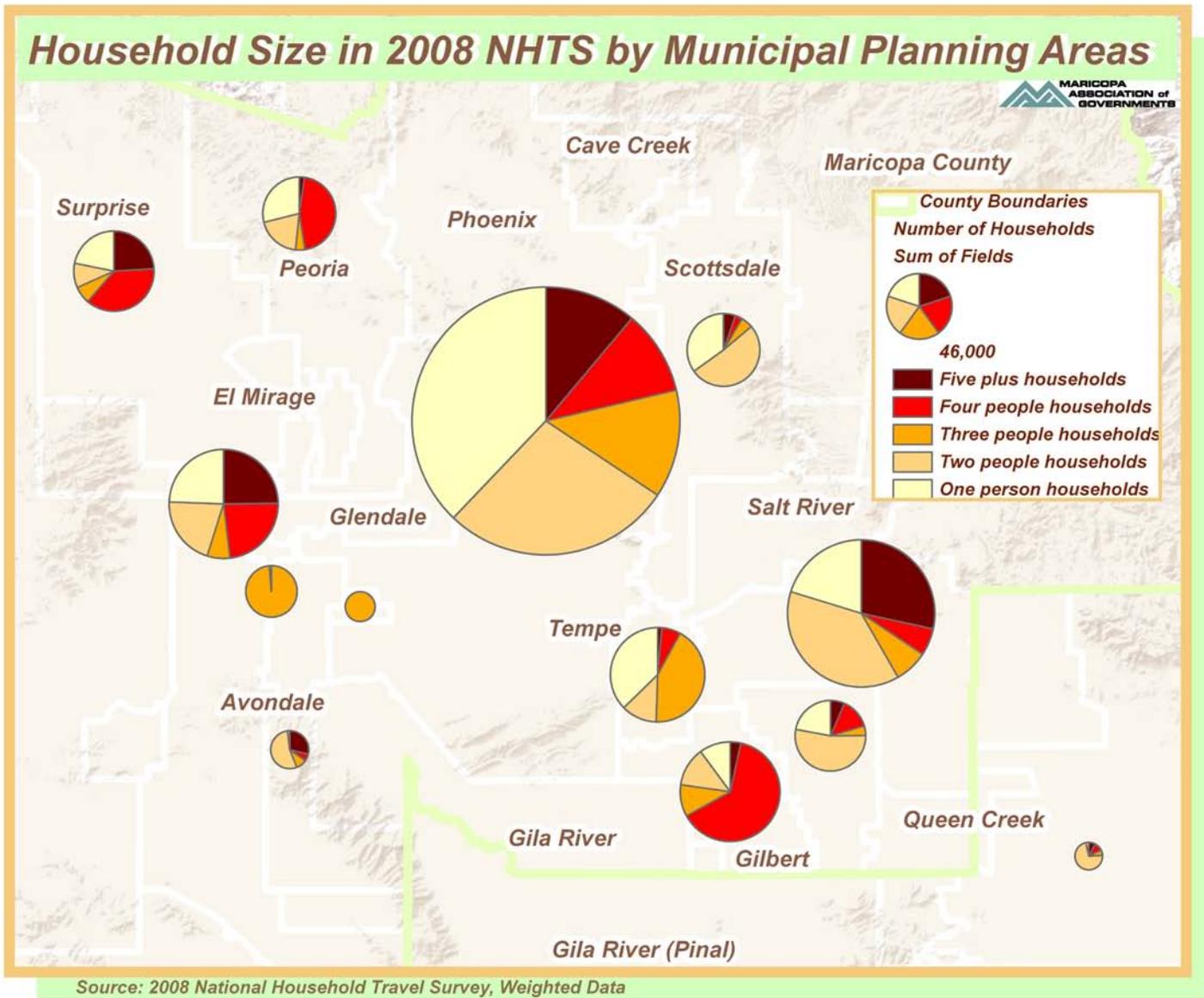


Figure 4-3 Household Size in Multiple Surveys

| Household Size | NHTS (W,2008) | MAG HHTS (W,2001) | CTPP (W,2000) | ACS (W,2008) |
|----------------|------------------|-------------------|------------------|------------------|
| 1 | 417,694 | 285,681 | 277,525 | 369,186 |
| 2 | 434,954 | 340,814 | 383,590 | 450,793 |
| 3 | 203,588 | 128,112 | 171,355 | 193,679 |
| 4+ | 405,464 | 226,651 | 300,580 | 330,939 |
| Total | 1,461,700 | 981,258 | 1,133,050 | 1,344,597 |

Table 4-3 Weighted Results: Household Size in Multiple Surveys

Map 4-2 shows the number of surveyed households by size, aggregated at MPA level. Only geographic areas with at minimum of 10,000 weighted number of households are represented.



Map 4-2 Household Size by Municipal Planning Areas

4.4 Household Vehicles

The relevant question from the survey instrument is as follows:

- B1. How many vehicles are owned, leased, or available for **regular use** by the people who currently live in your household? Please be sure to include motorcycles, mopeds and RVs.
(HHNUMVEH)

[INCLUDE LEASED OR COMPANY-OWNED MOTORIZED VEHICLES IF THEY ARE USED BY HOUSEHOLD MEMBERS ON A REGULAR BASIS.]

NUMBER OF VEHICLES.....|_|_|
 NONE 0 GO TO C1
 REFUSED -7 GO TO C1
 DON'T KNOW -8 GO TO C1

Household Distributions by Vehicle Availability (Unweighted)

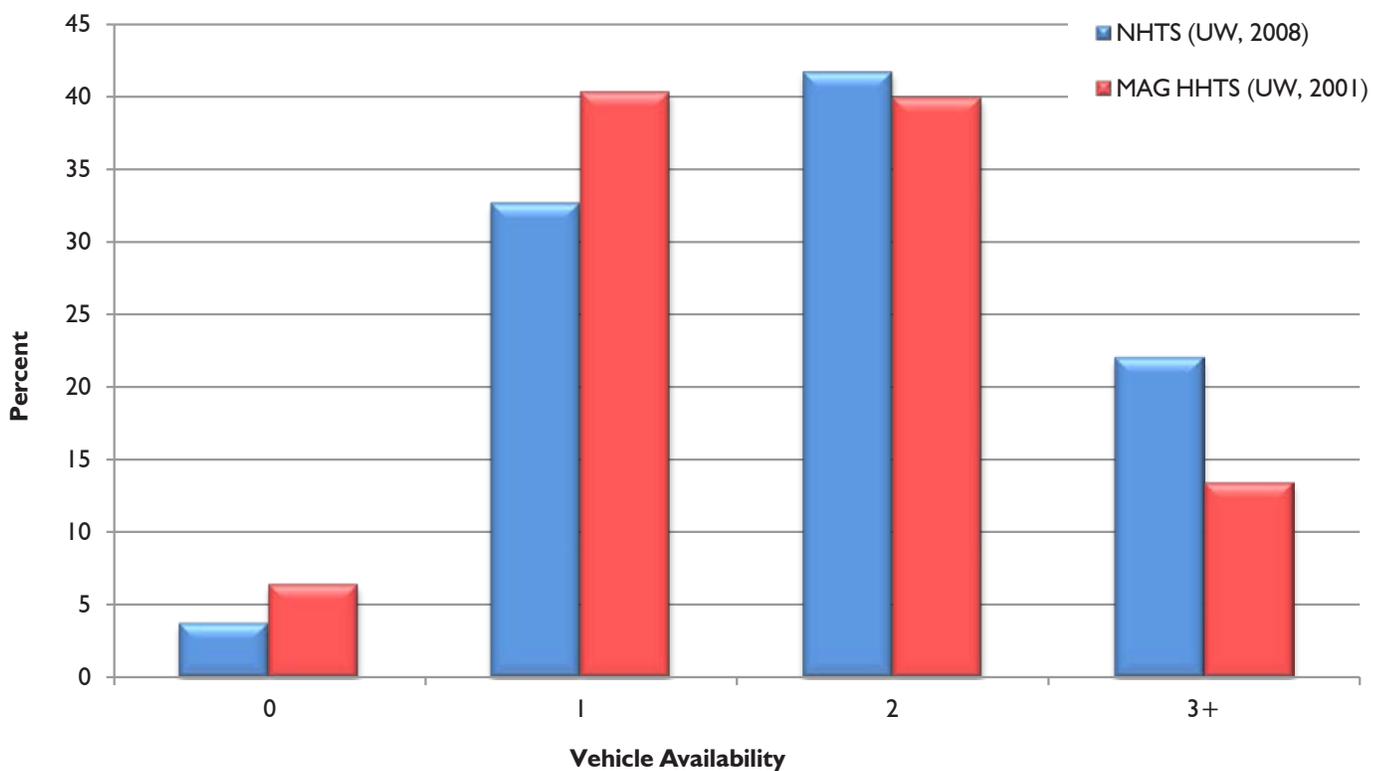


Figure 4-4 Vehicle Availability of Households in Multiple Surveys

Table 4-4 shows un-weighted results. The 2008 survey indicates an increase in the number of households owning at least three vehicles compared to the results from previous surveys. At the same time, there is a slight drop in the number of households owning no vehicle at all. These observations are consistent with the rapid economic growth in the Maricopa–Pinal county region for the period 2001 through first half of 2008.

| Household Vehicles | NHTS (UW,2008) | MAG HHTS (UW,2001) |
|--------------------|----------------|--------------------|
| 0 | 175 | 257 |
| 1 | 1,536 | 1,619 |
| 2 | 1,961 | 1,603 |
| 3+ | 1,035 | 538 |
| Total | 4,707 | 4,018 |

Table 4-4 Vehicle Availability in Households in Multiple Surveys

Vehicle availability distribution from NHTS was almost identical to 2008 ACS data (using weighted data). Refer to *Figure 4-5*. A review of the spatial distribution of households by number of vehicles owned, reveals that with very few exceptions in most zones, a high percentage of households own two cars. Referring to *Map 4-3*, one-vehicle households are predominantly present in the

retirement communities (North-West) and in central and west of central Phoenix—an area which have lower income households. In the more upscale zones like Ahwatukee, North and North East Phoenix, Scottsdale and Mesa, there are a higher number of households with three, four and more vehicles. Vehicle ownership increased with affluence, which is a logical observation.

Household Distributions by Vehicle Availability (Weighted)

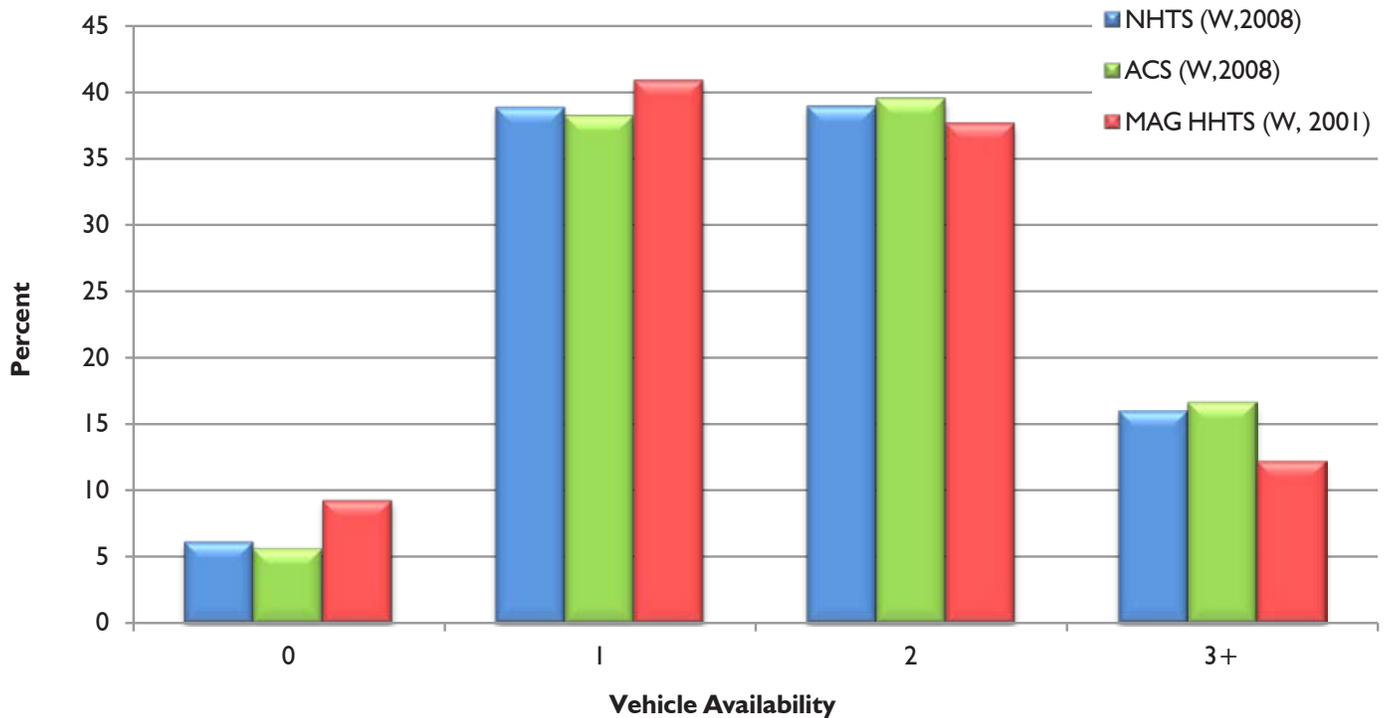
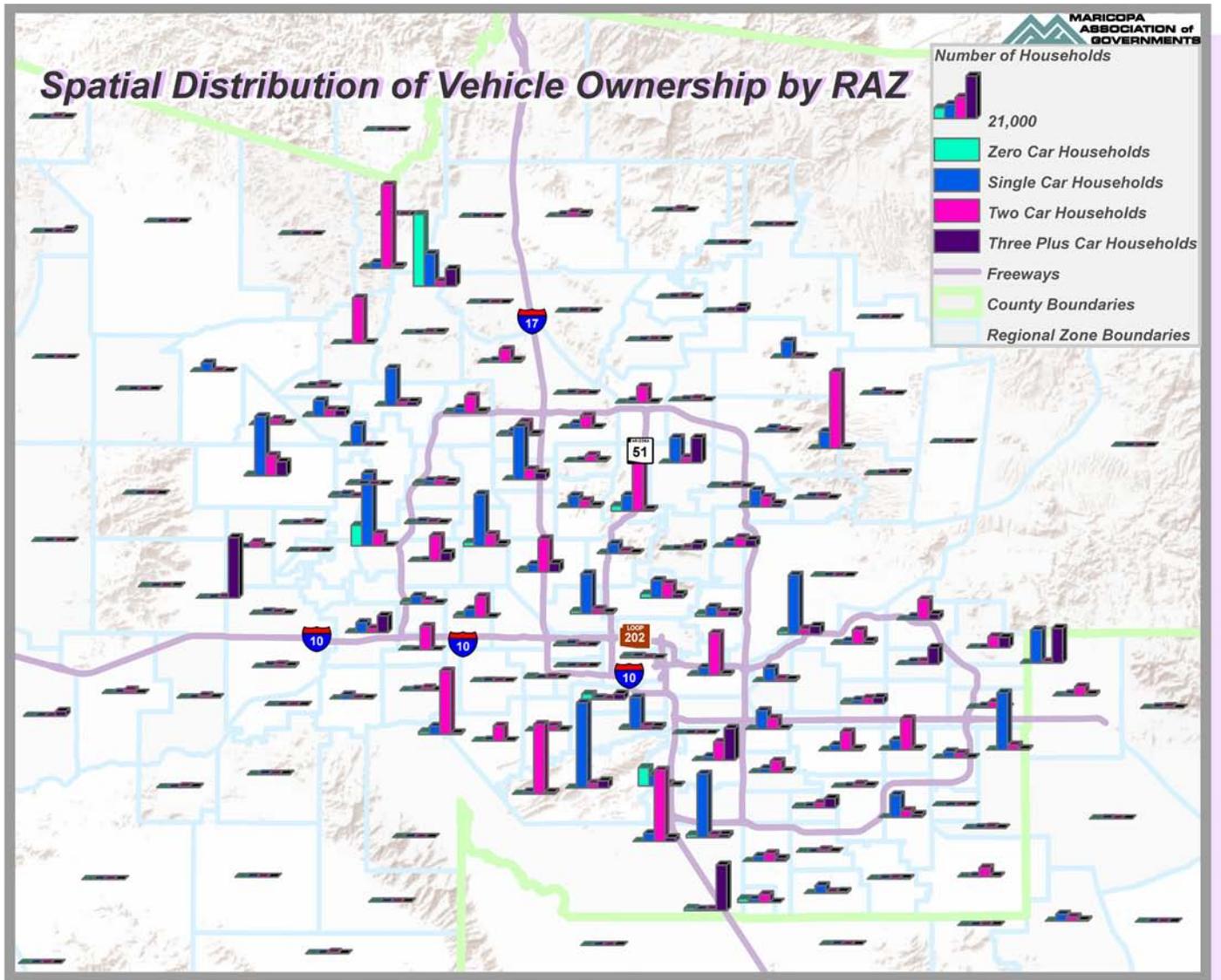


Figure 4-5 Household Distributions by Vehicle Availability, by Survey

| Household Vehicles | NHTS (W,2008) | MAG HHTS (W,2001) | CTPP (W,2000) | ACS (W,2008) |
|--------------------|------------------|-------------------|------------------|------------------|
| 0 | 90,029 | 91,273 | 77,610 | 75,892 |
| 1 | 568,162 | 401,056 | 436,340 | 513,766 |
| 2 | 569,429 | 369,324 | 456,420 | 531,414 |
| 3+ | 234,081 | 119,605 | 162,675 | 223,525 |
| Total | 1,461,701 | 981,258 | 1,133,045 | 1,344,597 |

Table 4-5 Weighted Household Distributions by Vehicle Availability, by Survey



Source: 2008 National Household Travel Survey, Weighted Data

Map 4-3 Spatial Distribution of Vehicle Ownership by RAZ

4.5 Household Income

The 2008 NHTS survey attempted to determine the respondents' income using a \$5,000 bracket if household income is up to \$80,000. Families earning between \$80,000 and \$100,000 are placed in one group and those making over \$100,000 are placed in another group. Household Income was one variable that did not facilitate data distribution comparison with a few surveys as income categories varied between surveys. For example, data consolidation to NHTS income categories was not possible using 2001 MAG household Travel survey because the categories were different.

Among unweighted data, income data was not revealed by more than eight percent of households. It will not be a meaningful analysis to use weights for these households, while representing weighted data distribution. It is because of this reason that households refusing to state annual income were not included in weighted data analysis and comparison. In addition, income data comparison presented in this report is not inflation-adjusted. Using 2008 ACS weighted data (in 2008-inflation-adjusted dollars), the median household income for Maricopa County is \$56,499. The relevant question from the survey instrument is as follows:

M13. In surveys like these, households are sometimes grouped according to income. Please stop me when I get to the category that best describes your total household income, before taxes, in the past 12 months.

(HHFAMINC_C)

[IF NEEDED: We want to include income from sources such as wages and salaries, income from a business or a farm, Social Security, pensions, dividends, interest, rent, and any other income received.]

| | | |
|--------------------------------|----|----------------------|
| Less than \$10,000,..... | 1 | GO TO M14 |
| \$10,000 to \$20,000, | 2 | GO TO M15 |
| \$20,000 to \$30,000, | 3 | GO TO M16 |
| \$30,000 to \$40,000, | 4 | GO TO M17 |
| \$40,000 to \$50,000, | 5 | GO TO M18 |
| \$50,000 to \$60,000, | 6 | GO TO M19 |
| \$60,000 to \$70,000, | 7 | GO TO M20 |
| \$70,000 to \$80,000, | 8 | GO TO M21 |
| \$80,000 to \$100,000, or..... | 9 | GO TO BOX BEFORE M22 |
| \$100,000 or more? | 10 | GO TO BOX BEFORE M22 |
| REFUSED | -7 | GO TO BOX BEFORE N1 |
| DON'T KNOW | -8 | GO TO BOX BEFORE N1 |

M14. Was your household income more or less than \$5,000?

(HHINC_C)

| | | |
|-------------------------|----|----------------------|
| \$5,000 OR MORE | 1 | GO TO BOX BEFORE M22 |
| LESS THAN \$5,000 | 2 | GO TO BOX BEFORE M22 |
| REFUSED | -7 | GO TO BOX BEFORE N1 |
| DON'T KNOW | -8 | GO TO BOX BEFORE N1 |

M15. Was your household income more or less than \$15,000?

(HHINC_C)

| | | |
|--------------------------|----|----------------------|
| \$15,000 OR MORE | 1 | GO TO BOX BEFORE M22 |
| LESS THAN \$15,000 | 2 | GO TO BOX BEFORE M22 |
| REFUSED | -7 | GO TO BOX BEFORE N1 |
| DON'T KNOW | -8 | GO TO BOX BEFORE N1 |

| | | | |
|------|--|----|----------------------|
| M16. | Was your household income more or less than \$25,000? (HHINC_C) | | |
| | \$25,000 OR MORE | 1 | GO TO BOX BEFORE M22 |
| | LESS THAN \$25,000 | 2 | GO TO BOX BEFORE M22 |
| | REFUSED | -7 | GO TO BOX BEFORE N1 |
| | DON'T KNOW | -8 | GO TO BOX BEFORE N1 |
| M17. | Was your household income more or less than \$35,000? (HHINC_C) | | |
| | \$35,000 OR MORE | 1 | GO TO BOX BEFORE M22 |
| | LESS THAN \$35,000 | 2 | GO TO BOX BEFORE M22 |
| | REFUSED | -7 | GO TO BOX BEFORE N1 |
| | DON'T KNOW | -8 | GO TO BOX BEFORE N1 |
| M18. | Was your household income more or less than \$45,000? (HHINC_C) | | |
| | \$45,000 OR MORE | 1 | GO TO BOX BEFORE M22 |
| | LESS THAN \$45,000 | 2 | GO TO BOX BEFORE M22 |
| | REFUSED | -7 | GO TO BOX BEFORE N1 |
| | DON'T KNOW | -8 | GO TO BOX BEFORE N1 |
| M19. | Was your household income more or less than \$55,000? (HHINC_C) | | |
| | \$55,000 OR MORE | 1 | GO TO BOX BEFORE M22 |
| | LESS THAN \$55,000 | 2 | GO TO BOX BEFORE M22 |
| | REFUSED | -7 | GO TO BOX BEFORE N1 |
| | DON'T KNOW | -8 | GO TO BOX BEFORE N1 |
| M20. | Was your household income more or less than \$65,000? (HHINC_C) | | |
| | \$65,000 OR MORE | 1 | GO TO BOX BEFORE M22 |
| | LESS THAN \$65,000 | 2 | GO TO BOX BEFORE M22 |
| | REFUSED | -7 | GO TO BOX BEFORE N1 |
| | DON'T KNOW | -8 | GO TO BOX BEFORE N1 |
| M21. | Was your household income more or less than \$75,000? (HHINC_C) | | |
| | \$75,000 OR MORE | 1 | |
| | LESS THAN \$75,000 | 2 | |
| | REFUSED | -7 | GO TO BOX BEFORE N1 |
| | DON'T KNOW | -8 | GO TO BOX BEFORE N1 |
| M22. | Does this include income of all household members? (NONFMFLG) | | |
| | YES | 1 | |
| | NO | 2 | |
| | REFUSED | -7 | |
| | DON'T KNOW | -8 | |

Compared the previously done surveys the 2008 NHTS showed an increase in the number of households earning over \$70,000 and a slight decrease in the number of households in all lower income brackets, using weighted data (Refer to *Figure 4-7*). The 2008 ACS data shows an

even higher percentage for households with such income level. This observation is consistent with the economic growth that took place in the MAG region from 2000 until the Fall of 2008 (when the region was experiencing economic downturn).

Household Distribution by Household Income (Unweighted)

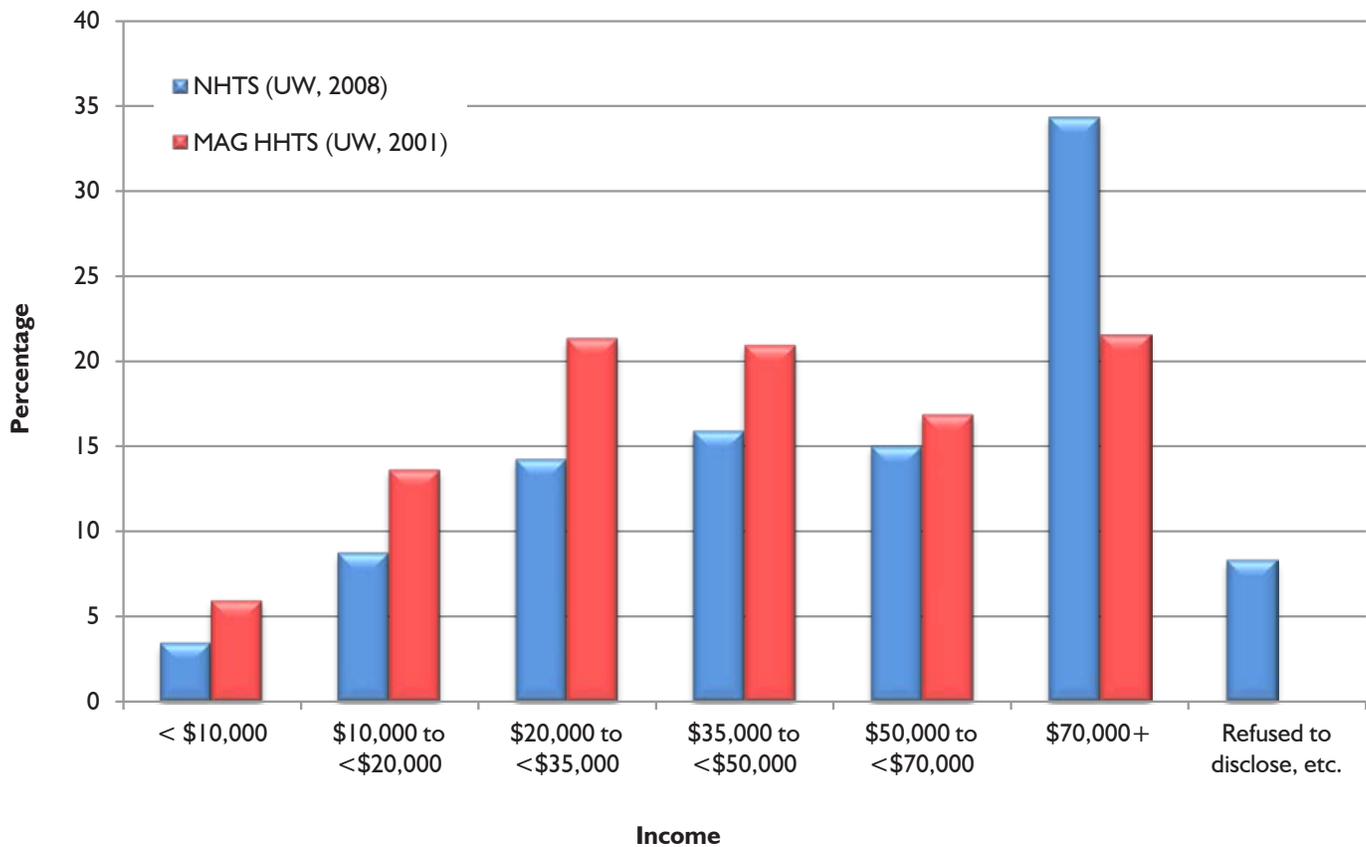


Figure 4-6 Unweighted Household Income in Multiple Surveys

| Household Family Income | NHTS (UW,2008) | MAG HHTS (UW,2001) |
|---------------------------|----------------|--------------------|
| < \$10,000 | 162 | 237 |
| \$10,000 to <\$20,000 | 412 | 546 |
| \$20,000 to <\$35,000 | 671 | 856 |
| \$35,000 to <\$50,000 | 749 | 840 |
| \$50,000 to <\$70,000 | 707 | 675 |
| \$70,000+ | 1,615 | 864 |
| Refused to disclose, etc. | 391 | 0 |
| Total | 4,707 | 4,018 |

Table 4-6 Unweighted Household Distribution by Household Income

Household Distribution by Household Income (Weighted)

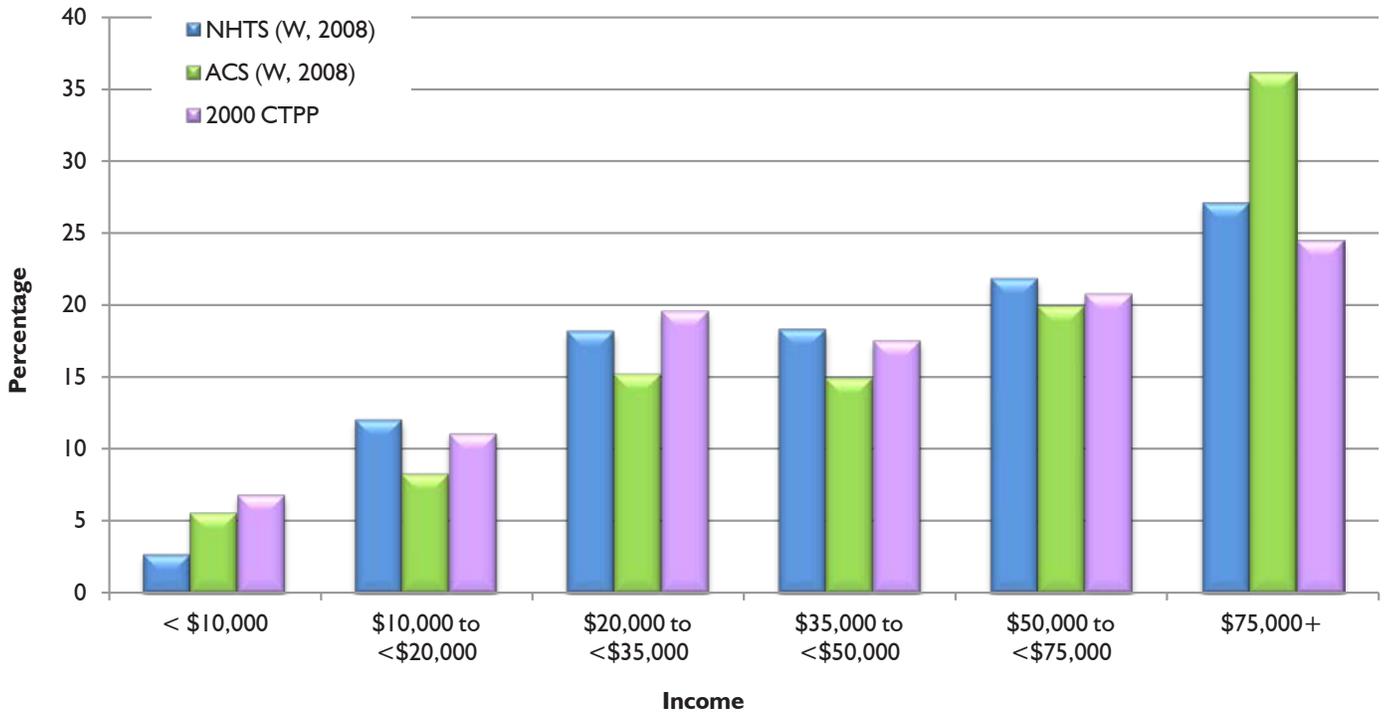


Figure 4-7 Weighted Household Distribution by Income

| Income | NHTS (W,2008) | CTPP (2000) | ACS (W,2008) |
|-----------------------|------------------|------------------|------------------|
| < \$10,000 | 37,039 | 77,075 | 75,075 |
| \$10,000 to <\$20,000 | 165,756 | 125,350 | 111,516 |
| \$20,000 to <\$35,000 | 249,613 | 221,350 | 204,433 |
| \$35,000 to <\$50,000 | 251,380 | 197,860 | 200,488 |
| \$50,000 to <\$75,000 | 299,993 | 234,725 | 267,686 |
| \$75,000+ | 371,884 | 276,665 | 485,399 |
| Total | 1,375,664 | 1,133,025 | 1,344,597 |

Table 4-7 Weighted Household Distribution by Income

4.6 Type of Household Residences

The 2008 NHTS survey indicated that slightly over 70% of residences are single family and the remaining is of “other” type. Compared to surveys done in the years 2000 and 2001, the current survey shows an increase of over 10% of the relative share of single family residences. The relevant question from the survey instrument is as follows:

| Residence Type | NHTS (W,2008) | MAG HHTS (W,2001) | ACS (W,2008) |
|-----------------|------------------|-------------------|------------------|
| Single Family | 1,083,284 | 619,277 | 944,580 |
| All other types | 377,573 | 361,982 | 400,017 |
| Total | 1,460,858 | 981,258 | 1,344,597 |

Table 4-8 Residence Type in Multiple Surveys

C1. Now I have a few questions about your home. Do you live in a...
(HOMETYPE)

- Single family detached house, 1
- Single family attached house, 2
- A building with 2 or more apartments or condos, or 3
- A mobile home or trailer?, 4
- BOAT, RV, VAN, ETC..... 5
- DORM ROOM, FRATERNITY OR SORORITY HOUSE..... 6
- OTHER (**HOMETYOS**)..... 97
- (SPECIFY) _____
- REFUSED -7
- DON'T KNOW -8

Distribution by Residence Type (Weighted)

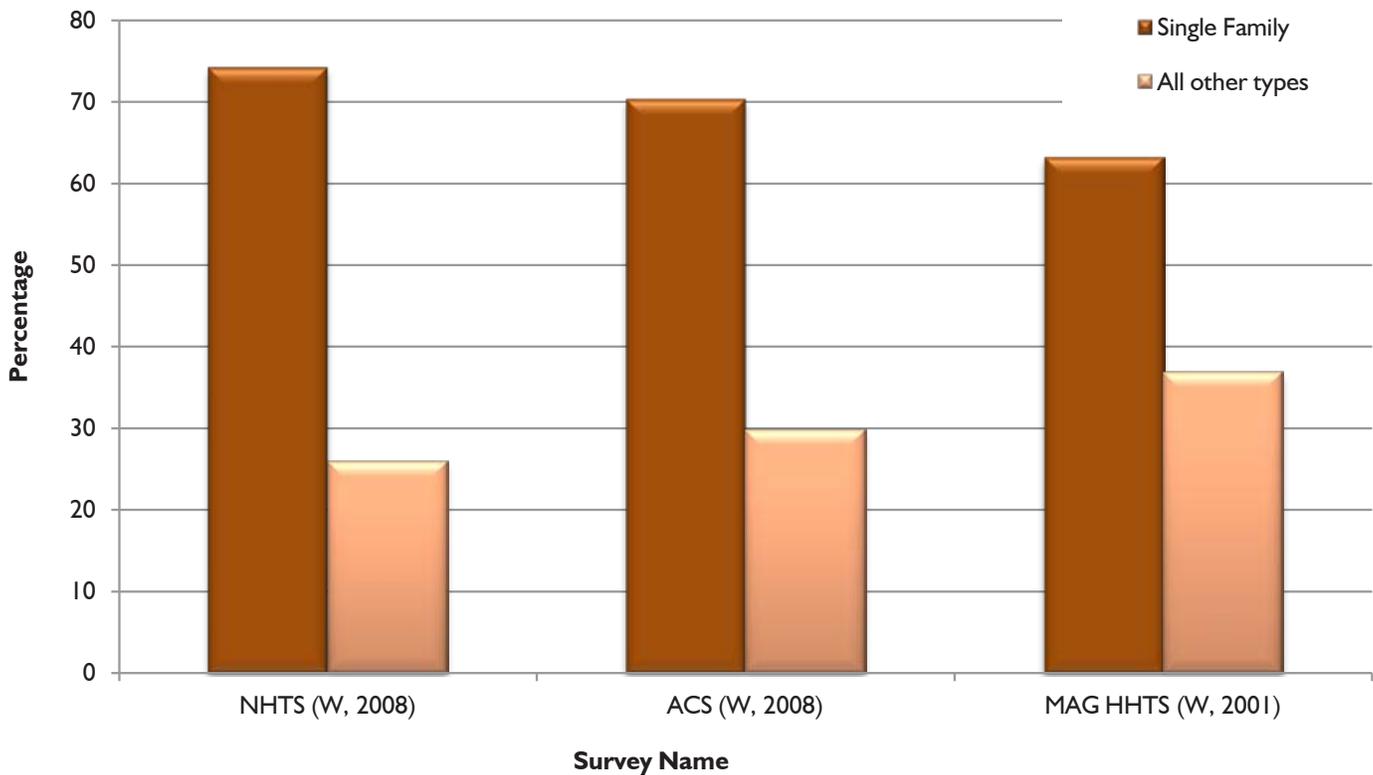


Figure 4-8 Residence Type in Multiple Surveys

4.7 Ownership Status of Households

According to the NHTS data, almost 63% of residents own their homes and a little over 36% of residents are renters. The survey captured five percent less home ownership compared to 2008 ACS, Census 2000 and from 2001 Household Travel survey (Refer to *Table 4-9* and *Figure 4-9*). The relevant question from the survey instrument is as follows:

| Home Ownership | NHTS (W,2008) | MAG HHTS (W,2001) | ACS (W,2008) |
|----------------|------------------|-------------------|------------------|
| Own | 923,028 | 685,330 | 914,730 |
| Rent/Other | 538,672 | 295,928 | 429,868 |
| Total | 1,461,700 | 981,258 | 1,344,598 |

Table 4-9 Cross-Survey Comparison by Home Ownership

C2. Is your home owned or rented?
(HOMEOWN)

| | | |
|---|----------------------------------|----|
| [| OWNED | 1 |
| | RENTED | 2 |
| | OCCUPIED WITHOUT PAYMENT OF RENT | 3 |
| | OTHER (HOMEOWOS)..... | 97 |
| | [SPECIFY] _____ | |
| | REFUSED | -7 |
| | DON'T KNOW | -8 |

Distribution by Home Ownership (Weighted)

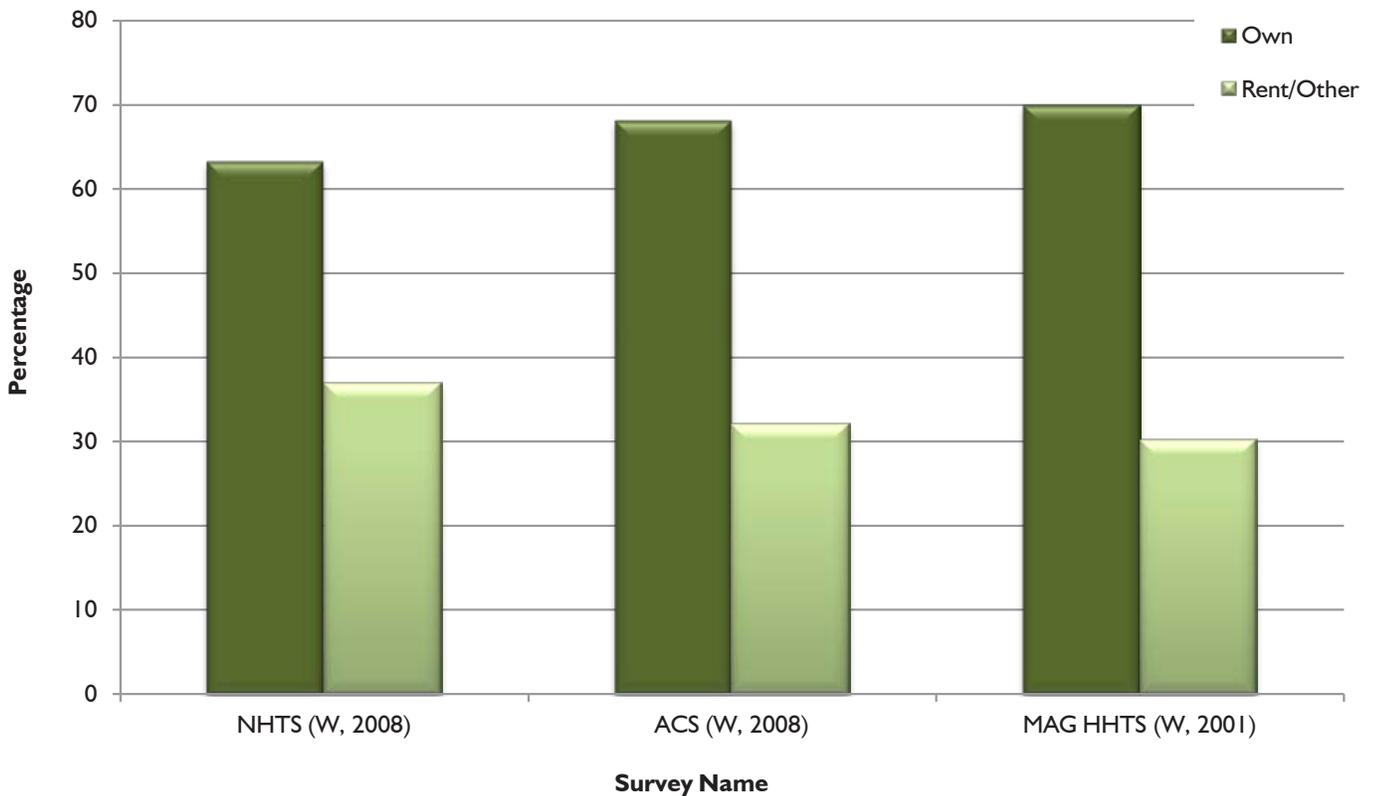


Figure 4-9 Distribution by Home Ownership in Multiple Surveys

4.8 Household Workers

The unweighted data indicates that about thirty-six percent of households have no workers. The corresponding number using weighted data is about twenty four percent. This number is close to the percentage from 2000 CTPP and the 2001 MAG Household Travel Survey. In other words, the difference between weighted and unweighted data in terms of percentage of households with no workers is high. This is another example that shows difference in distributions between weighted and unweighted data. A possible explanation of this difference is high response rates from retirees in contrast to lower response rate of

working people. There is a significant presence of retirement communities in MAG region (Refer to *Map 4-4*) because of the area’s attractiveness to retirees due to its warm winter and affordable housing.

Another trend in this survey is the increase in the number of two-worker households compared to the 2000 and 2001 surveys. The percentage of households with at least three workers slightly reduced when compared to 2000 and 2001 surveys. A possible explanation of these trends is the number of families who invested in real estate during the boom cycle of 2001 to 2007. The relevant question from the survey instrument is as follows:

| Household Workers | NHTS (2008) | MAG HHTS (2001) |
|-------------------|-------------|-----------------|
| 0 | 1,734 | 1,000 |
| 1 | 1,740 | 1,535 |
| 2 | 1,067 | 1,238 |
| 3+ | 166 | 245 |
| Total | 4,707 | 4,018 |

Ca. {Do you/Does FNAME/AGE/SEX} have a job?
(WRKR)

YES 1
NO 2
REFUSED -7
DON'T KNOW -8

Table 4-10 Unweighted Distribution of Household Workers

Distribution of Household Workers (Unweighted)

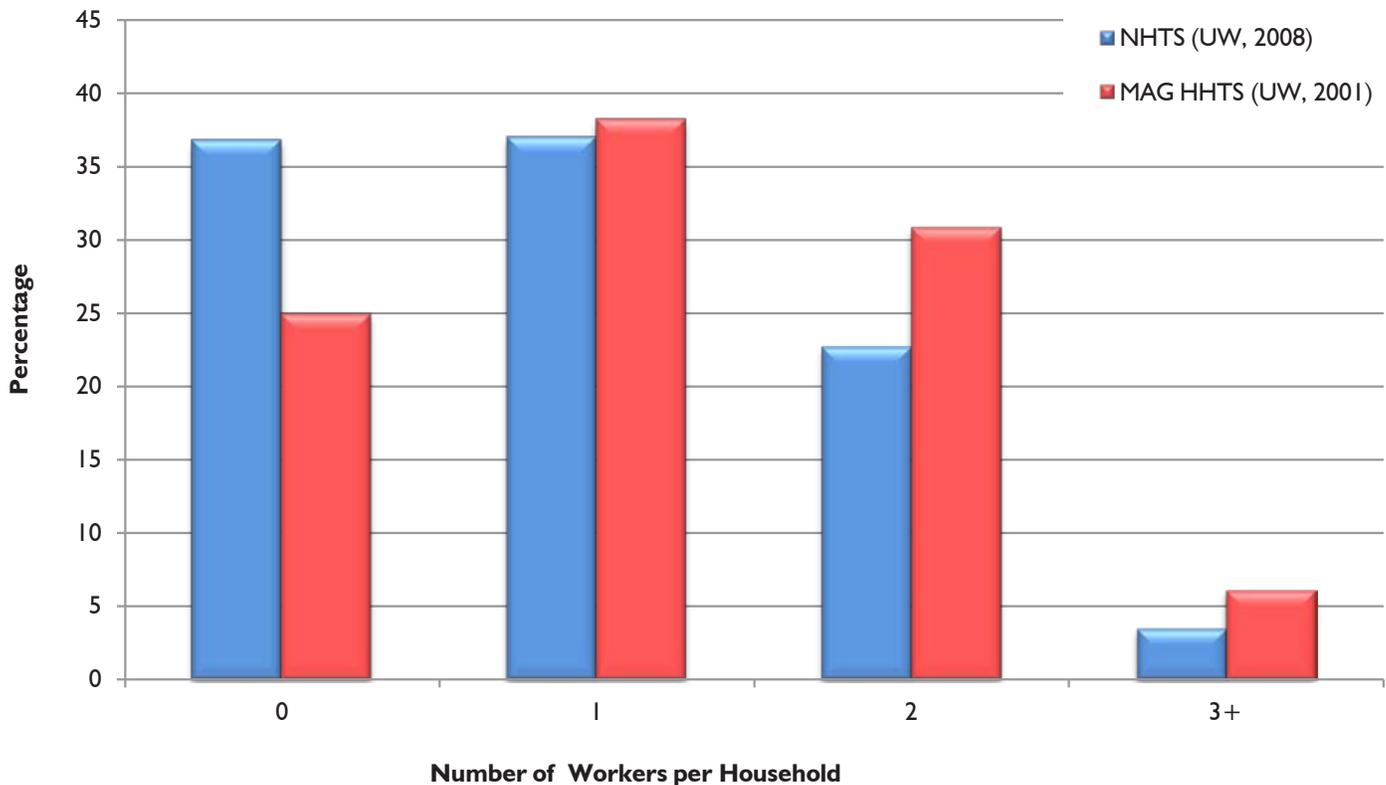


Figure 4-10 Unweighted Distribution of Household Workers

Distribution of Household Workers (Weighted)

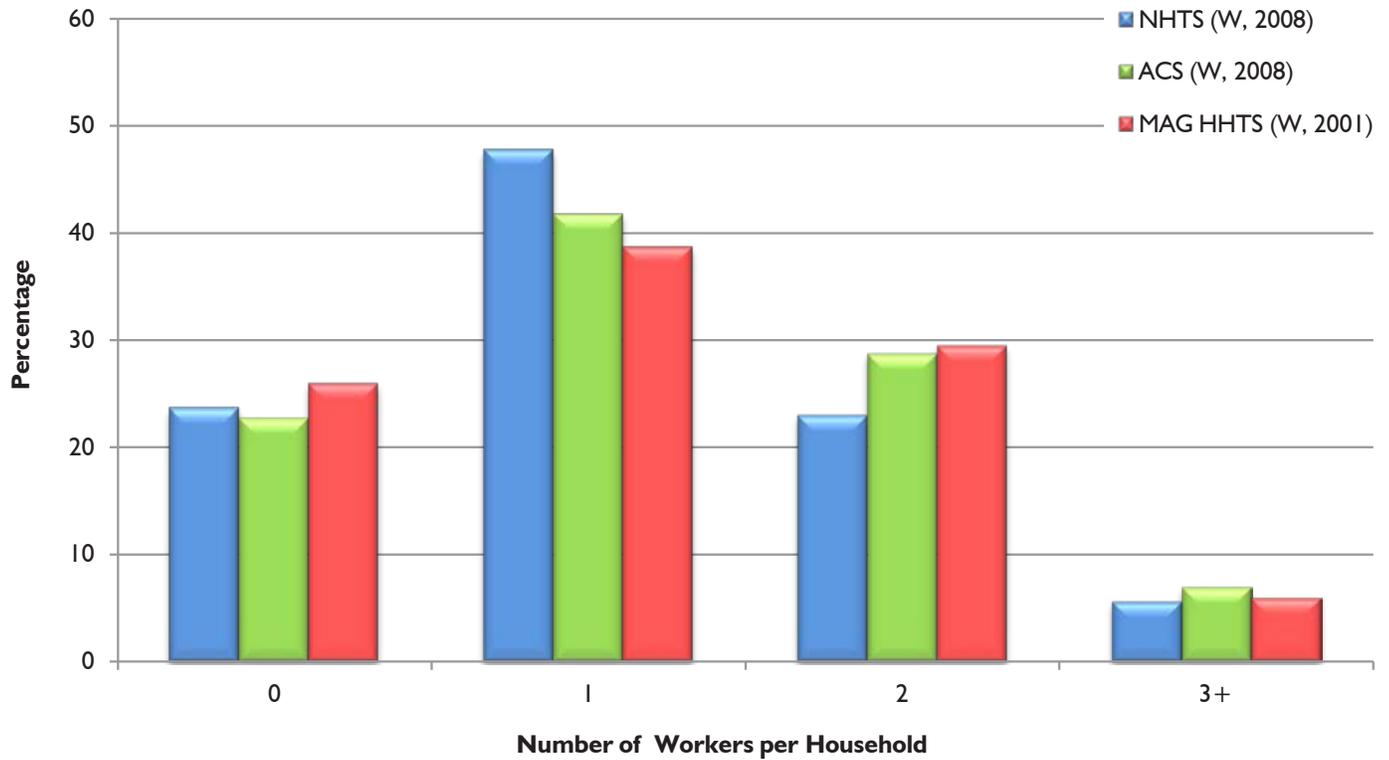
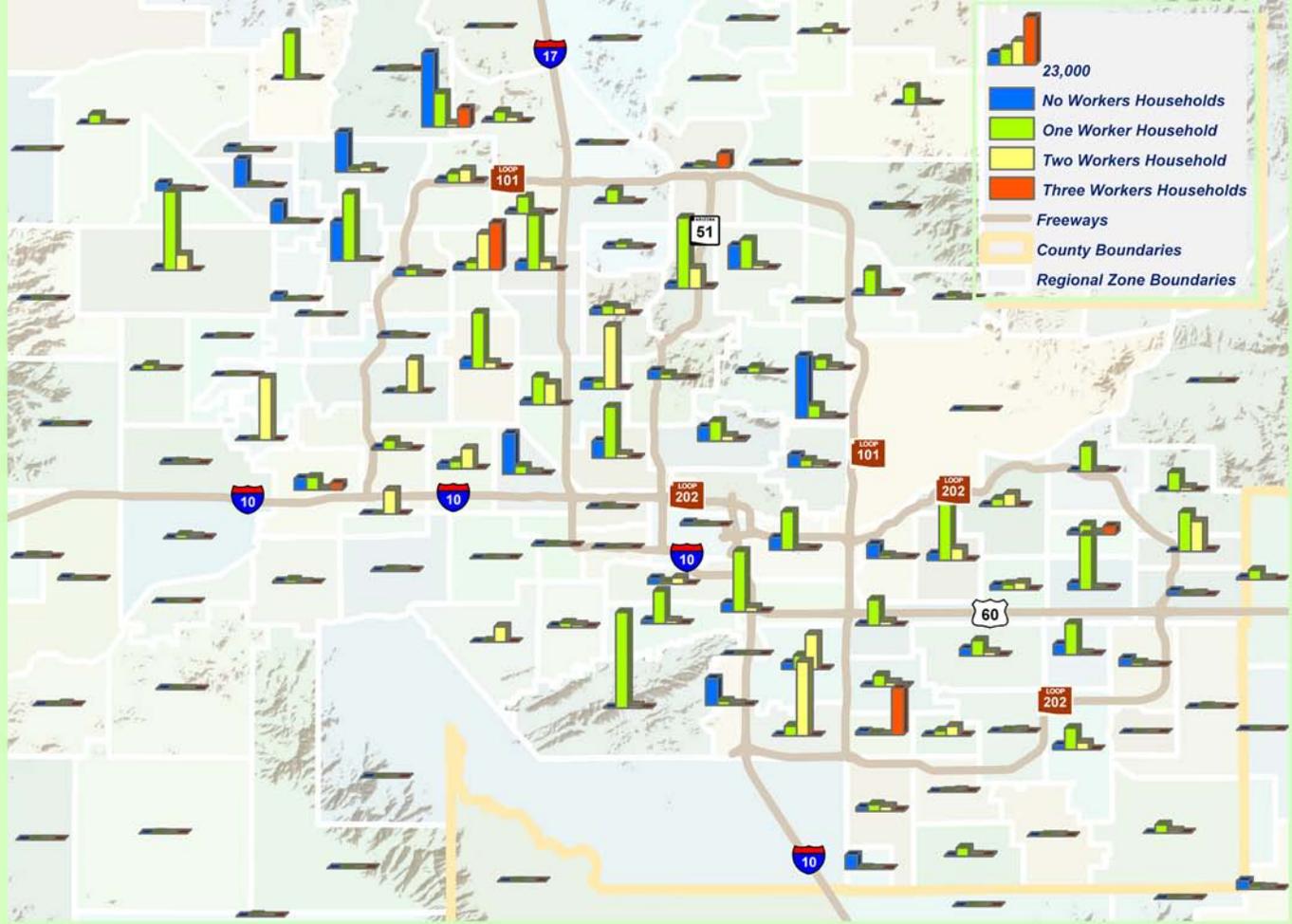


Figure 4-11 Weighted Distribution of Household Workers in Multiple Surveys

| Household Workers | NHTS (W,2008) | MAG HHTS (W,2001) | CTPP (W,2000) | ACS (W,2008) |
|-------------------|------------------|-------------------|------------------|------------------|
| 0 | 346,057 | 254,475 | 283,580 | 305,152 |
| 1 | 697,416 | 379,419 | 419,000 | 560,413 |
| 2 | 336,032 | 288,865 | 346,140 | 385,618 |
| 3+ | 82,195 | 58,500 | 84,325 | 93,414 |
| Total | 1,461,700 | 981,258 | 1,133,045 | 1,344,597 |

Table 4-11 Weighted Distribution of Workers

2008 Spatial Distribution of Households by Number of Workers



Source: 2008 National Household Travel Survey, Weighted Data

Map 4-4 Spatial Distribution of Households by Number of Workers in RAZ

4.9 Household Ethnicity

One of the limitations for a nationwide survey such as NHTS is the under-coverage for minorities such as African Americans, Hispanics, etc. The survey indicates that about 10.5 percent of the population is of Hispanic race. According to the 2010 US census bureau estimates however, about 30% of the population if the Maricopa County is Hispanic. NHTS reports that 88.3% of the respondents are white, while the 2008 ACS estimates that 58.6% of people in Maricopa County are white. According to 2010 US census bureau estimates, Hispanic population grew at the rate of forty three percent between 2000 and 2010. Among Hispanic households, the degree of assimilation might de-

termine their travel choices. Travel choices made by every ethnic group must be sufficiently captured by the survey.

The response rate of Hispanics has been traditionally low and the survey results revealed a tendency of even bigger underreporting of Hispanics compared to previously completed surveys. The need to address the above issue was communicated to NHTS by MAG staff. The spatial distribution of households by race from 2001 and 2008 survey data is shown in *Maps 4-5* and *4-6* respectively. Future household travel surveys for the region must explore new and innovative approaches that recruit households for survey participation. The relevant question from the survey instrument is as follows:

C6. Are you of Hispanic, Latino, or Spanish origin?
(HH_HISP)

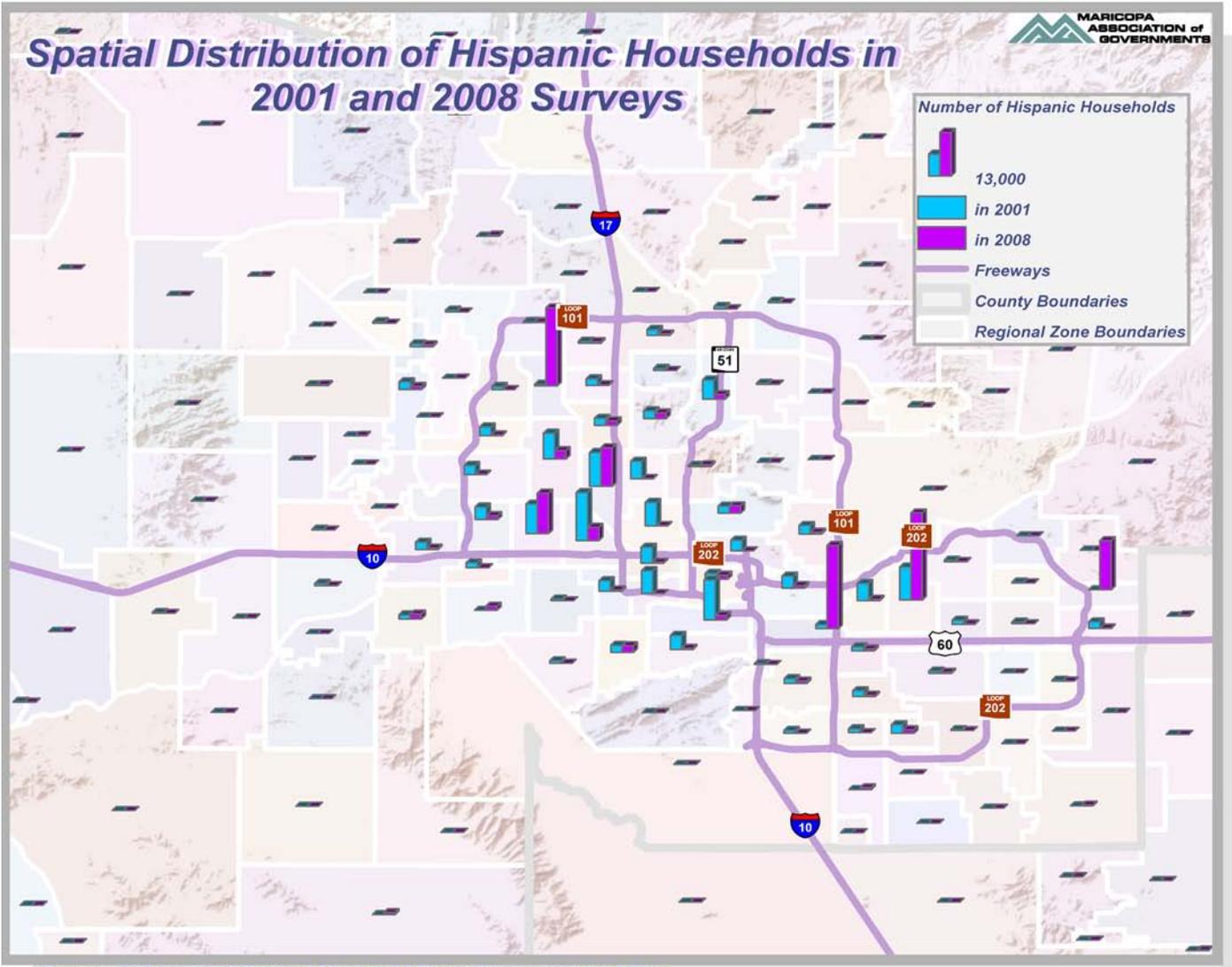
YES 1
NO 2
REFUSED -7
DON'T KNOW -8

C7. I'm going to read a list of races. {In addition to being Hispanic, please/Please} tell me which best describes your race. Are you...
(HH_RACE)

White, 1
African American, Black, 2
Asian, 3
American Indian, Alaskan Native, 4
Native Hawaiian, or other Pacific
Islander? 5
MULTIRACIAL 6
HISPANIC/MEXICAN 7
OTHER (HH_RACOS) 97
[SPECIFY]
REFUSED -7
DON'T KNOW -8

| Household Ethnicity | NHTS (W,2008) | MAG HHTS (W,2001) | ACS (W,2008) |
|------------------------|------------------|-------------------|------------------|
| Hispanic | 154,082 | 166,926 | 415,078 |
| White | 1,132,392 | 728,427 | 788,338 |
| Black/African American | 67,027 | 31,789 | 55,129 |
| American Indian | 41,841 | 10,845 | 25,010 |
| Asian/Pacific Islander | 15,973 | 16,203 | 38,456 |
| Other, Refused, etc. | 50,098 | 27,070 | 22,590 |
| Total | 1,461,413 | 981,258 | 1,344,601 |

Table 4-12 Weighted Variation of Household Ethnicity



Map 4-5 Spatial Distribution of Hispanic Households in 2001 and 2008 Surveys

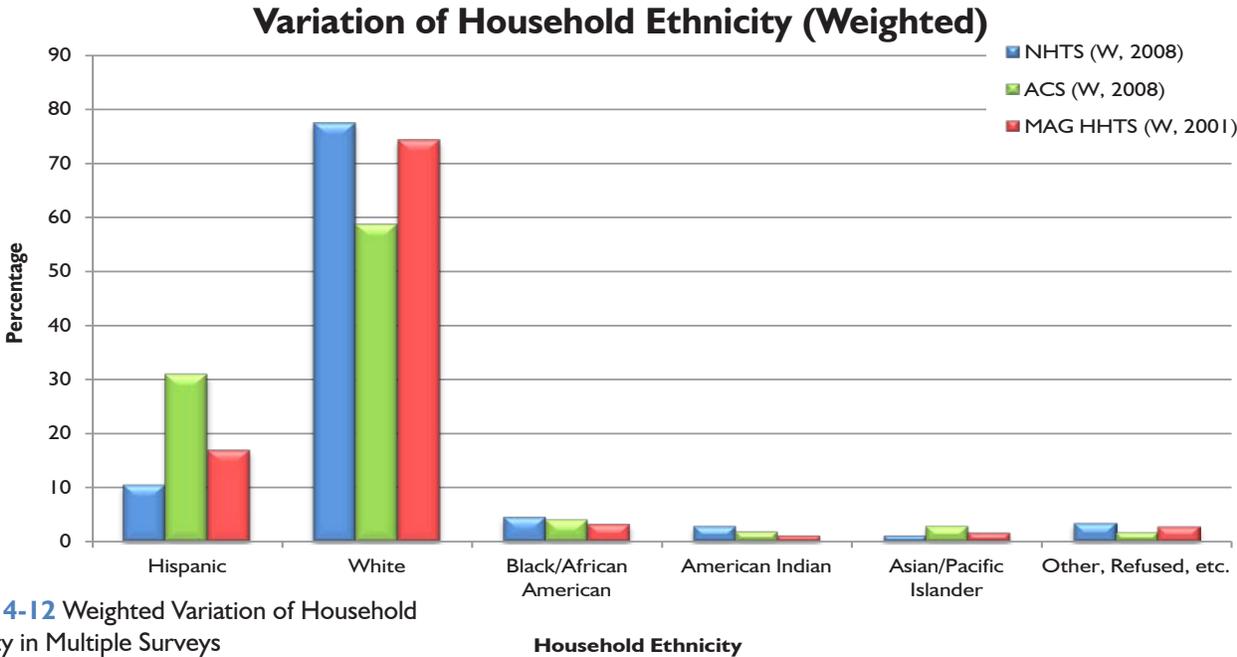
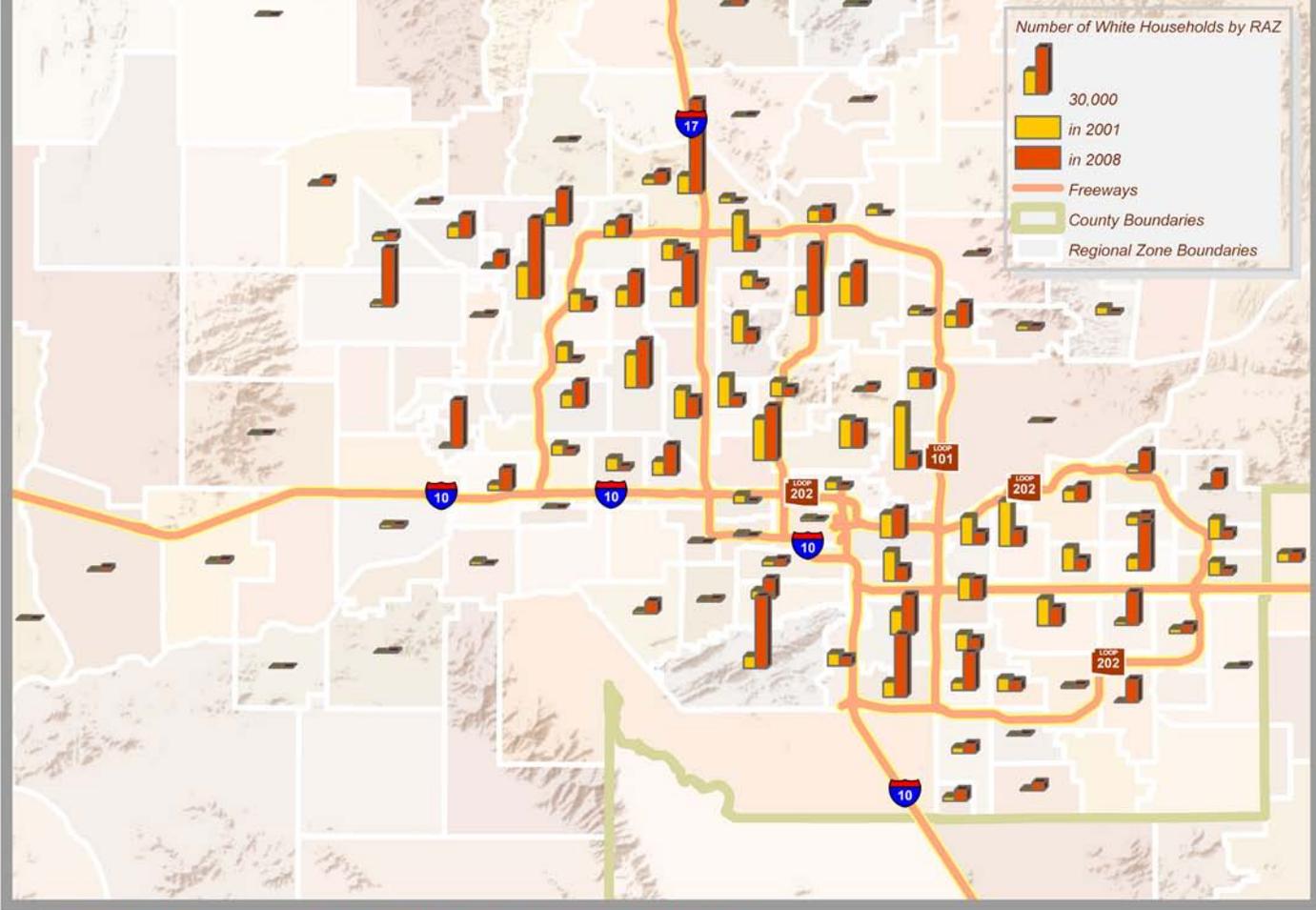


Figure 4-12 Weighted Variation of Household Ethnicity in Multiple Surveys

Spatial Distribution of White Households in 2001 and 2008 Surveys



Source: 2001 and 2008 National Household Travel Surveys, Weighted Data

Map 4-6 Spatial Distribution of White Households in 2001 and 2008 Surveys

4.10 Locations

Latitude and longitude data were provided to MAG as part of the dataset. Quality control procedures were implemented by FHWA’s consultants to check the accuracy of geocoding. The main procedure involved sorting geocoded locations by county, then displaying all geocoded points for a particular county using the county coverage file. Any points falling outside the county boundaries were verified and re-geocoded if necessary. The final data file contains a geocoding quality control variable that identifies the action taken on a particular record, the quality control check

performed, and/or the outcome of the check. For more details regarding geo-coding effort undertaken at MAG, please refer to Section 2.7 of this report.

4.11 Home Locations

MAG staff had checked and enhanced geocoding using latitude and longitude data provided by FHWA. All of the 4,707 households were geocoded. The table below provides a summary of home locations grouped by MPA (municipal planning areas). The relevant question from the survey instrument is as follows:

- D8. Travel patterns are affected by where people choose to live. It is important that we get at least a general location of your household. {Would you please give me the name of the street or road you live on?}
(HHRD1)

[IF NEEDED: Transportation planners use data from this survey to assess current travel patterns and anticipate new ones. These patterns are affected by where people choose to live.]

FIRST CROSS ROAD

{And what is the name of the nearest intersecting street or road?}
(HHRD2)

SECOND CROSS ROAD

REFUSED..... -7
DON'T KNOW..... -8

- D9. What is the ZIP Code for where your home is located?
(HHZIP)

[IF NEEDED: Transportation planners use data from this survey to assess current travel patterns and anticipate new ones. These patterns are affected by where people choose to live.]

ZIP CODE

REFUSED..... -7
DON'T KNOW..... -8

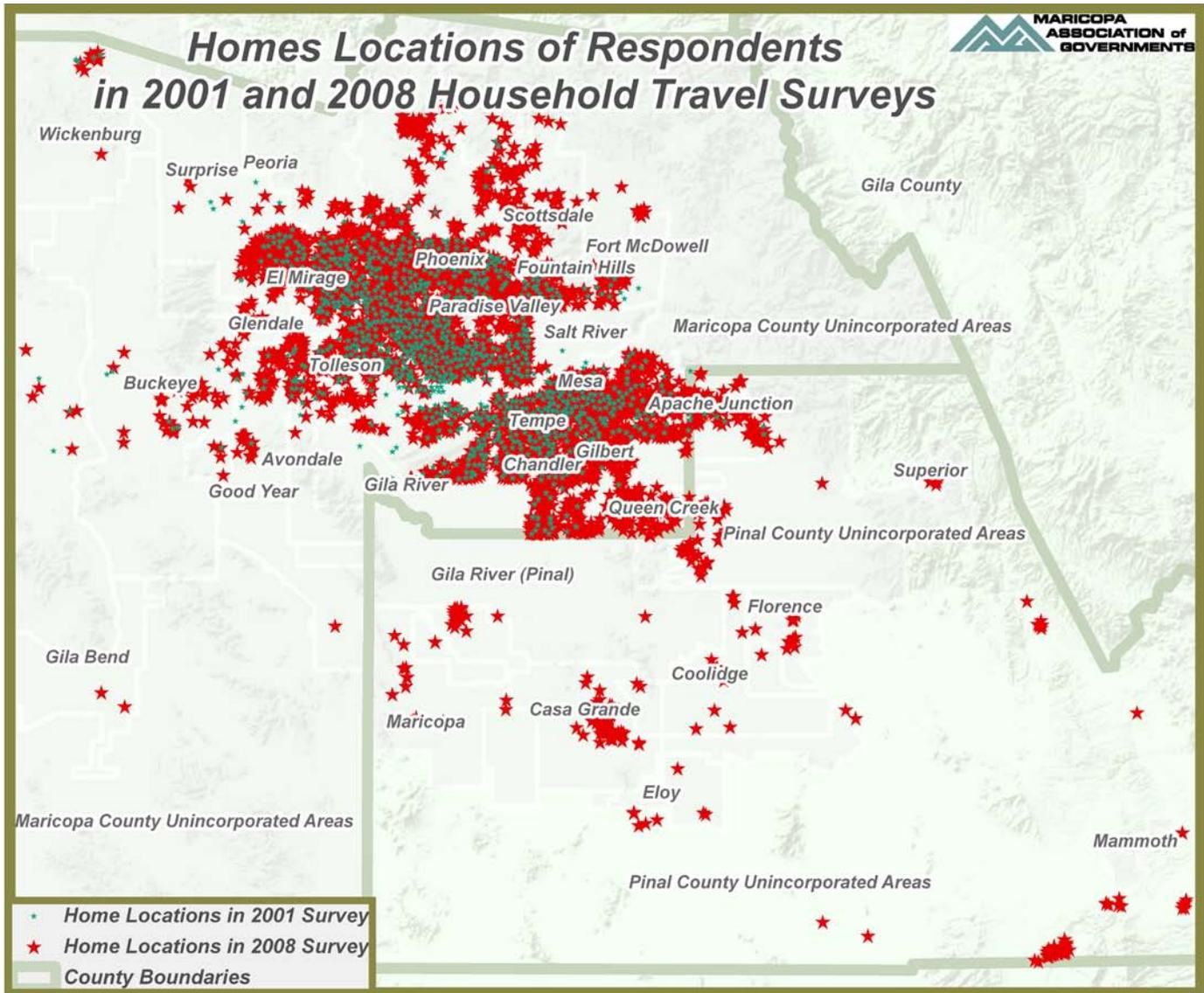
| County | 2001 Number of Unweighted Surveys | 2001 Percent of Surveys | 2008 Number of Unweighted Surveys | 2008 Percent of Unweighted Surveys | 2008 Number of Weighted Surveys | 2008 Percent of Weighted Surveys |
|----------|--|-------------------------------|--|---|--|--|
| Maricopa | 4,018 | 100% | 4,354 | 92.5% | 1,412,001 | 96.6% |
| Pinal | 0 | 0% | 353 | 7.5% | 49,699 | 3.4% |
| Total | 4,018 | 100% | 4,707 | 100.00% | 1,461,700 | 100.0% |

Table 4-13 Number of Households by County

| Municipal Planning Area (MPA) | 2008 NHTS Households Unweighted | Percent 2008 NHTS Households Unweighted | 2008 NHTS Households Weighted | Percent 2008 NHTS Households Weighted |
|--------------------------------|---------------------------------|---|-------------------------------|---------------------------------------|
| Apache Junction | 86 | 1.83% | 7,239 | 0.50% |
| Avondale | 57 | 1.21% | 17,568 | 1.20% |
| Buckeye | 42 | 0.89% | 6,061 | 0.41% |
| Carefree | 7 | 0.15% | 287 | 0.02% |
| Casa Grande | 61 | 1.30% | 10,093 | 0.69% |
| Cave Creek | 10 | 0.21% | 1,021 | 0.07% |
| Chandler | 295 | 6.27% | 95,171 | 6.51% |
| Coolidge | 15 | 0.32% | 9,929 | 0.68% |
| El Mirage | 12 | 0.25% | 2,633 | 0.18% |
| Eloy | 3 | 0.06% | 335 | 0.02% |
| Florence | 15 | 0.32% | 7,788 | 0.53% |
| Fountain Hills | 35 | 0.74% | 1,732 | 0.12% |
| Gila Bend | 2 | 0.04% | 903 | 0.06% |
| Gila River | 1 | 0.02% | 59 | 0.00% |
| Gila River (Pinal) | 2 | 0.04% | 141 | 0.01% |
| Gilbert | 238 | 5.06% | 52,104 | 3.56% |
| Glendale | 267 | 5.67% | 111,401 | 7.62% |
| Goodyear | 87 | 1.85% | 6,361 | 0.44% |
| Kearny | 6 | 0.13% | 257 | 0.02% |
| Litchfield Park | 10 | 0.21% | 29,829 | 2.04% |
| Mammoth | 2 | 0.04% | 49 | 0.00% |
| Maricopa | 29 | 0.62% | 1,821 | 0.12% |
| Maricopa County Unincorporated | 342 | 7.27% | 76,656 | 5.24% |
| Mesa | 589 | 12.51% | 188,305 | 12.88% |
| Other Pinal (Unincorporated) | 61 | 1.30% | 4,783 | 0.33% |
| Paradise Valley | 19 | 0.40% | 3,692 | 0.25% |
| Peoria | 177 | 3.76% | 55,214 | 3.78% |
| Phoenix | 1,425 | 30.27% | 536,834 | 36.73% |
| Pinal County (Unincorporated) | 67 | 1.42% | 6,951 | 0.48% |
| Queen Creek | 37 | 0.79% | 5,293 | 0.36% |
| Salt River | 3 | 0.06% | 73 | 0.00% |
| Scottsdale | 330 | 7.01% | 54,937 | 3.76% |
| Superior | 3 | 0.06% | 249 | 0.02% |
| Surprise | 162 | 3.44% | 64,959 | 4.44% |
| Tempe | 190 | 4.04% | 86,509 | 5.92% |
| Tolleson | 3 | 0.06% | 11,522 | 0.79% |
| Wickenburg | 12 | 0.25% | 2,337 | 0.16% |
| Youngtown | 5 | 0.11% | 603 | 0.04% |
| Total | 4,707 | 100.00% | 1,461,700 | 100% |

Table 4-14 Number of Households by MPA

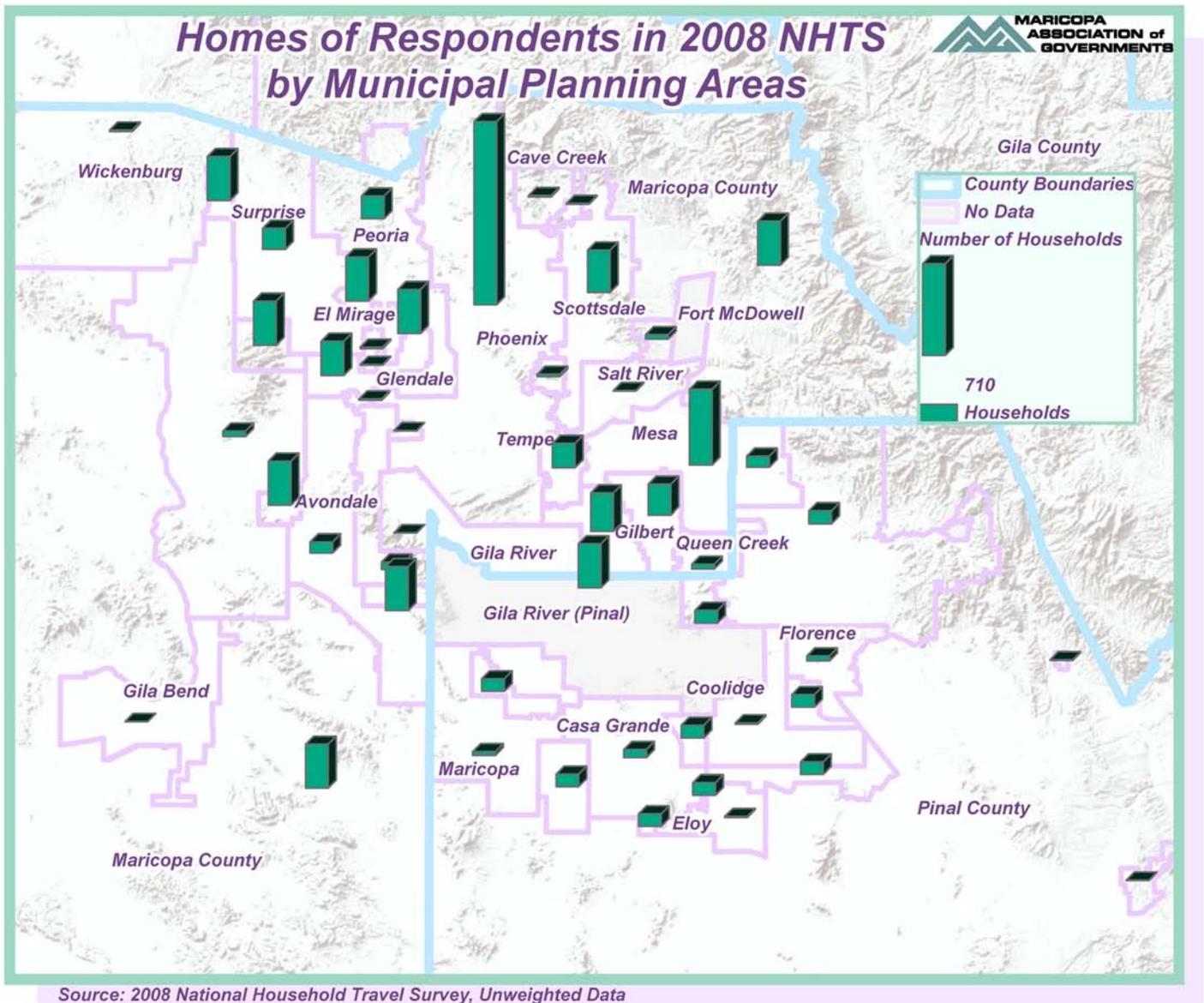
Map 4-7 shows a comparison between the home locations in the 2001 Household Travel Survey and the 2008 National Household Travel Survey. The 2008 sample is spread over a significantly larger spatial extent which corresponds to the growth in the region in the time period between the two surveys. It can be noted that weighted percent of households in Pinal County is substantially different from unweighted percent of households.



Sources: 2001 Household Travel Survey and 2008 National Household Travel Survey

Map 4-7 Home Locations of Respondents in 2001 and 2008 Household Travel Surveys

One of the possible explanations can be an oversampling of retirement communities in Pinal County area. Refer to *Map 4-8. Table 4-15 (page 44)* shows a comparison between weighted population from NHTS and from MAG estimates for 2008 for Maricopa County only (population number for MPA's within Pinal County for 2008 was not available).



Map 4-8 Home Locations in 2008 NHTS, Aggregated at Municipal Planning Level

| MPA* | Unweighted Population | Percent Unweighted Population | Weighted Population | Percent Weighted Population |
|----------------------------------|-----------------------|-------------------------------|---------------------|-----------------------------|
| Avondale | 145 | 1.49% | 50,233 | 1.31% |
| Buckeye | 113 | 1.16% | 18,749 | 0.49% |
| Carefree | 12 | 0.12% | 473 | 0.01% |
| Cave Creek | 20 | 0.21% | 1,925 | 0.05% |
| Chandler | 749 | 7.71% | 347,091 | 9.08% |
| Maricopa County | 549 | 5.65% | 118,330 | 3.10% |
| El Mirage | 26 | 0.27% | 3,729 | 0.10% |
| Fountain Hills | 64 | 0.66% | 3,093 | 0.08% |
| Gila Bend | 2 | 0.02% | 745 | 0.02% |
| Gila River | 2 | 0.02% | 114 | 0.00% |
| Gilbert | 664 | 6.83% | 138,960 | 3.64% |
| Glendale | 621 | 6.39% | 469,244 | 12.28% |
| Goodyear | 206 | 2.12% | 21,042 | 0.55% |
| Litchfield Park | 25 | 0.26% | 127,287 | 3.33% |
| Mesa | 1,398 | 14.38% | 556,612 | 14.56% |
| Paradise Valley | 35 | 0.36% | 10,708 | 0.28% |
| Peoria | 400 | 4.12% | 120,798 | 3.16% |
| Phoenix | 3,110 | 32.00% | 1,106,686 | 28.95% |
| Queen Creek | 97 | 1.00% | 30,201 | 0.79% |
| Salt River | 6 | 0.06% | 116 | 0.00% |
| Scottsdale | 664 | 6.83% | 129,440 | 3.39% |
| Surprise | 367 | 3.78% | 234,172 | 6.13% |
| Tempe | 402 | 4.14% | 237,058 | 6.20% |
| Tolleson | 8 | 0.08% | 88,154 | 2.31% |
| Wickenburg | 27 | 0.28% | 6,446 | 0.17% |
| Youngtown | 7 | 0.07% | 769 | 0.02% |
| Total for Maricopa County | 9,719 | 100.00% | 3,822,172 | 100.00% |

*Guadalupe and Fort McDowell, although located in Maricopa County are not included in the above summary since the NHTS did not sample households from those places.

Table 4-15 Population by MPA within Maricopa County

4.12 Work Locations

The raw data results show that there are respondents who work out of state, including in far away states. A possible explanation of these records is the presence of people who have two residences, one of which is in Arizona.

Typically, they own a home in a place with a colder climate, where they spend the summer. During the winter they reside in Arizona. Sometimes they work from home. An aggregation of work locations by states is shown in the The relevant question from the survey instrument is as follows:

- E10. What is the street address of {your/SUBJECT'S} {primary} workplace?
(WKSTNUM, WKSTNAME, WKCITY,) WORKSTAT WORKZIP

[IF NEEDED: We are not going to contact you there. Transportation planners are interested in workplace location because travel to work often affects other daily travel.]

| | | | |
|---------------------|-------------|----------|--|
| | | | |
| STREET NUMBER | STREET NAME | | |
| | | | |
| CITY | STATE | ZIP CODE | |
| REFUSED -7 | | | |
| DON'T KNOW -8 | | | |

- E11. {We would like to know the approximate location of {your/SUBJECT'S} {primary} workplace. What is the name of the street or road nearest {your/SUBJECT'S} {primary} workplace?}

{I have recorded that your {primary} workplace is on...

(WKROAD1)
 {WKSTNAME}
 FIRST ROAD: _____

{What is the name of the nearest intersecting street or road?}
(WKROAD2)
 SECOND ROAD: _____

REFUSED -7
 DON'T KNOW -8

- E13. Would you please provide a landmark that is close to {your/his/her} {primary} workplace? This could be a well-known building, park, monument, or school.

(WKLDMRK1-3)

[IF NEEDED: Transportation planners are interested in workplace location because travel to work often affects other daily travel.]

 NAME OF A LANDMARK

REFUSED -7
 DON'T KNOW -8

Almost all participants in the current survey – 95.74% (who claimed to work in Arizona) commute to Maricopa County, 3.03% work in Pinal County and a small number of respondents had work locations spread among the remaining Arizona counties as follows (*Tables 4-17 and 4-18* respectively):



Of the 4,419 respondents who are working, 4,290 have work locations that were successfully geocoded. The home locations of all workers were also successfully geocoded. A summary of workers’ residences in both Maricopa and Pinal counties by MPA is provided in *Table 4-18* on the next page.

| Work Place Location — State | Unweighted Work Locations by State | Percent Unweighted Work Locations by State | Weighted Work Locations by State | Percent Weighted Work Locations by State |
|---------------------------------|------------------------------------|--|----------------------------------|--|
| Arizona | 4,268 | 96.58% | 2,064,082 | 96.29% |
| Out of State | 21 | 0.48% | 1,653 | 0.08% |
| Total Geocoded Locations | 4,289 | 97.06% | 2,065,735 | 96.37% |
| No Coordinates | 130 | 2.94% | 77,898 | 3.63% |
| Total Work Locations | 4,419 | 100.00% | 2,143,632 | 100.00% |

Table 4-16 Summary of Work Locations by State

| Work Place Location — County | Unweighted Work Locations by County | Percent Unweighted Work Locations by County | Weighted Work Locations by County | Percent Weighted Work Locations by County |
|------------------------------|-------------------------------------|---|-----------------------------------|---|
| Maricopa | 4,086 | 95.74% | 2,027,161 | 98.21% |
| Pinal | 157 | 3.68% | 31,398 | 1.52% |
| Pima | 15 | 0.35% | 1,421 | 0.07% |
| Yavapai | 5 | 0.12% | 3,577 | 0.17% |
| Gila | 2 | 0.05% | 128 | 0.01% |
| Cochise | 1 | 0.02% | 325 | 0.02% |
| Greenlee | 1 | 0.02% | 11 | 0.00% |
| Mohave | 1 | 0.02% | 62 | 0.00% |
| | 4,268 | 100.00% | 2,064,082 | 100.00% |

Table 4-17 Summary of Arizona Work Locations by County

| MPA | Unweighted Geocoded Work Locations by MPA | Percent Unweighted Geocoded Work Locations by MPA | Weighted Geocoded Work Locations by MPA | Percent Weighted Geocoded Work Locations by MPA |
|--------------------------------|---|---|---|---|
| Apache Junction | 59 | 1.38% | 6,143 | 0.30% |
| Avondale | 58 | 1.35% | 23,894 | 1.16% |
| Buckeye | 40 | 0.93% | 9,576 | 0.46% |
| Carefree | 8 | 0.19% | 383 | 0.02% |
| Casa Grande | 53 | 1.24% | 9,140 | 0.44% |
| Cave Creek | 6 | 0.14% | 1,198 | 0.06% |
| Chandler | 343 | 8.00% | 205,415 | 9.94% |
| Coolidge | 12 | 0.28% | 14,367 | 0.70% |
| El Mirage | 9 | 0.21% | 1,195 | 0.06% |
| Eloy | 1 | 0.02% | 25 | 0.00% |
| Florence | 2 | 0.05% | 939 | 0.05% |
| Fountain Hills | 28 | 0.65% | 1,846 | 0.09% |
| Gila Bend | 1 | 0.02% | 342 | 0.02% |
| Gilbert | 281 | 6.55% | 70,782 | 3.43% |
| Glendale | 285 | 6.64% | 266,720 | 12.91% |
| Goodyear | 88 | 2.05% | 10,416 | 0.50% |
| Guadalupe | 2 | 0.05% | 556 | 0.03% |
| Kearny | 6 | 0.14% | 415 | 0.02% |
| Litchfield Park | 9 | 0.21% | 83,888 | 4.06% |
| Maricopa | 24 | 0.56% | 3,178 | 0.15% |
| Maricopa County Unincorporated | 93 | 2.17% | 26,539 | 1.28% |
| Mesa | 581 | 13.54% | 294,360 | 14.25% |
| Out of State or Modeling Area | 29 | 0.68% | 3,268 | 0.16% |
| Paradise Valley | 14 | 0.33% | 6,675 | 0.32% |
| Peoria | 164 | 3.82% | 58,786 | 2.85% |
| Phoenix | 1,392 | 32.45% | 634,546 | 30.72% |
| Pinal County Unincorporated | 61 | 1.42% | 5,737 | 0.28% |
| Queen Creek | 49 | 1.14% | 13,621 | 0.66% |
| Scottsdale | 287 | 6.69% | 81,009 | 3.92% |
| Superior | 2 | 0.05% | 193 | 0.01% |
| Surprise | 105 | 2.45% | 79,822 | 3.86% |
| Tempe | 185 | 4.31% | 97,070 | 4.70% |
| Tolleson | 2 | 0.05% | 52,740 | 2.55% |
| Wickenburg | 11 | 0.26% | 1,012 | 0.05% |
| Total Locations | 4,290 | 100.00% | 2,065,801 | 100.00% |

Table 4-18 Surveyed Workers' Residences by MPA within Maricopa County

Of the 4,290 work locations that were successfully geocoded, the number of locations within Maricopa County was 4,086. A summary of geocoded job locations by MPA (within Maricopa County) is provided in *Table 4-19* below.

The table shows a comparison between weighted employment from NHTS and from MAG estimates for 2008 for Maricopa County only (employment numbers for MPAs within Pinal County for 2008 were not available).

| MPA | Unweighted Jobs | Percent Unweighted Jobs | Weighted Jobs | Percent Weighted Jobs |
|----------------------------------|-----------------|-------------------------|------------------|-----------------------|
| Avondale | 28 | 0.69% | 13,043 | 0.64% |
| Buckeye | 18 | 0.44% | 45,766 | 2.26% |
| Carefree | 6 | 0.15% | 431 | 0.02% |
| Cave Creek | 2 | 0.05% | 67 | 0.00% |
| Chandler | 280 | 6.85% | 70,858 | 3.50% |
| Maricopa County | 86 | 2.10% | 9,472 | 0.47% |
| El Mirage | 7 | 0.17% | 835 | 0.04% |
| Fountain Hills | 15 | 0.37% | 1,014 | 0.05% |
| Fort McDowell | 3 | 0.07% | 193 | 0.01% |
| Gila Bend | 2 | 0.05% | 390 | 0.02% |
| Gila River | 9 | 0.22% | 33,967 | 1.68% |
| Gilbert | 152 | 3.72% | 86,734 | 4.28% |
| Glendale | 193 | 4.72% | 140,812 | 6.95% |
| Goodyear | 49 | 1.20% | 12,860 | 0.63% |
| Guadalupe | 1 | 0.02% | 225 | 0.01% |
| Litchfield Park | 2 | 0.05% | 132 | 0.01% |
| Mesa | 464 | 11.36% | 139,829 | 6.90% |
| Paradise Valley | 12 | 0.29% | 1,591 | 0.08% |
| Peoria | 101 | 2.47% | 111,013 | 5.48% |
| Phoenix | 1765 | 43.20% | 850,997 | 41.98% |
| Queen Creek | 25 | 0.61% | 2,839 | 0.14% |
| Salt River | 17 | 0.42% | 2,070 | 0.10% |
| Scottsdale | 394 | 9.64% | 137,556 | 6.79% |
| Surprise | 46 | 1.13% | 49,226 | 2.43% |
| Tempe | 376 | 9.20% | 300,852 | 14.84% |
| Tolleson | 18 | 0.44% | 12,512 | 0.62% |
| Wickenburg | 13 | 0.32% | 1,742 | 0.09% |
| Youngtown | 2 | 0.05% | 133 | 0.01% |
| Total for Maricopa County | 4,086 | 100.00% | 2,027,161 | 100.00% |

Table 4-19 Surveyed Jobs by MPA within Maricopa County

4.13 Trip End Locations

An overwhelming majority of unweighted trips (98.44%) tracked in this survey end in the state of Arizona. The most

popular out-of-state destination is California, followed by Nevada (Table 4-20). Table 4-20 shows trip destinations by state. In this table, origin could be any state and destination could be any state.

| Destination State | Number of Unweighted Trip Destinations | Percent Number of Unweighted Trip Destinations | Weighted Trip Destinations | Percent Weighted Trip Destinations |
|----------------------|--|--|----------------------------|------------------------------------|
| Arizona | 35,949 | 98.44% | 3,547,509,665 | 99.21% |
| California | 173 | 0.47% | 17,391,185 | 0.49% |
| Nevada | 43 | 0.12% | 690,250 | 0.02% |
| Illinois | 34 | 0.09% | 877,189 | 0.02% |
| Texas | 33 | 0.09% | 613,530 | 0.02% |
| Utah | 31 | 0.08% | 2,246,113 | 0.06% |
| Massachusetts | 29 | 0.08% | 2,667,549 | 0.07% |
| Kansas | 26 | 0.07% | 327,102 | 0.01% |
| Wisconsin | 26 | 0.07% | 463,949 | 0.01% |
| New York | 25 | 0.07% | 369,586 | 0.01% |
| Pennsylvania | 16 | 0.04% | 156,288 | 0.00% |
| Washington | 16 | 0.04% | 330,605 | 0.01% |
| Missouri | 12 | 0.03% | 124,454 | 0.00% |
| Connecticut | 11 | 0.03% | 125,246 | 0.00% |
| Minnesota | 11 | 0.03% | 93,249 | 0.00% |
| South Carolina | 10 | 0.03% | 321,625 | 0.01% |
| Indiana | 9 | 0.02% | 160,985 | 0.00% |
| Maryland | 8 | 0.02% | 82,647 | 0.00% |
| New Mexico | 8 | 0.02% | 173,697 | 0.00% |
| Florida | 7 | 0.02% | 153,984 | 0.00% |
| Oregon | 7 | 0.02% | 129,765 | 0.00% |
| Colorado | 6 | 0.02% | 65,498 | 0.00% |
| Ohio | 6 | 0.02% | 53,317 | 0.00% |
| Virginia | 6 | 0.02% | 62,068 | 0.00% |
| Kentucky | 5 | 0.01% | 130,993 | 0.00% |
| Iowa | 4 | 0.01% | 37,325 | 0.00% |
| District of Columbia | 3 | 0.01% | 32,226 | 0.00% |
| Georgia | 2 | 0.01% | 48,765 | 0.00% |
| New Hampshire | 2 | 0.01% | 439,515 | 0.01% |
| New Jersey | 1 | 0.00% | 38,775 | 0.00% |
| Tennessee | 1 | 0.00% | 8,350 | 0.00% |
| Total | 36,520 | 100% | 3,575,925,496 | 100.00% |

Table 4-20 Summary of Trip End Locations by State

Table 4-21 is an elaborated version of Table 4-20. It shows trip origin and destination by state for respondent trips (using MAG dataset). Of all 38,299 trips in the trips table 36,520 were mappable and were successfully geocoded. The destination state of the geocoded trips was assigned by GIS overlays. The origin state of the trips was determined by chaining to previous trips. If the previous trip

record was missing then the origin state could not be assigned. For trips that are chronologically first for the day and that originate from home or work, an origin state was imputed based on the state where the person resides or works. For trips which are sequentially first and do begin from home or work, the state where they originated from could not be determined.

| Origin State | Destination State | Number of Unweighted Trips | Percent Unweighted Trips | Number of Weighted Trips | Percent Weighted Trips |
|----------------------|----------------------|----------------------------|--------------------------|--------------------------|------------------------|
| Arizona | Arizona | 34,234 | 93.74% | 2,415,861,866 | 67.56% |
| Arizona | California | 15 | 0.04% | 363,312 | 0.01% |
| Arizona | Colorado | 1 | 0.00% | 7,458 | 0.00% |
| Arizona | Florida | 2 | 0.01% | 106,508 | 0.00% |
| Arizona | Illinois | 6 | 0.02% | 80,851 | 0.00% |
| Arizona | Kansas | 1 | 0.00% | 14,591 | 0.00% |
| Arizona | Kentucky | 1 | 0.00% | 21,162 | 0.00% |
| Arizona | Maryland | 2 | 0.01% | 16,128 | 0.00% |
| Arizona | Massachusetts | 4 | 0.01% | 15,150 | 0.00% |
| Arizona | Minnesota | 1 | 0.00% | 21,843 | 0.00% |
| Arizona | Missouri | 1 | 0.00% | 13,710 | 0.00% |
| Arizona | Nevada | 8 | 0.02% | 194,686 | 0.01% |
| Arizona | New Jersey | 1 | 0.00% | 38,775 | 0.00% |
| Arizona | New Mexico | 2 | 0.01% | 45,281 | 0.00% |
| Arizona | New York | 1 | 0.00% | 11,649 | 0.00% |
| Arizona | Oregon | 5 | 0.01% | 76,804 | 0.00% |
| Arizona | Pennsylvania | 1 | 0.00% | 9,629 | 0.00% |
| Arizona | South Carolina | 2 | 0.01% | 137,655 | 0.00% |
| Arizona | Texas | 1 | 0.00% | 5,939 | 0.00% |
| Arizona | Utah | 2 | 0.01% | 90,160 | 0.00% |
| Arizona | Washington | 3 | 0.01% | 61,871 | 0.00% |
| Arizona | Wisconsin | 2 | 0.01% | 18,168 | 0.00% |
| California | Arizona | 19 | 0.05% | 491,697 | 0.01% |
| California | California | 113 | 0.31% | 11,580,106 | 0.32% |
| Colorado | Colorado | 4 | 0.01% | 46,432 | 0.00% |
| Connecticut | Connecticut | 8 | 0.02% | 95,331 | 0.00% |
| Connecticut | New York | 1 | 0.00% | 5,488 | 0.00% |
| District of Columbia | District of Columbia | 2 | 0.01% | 21,484 | 0.00% |
| Florida | Arizona | 2 | 0.01% | 106,508 | 0.00% |
| Florida | Florida | 2 | 0.01% | 26,523 | 0.00% |
| Georgia | Arizona | 2 | 0.01% | 48,765 | 0.00% |
| Illinois | Arizona | 3 | 0.01% | 54,162 | 0.00% |

Table 4-21 Trip Origin and Destination by State

| Origin State | Destination State | Number of Unweighted Trips | Percent Unweighted Trips | Number of Weighted Trips | Percent Weighted Trips |
|----------------|-------------------|----------------------------|--------------------------|--------------------------|------------------------|
| Illinois | Illinois | 21 | 0.06% | 377,066 | 0.01% |
| Indiana | Arizona | 2 | 0.01% | 31,910 | 0.00% |
| Indiana | Indiana | 6 | 0.02% | 110,104 | 0.00% |
| Iowa | Iowa | 2 | 0.01% | 18,662 | 0.00% |
| Iowa | Minnesota | 1 | 0.00% | 9,331 | 0.00% |
| Kansas | Arizona | 1 | 0.00% | 14,591 | 0.00% |
| Kansas | Kansas | 20 | 0.05% | 252,080 | 0.01% |
| Kentucky | Kentucky | 3 | 0.01% | 76,078 | 0.00% |
| Maryland | Maryland | 5 | 0.01% | 53,704 | 0.00% |
| Massachusetts | Arizona | 4 | 0.01% | 20,597 | 0.00% |
| Massachusetts | Massachusetts | 18 | 0.05% | 1,747,688 | 0.05% |
| Massachusetts | New Hampshire | 2 | 0.01% | 439,515 | 0.01% |
| Minnesota | Minnesota | 6 | 0.02% | 46,453 | 0.00% |
| Missouri | Arizona | 1 | 0.00% | 13,710 | 0.00% |
| Missouri | Missouri | 9 | 0.02% | 91,010 | 0.00% |
| Nevada | Arizona | 2 | 0.01% | 87,265 | 0.00% |
| Nevada | Nevada | 22 | 0.06% | 368,933 | 0.01% |
| Nevada | Utah | 1 | 0.00% | 31,878 | 0.00% |
| New Hampshire | Massachusetts | 2 | 0.01% | 439,515 | 0.01% |
| New Jersey | Arizona | 1 | 0.00% | 38,775 | 0.00% |
| New Mexico | Arizona | 2 | 0.01% | 45,281 | 0.00% |
| New Mexico | New Mexico | 3 | 0.01% | 83,062 | 0.00% |
| New York | Connecticut | 1 | 0.00% | 5,488 | 0.00% |
| New York | New York | 17 | 0.05% | 246,026 | 0.01% |
| Ohio | Ohio | 2 | 0.01% | 20,268 | 0.00% |
| Oregon | Arizona | 6 | 0.02% | 113,030 | 0.00% |
| Oregon | Oregon | 1 | 0.00% | 16,736 | 0.00% |
| Pennsylvania | Arizona | 2 | 0.01% | 25,912 | 0.00% |
| Pennsylvania | Pennsylvania | 10 | 0.03% | 96,355 | 0.00% |
| South Carolina | South Carolina | 6 | 0.02% | 169,139 | 0.00% |
| Tennessee | Arizona | 1 | 0.00% | 8,350 | 0.00% |
| Texas | Arizona | 4 | 0.01% | 50,682 | 0.00% |
| Texas | Texas | 23 | 0.06% | 443,640 | 0.01% |
| Utah | Arizona | 3 | 0.01% | 326,393 | 0.01% |
| Utah | Utah | 21 | 0.06% | 1,647,551 | 0.05% |
| Virginia | Texas | 1 | 0.00% | 7,272 | 0.00% |
| Virginia | Virginia | 3 | 0.01% | 34,714 | 0.00% |
| Washington | Arizona | 5 | 0.01% | 136,943 | 0.00% |
| Washington | Oregon | 1 | 0.00% | 36,225 | 0.00% |

Table 4-21 (Continued) Trip Origin and Destination by State

| Origin State | Destination State | Number of Unweighted Trips | Percent Unweighted Trips | Number of Weighted Trips | Percent Weighted Trips |
|---------------------------------|----------------------|----------------------------|--------------------------|--------------------------|------------------------|
| Washington | Washington | 7 | 0.02% | 129,832 | 0.00% |
| Wisconsin | Arizona | 1 | 0.00% | 10,745 | 0.00% |
| Wisconsin | Wisconsin | 20 | 0.05% | 371,039 | 0.01% |
| Origin State Cannot be Geocoded | Arizona | 1,638 | 4.49% | 1,123,437,024 | 31.42% |
| Origin State Cannot be Geocoded | California | 45 | 0.12% | 5,447,767 | 0.15% |
| Origin State Cannot be Geocoded | Colorado | 1 | 0.00% | 11,608 | 0.00% |
| Origin State Cannot be Geocoded | Connecticut | 2 | 0.01% | 24,427 | 0.00% |
| Origin State Cannot be Geocoded | District of Columbia | 1 | 0.00% | 10,742 | 0.00% |
| Origin State Cannot be Geocoded | Florida | 3 | 0.01% | 20,952 | 0.00% |
| Origin State Cannot be Geocoded | Georgia | 2 | 0.01% | 48,765 | 0.00% |
| Origin State Cannot be Geocoded | Illinois | 7 | 0.02% | 419,272 | 0.01% |
| Origin State Cannot be Geocoded | Indiana | 3 | 0.01% | 50,881 | 0.00% |
| Origin State Cannot be Geocoded | Iowa | 2 | 0.01% | 18,662 | 0.00% |
| Origin State Cannot be Geocoded | Kansas | 5 | 0.01% | 60,431 | 0.00% |
| Origin State Cannot be Geocoded | Kentucky | 1 | 0.00% | 33,754 | 0.00% |
| Origin State Cannot be Geocoded | Maryland | 1 | 0.00% | 12,816 | 0.00% |
| Origin State Cannot be Geocoded | Massachusetts | 5 | 0.01% | 465,196 | 0.01% |
| Origin State Cannot be Geocoded | Minnesota | 3 | 0.01% | 15,621 | 0.00% |
| Origin State Cannot be Geocoded | Missouri | 2 | 0.01% | 19,734 | 0.00% |
| Origin State Cannot be Geocoded | Nevada | 13 | 0.04% | 126,630 | 0.00% |
| Origin State Cannot be Geocoded | New Mexico | 3 | 0.01% | 45,354 | 0.00% |
| Origin State Cannot be Geocoded | New York | 6 | 0.02% | 106,424 | 0.00% |
| Origin State Cannot be Geocoded | Ohio | 4 | 0.01% | 33,049 | 0.00% |
| Origin State Cannot be Geocoded | Pennsylvania | 5 | 0.01% | 50,304 | 0.00% |
| Origin State Cannot be Geocoded | South Carolina | 2 | 0.01% | 14,831 | 0.00% |
| Origin State Cannot be Geocoded | Tennessee | 1 | 0.00% | 8,350 | 0.00% |
| Origin State Cannot be Geocoded | Texas | 8 | 0.02% | 156,679 | 0.00% |
| Origin State Cannot be Geocoded | Utah | 7 | 0.02% | 476,524 | 0.01% |
| Origin State Cannot be Geocoded | Virginia | 3 | 0.01% | 27,353 | 0.00% |
| Origin State Cannot be Geocoded | Washington | 6 | 0.02% | 138,903 | 0.00% |
| Origin State Cannot be Geocoded | Wisconsin | 4 | 0.01% | 74,742 | 0.00% |
| Origin State Cannot be Geocoded | Arizona | 16 | 0.04% | 6,585,460 | 0.18% |
| Total | | 36,520 | 100.00% | 3,575,925,496 | 100.00% |

Table 4-21 (Continued) Trip Origin and Destination by State

Upon further examination of the data (Table 4-22), for the trips which originate and end inside the state of Arizona – 91.23 % are internal to Maricopa County, 3.47 % are

internal to Pinal County and the rest are spread among the remaining counties.

| Origin County in Arizona | Destination County in Arizona | Number of Unweighted Trips | Percent Unweighted Trips | Number of Weighted Trips | Percent Weighted Trips |
|--------------------------|-------------------------------|----------------------------|--------------------------|--------------------------|------------------------|
| Apache | Apache | 4 | 0.01% | 84,297 | 0.00% |
| Apache | Maricopa | 1 | 0.00% | 11,699 | 0.00% |
| Cochise | Cochise | 3 | 0.01% | 51,919 | 0.00% |
| Cochise | Maricopa | 6 | 0.02% | 528,897 | 0.02% |
| Coconino | Coconino | 74 | 0.22% | 30,060,755 | 1.24% |
| Coconino | Gila | 4 | 0.01% | 41,317 | 0.00% |
| Coconino | Maricopa | 12 | 0.04% | 396,662 | 0.02% |
| Coconino | Navajo | 1 | 0.00% | 22,254 | 0.00% |
| Coconino | Yavapai | 8 | 0.02% | 83,034 | 0.00% |
| Gila | Coconino | 3 | 0.01% | 32,213 | 0.00% |
| Gila | Gila | 27 | 0.08% | 968,554 | 0.04% |
| Gila | Maricopa | 8 | 0.02% | 120,147 | 0.00% |
| Gila | Navajo | 2 | 0.01% | 18,525 | 0.00% |
| Gila | Pinal | 8 | 0.02% | 173,285 | 0.01% |
| Graham | Maricopa | 2 | 0.01% | 13,449 | 0.00% |
| La Paz | La Paz | 3 | 0.01% | 63,494 | 0.00% |
| La Paz | Maricopa | 8 | 0.02% | 79,949 | 0.00% |
| Maricopa | Apache | 1 | 0.00% | 11,699 | 0.00% |
| Maricopa | Cochise | 3 | 0.01% | 239,775 | 0.01% |
| Maricopa | Coconino | 15 | 0.04% | 14,018,557 | 0.58% |
| Maricopa | Gila | 18 | 0.05% | 483,004 | 0.02% |
| Maricopa | Graham | 3 | 0.01% | 35,019 | 0.00% |
| Maricopa | La Paz | 9 | 0.03% | 99,522 | 0.00% |
| Maricopa | Maricopa | 31,504 | 92.03% | 2,279,442,664 | 94.35% |
| Maricopa | Mohave | 2 | 0.01% | 32,133 | 0.00% |
| Maricopa | Navajo | 2 | 0.01% | 47,078 | 0.00% |
| Maricopa | Pima | 17 | 0.05% | 294,382 | 0.01% |
| Maricopa | Pinal | 327 | 0.96% | 12,176,630 | 0.50% |
| Maricopa | Yavapai | 28 | 0.08% | 376,796 | 0.02% |
| Maricopa | Yuma | 1 | 0.00% | 9,047 | 0.00% |
| Mohave | Maricopa | 7 | 0.02% | 201,822 | 0.01% |
| Mohave | Mohave | 13 | 0.04% | 378,539 | 0.02% |
| Navajo | Coconino | 1 | 0.00% | 22,254 | 0.00% |
| Navajo | Maricopa | 4 | 0.01% | 62,415 | 0.00% |
| Navajo | Navajo | 21 | 0.06% | 241,161 | 0.01% |
| Navajo | Pinal | 2 | 0.01% | 41,407 | 0.00% |
| Pima | Maricopa | 17 | 0.05% | 338,739 | 0.01% |

Table 4-22 Summary of Arizona Trips by County of Origin and Destination

| Origin County in Arizona | Destination County in Arizona | Number of Unweighted Trips | Percent Unweighted Trips | Number of Weighted Trips | Percent Weighted Trips |
|----------------------------------|-------------------------------|----------------------------|--------------------------|--------------------------|------------------------|
| Pima | Pima | 139 | 0.41% | 2,358,168 | 0.10% |
| Pima | Pinal | 73 | 0.21% | 2,458,335 | 0.10% |
| Pinal | Cochise | 1 | 0.00% | 111,121 | 0.00% |
| Pinal | Gila | 7 | 0.02% | 152,587 | 0.01% |
| Pinal | Maricopa | 318 | 0.93% | 11,574,395 | 0.48% |
| Pinal | Navajo | 2 | 0.01% | 34,596 | 0.00% |
| Pinal | Pima | 47 | 0.14% | 2,169,244 | 0.09% |
| Pinal | Pinal | 1,392 | 4.07% | 49,574,095 | 2.05% |
| Yavapai | Coconino | 12 | 0.04% | 110,392 | 0.00% |
| Yavapai | Maricopa | 29 | 0.08% | 381,286 | 0.02% |
| Yavapai | Yavapai | 23 | 0.07% | 273,502 | 0.01% |
| Yuma | Maricopa | 2 | 0.01% | 14,116 | 0.00% |
| Yuma | Yuma | 1 | 0.00% | 9,047 | 0.00% |
| Origin County Cannot be Geocoded | Maricopa | 19 | 0.06% | 5,337,890 | 0.22% |
| Total | | 34,234 | 100.00% | 2,415,861,866 | 100.00% |

Table 4-22 (Continued) Summary of Arizona Trips by County of Origin and Destination

Upon further examination of the data, out of the 35,949 trips where the final destination is in Arizona (and origin could be any state), the prevailing number are to locations in Phoenix – 30.96 %, followed by Mesa – 13.15%, Chandler – 7.34 %, Scottsdale – 7.01 % and others, as shown in the *Table 4-23*.

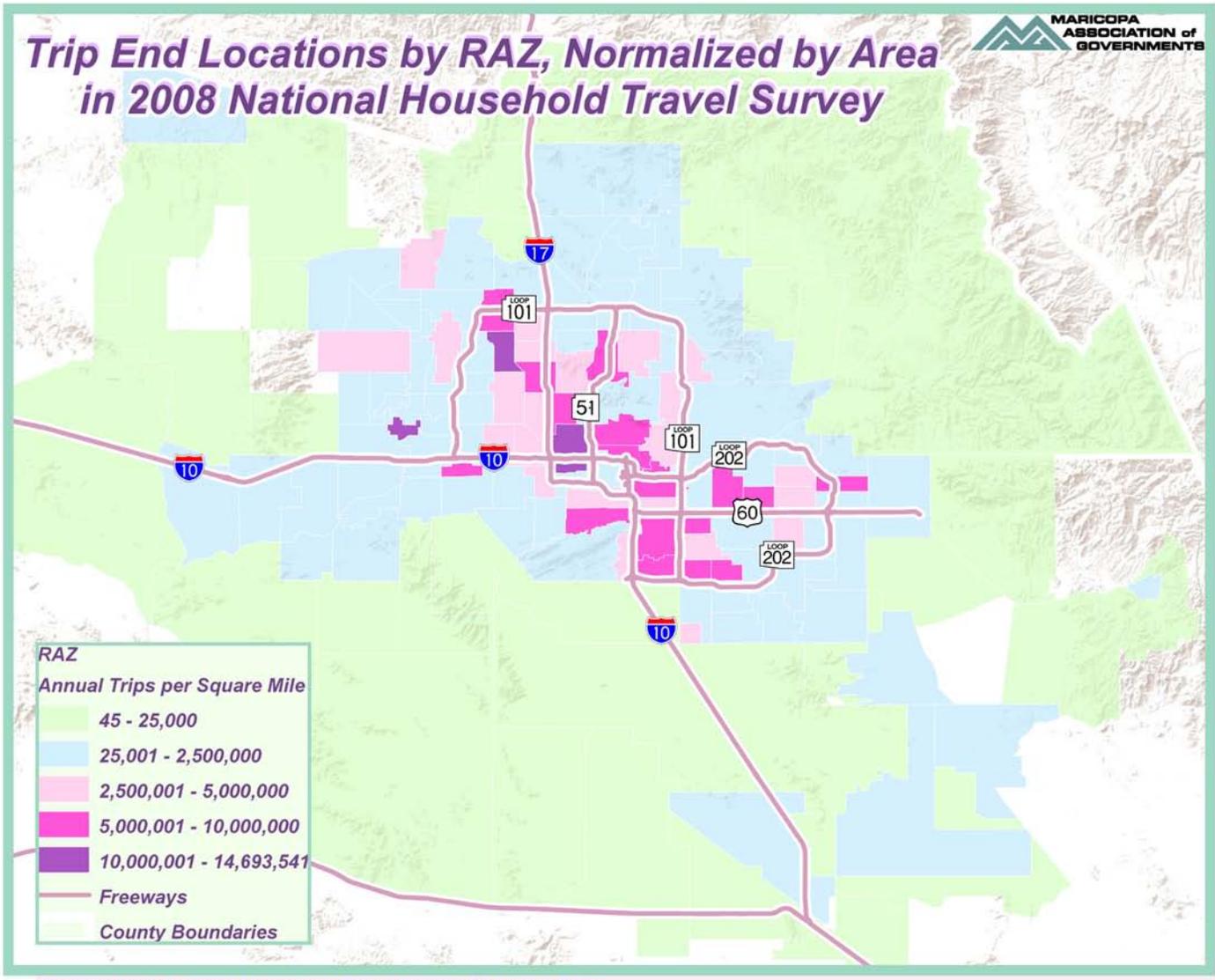
Map 4-9 (page 56) shows the trips end locations in NHTS by RAZ (Regional Analysis Zones). In the map trip ends were simply summarized by RAZ. The zone that attracts the most trips are represented in dark purple, while the ones that attract the least number of trips are in pale green and light blue. It should be kept in mind that respondents may have traveled to/from or within another state during their assigned travel date.

It should be noted that *Table 4-20* shows a summary of trip end locations by state, where trip destination could be any state (There are 36,520 unweighted trip destinations overall). *Table 4-21* is an improvised version of *Table 4-20*, which shows trip origin by state. *Table 4-22* shows summary of trip end locations where trip origin and destination are within Arizona (34,234 records). *Table 4-23 (page 55)* shows summary of trip end locations where destination is in Arizona but trip origin could be any state (35,949 unweighted trip destinations using the above criterion). *Table 4-24 (page 56)* shows a summary of analysis for origin and destination of trips.

| City or Town | Number of Unweighted Trips to City | Percent of Unweighted Trips to City |
|----------------------------------|------------------------------------|-------------------------------------|
| Phoenix | 11,128 | 30.96% |
| Mesa | 4,729 | 13.15% |
| Chandler | 2,638 | 7.34% |
| Scottsdale | 2,519 | 7.01% |
| Glendale | 2,156 | 6.00% |
| Gilbert | 1,987 | 5.53% |
| Tempe | 1,905 | 5.30% |
| Maricopa County (Unincorporated) | 1,625 | 4.52% |
| Peoria | 1,306 | 3.63% |
| Surprise | 1,117 | 3.11% |
| Goodyear | 643 | 1.79% |
| Other cities | 577 | 1.60% |
| Casa Grande | 500 | 1.39% |
| Apache Junction | 464 | 1.29% |
| Avondale | 397 | 1.10% |
| Pinal County | 371 | 1.03% |
| Queen Creek | 275 | 0.76% |
| Buckeye | 234 | 0.65% |
| Florence | 202 | 0.56% |
| Maricopa city | 158 | 0.44% |
| Fountain Hills | 156 | 0.43% |
| Paradise Valley | 125 | 0.35% |
| Salt River | 88 | 0.24% |
| Wickenburg | 88 | 0.24% |
| Litchfield Park | 83 | 0.23% |
| El Mirage | 78 | 0.22% |
| Cave Creek | 58 | 0.16% |
| Coolidge | 55 | 0.15% |
| Kearny | 51 | 0.14% |
| Carefree | 47 | 0.13% |
| Tolleson | 46 | 0.13% |
| Gila River (Maricopa Portion) | 27 | 0.08% |
| Ak-Chin | 23 | 0.06% |
| Eloy | 22 | 0.06% |
| Gila River (Pinal Portion) | 18 | 0.05% |
| Youngtown | 18 | 0.05% |
| Gila Bend | 15 | 0.04% |
| Fort McDowell | 9 | 0.03% |
| Mammoth | 8 | 0.02% |
| Guadalupe | 3 | 0.01% |
| Total | 35,949 | 100% |

Table 4-23 Summary of Trips End Locations by City

Trip End Locations by RAZ, Normalized by Area in 2008 National Household Travel Survey



Source: 2008 National Household Travel Survey. Weighted Data

Map 4-9 Summary of Trip End Locations by RAZ, Normalized by RAZ Area

| | Unweighted Trips | Percent Unweighted Trips | Weighted Trips | Percent Weighted Trips |
|---------------------|------------------|--------------------------|----------------------|------------------------|
| Internal - Internal | 34,235 | 93.74% | 2,415,865,654 | 67.56% |
| Internal - External | 62 | 0.17% | 1,351,331 | 0.04% |
| External - Internal | 60 | 0.16% | 1,621,527 | 0.05% |
| External - External | 364 | 1.00% | 19,144,727 | 0.54% |
| Undetermined | 1,799 | 4.92% | 1,137,942,257 | 31.82% |
| Total | 36,520 | 100.00% | 3,575,925,496 | 100.00% |

Table 4-24 Summary of Origin and Destination of Trips

5 Analysis of Person Data

A total of 4,707 households participated in the 2008 National Household Travel Survey for MAG region, accounting for a total of 10,479 persons (If children aged less than five years were excluded from the sample (version 2 of NHTS data), the number of person records is 9,869). The person data includes demographic information about the household members, student data, employment data for first and second jobs, and Internet usage both in general as well as during the travel period (if the household owned a home computer).



5.1 Person Demographics

The following tables show the distribution of household members by gender, age, geographic area, possession of drivers' license, highest level of education, employment status and others. (Table 5-1)

| Gender | 2001 HHTS Number of Unweighted Records | Percent 2001 HHTS Number of Unweighted Records | 2008 NHTS Number of Unweighted Records | Percent 2008 NHTS Number of Unweighted Records | 2008 NHTS Number of Weighted Records | Percent 2008 NHTS Number of Weighted Records |
|--------------|--|--|--|--|--------------------------------------|--|
| Male | 4,293 | 42.8% | 4,875 | 46.5% | 2,016,800 | 51.4% |
| Female | 5,256 | 52.4% | 5,604 | 53.5% | 1,908,923 | 48.6% |
| Missing Data | 481 | 4.8% | - | 0.0% | 0 | 0.0% |
| Total | 10,030 | 100.0% | 10,479 | 100.0% | 3,925,722 | 100.0% |

Table 5-1 Summary of Respondents by Gender in 2008 NHTS

As shown in the tables the survey recruited more female than male participants in most geographic areas with the exception of a few rural communities and the town of Paradise Valley. This gender bias was addressed through the weighting procedure. The relevant question from the survey instrument is as follows:

C5. Please tell me your first name, age and gender.
(FNAME, R_AGE, R_SEX)

FIRST NAME: _____

AGE: _____

GENDER: _____ [M=MALE, F=FEMALE]

REFUSED..... -7

DON'T KNOW..... -8

| MPA | Unweighted Person Records | Weighted Person Records | Percent Unweighted Males | Percent Weighted Males | Percent Unweighted Females | Percent Weighted Females |
|---------------------------------------|---------------------------|-------------------------|--------------------------|------------------------|----------------------------|--------------------------|
| Apache Junction | 158 | 12,070 | 44.9% | 52.4% | 55.1% | 47.6% |
| Avondale | 145 | 50,233 | 42.8% | 46.8% | 57.2% | 53.2% |
| Buckeye | 113 | 18,749 | 46.0% | 56.8% | 54.0% | 43.2% |
| Carefree | 12 | 473 | 66.7% | 72.8% | 33.3% | 27.2% |
| Cave Creek | 20 | 1,925 | 40.0% | 56.2% | 60.0% | 43.8% |
| Casa Grande | 138 | 19,457 | 47.1% | 51.6% | 52.9% | 48.4% |
| Chandler | 749 | 347,091 | 48.9% | 53.6% | 51.1% | 46.4% |
| Coolidge | 32 | 17,021 | 46.9% | 53.6% | 53.1% | 46.4% |
| Maricopa County (Unincorporated Area) | 549 | 118,330 | 42.8% | 36.5% | 57.2% | 63.5% |
| El Mirage | 26 | 3,729 | 57.7% | 59.1% | 42.3% | 40.9% |
| Eloy | 5 | 474 | 60.0% | 92.5% | 40.0% | 7.5% |
| Fountain Hills | 64 | 3,093 | 51.6% | 61.0% | 48.4% | 39.0% |
| Florence | 25 | 11,154 | 40.0% | 22.1% | 60.0% | 77.9% |
| Gila Bend | 2 | 745 | 50.0% | 54.0% | 50.0% | 46.0% |
| Gila River | 2 | 114 | 0.0% | 0.0% | 100.0% | 100.0% |
| Gilbert | 664 | 138,960 | 50.3% | 53.3% | 49.7% | 46.7% |
| Glendale | 621 | 469,244 | 44.3% | 45.6% | 55.7% | 54.4% |
| Goodyear | 206 | 21,042 | 49.0% | 62.0% | 51.0% | 38.0% |
| Gila River (Pinal) | 6 | 1,356 | 50.0% | 64.7% | 50.0% | 35.3% |
| Kearny | 17 | 1,228 | 58.8% | 60.9% | 41.2% | 39.1% |
| Litchfield Park | 25 | 127,287 | 44.0% | 34.9% | 56.0% | 65.1% |
| Maricopa | 63 | 5,742 | 47.6% | 58.1% | 52.4% | 41.9% |
| Mesa | 1398 | 556,612 | 46.8% | 56.7% | 53.2% | 43.3% |
| Mammoth | 3 | 51 | 33.3% | 38.0% | 66.7% | 62.0% |
| Paradise Valley | 35 | 10,708 | 54.3% | 70.3% | 45.7% | 29.7% |
| Pinal County (Unincorporated Area) | 175 | 20,635 | 47.4% | 53.2% | 52.6% | 46.8% |
| Peoria | 400 | 120,798 | 45.8% | 53.2% | 54.3% | 46.8% |
| Phoenix | 3,110 | 1,106,686 | 46.6% | 51.2% | 53.4% | 48.8% |
| Queen Creek | 110 | 30,732 | 49.1% | 42.4% | 50.9% | 57.6% |
| Salt River | 6 | 116 | 50.0% | 58.3% | 50.0% | 41.7% |
| Scottsdale | 664 | 129,440 | 43.5% | 46.8% | 56.5% | 53.2% |
| Superior | 4 | 265 | 50.0% | 40.2% | 50.0% | 59.8% |
| Surprise | 367 | 234,172 | 45.8% | 66.1% | 54.2% | 33.9% |
| Tempe | 402 | 237,058 | 46.5% | 39.9% | 53.5% | 60.1% |
| Tolleson | 8 | 88,154 | 37.5% | 78.3% | 62.5% | 21.7% |
| Wickenburg | 27 | 6,446 | 55.6% | 57.3% | 44.4% | 42.7% |
| Youngtown | 7 | 769 | 28.6% | 21.3% | 71.4% | 78.7% |
| Pinal County (Outside Modeling Area) | 121 | 13,566 | 46.3% | 53.5% | 53.7% | 46.5% |
| Total | 10,479 | 3,925,722 | | | | |

Table 5-2 Summary of Persons by Gender and MPA (Municipal Planning Areas) in 2008 NHTS

It should be noted that one of the deficiencies in household travel surveys is because of certain biases in sample selection (due to difficulty in recruiting particular categories in population). These biases are expected to be addressed by survey expansion procedures. However, raw household survey data as well as weighted data should not be used as ultimate source on population and certain demographic characteristics. Careful comparison with Census, ACS and other data sources must be performed for the purposes of in-depth socio-demographic characteristic analysis.

Age distribution comparison (for NHTS data) with 2008 ACS data (shown previously in *Figure 2-4*) indicated a bias in survey sampling. Oversampling of retirees and under-sampling of young people was addressed in the weighting process as shown in the table below (*Table 5.3*). The relevant question from the survey instrument is as follows:

C5. Please tell me your first name, age and gender.
(FNAME, R_AGE, R_SEX)

FIRST NAME: _____

AGE: _____

GENDER: _____ [M=MALE, F=FEMALE]

REFUSED..... -7

DON'T KNOW..... -8

| Persons at the Age of 16 and Over | | |
|-----------------------------------|--------------------|------------------|
| Age >= 16 | Unweighted Persons | Weighted Persons |
| Number | 8,536 | 3,189,730 |
| Percent people | 81.46% | 81.25% |

Table 5-4 Summary of Person Age 16 and Over in 2008 NHTS



| Age Group | Unweighted Person Records | Weighted Person Records |
|-------------------------|---------------------------|-------------------------|
| Age < 16 | 1,943 | 735,992 |
| Percent people < 16 | 18.54% | 18.75% |
| Age 16-25 | 653 | 503,542 |
| Percent people 16-25 | 6.23% | 12.83% |
| Age 25-45 | 1,950 | 1,280,652 |
| Percent people 25-45 | 18.61% | 32.62% |
| Age 45-65 | 3,439 | 975,185 |
| Percent people 45-65 | 32.82% | 24.84% |
| Age > 65 | 2,494 | 430,351 |
| Percent people > 65 | 23.80% | 10.96% |
| Total Person | 10,479 | 3,925,722 |
| Total Percentage | 100.00% | 100.00% |

Table 5-3 Age Characteristics of Persons in the 2008 NHTS

| Summary of Persons by Age Group and MPA (Municipal Planning Area) in 2008 NHTS - Unweighted Data | | | | | | |
|---|--------------|------------|--------------|--------------|--------------|---------------|
| MPA | Age <16 | Age 16-25 | Age 25-45 | Age 45-65 | Age >65 | Total Persons |
| Apache Junction | 12 | 3 | 11 | 69 | 63 | 158 |
| Avondale | 33 | 10 | 38 | 46 | 18 | 145 |
| Buckeye | 35 | 5 | 33 | 24 | 16 | 113 |
| Carefree | 1 | | | 10 | 1 | 12 |
| Casa Grande | 25 | 5 | 31 | 46 | 31 | 138 |
| Cave Creek | 2 | 1 | 1 | 9 | 7 | 20 |
| Chandler | 167 | 50 | 162 | 251 | 119 | 749 |
| Coolidge | 5 | 2 | 6 | 11 | 8 | 32 |
| El Mirage | 6 | | 9 | 4 | 7 | 26 |
| Eloy | | | | 1 | 4 | 5 |
| Florence | 1 | 1 | 2 | 6 | 15 | 25 |
| Fountain Hills | 5 | 2 | 6 | 32 | 19 | 64 |
| Gila Bend | | | 161 | 2 | | 163 |
| Gila River (Maricopa) | | | | | 2 | 2 |
| Gila River (Pinal) | 3 | 1 | 2 | | | 6 |
| Gilbert | 199 | 50 | 120 | 181 | 73 | 623 |
| Glendale | 120 | 51 | 51 | 211 | 119 | 552 |
| Goodyear | 37 | 14 | 2 | 68 | 36 | 157 |
| Kearny | 3 | 2 | 8 | 8 | 2 | 23 |
| Litchfield Park | 6 | 2 | 20 | 4 | 5 | 37 |
| Mammoth | | | 5 | 1 | 2 | 8 |
| Maricopa | 9 | 1 | 258 | 17 | 16 | 301 |
| Maricopa County | 9 | 8 | 23 | 106 | 403 | 549 |
| Mesa | 295 | 108 | | 438 | 299 | 1,140 |
| Paradise Valley | 2 | 4 | 42 | 15 | 9 | 72 |
| Peoria | 71 | 30 | 604 | 151 | 82 | 938 |
| Phoenix | 576 | 201 | 32 | 1,097 | 632 | 2,538 |
| Pinal County | 48 | 6 | 66 | 48 | 31 | 199 |
| Queen Creek | 32 | 8 | | 32 | 6 | 78 |
| Salt River | 1 | | 96 | 3 | 2 | 102 |
| Scottsdale | 89 | 37 | 2 | 248 | 194 | 570 |
| Southeast Pinal County | 12 | 5 | 12 | 34 | 58 | 121 |
| Superior | 0 | 0 | 70 | 0 | 2 | 72 |
| Surprise | 70 | 17 | 74 | 96 | 114 | 371 |
| Tempe | 65 | 26 | 2 | 160 | 77 | 330 |
| Tolleson | 2 | 1 | 1 | 1 | 2 | 7 |
| Wickenburg | 2 | 2 | | 8 | 14 | 26 |
| Youngtown | | | | 1 | 6 | 7 |
| Total | 1,943 | 653 | 1,950 | 3,439 | 2,494 | 10,479 |

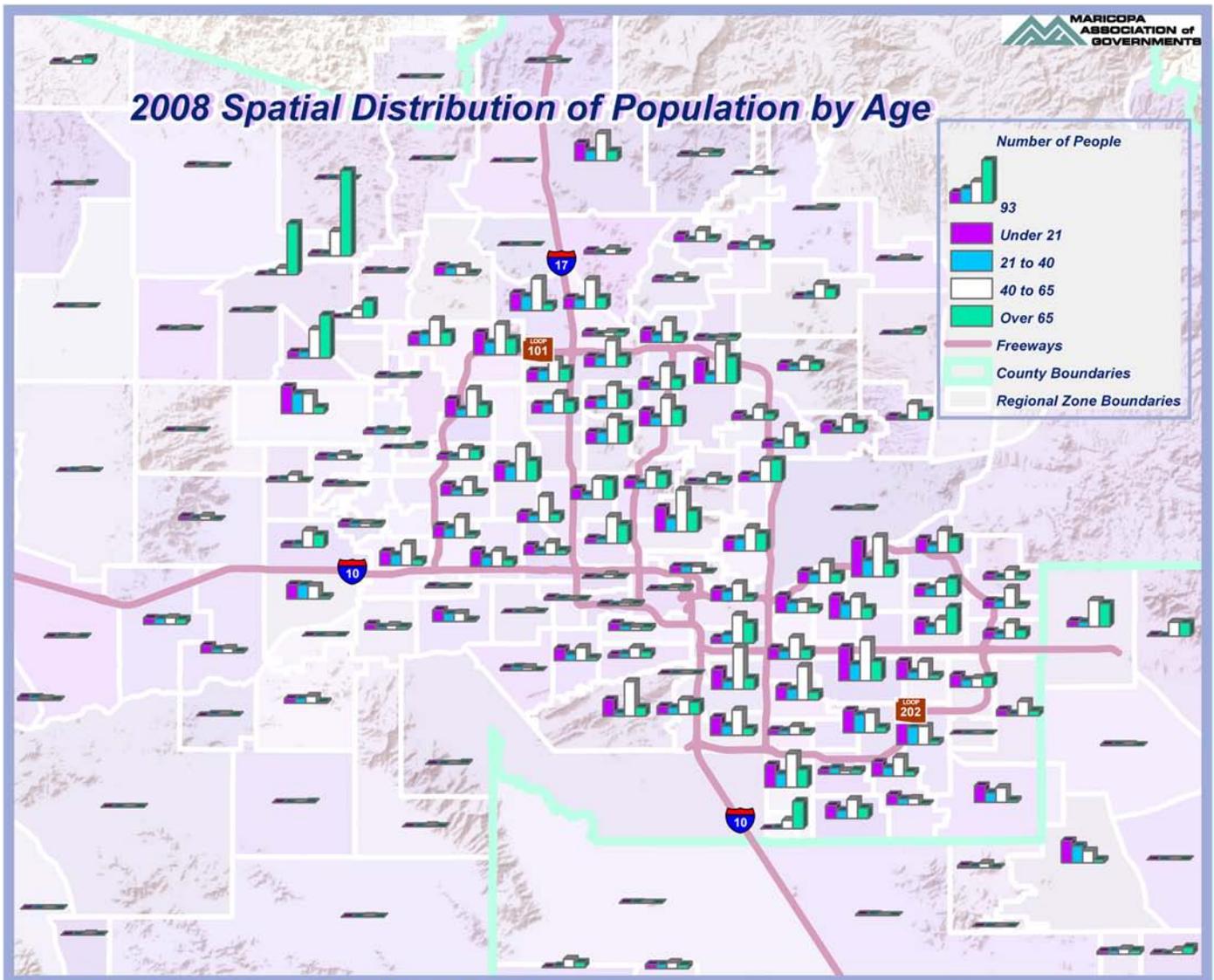
Table 5-5 Summary of Unweighted Persons by Age Group and MPA in 2008 NHTS

| Summary of Persons by Age Group and MPA (Municipal Planning Area) in 2008 NHTS - Weighted Data | | | | | | |
|---|----------------|----------------|------------------|----------------|----------------|------------------|
| MPA | Age <16 | Age 16-25 | Age 25-45 | Age 45-65 | Age >65 | Total Persons |
| Apache Junction | 371 | 453 | 536 | 9,019 | 1,690 | 12,070 |
| Avondale | 7,377 | 11,445 | 18,905 | 11,526 | 980 | 50,233 |
| Buckeye | 3,311 | 1,929 | 12,225 | 930 | 354 | 18,749 |
| Carefree | 30 | | | 432 | 10 | 473 |
| Casa Grande | 1,585 | 2,249 | 5,713 | 4,444 | 5,465 | 19,457 |
| Cave Creek | 0 | 55 | 50 | 856 | 964 | 1,925 |
| Chandler | 93,596 | 23,861 | 116,610 | 106,096 | 6,927 | 347,091 |
| Coolidge | 130 | 828 | 635 | 14,574 | 855 | 17,021 |
| El Mirage | 368 | | 1,081 | 1,903 | 377 | 3,729 |
| Eloy | | | | 25 | 449 | 474 |
| Florence | 636 | 636 | 981 | 378 | 8,524 | 11,154 |
| Fountain Hills | 214 | 171 | 931 | 1,145 | 631 | 3,093 |
| Gila Bend | | | 40,735 | 745 | | 41,480 |
| Gila River (Maricopa) | | | | | 114 | 114 |
| Gila River (Pinal) | 613 | 364 | 307 | | | 1,284 |
| Gilbert | 22,615 | 13,721 | 215,745 | 50,756 | 11,134 | 313,970 |
| Glendale | 142,286 | 43,604 | 6,037 | 54,650 | 12,958 | 259,536 |
| Goodyear | 5,342 | 3,911 | 379 | 4,567 | 1,185 | 15,383 |
| Kearny | 248 | 265 | 83,707 | 296 | 112 | 84,628 |
| Litchfield Park | 268 | 42,674 | 3,066 | 478 | 159 | 46,646 |
| Mammoth | | | 6,127 | 15 | 35 | 6,178 |
| Maricopa | 967 | 98 | 167,705 | 961 | 650 | 170,381 |
| Maricopa County | 235 | 3,295 | 12,047 | 23,017 | 79,737 | 118,330 |
| Mesa | 113,990 | 88,234 | | 150,978 | 35,706 | 388,907 |
| Paradise Valley | 69 | 344 | 5,395 | 2,814 | 1,354 | 9,976 |
| Peoria | 7,957 | 7,054 | 231,846 | 22,454 | 12,194 | 281,506 |
| Phoenix | 156,429 | 155,620 | 17,303 | 382,133 | 180,658 | 892,144 |
| Pinal County | 3,343 | 1,173 | 71,139 | 5,120 | 5,604 | 86,379 |
| Queen Creek | 10,249 | 1,664 | | 1,234 | 283 | 13,429 |
| Salt River | 20 | | 21,777 | 73 | 23 | 21,892 |
| Scottsdale | 9,877 | 31,164 | 193 | 35,980 | 30,642 | 107,856 |
| Southeast Pinal | 1,513 | 1,891 | 2,017 | 1,710 | 6,435 | 13,566 |
| Superior | 0 | 0 | 125,463 | 0 | 72 | 125,534 |
| Surprise | 77,073 | 4,512 | 59,200 | 20,161 | 6,964 | 167,910 |
| Tempe | 40,233 | 61,825 | 52,740 | 64,664 | 11,135 | 230,598 |
| Tolleson | 34,815 | 328 | 55 | 222 | 49 | 35,469 |
| Wickenburg | 234 | 175 | | 767 | 5,215 | 6,391 |
| Youngtown | | | | 63 | 705 | 769 |
| Total | 735,992 | 503,542 | 1,280,652 | 975,185 | 430,351 | 3,925,722 |

Table 5-6 Summary of Weighted Persons by Age Group and MPA in 2008 NHTS

Map 5-1 shows the spatial distribution of the respondents by age. The highest concentration of retirees is in the Northwest part of the valley where the retirement communities are located. In addition, the highest concentration of young people is in the South-East part of the region. Compared to other age groups, the 21 to 40 year olds seem to be the least represented. This can be attributed to the traditionally lower response rate among representative of this age group. On the other hand, the retiree representation was higher because of the relative ease of recruitment for this age group.

The graphic and table below show the distribution of respondents among age groups for both the 2008-2009 NHTS survey and the 2008 ACS survey. NHTS survey captured a higher percentage of respondents between the age-group 15 to 64, when compared to ACS 2008 survey. Census 2010 indicates ageing of population within the State, when compared to Census 2000. The median age for the state rose from 34.2 to 35.9 within the past decade, as per initial reports.



Source: 2008 National Household Travel Survey, Unweighted Data

Map 5-1 Spatial Distribution of Population by Age, Aggregated at RAZ Level

The biggest difference between age characteristics of respondents in the 2008 NHTS and ACS survey is the share of participants between ages 35 to 44 who are have higher representation in NHTS as shown in *Figure 5-1*. Version 2 of NHTS data excluded all person records for children aged less than five. The age distribution among retirees aged 65 and above was similar between ACS 2008 and 2008-2009 NHTS.

As mentioned previously in Chapter 2, the interviewers could contact household members who were at least 16 years old to verify reported trip data in case there were

some questions. For younger household members (between ages 5-15), data retrieval was possible by proxy. In a proxy interview, a designated adult household member reports trips for children between ages 5-15. Only in certain conditions, proxies were allowed for adult household members. Please refer to NHTS Users Guide for more details [10]. Relationship to the head of the household was obtained for all participating household members. The data-split between self respondents by survey versus respondents by proxy is shown in *Table 5-7*. From the table, it is clear that about forty percent of respondent records were made by head of households. The relevant question from the survey instrument is as follows:

D12. When we call back to collect your diary information, we will not ask to speak to anyone under 16 years old, but we would like to ask about their travel. Who would be the best person to give the information about them?
(WHOPROXY)

|_|_|_|

E1. [YOU ARE IN {SUBJECT'S NAME/AGE/SEX}'S CASE.]

(PROXY)

SUBJECT 1
 PROXY 2

Respondent's Age Distribution

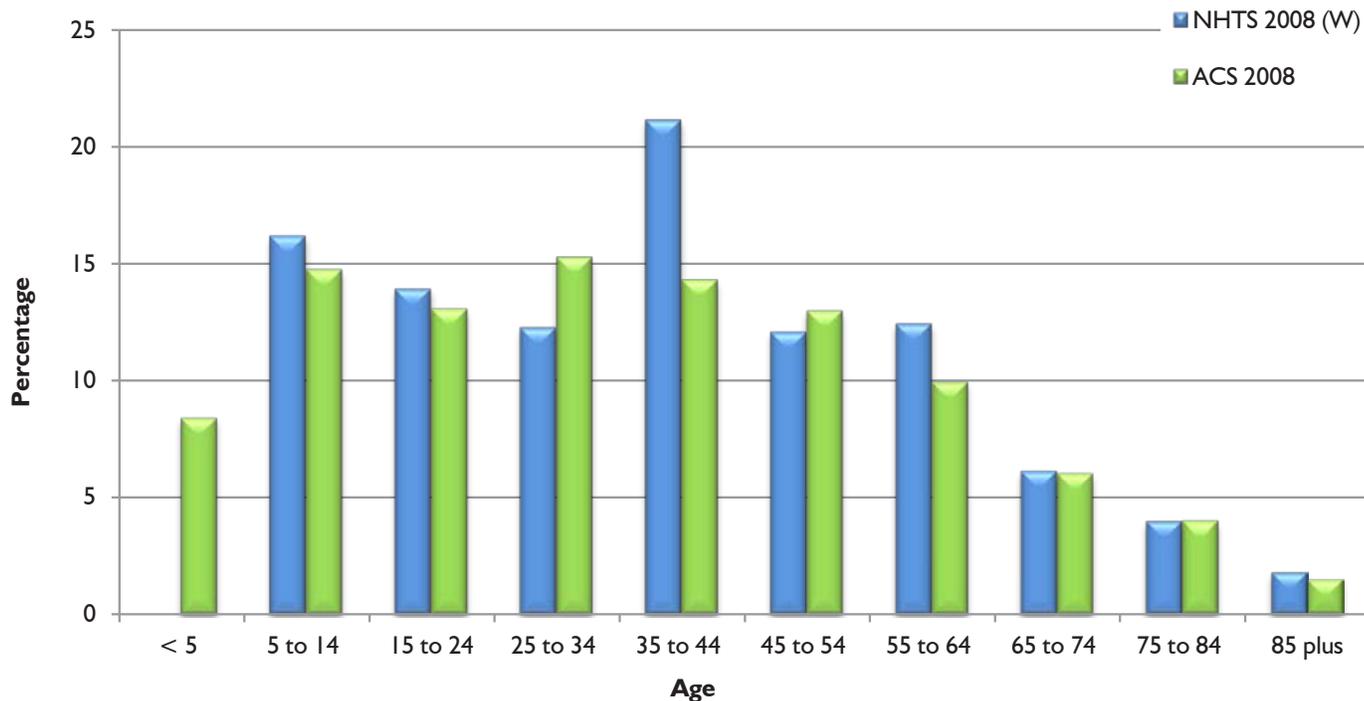


Figure 5-1 Comparison between 2008 ACS and 2008 NHTS, Based on Age Distribution

| Relationship Of Respondent to Head of Household | Unweighted Number of Person Records | Percent Unweighted Number of Person Records | Weighted Number of Person Records | Percent Weighted Number of Person Records |
|---|-------------------------------------|---|-----------------------------------|---|
| Self | 4,635 | 44.23% | 1,596,276 | 40.66% |
| Spouse | 2,648 | 25.27% | 891,169 | 22.70% |
| Child | 2,429 | 23.18% | 1,090,959 | 27.79% |
| Parent | 168 | 1.60% | 56,299 | 1.43% |
| Sibling | 83 | 0.79% | 33,391 | 0.85% |
| Other relative | 278 | 2.65% | 121,197 | 3.09% |
| Unmarried Partner | 114 | 1.09% | 40,260 | 1.03% |
| Non-relative | 107 | 1.02% | 92,838 | 2.36% |
| No Data | 17 | 0.16% | 3,334 | 0.08% |
| Total | 10,479 | 100.00% | 3,925,722 | 100.00% |

Table 5-7 Summary of Participants' Relationship to Household Respondent

5.1.1 Restricted Mobility

Participants in the survey who were 16 years or older were asked about medical conditions that restrict their travel. A total of 1,034 persons indicated that they had a disability that impacted their mobility and travel choices they could make. Furthermore, those persons (who had medical problems limiting their travel) were asked to elaborate on the duration of the condition that prevented

them from traveling—whether they were forced to reduce their day-to-day travel, whether they asked others for rides, if they drove only during day time, or if they had given up driving altogether. Questions were asked to determine the use of special transit services and reduced fare taxi by people with restricted mobility. The results are presented in the next few tables. The relevant question from the survey instrument is as follows:

- M4. Now I'd like to ask a few background questions about {yourself/SUBJECT}.
 {Do you/Does SUBJECT} have a temporary or permanent condition or handicap that makes it difficult to travel outside of the home?
(MEDCOND)
- YES 1
 NO 2 GO TO M8
 REFUSED -7 GO TO M8
 DON'T KNOW -8 GO TO M8
- M5. How long {have you/has SUBJECT} had this condition?
(MEDCOND6)
- 0 - 5 MONTHS 1
 6 - 11 MONTHS 2
 1 - 4 YEARS 3
 5 - 9 YEARS 4
 10 YEARS OR MORE 5
 ALL HIS/HER LIFE 6
 REFUSED -7
 DON'T KNOW -8

M6. Because of this condition, {have you/has SUBJECT}...

| | | YES | NO | RF | DK |
|------------|--|-----|----|----|----|
| (CONDTRAV) | a) reduced {your/his/her} day-to-day travel? ... | 1 | 2 | -7 | -8 |
| (CONDRIDE) | b) asked others for rides?..... | 1 | 2 | -7 | -8 |
| (CONDNIGH) | c) limited driving to daytime?..... | 1 | 2 | -7 | -8 |
| (CONDRIVE) | d) given up driving altogether?..... | 1 | 2 | -7 | -8 |
| (CONDPUB) | e) used the bus or subway less frequently?.... | 1 | 2 | -7 | -8 |
| (CONDSPEC) | f) used special transportation services such as dial-a-ride?..... | 1 | 2 | -7 | -8 |
| (CONDTAX) | g) used a reduced fare taxi | 1 | 2 | -7 | -8 |

| Respondents (at least 16 years old) whose Medical Condition Restricts their Mobility | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
|--|-------------------------------------|---|-----------------------------------|---|
| Yes | 1,034 | 12.11% | 299,088 | 9.38% |
| No | 7,482 | 87.65% | 2,875,771 | 90.16% |
| No data | 20 | 0.23% | 14,871 | 0.47% |
| Total | 8,536 | 100.00% | 3,189,730 | 100.00 % |

Table 5-8 Respondents with Medical Condition which Restricts their Mobility

| Duration of Time with Restricted Mobility (Respondents are at least 16 years old) | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
|---|-------------------------------------|---|-----------------------------------|---|
| Less than 6 months | 75 | 7.25% | 8,977 | 3.00% |
| 6 months to 1 year | 44 | 4.26% | 32,205 | 10.77% |
| 1 to 4 years | 350 | 33.85% | 110,970 | 37.10% |
| 5 to 9 years | 213 | 20.60% | 53,644 | 17.94% |
| Over 10 years | 290 | 28.05% | 72,018 | 24.08% |
| All his/her life | 61 | 5.90% | 19,775 | 6.61% |
| No data | 1 | 0.10% | 1,499 | 0.50% |
| Total | 1,034 | 100.00% | 299,088 | 100.00% |

Table 5-9 Duration of Time with Restricted Mobility

| Respondents (who are at least 16 years of age) with Reduced Daily Travel | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
|--|-------------------------------------|---|-----------------------------------|---|
| Yes | 872 | 84.33% | 255,289 | 85.36% |
| No | 161 | 15.57% | 43,776 | 14.64% |
| No data | 1 | 0.10% | 22 | 0.01% |
| Total | 1,034 | 100.00% | 299,088 | 100.00% |

Table 5-10 Persons with Restricted Mobility Who Have Cut Back on their Day-to-day Travel

| Respondents (who are at least 16 years of age) Who Asked Others for Rides | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
|---|-------------------------------------|---|-----------------------------------|---|
| Yes | 544 | 52.61% | 192,511 | 64.37% |
| No | 489 | 47.29% | 106,399 | 35.57% |
| No Data | 1 | 0.10% | 178 | 0.06% |
| Total | 1,034 | 100.00% | 299,088 | 100.00% |

Table 5-11 Persons with Restricted Mobility Who Have Asked Others for Rides

| Respondents (who are at least 16 years old) Who Drive Only at Daytime | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
|---|-------------------------------------|---|-----------------------------------|---|
| Yes | 451 | 43.62% | 149,288 | 49.91% |
| No | 534 | 51.64% | 142,072 | 47.50% |
| No data | 49 | 4.74% | 7,728 | 2.58% |
| Total | 1,034 | 100.00% | 299,088 | 100.00% |

Table 5-12 Persons with Restricted Mobility Who Drive only at Daytime

| Respondents (who are at least 16 years of age) Who Have Given up Driving Altogether | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
|---|-------------------------------------|---|-----------------------------------|---|
| Yes | 309 | 29.88% | 98,532 | 32.94% |
| No | 710 | 68.67% | 198,370 | 66.33% |
| No data | 15 | 1.45% | 2,185 | 0.73% |
| Total | 1,034 | 100.00% | 299,088 | 100.00% |

Table 5-13 Persons with Restricted Mobility Who Have Given up Driving Altogether

| Respondents (who are at least 16 years of age) Who Have Reduced their Use of Transit | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
|--|-------------------------------------|---|-----------------------------------|---|
| Yes | 154 | 14.89% | 39,486 | 13.20% |
| No | 810 | 78.34% | 254,186 | 84.99% |
| No data | 70 | 6.77% | 5,415 | 1.81% |
| Total | 1,034 | 100.00% | 299,088 | 100.00% |

Table 5-14 Persons with Restricted Mobility Who Have Reduced their Use of Transit

| Respondents (who are at least 16 years of age) Who Have Used Special Transit Services | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
|---|-------------------------------------|---|-----------------------------------|---|
| Yes | 112 | 10.83% | 36,578 | 12.23% |
| No | 918 | 88.78% | 262,329 | 87.71% |
| No data | 4 | 0.39% | 181 | 0.06% |
| Total | 1,034 | 100.00% | 299,088 | 100.00% |

Table 5-15 Persons with Restricted Mobility Who Have Used Special Transportation Service

| Respondents Who (who are at least 16 years of age) Have Used Reduced Fare Taxi | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
|--|-------------------------------------|---|-----------------------------------|---|
| Yes | 70 | 6.77% | 18,716 | 6.26% |
| No | 963 | 93.13% | 280,351 | 93.74% |
| No data | 1 | 0.10% | 21 | 0.01% |
| Total | 1,034 | 100.00% | 299,088 | 100.00% |

Table 5-16 Persons with Restricted Mobility Who Have Used Reduced Fare Taxi

5.2 Employment Data

All survey participants who are at least aged 16 were asked about their primary activity in the week before. Some respondents (who stated that they were working full time in subsequent questions) said their primary activity (refer to *Table 5-17*) the week before was either to look for a job, were homemakers, were retired, were going to school or doing something else. Because of this reason, the number of employed people in the primary activity table does not correspond with the number of employed in the tables summarizing respondents by employment status and type of employment. *Table 5-17* indicates the over-representation of retirees in the survey sample. The relevant question from the survey instrument is as follows:



E3. During most of last week, {were you/was SUBJECT}...
(PRMACT)

- | | | |
|--|----|---------------------|
| working, | 1 | GO TO BOX BEFORE Ea |
| temporarily absent from a job or business, . | 2 | GO TO BOX BEFORE Ea |
| looking for work, | 3 | |
| a homemaker, | 4 | |
| going to school, | 5 | |
| retired, | 6 | |
| or doing something else? | 7 | |
| REFUSED | -7 | |
| DON'T KNOW | -8 | |

| Respondents' (who are at least 16 years of age) Primary Activity the week before survey date | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
|--|-------------------------------------|---|-----------------------------------|---|
| Employed | 3,837 | 44.95% | 1,978,178 | 62.02% |
| Temporarily absent from work | 151 | 1.77% | 79,317 | 2.49% |
| Looking for work | 181 | 2.12% | 97,402 | 3.05% |
| Homemaker | 803 | 9.41% | 241,873 | 7.58% |
| Going to school | 392 | 4.59% | 210,723 | 6.61% |
| Retired | 2,775 | 32.51% | 436,734 | 13.69% |
| Doing something else | 381 | 4.46% | 142,540 | 4.47% |
| No data | 16 | 0.19% | 2,964 | 0.09% |
| Total | 8,536 | 100.00% | 3,189,730 | 100.00% |

Table 5-17 Summary of Respondents' Primary Activities in 2008 NHTS

All participants in the survey of age 16 or older were asked about their employment status. The results are presented in *Tables 5-18* and *5-19* respectively. *Table 5-18* indicates the relative ease of recruitment for respondents who are not working.

The 4,419 respondents in the survey who were employed were further asked more information about the jobs they held. *Table 5-19* shows a summary of the answers. The table indicates a bias in the sample that captured full time employees (among respondents). The relevant questions from the survey instrument are as follows:



E4. Last week, did {you/SUBJECT} do **any** work for either pay or profit?
(PAYPROF)

- YES 1
- NO 2
- REFUSED -7
- DON'T KNOW -8

Ea. {Are you/Is SUBJECT} self-employed?
(SELF_EMP)

- YES 1
- NO 2
- REFUSED -7
- DON'T KNOW -8

E5. {Do you/Does SUBJECT} work.. [A full time job is at least 35 hours per week.]
(WKFTPT)

- full-time, or..... 1
- part-time? 2
- MULTIPLE JOBS 3
- REFUSED -7
- DON'T KNOW -8

| Respondent's (aged at least 16 years) Work Status | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
|---|-------------------------------------|---|-----------------------------------|---|
| Working | 4,419 | 51.77% | 2,143,632 | 67.20% |
| Not working | 4,112 | 48.17% | 1,045,414 | 32.77% |
| No data | 5 | 0.06% | 683 | 0.02% |
| Total | 8,536 | 100 % | 3,189,730 | 100.00% |

Table 5-18 Summary of Respondents' Work Status

| Respondent's Employment (aged at least 16 years) Type | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
|---|-------------------------------------|---|-----------------------------------|---|
| Full time | 3,396 | 76.85% | 1,838,845 | 85.78% |
| Part time | 987 | 22.34% | 253,374 | 11.82% |
| Multiple jobs | 24 | 0.54% | 2,415 | 0.11% |
| No data | 12 | 0.27% | 48,999 | 2.29% |
| Total | 4,419 | 100.00% | 2,143,632 | 100.00% |

Table 5-19 Summary of Respondents' Employment Type

| Work Location of Employed Persons in 2008 NHTS | | | | |
|--|-------------------------------------|---|-----------------------------------|---|
| Work Location | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
| Work Place | 2,534 | 57.34% | 1,143,547 | 53.35% |
| Works Only from Home | 572 | 12.94% | 177,205 | 8.27% |
| No Fixed Work Place | 82 | 1.86% | 50,165 | 2.34% |
| Works from Home and in Work Place | 335 | 7.58% | 153,716 | 7.17% |
| No Data | 896 | 20.28% | 619,000 | 28.88% |
| Total Employed Person Records | 4,419 | 100.00% | 2,143,632 | 100.00% |

Table 5-20 Working at Home versus Commuting

Respondents were also asked to provide information about their work location. *Table 5-20* is a summary of commuting versus working-from-home persons. The relevant questions from the survey instrument are as follows:

E12. What is the name of {your/SUBJECT'S} {employer/company} ?
(EMPLOYER)

[IF NEEDED: We are not going to contact {you/SUBJECT} there. Transportation planners are interested in workplace location because travel to work often affects other daily travel.]

 NAME OF EMPLOYER

REFUSED -7
 DON'T KNOW -8

E10. What is the street address of {your/SUBJECT'S} {primary} workplace?
(WKSTNUM, WKSTNAME, WKCITY,) WORKSTAT WORKZIP

[IF NEEDED: We are not going to contact you there. Transportation planners are interested in workplace location because travel to work often affects other daily travel.]

| | |
|------------------|-------------|
| STREET NUMBER | STREET NAME |
| CITY | STATE |
| ZIP CODE | |
| REFUSED | -7 |
| DON'T KNOW | -8 |

E11. {We would like to know the approximate location of {your/SUBJECT'S} {primary} workplace. What is the name of the street or road nearest {your/SUBJECT'S} {primary} workplace?}

{I have recorded that your {primary} workplace is on...

(WKROAD1)

{WKSTNAME}

FIRST ROAD: _____

{What is the name of the nearest intersecting street or road?}

(WKROAD2)

SECOND ROAD: _____

| | |
|------------------|----|
| REFUSED | -7 |
| DON'T KNOW | -8 |

E13. Would you please provide a landmark that is close to {your/his/her} {primary} workplace? This could be a well-known building, park, monument, or school.

(WKLDMRK1-3)

[IF NEEDED: Transportation planners are interested in workplace location because travel to work often affects other daily travel.]

 NAME OF A LANDMARK

| | |
|------------------|----|
| REFUSED | -7 |
| DON'T KNOW | -8 |

EVA3. Which of the following best describes {your/SUBJECT's} current work schedule on a weekly basis? Would you say...

(EVA3)

- a. {I work/SUBJECT works} the same schedule every week, 1
- b. {I often work/SUBJECT often works} a different schedule from week to week, or 2
- c. {My/SUBJECT's} work schedule changes once in a while? 3
- REFUSED -7
- DON'T KNOW -8

Ec. {Do you/Does SUBJECT} have the ability to set or change your own start work time?
(FLEXTIME)

YES 1
 NO 2
 REFUSED -7
 DON'T KNOW -8

Ed. {Do you/Does SUBJECT} have the option of working at home instead of going into your primary workplace?
(WKRMHM)

YES 1
 NO 2 GO TO BOX BEFORE F1
 REFUSED -7 GO TO BOX BEFORE F1
 DON'T KNOW -8 GO TO BOX BEFORE F1

E20. How many times in the last month did {you/SUBJECT} work only at home for an entire work day instead of traveling to your usual {primary} workplace?
(WKFMHMX)

Working respondents were asked if they were self employed and their answers were summarized in *Table 5-21*. The relevant question from the survey has been captured in an earlier screen-shot.

5.2.1 Data on Education

All respondents who were at least 18 years old were asked for the highest level of education completed. Since the question was part of the recruitment interview and not the retrieval interview, its screenshot is not provided. A summary of their answers is provided in *Table 5-22* below.

| Self Employment Status of Working Respondents in 2008 NHTS | | | | |
|--|-------------------------------------|--|-----------------------------------|---|
| Self-Employment Status among working respondents | Unweighted Number Of Person Records | Percent Un-weighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
| Self Employed | 780 | 17.65% | 285,394 | 13.31% |
| Not Self Employed | 3,636 | 82.28% | 1,858,106 | 86.68% |
| No Data | 3 | 0.07% | 132 | 0.01% |
| Total | 4,419 | 100.00% | 2,143,632 | 100.00% |

Table 5-21 Self-employed versus Hired Workers

| Level of Education (Respondents who are at least 18 years of age) * ACS data is for population 25 years and over. | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records | Percent Weighted Data from 2008 ACS* |
|--|-------------------------------------|---|-----------------------------------|---|--------------------------------------|
| Less than High School | 389 | 4.69% | 326,695 | 10.61% | 16.3% |
| High School / GED (General Education Diploma) | 1917 | 23.09% | 748,882 | 24.33% | 23.8% |
| Some College | 2,699 | 32.51% | 939,945 | 30.53% | 32.7% |
| Bachelor's Degree | 1,941 | 23.38% | 598,287 | 19.44% | 17.5% |
| Master's or Doctorate Degree | 1,289 | 15.53% | 452,713 | 14.71% | 9.7% |
| No Data | 67 | 0.81% | 11,798 | 0.38% | - |
| Total | 8,302 | 100.00% | 3,078,320 | 100.00% | 100.00% |

Table 5-22 Summary of Participants' Educational Level

The table indicates a potential under-sampling for category “Less than High School” and a potential over-sampling for category “Masters or Doctorate Degree” when compared to 2008 ACS data. For ACS data, there was an additional category-Associate Degree. The percentage of respondents with an Associates Degree has been consolidated to “Some College” in *Table 5-22*.

5.2.2 Data on Primary Job

The distribution of respondents by occupational category is shown in *Table 5-23* below. The category definitions are broad and overlapping and this aspect makes it difficult to use the employment data for travel demand estimation and calibration. A more nuanced definition of employment types or the use of NAICS (North American Industry Classification System) codes would make the survey data more useful in travel forecasts. The relevant question from the survey instrument is as follows:

E7. I am going to read {some/four} categories of occupations. Please tell me which one {your/SUBJECT'S} {primary} job falls under.
(JOBATEG - **JOBATAZ**)

- E7.**
- Sales or Marketing, 1
 - Clerical, Administrative, or Retail, 2
 - Production, Construction, Farming, or Transport, 3
 - Professional, Managerial, or Technical..... 4
 - Personal Care and Services, or 5
 - Some other type of employment? 97
- (SPECIFY) _____
- (JOBATOZ)**
- REFUSED -7
 - DON'T KNOW -8

This table indicates a huge structural difference between weighted and unweighted data. The reliability of classification should be used with extreme caution precisely for this reason. Comparison with 2008 ACS data distribution was not possible as the occupation categories were different. ACS had the following occupation categories-“Management, Professional and Related Occupations”, “Service Occupations”, Sales and Office Occupations”, “Farming, Fishing and Forestry Occupations”, “Construction, Extraction, Maintenance and Repair Occupations” and “Production, Transportation and Material Moving Occupations”. The occupational categories from 2001 MAG Household Travel Survey were also different than the categories from ACS. Future household travel surveys should have occupation categories that are similar to ACS, to facilitate data comparison besides being an additional candidate for weighting.

| Occupational Category | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
|---|-------------------------------------|---|-----------------------------------|---|
| Sales or marketing | 512 | 11.59% | 85,918 | 4.01% |
| Clerical, Administrative or Retail | 877 | 19.85% | 234,498 | 10.94% |
| Production, Construction, Farming or Transportation | 462 | 10.45% | 103,245 | 4.82% |
| Professional, Managerial and Technical | 1,579 | 35.73% | 258,504 | 12.06% |
| Personal Care and Service | 648 | 14.66% | 153,223 | 7.15% |
| Other Specific | 165 | 3.73% | 1,273,746 | 59.42% |
| Other Unspecified | 167 | 3.78% | 33,880 | 1.58% |
| No Data | 9 | 0.20% | 620 | 0.03% |
| Total | 4,419 | 100.00% | 2,143,632 | 100.00% |

Table 5-23 Distribution of Respondents by Job Category in 2008 NHTS

When asked how they usually go to work or how they commuted the week before the survey the 3,672 participants for whom the question was applicable provided the following answers. Transit share is close to two percent. According to 2008 ACS data, the share of public transportation mode to work (excluding taxicab) is 2.7 percent. It should be noted that usual commute mode “last week” is different than actual work trip mode on travel day. The question for usual commute mode is from Persons Table, while the question for actual work trip on travel day is from Trips Table. The relevant question from the survey instrument is as follows:



E16. How did {you/SUBJECT} **usually** get to work last week?
(WRKTRANS)

[IF NEEDED: That is, the one used for most of the distance?]

PERSONAL VEHICLES

| | |
|------------------------------------|---|
| CAR..... | 1 |
| VAN..... | 2 |
| SUV..... | 3 |
| PICKUP TRUCK..... | 4 |
| OTHER TRUCK..... | 5 |
| RV..... | 6 |
| MOTORCYCLE..... | 7 |
| LIGHT ELECTRIC VEHICLE (GOLF CART) | 8 |

BUS TRAVEL

| | |
|---|----|
| LOCAL PUBLIC TRANSIT..... | 9 |
| COMMUTER BUS..... | 10 |
| SCHOOL BUS..... | 11 |
| CHARTER/TOUR BUS..... | 12 |
| CITY TO CITY (GREYHOUND/PETERPAN) | 13 |
| SHUTTLE BUS (SUCH AS A SENIOR OR AIRPORT SHUTTLE)..... | 14 |

TRAIN TRAVEL

| | |
|-------------------------|----|
| AMTRAK/INTER CITY..... | 15 |
| COMMUTER TRAIN..... | 16 |
| SUBWAY/ELEVATED..... | 17 |
| STREET CAR/TROLLEY..... | 18 |

OTHER

| | |
|--|----|
| TAXICAB..... | 19 |
| FERRY..... | 20 |
| AIRPLANE..... | 21 |
| BICYCLE..... | 22 |
| WALK..... | 23 |
| SPECIAL TRANSIT FOR PEOPLE WITH DISABILITIES (DIAL-A-RIDE)..... | 24 |
| OTHER?..... | 97 |
| (SPECIFY)_____ | |

(WRKTRNOS)

| | |
|-----------------|----|
| REFUSED..... | -7 |
| DON'T KNOW..... | -8 |

| Usual Mode Used to Go to Work | Unweighted Number Of Person Records | Percent Unweighted Number Of Person Records | Weighted Number Of Person Records | Percent Weighted Number Of Person Records |
|------------------------------------|-------------------------------------|---|-----------------------------------|---|
| Car | 2,529 | 68.87% | 1,113,573 | 58.94% |
| Van | 125 | 3.40% | 102,714 | 5.44% |
| SUV | 288 | 7.84% | 141,042 | 7.46% |
| Pickup truck | 467 | 12.72% | 372,821 | 19.73% |
| Other truck | 16 | 0.44% | 2,540 | 0.13% |
| Total Auto | 3,425 | 93.27% | 1,732,690 | 91.70% |
| Motorcycle | 44 | 1.20% | 18,155 | 0.96% |
| Total Auto and Motorcycle | 3,469 | 94.47% | 1,750,844 | 92.67% |
| Local public transit | 45 | 1.23% | 30,013 | 1.59% |
| Commuter bus | 17 | 0.46% | 2,416 | 0.13% |
| Charter/tour bus | 2 | 0.05% | 99 | 0.01% |
| Shuttle bus | 2 | 0.05% | 759 | 0.04% |
| Special transit (dial-a-ride) | 2 | 0.05% | 913 | 0.05% |
| Total Transit* | 68 | 1.85% | 34,199 | 1.81% |
| Bicycle | 30 | 0.82% | 42,536 | 2.25% |
| Walk | 44 | 1.20% | 7,827 | 0.41% |
| Total Non- motorized | 74 | 2.02% | 50,364 | 2.67% |
| Light Electric Vehicle (Golf Cart) | 7 | 0.19% | 274 | 0.01% |
| Other unspecified | 44 | 1.20% | 53,029 | 2.81% |
| Taxicab | 2 | 0.05% | 80 | 0.00% |
| Total Other | 53 | 1.44% | 53,383 | 2.83% |
| No Data | 8 | 0.22% | 634 | 0.03% |
| Total | 3,672 | 100.00% | 1,889,424 | 100.00% |

* The numbers in this record must be interpreted with extreme caution due to small number of observations in the survey.

Table 5-24 Transportation to Work in 2008 NHTS (Week before Survey Date)

The response to questions about the arrival time at work shows that 30.60% of participants arrive at work in the morning, 3.91% arrive in the afternoon/evening and for 65.48% of people the question is not applicable (*Table 5-25*). The relevant question from the survey instrument is as follows:

Eb. What time {do you/does SUBJECT} usually arrive at work?
(WRKHR, WRKMIN, WRKAMPM – DERIVE WRKTIME AS HR:MINAM/PM)

HOUR.....|_|_|
TIME OF DAY|_|
1 = AM
2 = PM
REFUSED -7
DON'T KNOW -8

| Usual Time Arriving at Work | Number of Unweighted Records | Percent of Unweighted Records |
|-----------------------------|------------------------------|-------------------------------|
| a.m. | 3,207 | 30.61% |
| p.m. | 410 | 3.91% |
| Legitimate skip* | 6,862 | 65.48% |
| Total | 10,479 | 100.00% |

* Legitimate skip consists of non-working persons (children plus people who did not report working)

Table 5-25 Time of Day Arrival at Work

When asked about the time they arrived at work 88.66% of respondents who drive to work said their work begins before noon, while only 11.34% have work schedules starting in the afternoon or evening (Refer to *Table 5-26*).

| Time Arriving at Work for Commuters | Number of Unweighted Records | Percent of Unweighted Records |
|-------------------------------------|------------------------------|-------------------------------|
| a.m. | 3,207 | 88.66% |
| p.m. | 410 | 11.34% |
| Total | 3,617 | 100.00 |

Table 5-26 Time of Day Arrival at Work by Commuters

5.2.3 Analysis of Transit Preferences for Commute to Work

Asked what would motivate them to use transit to commute to work, 9.55% of respondents cited proximity to work and home, 8.69% cited a fitting schedule, 3.94% favored timeliness and 3.46% said they would like transit to get them to work faster than driving (Refer to *Table 5-27*). The relevant question from the survey is as follows:

E5. For public transit like a bus, the subway, or a train to be a good option for {your/FNAME/AGE/SEX's} commute, which of the following would be most important to you? Would you say that it's...

(FL5, AZ5)

- a. Close to work and home, 1
- b. Faster than driving, 2
- c. Reasonable in cost, 3
- d. Consistently on time, or 4
- e. Fits your schedule. 5
- REFUSED -7
- DON'T KNOW -8

| Motivation to Use Transit for Commuting to Work | Number of Unweighted Records | Percent of Unweighted Records |
|---|------------------------------|-------------------------------|
| Legitimate Skip | 7,150 | 68.20% |
| Close to work and home | 1,001 | 9.56% |
| Fits your schedule | 911 | 8.70% |
| Consistently on time | 413 | 3.95% |
| Faster than driving | 363 | 3.47% |
| Don't know | 307 | 2.94% |
| Reasonable in cost | 275 | 2.62% |
| Refused | 59 | 0.56% |
| Total | 10,479 | 100.00% |

Table 5-27 Motivation to Go to Work Via Transit

| Motivation to Use Transit Frequently | Number of Unweighted Records | Percent of Unweighted Records |
|--------------------------------------|------------------------------|-------------------------------|
| Legitimate Skip | 5,644 | 53.86% |
| Close to work and home | 1,321 | 12.61% |
| Don't know | 872 | 8.32% |
| Fits your schedule | 762 | 7.27% |
| Reasonable in cost | 709 | 6.77% |
| Consistently on time | 597 | 5.70% |
| Faster than driving | 403 | 3.85% |
| Refused | 149 | 1.42% |
| Total | 10,457 | 100.00% |

Table 5-28 Motivation for Frequent Use of Transit

When asked what would motivate respondents to use transit for their most frequent trips 12.61% of respondents cited proximity to work and home as a number one motivator, followed by a fitting schedule – 7.27%, reasonable cost – 6.77% and time consistency – 5.70 % (Refer to *Table 5-28*). The relevant question from the survey instrument is as follows:

E5a. For public transit like a bus, the subway, or a train to be a good option for the trips {you make/FNAME/AGE/SEX makes} most frequently, which of the following would be most important to you? Would you say that it's...

(FL6, AZ6)

- a. Close to work and home, 1
- b. Faster than driving, 2
- c. Reasonable in cost, 3
- d. Consistently on time, or..... 4
- e. Fits your schedule. 5
- REFUSED -7
- DON'T KNOW -8

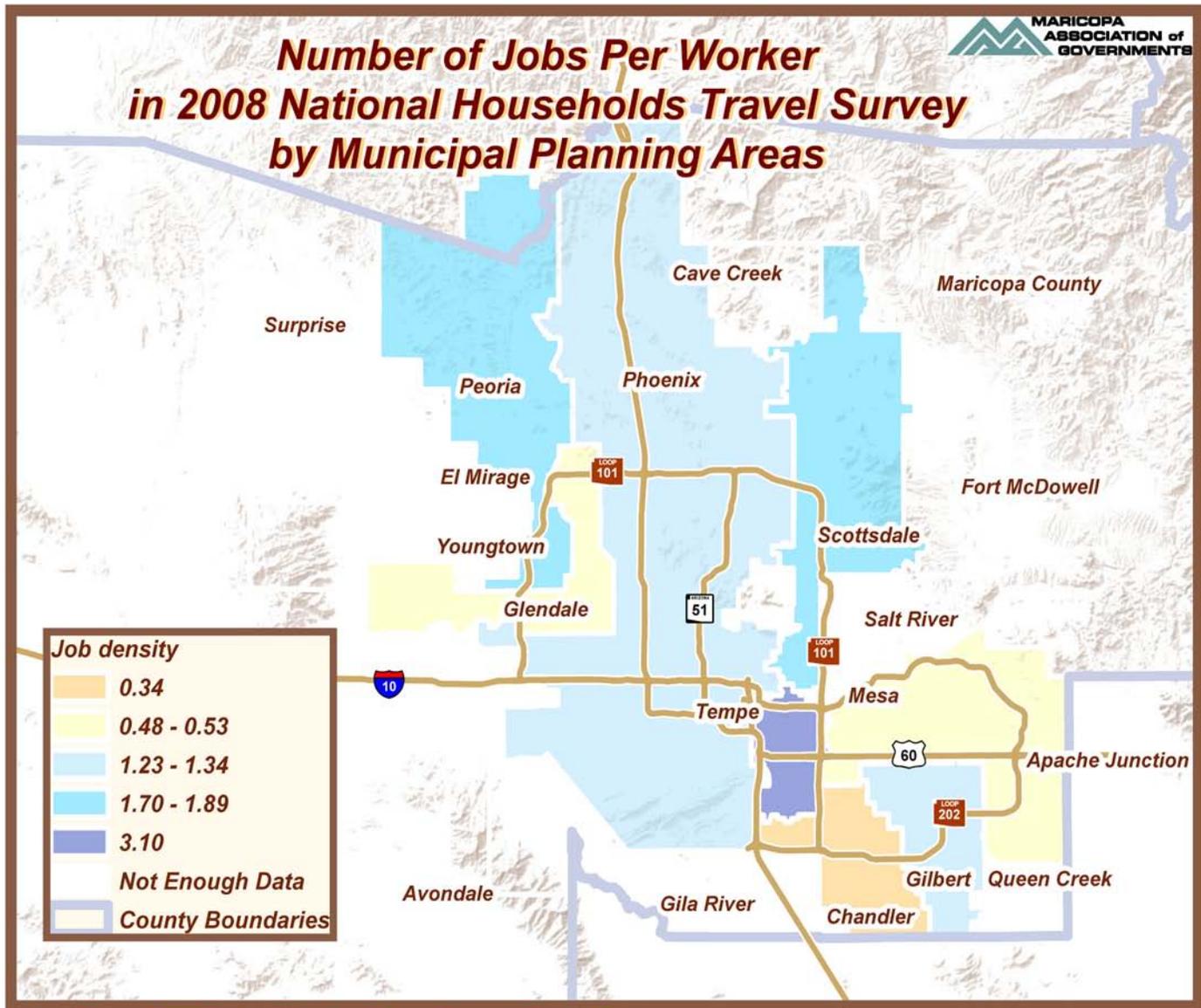
5.2.4 Analysis of Job Density

The number of jobs were calculated for each MPA and compared to the number of workers living in the same geographic place. Only job locations that geocoded properly are included in the discussed analysis. The MPAs were ranked based on the number of jobs available in each one of them. *Table 5-29* lists MPAs which collectively hold 87 % of the surveyed unweighted jobs. The job density for each MPA was determined by dividing the number of jobs by the number of workers living in the respective place. A job density value between 0.8 and 1.2 is considered a good balance between work force supply and demand. Residents in MPAs with job density lesser than 0.8 might

have to commute longer, while MPAs with higher job density (especially higher than 1.2) attract workers from other geographic places (Refer to *Map 5-2*).

A comparison at the level of MPA (Municipal Planning Area) between the expanded NHTS dataset in Maricopa County and the employment data base compiled by MAG is shown on *Map 5-3*. The total number of employed people in Maricopa County according to NHTS was 2,027,161 whereas the employment data compiled by MAG for the same time period and geographic area indicates 1,796,556. The cities with a possible under-sampling are represented in pale beige. Light green color depicts the area where oversampling is probable. Some of the most pronounced differences between the two datasets are for MPAs where the sample size is less than 2 % of the total jobs. Those territories are shown in white. Overall, the city of Phoenix, represented in deep brown seems to have the most favorable ratio between surveyed and actual jobs. Further analysis at a smaller geographic level is required to uncover bias or imbalance inside the cities with the highest number of jobs.

Number of Jobs Per Worker in 2008 National Households Travel Survey by Municipal Planning Areas

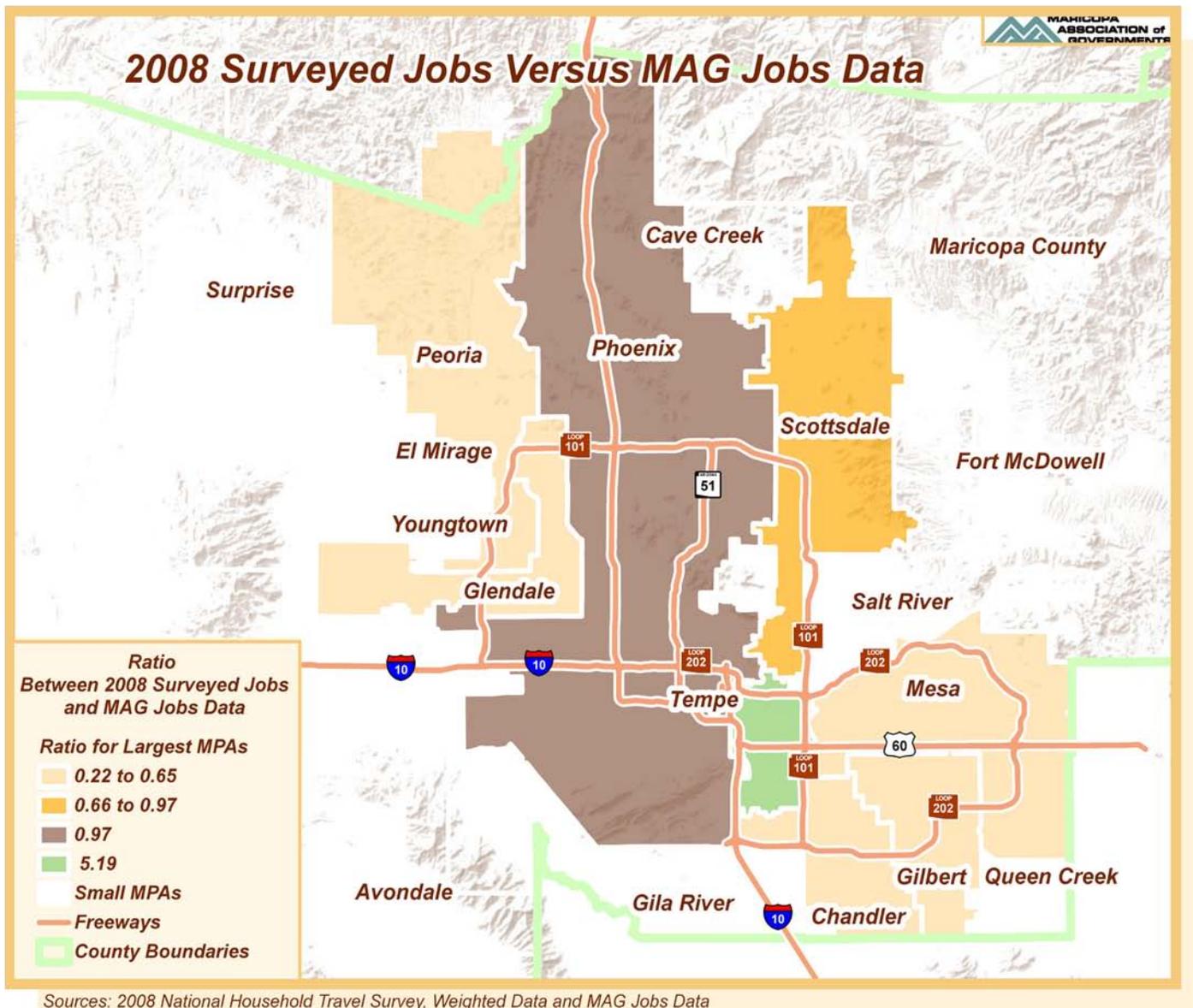


Source: 2008 National Household Travel Survey, Weighted Data

Map 5-2 Job Density Map Based on 2008 NHTS

| MPA | Unweighted Jobs | Weighted Jobs | Unweighted Workers | Weighted Workers | Job Density (Un-weighted Data) | Job Density (Weighted Data) |
|--------------|-----------------|------------------|--------------------|------------------|--------------------------------|-----------------------------|
| Phoenix | 1,765 | 850,997 | 1,392 | 634,546 | 1.27 | 1.34 |
| Mesa | 464 | 139,829 | 581 | 294,360 | 0.80 | 0.48 |
| Scottsdale | 394 | 137,556 | 287 | 81,009 | 1.37 | 1.70 |
| Tempe | 376 | 300,852 | 185 | 97,070 | 2.03 | 3.10 |
| Chandler | 280 | 70,858 | 343 | 205,415 | 0.82 | 0.34 |
| Glendale | 193 | 140,812 | 285 | 266,720 | 0.68 | 0.53 |
| Gilbert | 152 | 86,734 | 281 | 70,782 | 0.54 | 1.23 |
| Peoria | 101 | 111,013 | 164 | 58,786 | 0.62 | 1.89 |
| Other | 565 | 227,149 | 772 | 357,113 | N/A | N/A |
| Total | 4,290 | 2,065,801 | 4,290 | 2,065,801 | | |

Table 5-29 Job Density by MPA



Map 5-3 Spatial Comparison between 2008 Surveyed and Actual Jobs

5.3 Student data

As mentioned in Chapter 2, an important component of the survey was to collect data to analyze safe routes to school. The survey included questions regarding the type

of school that was attended by the student, name of the school, distance to school, the usual mode of travel to and from school (used by persons under the age of 16), etc. The relevant question from the survey instrument is as follows:

F5. On most school days, how {does FNAME/AGE/SEX/do you} usually get to school?
(SCHTRN1)

PERSONAL VEHICLES

| | |
|------------------------------------|---|
| CAR..... | 1 |
| VAN..... | 2 |
| SUV..... | 3 |
| PICKUP TRUCK..... | 4 |
| OTHER TRUCK..... | 5 |
| RV..... | 6 |
| MOTORCYCLE..... | 7 |
| LIGHT ELECTRIC VEHICLE (GOLF CART) | 8 |

BUS TRAVEL

| | |
|---|----|
| LOCAL PUBLIC TRANSIT..... | 9 |
| COMMUTER BUS..... | 10 |
| SCHOOL BUS..... | 11 |
| CHARTER/TOUR BUS..... | 12 |
| CITY TO CITY (GREYHOUND/PETERPAN) | 13 |
| SHUTTLE BUS (SUCH AS A SENIOR OR AIRPORT SHUTTLE)..... | 14 |

TRAIN TRAVEL

| | |
|-------------------------|----|
| AMTRAK/INTER CITY..... | 15 |
| COMMUTER TRAIN..... | 16 |
| SUBWAY/ELEVATED..... | 17 |
| STREET CAR/TROLLEY..... | 18 |

OTHER

| | |
|--|----|
| TAXICAB..... | 19 |
| FERRY..... | 20 |
| AIRPLANE..... | 21 |
| BICYCLE..... | 22 |
| WALK..... | 23 |
| SPECIAL TRANSIT FOR PEOPLE WITH DISABILITIES (DIAL-A-RIDE)..... | 24 |
| OTHER?..... | 97 |
| (SPECIFY)_____ | |

(SCHTRN10)

| | |
|-----------------|----|
| REFUSED..... | -7 |
| DON'T KNOW..... | -8 |

F7. On most school days, how {does FNAME/AGE/SEX/do you} usually leave school?
(SCHTRN2)

PERSONAL VEHICLES

| | |
|------------------------------------|---|
| CAR..... | 1 |
| VAN..... | 2 |
| SUV..... | 3 |
| PICKUP TRUCK | 4 |
| OTHER TRUCK | 5 |
| RV | 6 |
| MOTORCYCLE..... | 7 |
| LIGHT ELECTRIC VEHICLE (GOLF CART) | 8 |

BUS TRAVEL

| | |
|--|----|
| LOCAL PUBLIC TRANSIT | 9 |
| COMMUTER BUS..... | 10 |
| SCHOOL BUS..... | 11 |
| CHARTER/TOUR BUS | 12 |
| CITY TO CITY (GREYHOUND/PETERPAN) | 13 |
| SHUTTLE BUS (SUCH AS A SENIOR OR AIRPORT SHUTTLE) | 14 |

TRAIN TRAVEL

| | |
|--------------------------|----|
| AMTRAK/INTER CITY | 15 |
| COMMUTER TRAIN | 16 |
| SUBWAY/ELEVATED..... | 17 |
| STREET CAR/TROLLEY | 18 |

OTHER

| | |
|---|----|
| TAXICAB..... | 19 |
| FERRY | 20 |
| AIRPLANE | 21 |
| BICYCLE..... | 22 |
| WALK..... | 23 |
| SPECIAL TRANSIT FOR PEOPLE WITH DISABILITIES (DIAL-A-RIDE) | 24 |
| OTHER?..... | 97 |
| (SPECIFY)_____ | |

(SCHTRN20)

| | |
|------------------|----|
| REFUSED | -7 |
| DON'T KNOW | -8 |

The data distribution of all answers for mode to school is presented in *Table 5-30* below.

| Usual Mode of Travel to School | Unweighted Person Records | Percent Unweighted Person Records | Weighted Person Records | Percent Weighted Person Records |
|--------------------------------|---------------------------|-----------------------------------|-------------------------|---------------------------------|
| Car | 281 | 36.54% | 164,050 | 35.73% |
| Van | 51 | 6.63% | 16,926 | 3.69% |
| SUV | 52 | 6.76% | 55,455 | 12.08% |
| Pickup truck | 22 | 2.86% | 40,206 | 8.76% |
| Total Auto | 406 | 52.80% | 276,638 | 60.25% |
| Local Public Transit | 6 | 0.78% | 2,353 | 0.51% |
| School Bus | 219 | 28.48% | 81,719 | 17.80% |
| Special Transit | 1 | 0.13% | 63 | 0.01% |
| Total Transit | 226 | 29.39% | 84,135 | 18.32% |
| Bicycle | 34 | 4.42% | 32,723 | 7.13% |
| Walk | 88 | 11.44% | 63,106 | 13.74% |
| Total Non- motorized | 122 | 15.86% | 95,830 | 20.87% |
| Light Electric Vehicle | 2 | 0.26% | 74 | 0.02% |
| Other | 12 | 1.56% | 2444 | 0.53% |
| Total Other | 14 | 1.82% | 2,518 | 0.55% |
| No Data | 1 | 0.13% | 58 | 0.01% |
| Total | 769 | 100.00% | 459,178 | 100.00% |

Table 5-30 Usual Mode of Travel to School in 2008 NHTS

The data distribution of all answers for mode from school is presented in *Table 5-31* below.

| Usual Mode of Travel from School | Unweighted Person Records | Percent Unweighted Person Records | Percent Weighted Person Records | Percent Weighted Person Records |
|------------------------------------|---------------------------|-----------------------------------|---------------------------------|---------------------------------|
| Car | 257 | 33.42% | 161,856 | 35.25% |
| Van | 60 | 7.80% | 16,934 | 3.69% |
| SUV | 48 | 6.24% | 21,635 | 4.71% |
| Pickup truck | 18 | 2.34% | 3,474 | 0.76% |
| Total Auto | 383 | 49.80% | 203,900 | 44.41% |
| Motorcycle | 1 | 0.13% | 38 | 0.01% |
| Total Auto and Motorcycle | 384 | 49.93% | 203,938 | 44.41% |
| Local Public Transit | 8 | 1.04% | 2,503 | 0.55% |
| School Bus | 234 | 30.43% | 116,723 | 25.42% |
| Shuttle Bus | 1 | 0.13% | 61 | 0.01% |
| Total Transit | 243 | 31.60% | 119,286 | 25.98% |
| Bicycle | 33 | 4.29% | 32,373 | 7.05% |
| Walk | 94 | 12.22% | 101,666 | 22.14% |
| Total Non- motorized | 127 | 16.51% | 134,039 | 29.19% |
| Light Electric Vehicle (Golf Cart) | 1 | 0.13% | 13 | 0.00% |
| Other | 1 | 0.13% | 58 | 0.01% |
| Total Other | 2 | 0.26% | 71 | 0.02% |
| No Data | 13 | 1.69% | 1,844 | 0.40% |
| Total | 769 | 100.00% | 459,178 | 100.00% |

Table 5-31 Usual Mode of Travel from School in 2008 NHTS

As a follow up to the analysis of mode choice to and from school, the next step was to monitor if family income affected mode choice (to and from school). The unweighted data distribution showed a disposition towards auto than transit trips (for trips to and from school). The higher the family income, greater was the preference for auto trips to school (*Table 5-32*).



| Family Income | Unweighted Participating Students Going to School by Transit | Percent Unweighted Participating Students Going to School by Transit | Unweighted Participating Students Going to School by Auto | Percent Unweighted Participating Students Going to School by Auto | Total Unweighted Participating Students in Income Group | Total Percent |
|-----------------------|--|--|---|---|---|---------------|
| Under \$25,000 | 26 | 46.43% | 30 | 53.57% | 56 | 100.00% |
| \$25,000 to \$49,999 | 45 | 40.91% | 65 | 59.09% | 110 | 100.00% |
| \$50,000 to \$74,999 | 25 | 23.58% | 81 | 76.42% | 106 | 100.00% |
| \$75,000 to \$100,000 | 45 | 31.47% | 98 | 68.53% | 143 | 100.00% |
| Over \$100,000 | 76 | 39.79% | 115 | 60.21% | 191 | 100.00% |
| No data | | | 17 | 65.38% | 26 | 100.00% |
| Total | 226 | | 406 | | 632 | |

Table 5-32 Mode to School by Family Income Group – Unweighted Data

NHTS survey instrument for Safe Routes to School contained a few other questions that could offer an insight to the mode choice made by each student. For example, mode choice could be because of several factors like the relative location of school from residence for each student, relative safety of the neighborhoods between residence and school (in case walking or biking was preferred

by students) or poor walking environment, etc. Safe routes to school participants in the 2008 NHTS were asked about the importance of different factors which influenced their decision to allow or not allow their children to walk or bike to and from school. *Table 5-33* summarizes the results of the findings. The relevant question from the survey instrument is as follows:

F11. On a scale of 1 to 5, where 1 means “not an issue” and 5 means “a serious issue”, please tell me how much each of the following affects your decision to allow {FNAME/AGE/SEX} to walk or bike to or from school. On a scale of 1 to 5, how much of an issue is...

| | NOT AN ISSUE | A LITTLE BIT OF AN ISSUE | SOMEWHAT OF AN ISSUE | VERY MUCH AN ISSUE | A SERIOUS ISSUE | RF | DK |
|--|--------------|--------------------------|----------------------|--------------------|-----------------|----|----|
| a. the distance between home and school? Would you say it’s not an issue, a little bit of an issue, somewhat of an issue, very much an issue, or a serious issue? (SCHDIST) | 1 | 2 | 3 | 4 | 5 | -7 | -8 |
| b. the amount of traffic along the route? [Would you say it’s not an issue, a little bit of an issue, somewhat of an issue, very much an issue, or a serious issue?] (SCHTRAF) | 1 | 2 | 3 | 4 | 5 | -7 | -8 |
| c. the speed of traffic along route? (SCHSPD) | 1 | 2 | 3 | 4 | 5 | -7 | -8 |
| d. violence or crime along route? (SCHCRIM) | 1 | 2 | 3 | 4 | 5 | -7 | -8 |
| e. poor weather or climate in your area? (SCHWTHR) | 1 | 2 | 3 | 4 | 5 | -7 | -8 |

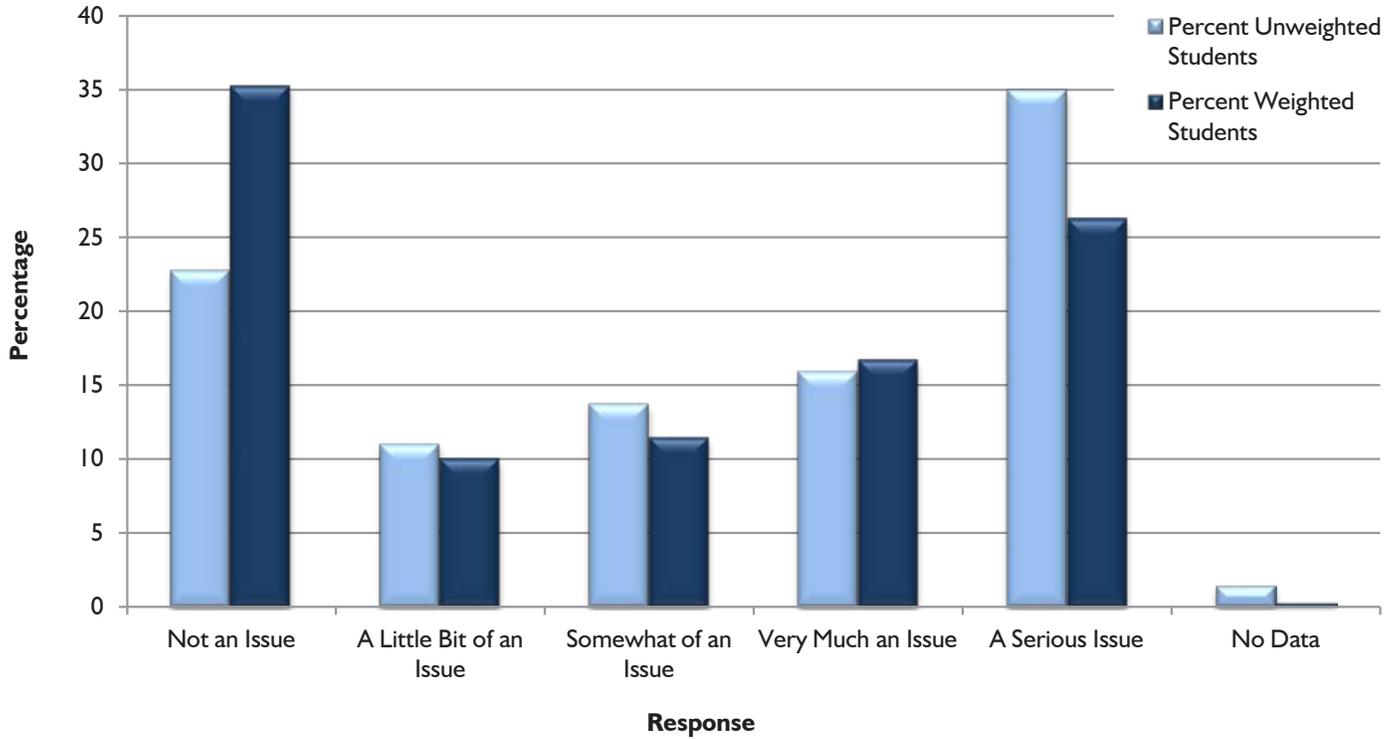
| Variable | Not an Issue | A little Bit of an Issue | Somewhat of an Issue | Very Much an Issue | A Serious Issue | No Data | Total |
|--|--------------|--------------------------|----------------------|--------------------|-----------------|---------|---------|
| Students for Whom Distance to School Presents a Problem | | | | | | | |
| Unweighted Number of Students | 175 | 85 | 106 | 123 | 269 | 11 | 769 |
| Percent Unweighted Students | 22.76% | 11.05% | 13.78% | 15.99% | 34.98% | 1.43% | 100% |
| Weighted Number of Students | 161,769 | 46,085 | 52,642 | 76,810 | 120,629 | 1,243 | 459,178 |
| Percent Weighted Students | 35.23% | 10.04% | 11.46% | 16.73% | 26.27% | 0.27% | 100.00% |
| Students for Whom Crime on the Route to School Presents a Problem | | | | | | | |
| Unweighted Number of Students | 307 | 121 | 119 | 58 | 149 | 15 | 769 |
| Percent Unweighted Students | 39.92% | 15.73% | 15.47% | 7.54% | 19.38% | 1.95% | 100.00% |
| Weighted Number of Students | 163,223 | 33,069 | 142,844 | 45,005 | 72,435 | 2,602 | 459,178 |
| Percent Weighted Students | 35.55% | 7.20% | 31.11% | 9.80% | 15.77% | 0.57% | 100.00% |
| Students for Whom Bad Weather on the Route to School Presents a Problem | | | | | | | |
| Unweighted Number of Students | 374 | 110 | 135 | 72 | 67 | 11 | 769 |
| Percent Unweighted Students | 48.63% | 14.30% | 17.56% | 9.36% | 8.71% | 1.43% | 100.00% |
| Weighted Number of Students | 179,528 | 73,233 | 54,742 | 50,404 | 100,036 | 1,235 | 459,178 |
| Percent Weighted Students | 39.10% | 15.95% | 11.92% | 10.98% | 21.79% | 0.27% | 100.00% |
| Students for Whom Amount of Traffic on the Route to School Presents a Problem | | | | | | | |
| Unweighted Number of Students | 105 | 72 | 112 | 156 | 314 | 10 | 769 |
| Percent Unweighted Students | 13.65% | 9.36% | 14.56% | 20.29% | 40.83% | 1.30% | 100.00% |
| Weighted Number of Students | 99,961 | 92,371 | 79,917 | 70,605 | 115,110 | 1,213 | 459,178 |
| Percent Weighted Students | 21.77% | 20.12% | 17.40% | 15.38% | 25.07% | 0.26% | 100.00% |
| Students for Whom Speed of Traffic On the Route to School Presents a Problem | | | | | | | |
| Unweighted Number of Students | 122 | 63 | 126 | 152 | 295 | 11 | 769 |
| Percent Unweighted Students | 15.86% | 8.19% | 16.38% | 19.77% | 38.36% | 1.43% | 100.00% |
| Weighted Number of Students | 139,222 | 72,879 | 40,373 | 107,875 | 96,892 | 1,938 | 459,178 |
| Percent Weighted Students | 30.32% | 15.87% | 8.79% | 23.49% | 21.10% | 0.42% | 100.00% |

Table 5-33 Summary of Factors that Influence Decisions to Walk or Bike to School

The results from the above table are also summarized in *Figure 5-2*. From the data analysis of NHTS trips file, it was also clear that walking and biking to school were less likely when a household had more licensed drivers. Data also suggests that as the distance between residence and school increased, the automobile share in mode choice correspondingly increased. Data suggests that household automobile ownership and parent employment status determined mode choice to school. There was no indication of school size from the survey.



Students for whom Distance to School Presents a Problem



Students for whom Crime on the Route to School Presents a Problem

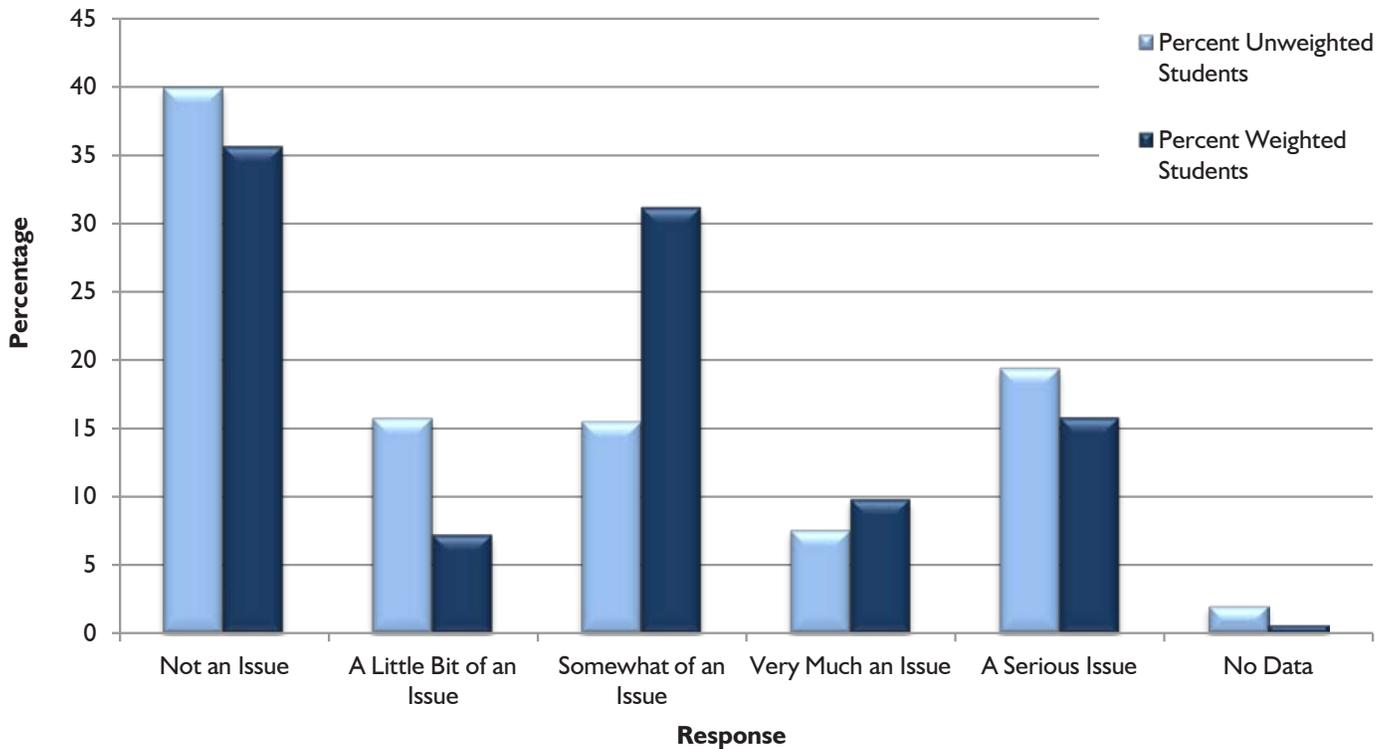
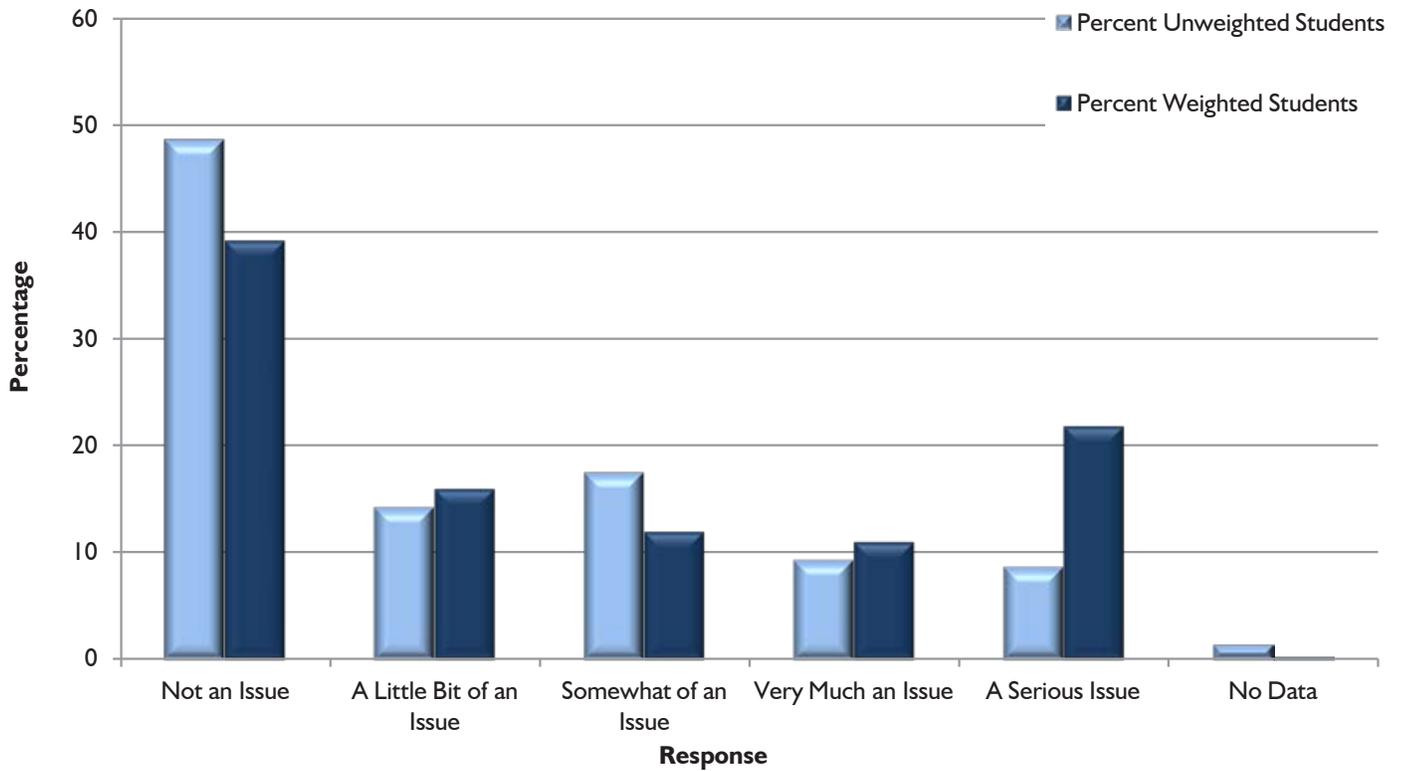


Figure 5-2 Summary of Factors that Influence Decisions to Walk or Bike to School

Students for whom Bad Weather on the Route to School Presents a Problem



Students for whom Amount of Traffic on the Route to School Presents a Problem

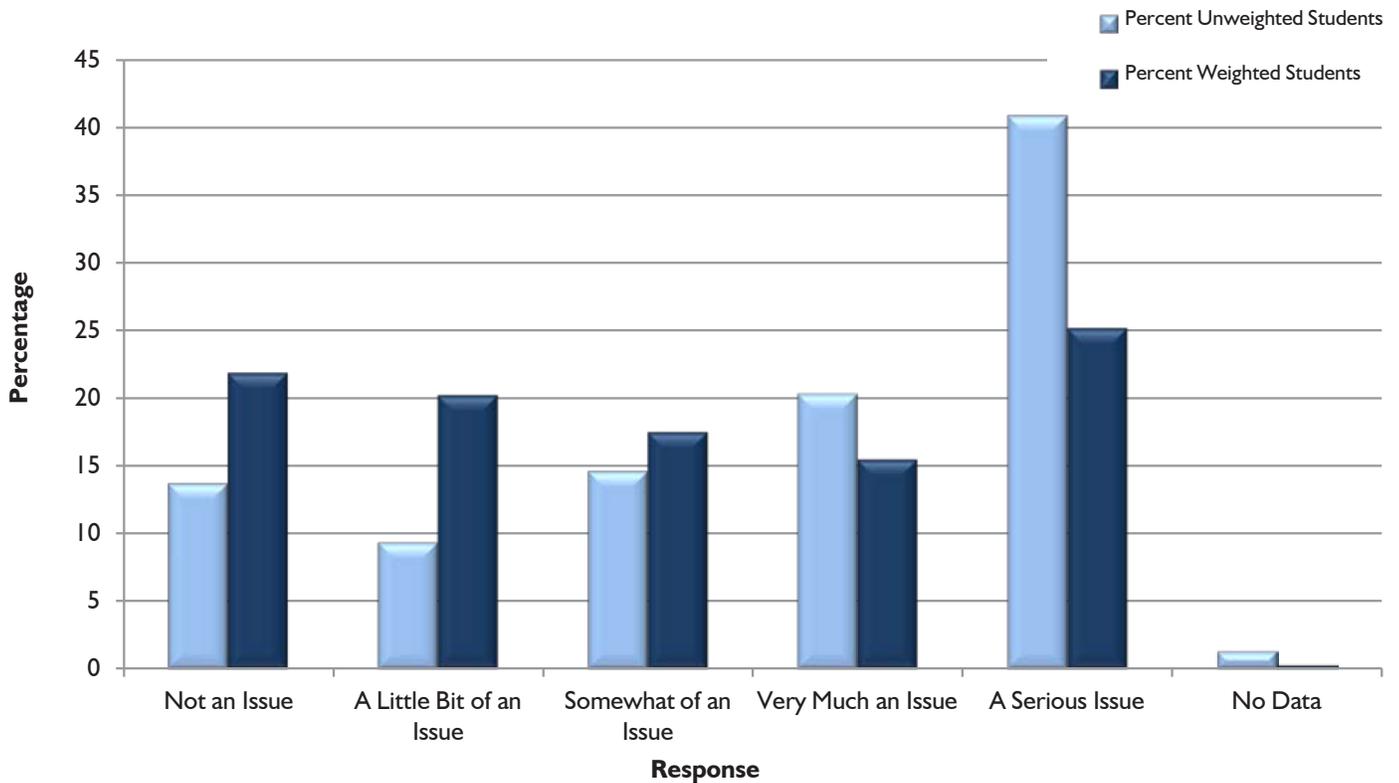


Figure 5-2 Summary of Factors that Influence Decisions to Walk or Bike to School (Continued)

Students for whom Speed of Traffic on the Route to School Presents a Problem

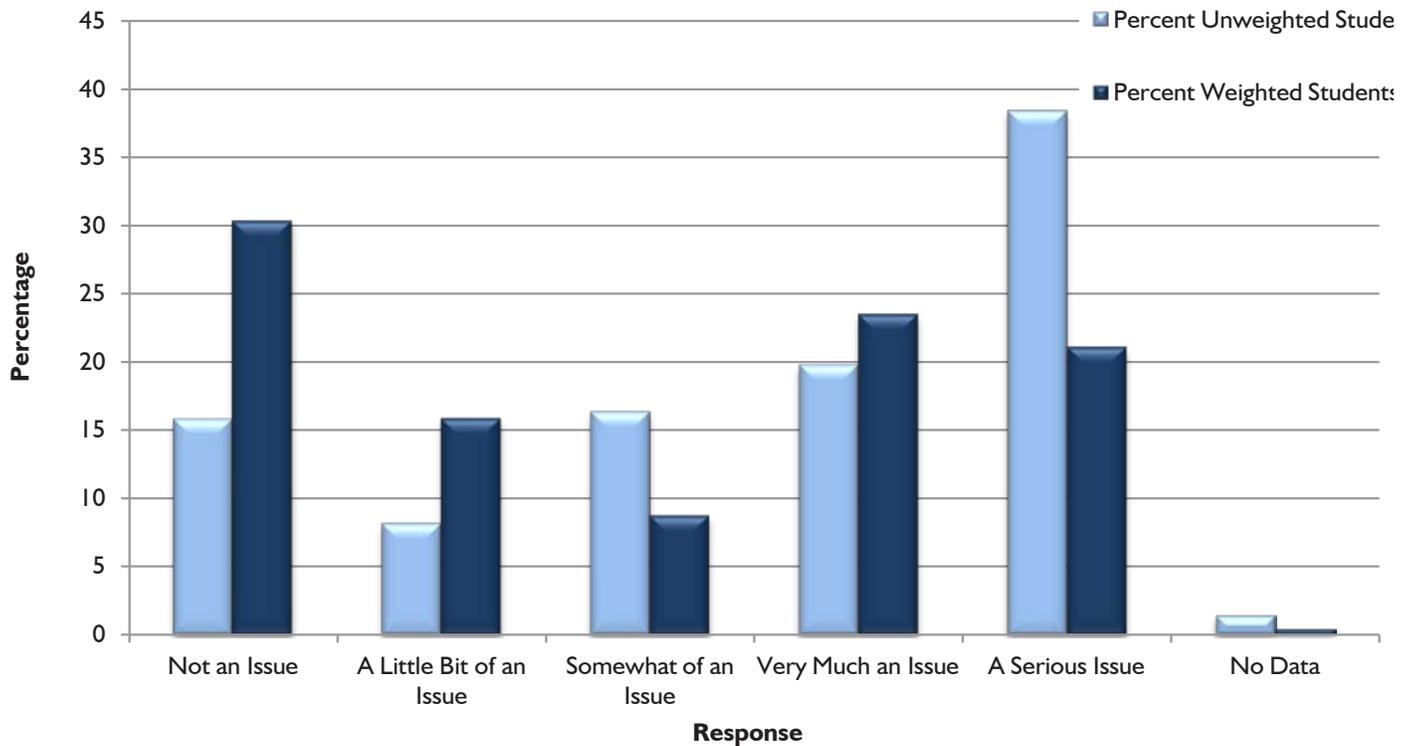


Figure 5-2 Summary of Factors that Influence Decisions to Walk or Bike to School (Continued)

5.4 Internet usage, online shopping and work from home

All participants who were at least 16 years old were asked about their internet usage. Their answers are summarized in *Table 5-34* and *Figure 5-3*. The relevant question from the survey instrument is as follows:

M2. In the past month, how often {have you/has SUBJECT} used the Internet? Would you say...
(WEBUSE)

- almost everyday, 1
- several times a week,..... 2
- once a week, 3
- once a month, or 4
- never? 5 GO TO M4
- REFUSED -7 GO TO M4
- DON'T KNOW -8 GO TO M4

Ma. In the past month, how many times did {you/SUBJECT} personally purchase something through the Internet?
(PURCHASE)

- NUMBER OF TIMES |__|__|__|
- REFUSED -7
 - DON'T KNOW -8

| Frequency of Internet Use | Unweighted Number of Person Records | Percent Unweighted Number of Person Records | Weighted Number of Person Records | Percent Weighted Number of Person Records |
|---------------------------|-------------------------------------|---|-----------------------------------|---|
| Almost Every Day | 5,543 | 64.94% | 2,096,870 | 65.74% |
| Several Times a Week | 889 | 10.41% | 311,366 | 9.76% |
| Once a Week | 340 | 3.98% | 144,127 | 4.52% |
| Once a Month | 178 | 2.09% | 85,015 | 2.67% |
| Total Internet Users | 6,950 | 81.42% | 2,637,378 | 82.69% |
| Never | 1,570 | 18.39% | 537,314 | 16.85% |
| No Data | 16 | 0.19% | 15,039 | 0.47% |
| Total | 8,536 | 100.00% | 3,189,730 | 100.00% |

Table 5-34 Frequency of Internet Use for Persons 16 Years and Older

Frequency of Internet Use for Persons 16 Years and Older

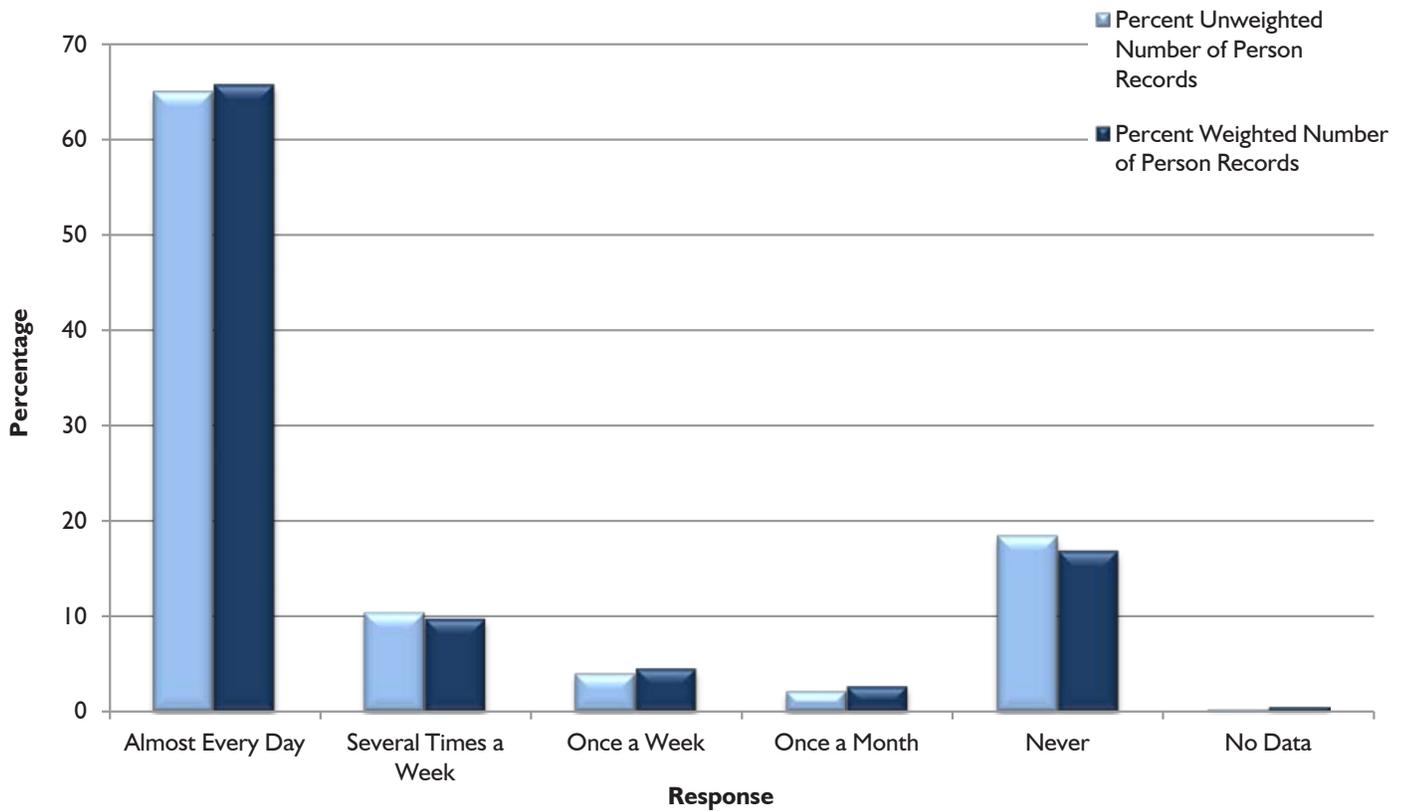


Figure 5-3 Frequency of Internet Use for Persons 16 Years and Older

| Monthly Online Shopping | Unweighted Number of Person Records | Percent Unweighted Number of Person Records | Weighted Number of Person Records | Percent Weighted Number of Person Records |
|---------------------------------|-------------------------------------|---|-----------------------------------|---|
| Once a Month | 1,030 | 14.82% | 423,359 | 16.05% |
| Twice a Month | 829 | 11.93% | 253,191 | 9.60% |
| Three to Five Times | 1,096 | 15.77% | 448,759 | 17.02% |
| Five to Ten Times | 326 | 4.69% | 116,558 | 4.42% |
| Over Ten times | 130 | 1.87% | 45,720 | 1.73% |
| Total Number of Online Shoppers | 3,411 | 49.08% | 1,287,587 | 48.82% |
| No Data | 39 | 0.56% | 12,105 | 0.46% |
| Never | 3,500 | 50.36% | 1,337,686 | 50.72% |
| Total | 6,950 | 100.00% | 2,637,378 | 100.00% |

Table 5-35 Frequency of Online Shopping for Internet Users 16 Years and Older

Furthermore, Internet users of age 16 or greater were asked whether they shop online and how often they do it. Their answers are summarized in *Table 5-35*. Employed people were asked if they had worked from home at least one entire day in the course of the month before the survey. Of the 4,419 respondents who were working 395 (8.94 %) had worked from home for a minimum of one day during the previous month. The Internet usage among those workers is shown in *Table 5-36*. The query

was based upon the following criteria:

- a. Respondent who is at least 16 years of age.
- b. Whether respondent is employed.
- c. If the respondent reported working from home for at least one day.
- d. Queried results from above were grouped by web use.

A snapshot of the questions from the survey is shown below:

C5. Please tell me your first name, age and gender.
(FNAME, R_AGE, R_SEX)

FIRST NAME: _____

AGE: _____

GENDER: _____ [M=MALE, F=FEMALE]

REFUSED..... -7

DON'T KNOW..... -8

E5. {Do you/Does SUBJECT} work.. [A full time job is at least 35 hours per week.]
(WKFTPT)

full-time, or..... 1

part-time? 2

MULTIPLE JOBS 3

REFUSED -7

DON'T KNOW -8

E20. How many times in the last month did {you/SUBJECT} work only at home for an entire work day instead of traveling to your usual {primary} workplace?
(WKFMHXX)

TIMES |__|__|

REFUSED -7

DON'T KNOW -8

| Web Use Of Persons Who Worked from Home at Least for a Day | Unweighted Number of Person Records | Percent Unweighted Number of Person Records | Weighted Number of Person Records | Percent Weighted Number of Person Records |
|--|-------------------------------------|---|-----------------------------------|---|
| Every day | 375 | 94.94% | 214,671 | 97.04% |
| Several times a week | 12 | 3.04% | 6,096 | 2.76% |
| Once a week | 2 | 0.51% | 90 | 0.04% |
| Never* | 6 | 1.52% | 367 | 0.17% |
| Total | 395 | 100.00% | 221,224 | 100.00% |

* Persons work from home but did not report using internet

Table 5-36 Web Use of Persons who Work from Home

5.5 Driver Status

The driver status for each trip record was ascertained and the distribution is shown as below. The summary of driver status is shown in *Table 5-37*. A snapshot of the appropriate question is as shown below:

G48. Did {you/SUBJECT/a member of the household} drive on the trip?
(HHMEMDRV)

YES 1
 NO 2 GO TO BOX AFTER G49
 PART OF TRIP 3
 REFUSED -7 GO TO BOX AFTER G49
 DON'T KNOW -8 GO TO BOX AFTER G49

G49. Who was the driver?
(DRVR_FLG, WHODROVE)

[IF NEEDED: Which one drove the longest distance?]

ENTER 1 FOR DRIVER
 REFUSED -7
 DON'T KNOW -8

| Driver Status | Unweighted Number of Person Records | Percent Unweighted Number of Person Records | Weighted Number of Person Records | Percent Weighted Number of Person Records |
|---------------|-------------------------------------|---|-----------------------------------|---|
| Driver | 7,941 | 75.8% | 2,874,065 | 73.21% |
| Non driver | 709 | 6.8% | 415,868 | 10.59% |
| No data | 1,829 | 17.5% | 635,789 | 16.20% |
| Total | 10,479 | 100.00% | 3,925,722 | 100.00% |

Table 5-37 Summary of Driver's Status in 2008 NHTS

6. Analysis of Vehicle Data

The 4,707 households from the MAG region household distribution reported having a total of 9,211 household vehicles (including golf carts) available.

The vehicle ownership for the household distribution using weighted data from 2008 NHTS, 2001 MAG Household Travel Survey and from 2008 ACS is shown in *Figure 6-1* below.

The relevant question from the survey instrument is as shown below:



B1. How many vehicles are owned, leased, or available for **regular use** by the people who currently live in your household? Please be sure to include motorcycles, mopeds and RVs.
(HNUMVEH)

[INCLUDE LEASED OR COMPANY-OWNED MOTORIZED VEHICLES IF THEY ARE USED BY HOUSEHOLD MEMBERS ON A REGULAR BASIS.]

| | | | |
|-------------------------|----|----------|--|
| NUMBER OF VEHICLES..... | | | |
| NONE | 0 | GO TO C1 | |
| REFUSED | -7 | GO TO C1 | |
| DON'T KNOW | -8 | GO TO C1 | |

Household Distributions by Vehicle Ownership (Weighted)

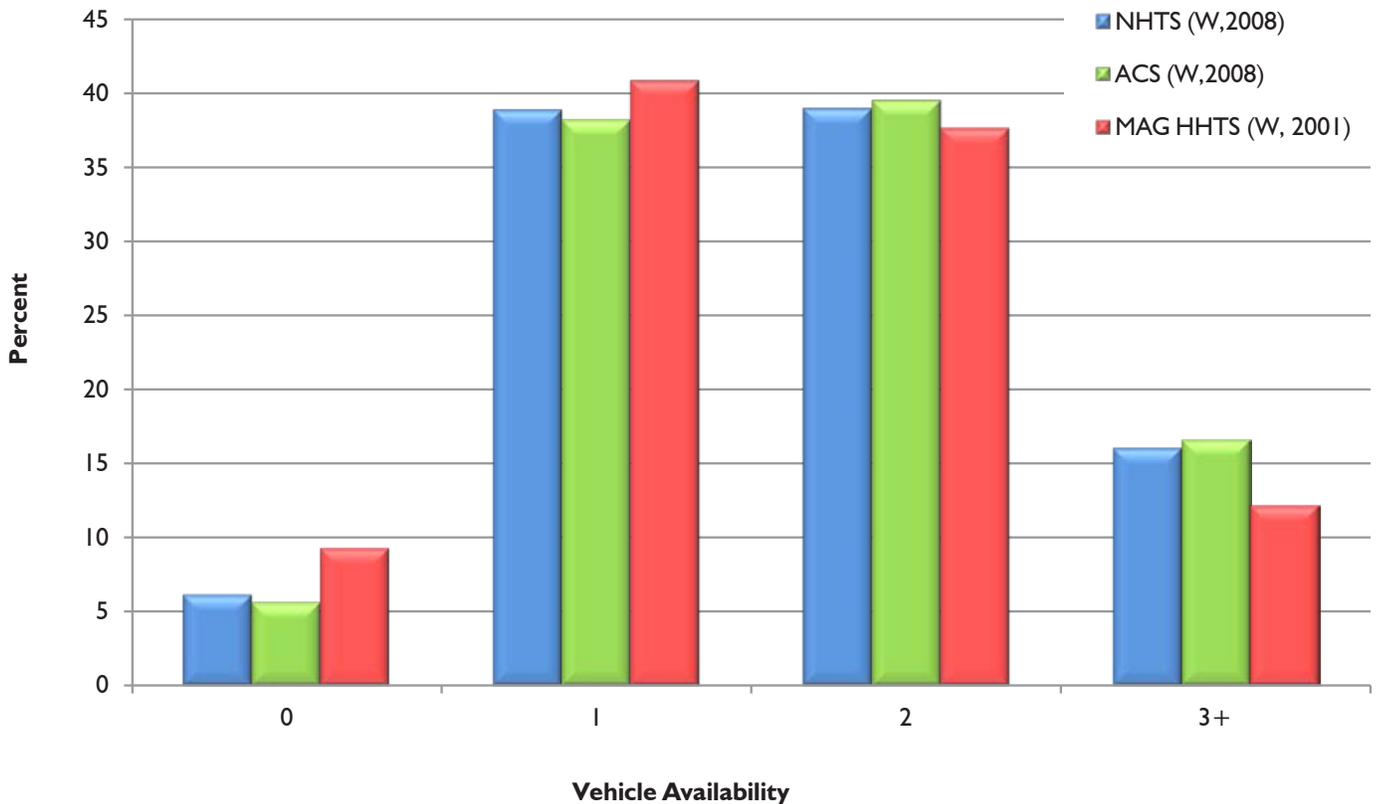
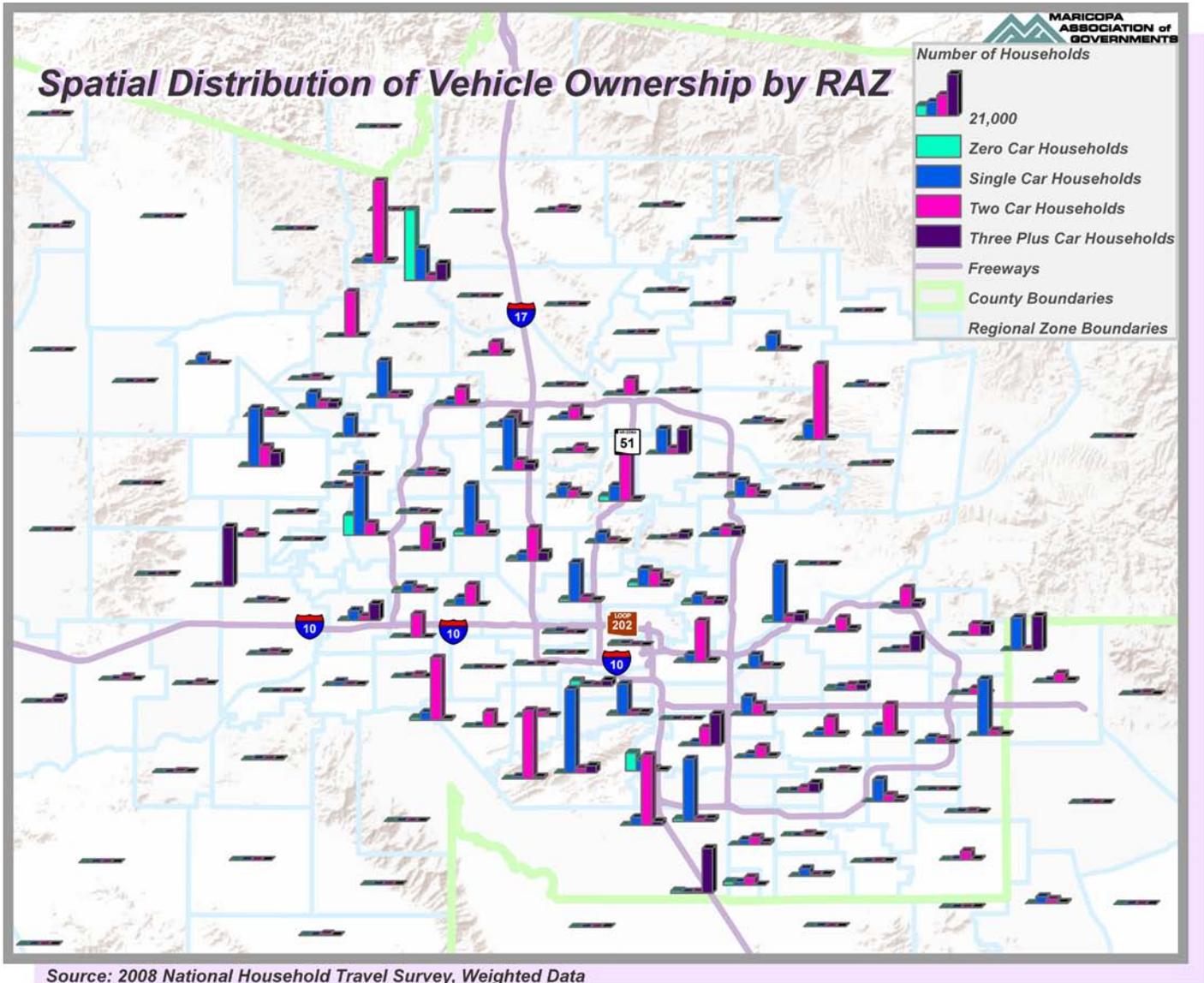


Figure 6-1 Comparison of Vehicle Ownership

The distribution of vehicle ownership from 2008 NHTS survey shows a similar trend when compared to 2008 ACS. The distribution of households by vehicle ownership by regional analysis zone (RAZ) is shown in *Map 6-1*. RAZs like Apache Junction showed higher 3-vehicle ownership than 2-vehicle ownership, while Paradise Valley and Ahwatukee showed higher number of households owning at least two cars.

The cross classification tables between Auto ownership and Household size for 2008 NHTS data, CTPP 2000,

and 2008 ACS 1-year data were developed to compare the trends between 2008 and 2000, as Census 2010 data is not available at the moment of writing this report. Even though weights for NHTS were developed based upon 2008 ACS, the distribution across all variables did not agree all the time. Hence, a distribution from 2008 ACS was also included in the analysis. The tables below (*Tables 6-1 through Table 6-3*) indicate that distributions from ACS 2008 and NHTS are consistent with each other. From the tables, it is clear that percentage of households with at least three vehicles has increased when compared to 2000.



Map 6-1 Spatial Distribution of Vehicle Ownership by RAZ

| Household Size | | | | | |
|----------------|---------------|---------------|---------------|---------------|----------------|
| Auto Ownership | 1 | 2 | 3 | 4+ | Totals |
| 0 | 5.13% | 0.64% | 0.22% | 0.17% | 6.16% |
| 1 | 22.32% | 9.67% | 1.86% | 5.03% | 38.87% |
| 2 | 0.91% | 15.24% | 6.39% | 16.41% | 38.96% |
| 3+ | 0.22% | 4.21% | 5.46% | 6.13% | 16.01% |
| Totals | 28.58% | 29.76% | 13.93% | 27.74% | 100.00% |

Table 6-1 Auto Ownership by Household Size in 2008 NHTS (Weighted)

| Household Size | | | | | |
|----------------|---------------|---------------|---------------|--------------|----------------|
| Auto Ownership | 1 | 2 | 3 | 4+ | Totals |
| 0 | 4.95% | 1.11% | 0.10% | 0.00% | 6.16% |
| 1 | 11.47% | 26.07% | 1.28% | 0.05% | 38.87% |
| 2 | 5.76% | 17.33% | 13.75% | 2.12% | 38.96% |
| 3+ | 1.49% | 3.21% | 7.86% | 3.45% | 16.01% |
| Totals | 23.67% | 47.71% | 22.99% | 5.62% | 100.00% |

Table 6-4 Auto Ownership by Number of Workers in 2008 NHTS (Weighted)

| Household Size | | | | | |
|----------------|---------------|---------------|---------------|---------------|----------------|
| Auto Ownership | 1 | 2 | 3 | 4+ | Totals |
| 0 | 3.51% | 1.37% | 0.69% | 1.28% | 6.85% |
| 1 | 18.13% | 10.96% | 3.81% | 5.60% | 38.51% |
| 2 | 2.35% | 18.45% | 6.90% | 12.57% | 40.28% |
| 3+ | 0.50% | 3.07% | 3.72% | 7.07% | 14.36% |
| Totals | 24.49% | 33.85% | 15.12% | 26.53% | 100.00% |

Table 6-2 Auto Ownership by Household Size in 2000 CTPP (Weighted)

| Household Size | | | | | |
|----------------|---------------|---------------|---------------|--------------|----------------|
| Auto Ownership | 1 | 2 | 3 | 4+ | Totals |
| 0 | 3.63% | 2.16% | 0.80% | 0.26% | 6.85% |
| 1 | 14.18% | 18.68% | 4.76% | 0.90% | 38.51% |
| 2 | 6.11% | 12.99% | 19.21% | 1.97% | 40.28% |
| 3+ | 1.11% | 3.15% | 5.78% | 4.32% | 14.36% |
| Totals | 25.03% | 36.98% | 30.55% | 7.44% | 100.00% |

Table 6-5 Auto Ownership by Number of Workers in 2000 CTPP (Weighted)

| Household Size | | | | | |
|----------------|---------------|---------------|---------------|---------------|----------------|
| Auto Ownership | 1 | 2 | 3 | 4+ | Totals |
| 0 | 3.24% | 1.03% | 0.61% | 0.76% | 5.64% |
| 1 | 20.63% | 10.05% | 3.07% | 4.46% | 38.21% |
| 2 | 2.92% | 18.82% | 6.72% | 11.06% | 39.52% |
| 3+ | 0.67% | 3.63% | 4.00% | 8.33% | 16.62% |
| Totals | 27.46% | 33.53% | 14.40% | 24.61% | 100.00% |

Table 6-3 Auto Ownership by Household Size in 2008 ACS (Weighted)

| Household Size | | | | | |
|----------------|---------------|---------------|---------------|--------------|----------------|
| Auto Ownership | 1 | 2 | 3 | 4+ | Totals |
| 0 | 3.10% | 1.90% | 0.48% | 0.17% | 5.64% |
| 1 | 12.98% | 21.46% | 3.31% | 0.47% | 38.21% |
| 2 | 5.60% | 14.31% | 18.13% | 1.48% | 39.52% |
| 3+ | 1.02% | 4.01% | 6.77% | 4.83% | 16.62% |
| Totals | 22.69% | 41.68% | 28.68% | 6.95% | 100.00% |

Table 6-6 Auto Ownership by Number of Workers in 2008 ACS (Weighted)

Persons in household with zero vehicles normally rely on non-motorized modes and public transit to get to work to a significantly greater degree than persons in households with vehicles. The cross classification tables between auto ownership and number of workers for 2008 NHTS, CTPP 2000, and 2008 ACS are shown below (Table 6-4 to Table 6-6).

The above tables indicate that when compared to 2000, there is an increase in percentage of households with one worker. Also, the percentage of households with zero workers as well as those with zero car ownership has reduced in 2008 when compared to 2000. The percentage of households with at least three vehicles has increased in 2008 when compared to 2000.

Vehicle ownership increased substantially in households with annual income of at least 50,000 dollars in the 2008 NHTS data compared to 2001 household travel survey. The cross-classification tables between auto ownership and income are as shown below (Tables 6-7 through 6-8). The percentage of households with at least 50,000 dollars

as annual income has increased significantly from 2000 to 2008.

It can be noted that increase in vehicle ownership corresponds to increased trip rates (Refer to Figure 6-2).

| Auto Ownership | Household Income | | | Total |
|----------------|------------------|---------------------|-----------|--------|
| | <\$20,000 | \$20,000- <\$50,000 | >\$50,000 | |
| 0 | 1.97 | 3.31 | 0.15 | 5.43 |
| 1 | 9.85 | 18.48 | 9.93 | 38.25 |
| 2+ | 2.92 | 14.64 | 38.76 | 56.32 |
| Total | 14.74 | 36.42 | 48.84 | 100.00 |

Table 6-7 Auto Ownership by Household Income in 2008 NHTS

| Auto Ownership | Household Income | | | Total |
|----------------|------------------|---------------------|-----------|--------|
| | <\$20,000 | \$20,000- <\$50,000 | >\$50,000 | |
| 0 | 6.66 | 2.60 | 0.41 | 9.67 |
| 1 | 11.91 | 21.52 | 7.40 | 40.83 |
| 2+ | 3.76 | 18.18 | 27.57 | 49.50 |
| Total | 22.32 | 42.29 | 35.39 | 100.00 |

Table 6-8 Auto Ownership by Household Income in 2001 Household Travel Survey

Variation of Household Trip Rates by Auto Ownership

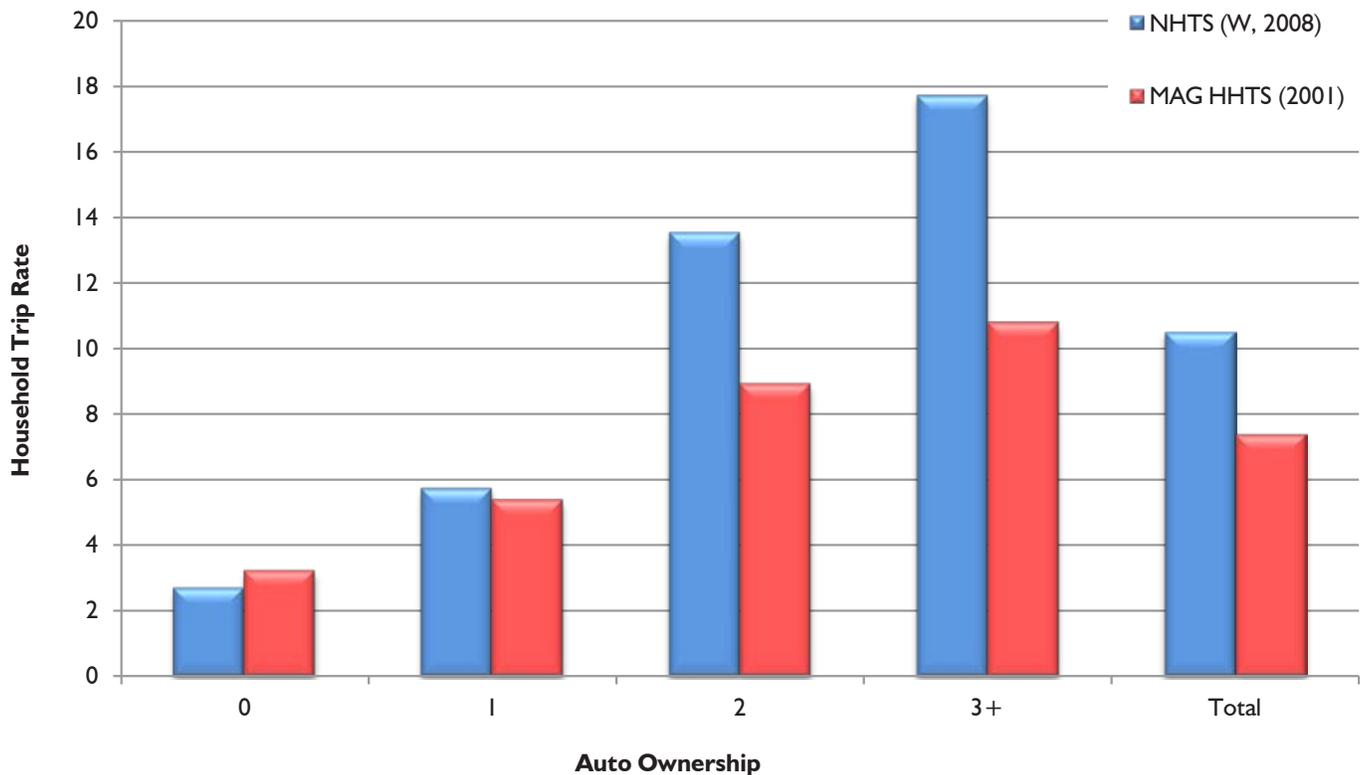


Figure 6-2 Household Trip Rates by Auto Ownership in 2001 and 2008 NHTS

Table 6-9 shows the distribution of vehicle make from the survey. Using unweighted data, the most predominant vehicle makes are Ford (12.64%), Toyota (12.57%), Chevrolet (12.47%), Honda (8.47%) and Nissan (5.91%).

The 2001 household travel survey also reported these as predominant vehicles makes. The relevant question from the survey instrument is as follows:

L6. Now we'd like to ask a few questions about the household {vehicle/vehicles} {for which you are the primary driver.}

L7. Please verify that you have a . . .
(L_MAKE, L_MODEL, L_VYEAR)

KEY MAKE MODEL YEAR TYP

| MAKENAME | Count | Percent (UW) | Count (W) | Percent (W) |
|---------------------------------|-------|--------------|-----------|-------------|
| ACURA | 79 | 0.86% | 11693 | 0.46% |
| ALFA ROMEO | 2 | 0.02% | 663 | 0.03% |
| AM GENERAL | 3 | 0.03% | 116 | 0.00% |
| AMC/AMERICAN MOTORS | 4 | 0.04% | 64 | 0.00% |
| AUDI | 20 | 0.22% | 6199 | 0.24% |
| AUSTIN / AUSTIN HEALEY | 2 | 0.02% | 27 | 0.00% |
| BMW | 131 | 1.42% | 27529 | 1.08% |
| BSA | 1 | 0.01% | 12 | 0.00% |
| BUICK | 325 | 3.53% | 101227 | 3.96% |
| CADILLAC | 165 | 1.79% | 51821 | 2.03% |
| CHEVROLET | 1,149 | 12.47% | 371719 | 14.53% |
| CHRYSLER | 255 | 2.77% | 60798 | 2.38% |
| DAEWOO | 4 | 0.04% | 728 | 0.03% |
| DIAMOND REO/ REO | 1 | 0.01% | 0 | 0.00% |
| DODGE | 527 | 5.72% | 269743 | 10.54% |
| DUCATI | 4 | 0.04% | 105 | 0.00% |
| EAGLE | 1 | 0.01% | 53 | 0.00% |
| FIAT | 1 | 0.01% | 26 | 0.00% |
| FORD | 1,164 | 12.64% | 311138 | 12.16% |
| FREIGHTLINER/ WHITE | 2 | 0.02% | 25 | 0.00% |
| GMC | 237 | 2.57% | 58537 | 2.29% |
| HARLEY-DAVIDSON | 101 | 1.10% | 15349 | 0.60% |
| HONDA | 780 | 8.47% | 229979 | 8.99% |
| HYUNDAI | 203 | 2.20% | 47442 | 1.85% |
| INFINITI | 66 | 0.72% | 9831 | 0.38% |
| INTERNATIONAL HARVESTER/ NAVIST | 3 | 0.03% | 155 | 0.01% |
| ISUZU | 49 | 0.53% | 4720 | 0.18% |

| MAKENAME | Count | Percent (UW) | Count (W) | Percent (W) |
|--------------------|-------|--------------|-----------|-------------|
| JAGUAR | 30 | 0.33% | 4161 | 0.16% |
| JEEP / KAISER-JEEP | 220 | 2.39% | 33988 | 1.33% |
| KAWASAKI | 29 | 0.31% | 1316 | 0.05% |
| KIA | 134 | 1.45% | 47606 | 1.86% |
| LAND ROVER | 10 | 0.11% | 509 | 0.02% |
| LEXUS | 174 | 1.89% | 16951 | 0.66% |
| LINCOLN | 83 | 0.90% | 6673 | 0.26% |
| MACK | 1 | 0.01% | 945 | 0.04% |
| MAZDA | 114 | 1.24% | 40027 | 1.56% |
| MERCEDES BENZ | 117 | 1.27% | 11898 | 0.46% |
| MERCURY | 148 | 1.61% | 23839 | 0.93% |
| MG | 3 | 0.03% | 376 | 0.01% |
| MINI | 84 | 0.91% | 14205 | 0.56% |
| NISSAN / DATSUN | 544 | 5.91% | 198388 | 7.75% |
| OLDSMOBILE | 93 | 1.01% | 15163 | 0.59% |
| OTHER MAKE | 288 | 3.13% | 45161 | 1.76% |
| PETERBILT | 1 | 0.01% | 583 | 0.02% |
| PLYMOUTH | 30 | 0.33% | 3711 | 0.15% |
| PONTIAC | 163 | 1.77% | 53676 | 2.10% |
| PORSCHE | 29 | 0.31% | 4143 | 0.16% |
| SAAB | 7 | 0.08% | 518 | 0.02% |
| SATURN | 133 | 1.44% | 23788 | 0.93% |
| SMART | 7 | 0.08% | 364 | 0.01% |
| SUBARU | 57 | 0.62% | 3751 | 0.15% |
| SUZUKI | 50 | 0.54% | 27710 | 1.08% |
| TOYOTA | 1,158 | 12.57% | 309247 | 12.09% |
| TRIUMPH | 9 | 0.10% | 504 | 0.02% |
| VOLKSWAGEN | 100 | 1.09% | 42189 | 1.65% |
| VOLVO | 61 | 0.66% | 26886 | 1.05% |
| YAMAHA | 55 | 0.6% | 20899 | 0.82% |
| TOTAL | 9211 | 100.00% | 2558883 | 100.00% |

Table 6-9 Distribution of Vehicle Make in 2008 NHTS

Most household vehicles captured in the survey for MAG region were automobiles-49%, while 18.8% were trucks, 19.1% SUV's, and 8% vans (as indicated in *Table 6-10*). The fleet distribution in the MAG region reported that

34% are less than 5 years old, and 72% less than 10 years old (as indicated in *Table 6-11*). The relevant question from the survey instrument is shown below:

B2.

{I have a few questions about each of these vehicles. Let's start with the newest vehicle.} What is the make, model and year of this vehicle?

KEY MAKE MODEL YEAR TYP
(MAKEALPH) **(MAKECODE)** **(MODLCODE)** **(VEHYEAR)** **(VEHTYPE)**

01
 02
 03
 04
 05
 thru' 99

(VMAT6) What type of vehicle is it?

(VEHTYPE)

- | | |
|---|--|
| 1. AUTOMOBILE/CAR/STATION WAGON | 4. PICKUP TRUCK |
| 2. VAN [MINI, CARGO, PASSENGER] | 5. OTHER TRUCK |
| 3. SPORTS UTILITY VEHICLE [BRONCO, BLAZER, 4RUNNER, PATHFINDER, JEEP, ETC.] | 6. RV [RECREATIONAL VEHICLE] |
| | 7. MOTORCYCLE/MOTORBIKE |
| | 97. OTHER? (VEHTYOS) (SPECIFY) _____ |

| Vehicle Type | Unweighted Percent | Weighted Percent |
|--------------|--------------------|------------------|
| Car | 49.63% | 47.54% |
| Van | 7.96% | 9.75% |
| SUV | 19.08% | 19.04% |
| Pickup Truck | 17.32% | 19.78% |
| Other Truck | 0.21% | 0.65% |
| RV | 0.84% | 0.21% |
| Motorcycle | 3.43% | 1.76% |
| Other | 1.34% | 0.88% |
| Refused | 0.22% | 0.39% |
| Total | 100.00% | 100.00% |

Table 6-10 Distribution of Vehicle Types in 2008 NHTS

| Vehicle Age (Years) | Weighted Number | Weighted Number Percent |
|---------------------|-----------------|-------------------------|
| 1-5 | 875,244 | 34.20% |
| 6-10 | 968,712 | 37.86% |
| 11-15 | 400,248 | 15.64% |
| 16-20 | 185,938 | 7.27% |
| 20 plus | 72,496 | 2.83% |
| Refused | 56,243 | 2.20% |
| Total | 100% | 100.00% |

Table 6-11 Summary of Vehicles by Age in 2008 NHTS

7. Travel Behavior

As part of the 2008 National Household Travel Survey, the 4,707 participating households from Maricopa region reported a total of 38,299 trips. The travel data included land use type of the location visited, trip purpose, travel modes, and arrival/departure times. For auto trips, data included vehicle occupancy, how many occupants were household members, toll paid, trip length, trip duration, mode used, whether household vehicle was used, etc. For trips made by transit, access and egress modes, arrival and departure times at the bus stop, fare paid to use the transit services and the payment method were recorded.

Figure 7-1 shows the distribution of trips by purpose. The 2008 NHTS data has approximately 9.6% of home based work trips, 58.1% are home based other and 32.2% are non-home based trips. More than half of all reported trips are home based trips. Figure 7-1 shows comparison of 2008 NHTS expanded data and 2001 travel survey un-expanded data. Percentage HBW trips have decreased in 2008 compared to 2001.



Distribution of Percent Trips by Purpose

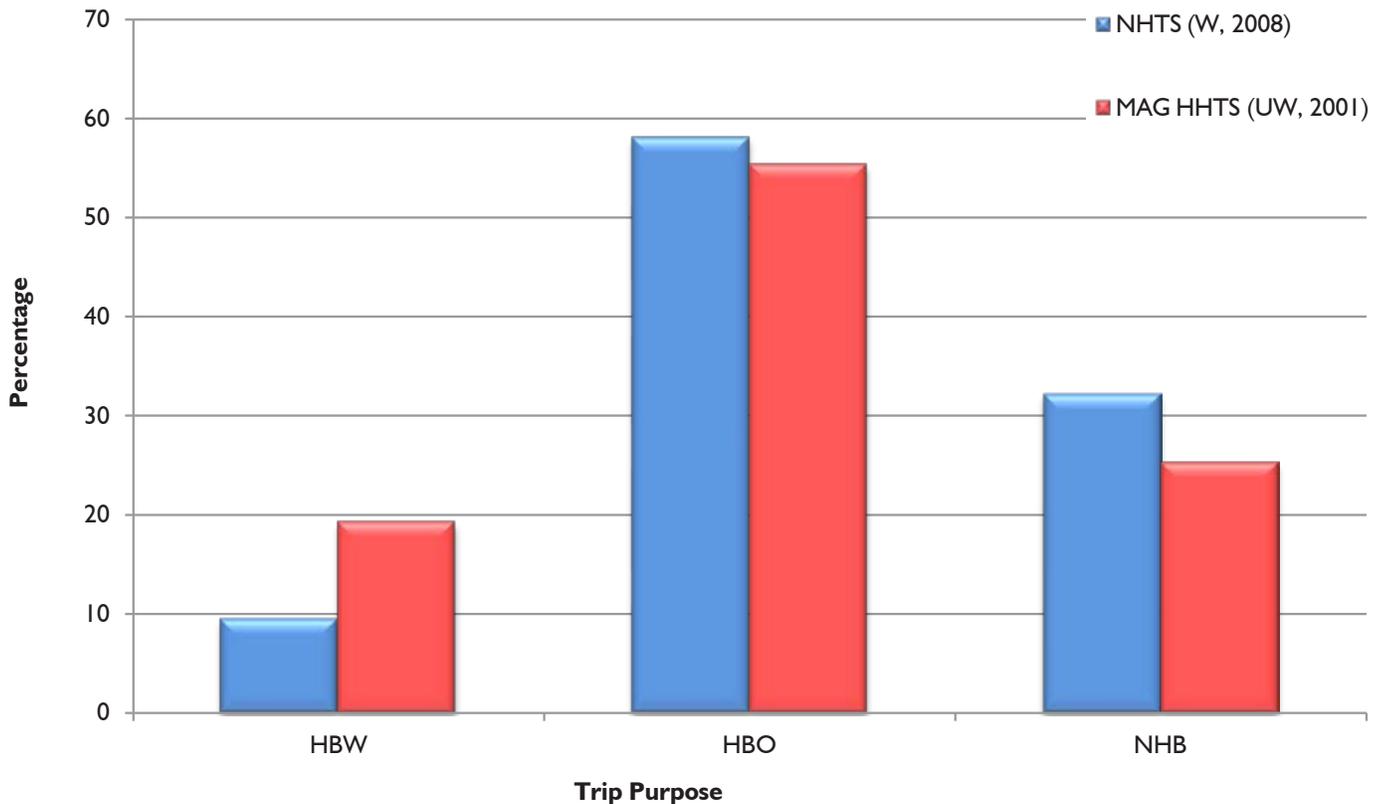


Figure 7-1 Trip Purpose in 2001 and 2008 NHTS

When compared to 2001 travel survey the person trips and trip rate for HBO person trips have increased. *Figure 7-2* shows the comparison of 2008 NHTS and 2001 travel survey data daily person trip rates by purpose. The overall

trips and trip rate have increased in 2008 survey compared to 2001 travel survey. *Figure 7-3* shows the variation in daily trip rate for each age group from 2008-2009 NHTS. *Figure 7-4* shows a comparison between daily

Distribution of Daily Person Trips Rates by Purpose

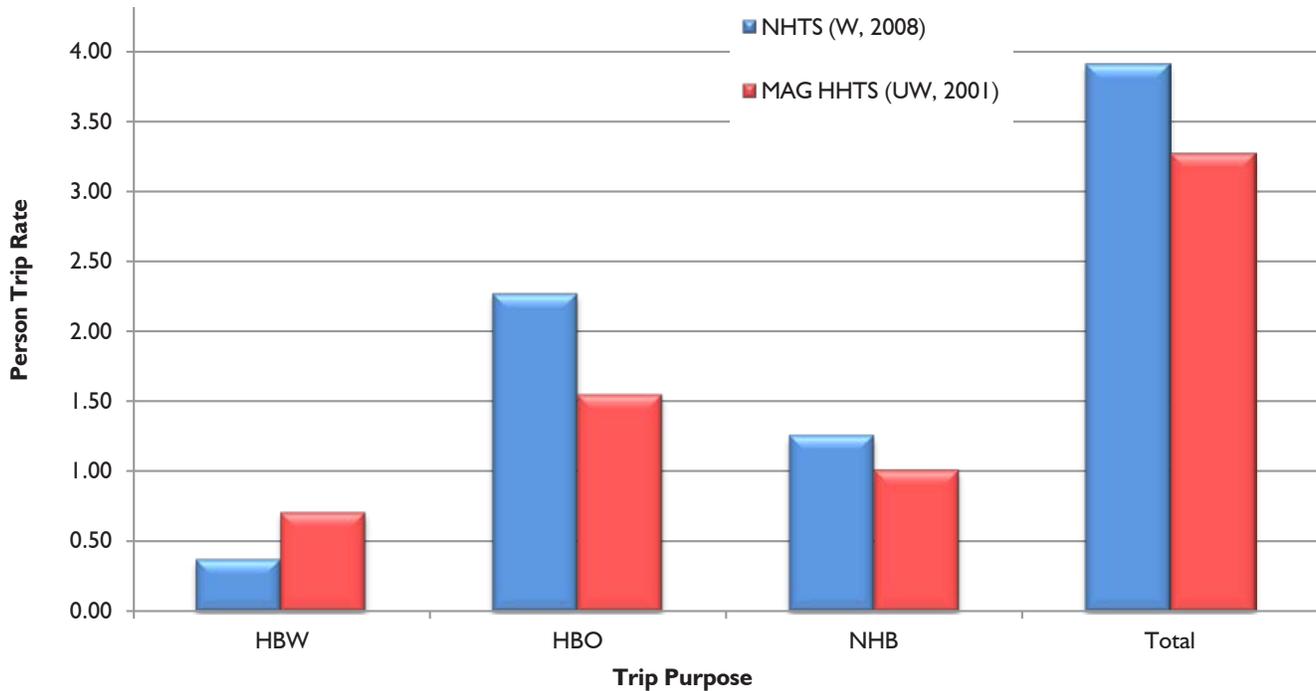


Figure 7-2 Person Trip Rates in 2001 and 2008 Household Transportation Surveys

Distribution of Daily Person Trips Rates by Age

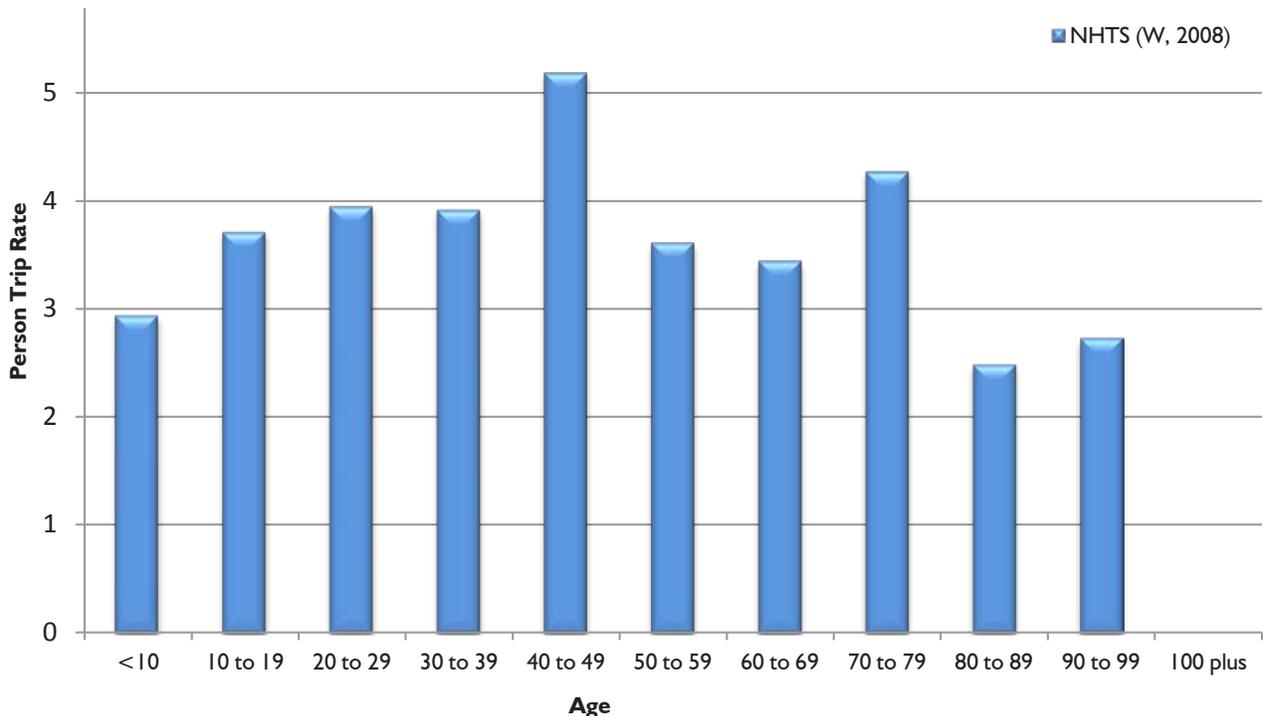


Figure 7-3 Person Trip Rates by Age in 2008-2009 NHTS

household trip rates by purpose in 2001 and 2008 household travel survey data. The 2008 trip rates (at household level as well as at person level) have increased compared to 2001 data. As the person trip rates increased, the household trip rates have increased subsequently

(average household size being 2.68). Trip rate for home based other purpose has increased significantly. The two and three person households have higher trip rates than the 1 person households. As the household size increased, so did its trip rate, which is logical (Figure 7-5).

Distribution of Daily Household Trips Rates by Purpose

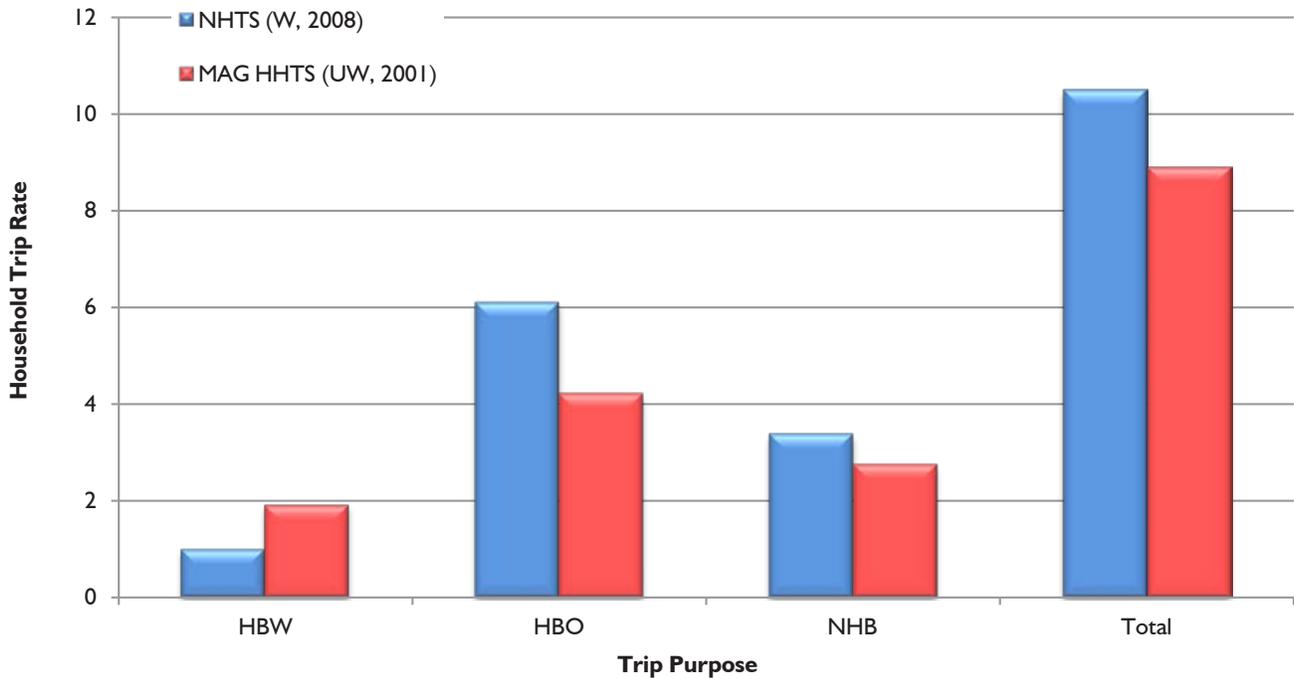


Figure 7-4 Household Trip Rates by Purpose in 2001 and 2008 Transportation Surveys

Variation of Household Trip Rates by Household Size

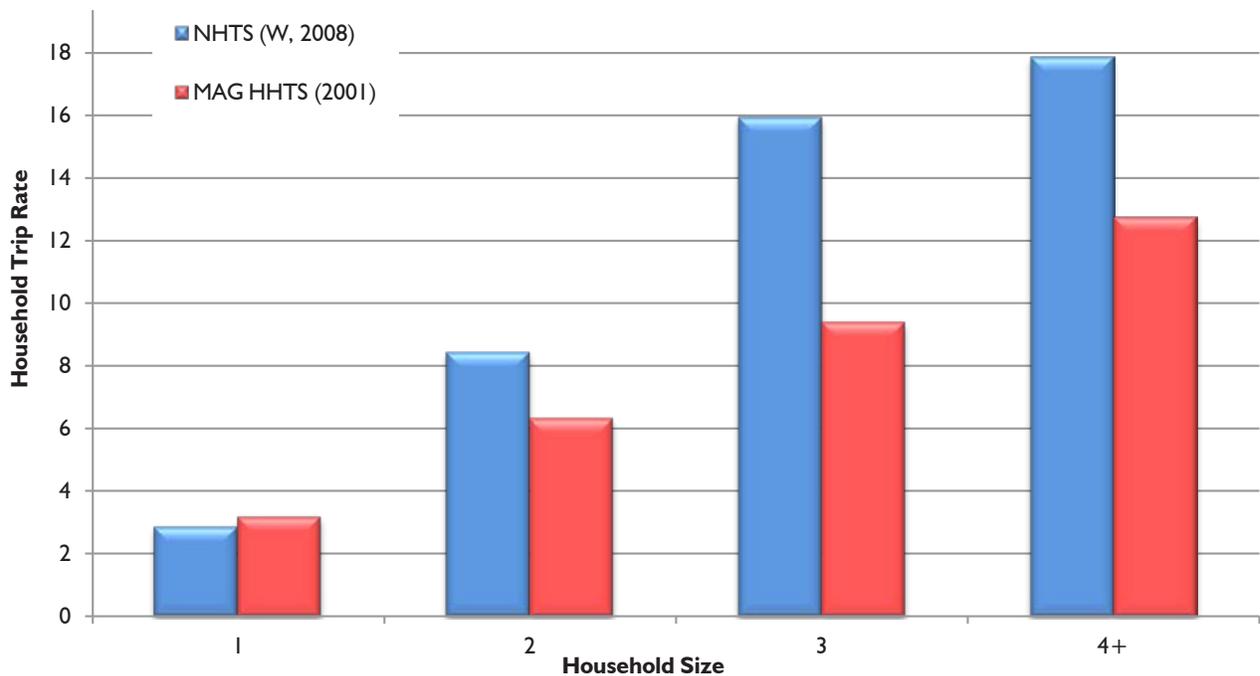


Figure 7-5 Household Trip Rates by Household Size in 2001 and 2008 Transportation Surveys

As household auto-ownership increased, trip rates have also increased. *Figure 7-6* shows significant increase in trip rates for households with two, three and four-plus auto ownership compared to 2001 survey. *Figure 7-7* shows the variation in trip rate by number of workers.

The more workers are in a household, the higher is its trip rate. However, trip rates increased for each worker category when compared to 2001 household travel survey. Travel day assigned to households by NHTS could be any day of the week, which facilitated the capture of even

Variation of Household Trip Rates by Auto Ownership

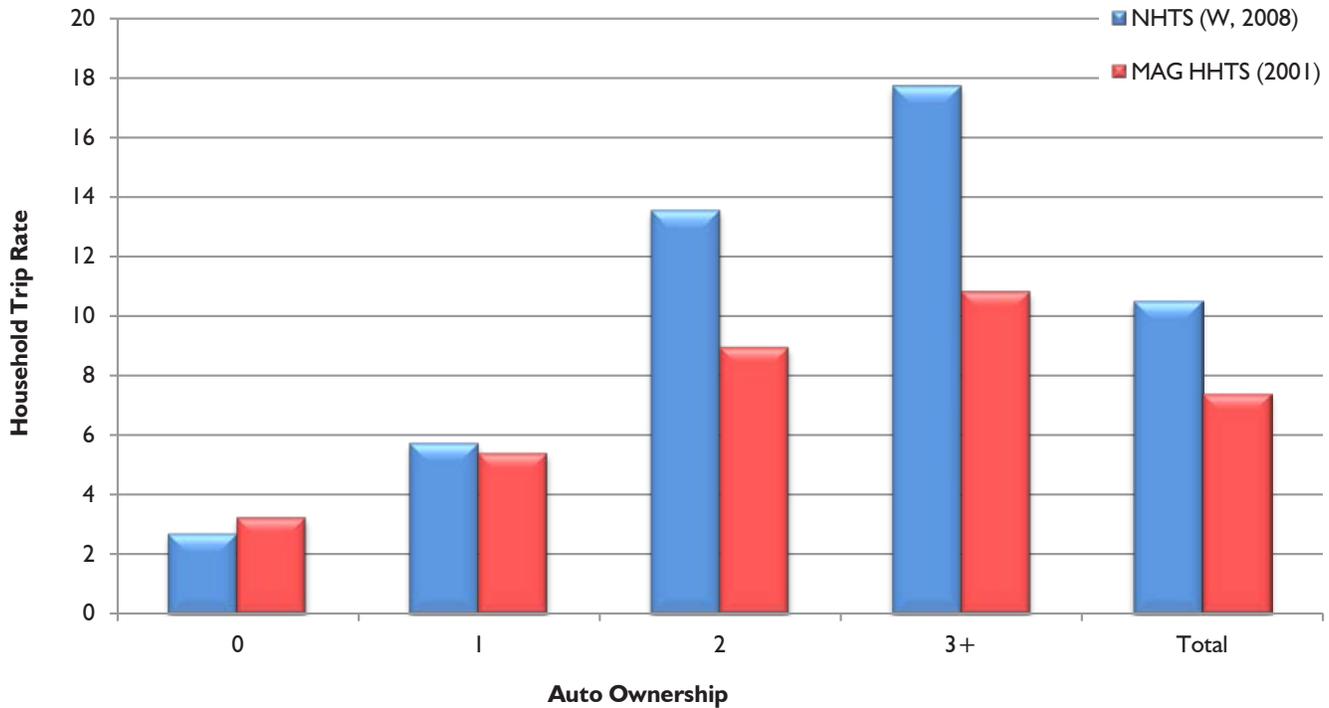


Figure 7-6 Household Trip Rates by Auto Ownership in 2001 and 2008 Surveys

Variation of Household Trip Rates by Number of Workers

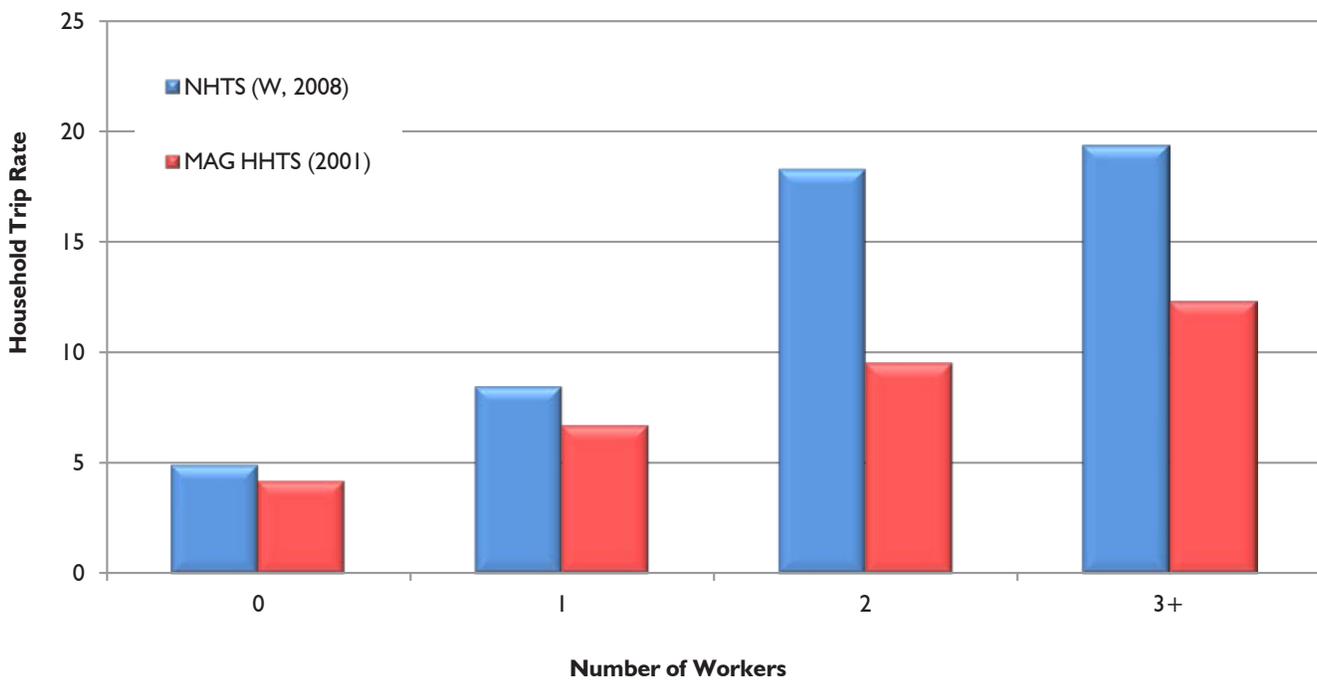


Figure 7-7 Household Trip Rates by Number of Workers in 2001 and 2008 Surveys

weekend travel. *Figure 7-8* shows the variation of respondent travel by day of week (weighted result).

It should be noted that 2001 MAG Household survey partially coincided with the September 11 events which might have influenced certain trip rates. The 2008 NHTS weighted data was compared to MAG 2001 unweighted

data due to the unavailability of weights in 2001 trips file during the writing of this report. A few notable factors affected trip rates during the time of data collection. The decrease in average gas prices might have resulted in increased trip rates in discretionary travel whereas the beginning of economic downturn worked in the opposite direction.

Variation of Respondent Travel by Day of the Week

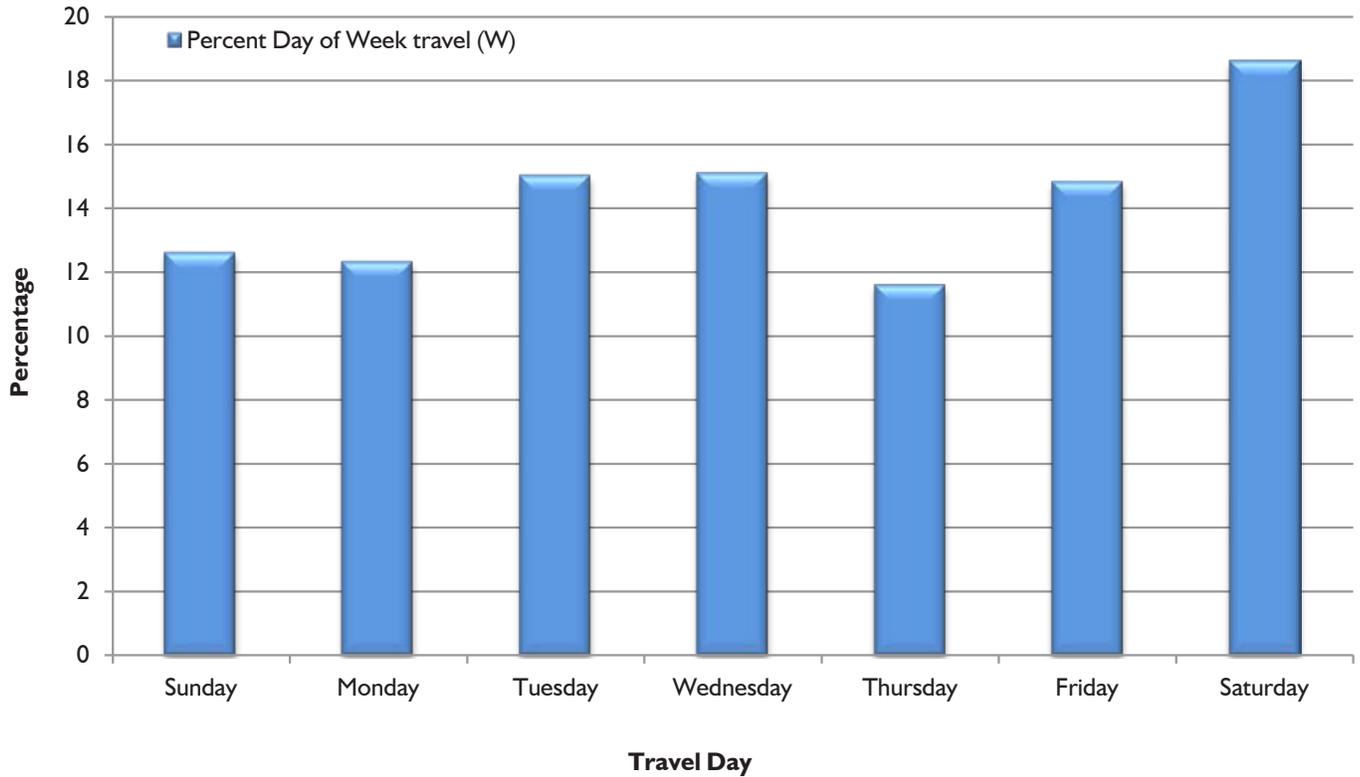


Figure 7-8 Variation in Travel Behavior by Day of the Week in 2008 NHTS

Mode choice analysis indicated that about eighty-seven percent of all weighted trips were made by auto (Table 7-1).

Walk trips accounted for 9% of the mode share (although not all of them are modeled), while trips made by transit (local bus, express bus, etc.) were a little over one percent. The total annual trips comprised 5.6 billion person trips, which is approximately 15.36 million person trips a day. A snapshot of the relevant question regarding mode used is as shown below:



G34. How did {you/SUBJECT} get to {CURRENT TRIP DESTINATION}?
(TRPTRANS)

[IF NEEDED: That is, what means of transportation did {you/SUBJECT} use for this trip?]

PERSONAL VEHICLES

- CAR..... 1
- VAN..... 2
- SUV..... 3
- PICKUP TRUCK..... 4
- OTHER TRUCK..... 5
- RV..... 6
- MOTORCYCLE..... 7
- LIGHT ELECTRIC VEHICLE (GOLF CART)..... 8

BUS TRAVEL

- LOCAL PUBLIC TRANSIT..... 9 GO TO NY_G27a
- COMMUTER BUS..... 10 GO TO NY_G27a
- SCHOOL BUS..... 11
- CHARTER/TOUR BUS..... 12
- CITY TO CITY (GREYHOUND/PETERPAN)..... 13
- SHUTTLE BUS (SUCH AS A SENIOR OR AIRPORT SHUTTLE)..... 14

TRAIN TRAVEL

- AMTRAK/INTER CITY..... 15
- COMMUTER TRAIN..... 16 GO TO NY_G27b
- SUBWAY/ELEVATED..... 17 GO TO NY_G27c
- STREET CAR/TROLLEY..... 18

OTHER

- TAXICAB..... 19
- FERRY..... 20 GO TO NY_G27d
- AIRPLANE..... 21 GO TO NY_G27e
- BICYCLE..... 22
- WALK..... 23
- SPECIAL TRANSIT FOR PEOPLE WITH DISABILITIES (DIAL-A-RIDE)..... 24
- OTHER?..... 97
- (SPECIFY)_____

(TRPTRNOS)

- REFUSED..... -7
- DON'T KNOW..... -8

| Mode | Percent Share (Weighted) | Total Annual Trips (Weekdays and Weekends Included) |
|------------------|--------------------------|---|
| Auto | 87.09 % | 4,880,372,888 |
| Walk | 9.02 % | 505,333,094 |
| School Bus | 0.90 % | 50,573,994 |
| Bicycle | 1.11 % | 62,466,751 |
| Local Bus | 0.43 % | 23,948,335 |
| Taxi | 0.06 % | 3,439,992 |
| Express Bus | 0.04 % | 2,174,298 |
| Shuttle/Limo | 0.05 % | 2,897,867 |
| Dial-a-Ride | 0.04 % | 2,471,103 |
| Motorcycle/Moped | 0.21 % | 11,590,623 |
| Other | 1.04 % | 58,254,674 |
| Total | 100% | 5,603,523,619 |

Table 7-1 Mode Split Data for the MAG Region in 2008 NHTS

Among all the trips made by auto (87 % overall), 72% reported as driver and 28% reported as passenger (*Table 7-2*). When compared to 2001 travel survey, the percentages are identical. The relevant question from the survey is shown as below:

G48. Did {you/SUBJECT/a member of the household} drive on the trip?
(HHMEMDRV)

YES 1
 NO 2 GO TO BOX AFTER G49
 PART OF TRIP 3
 REFUSED -7 GO TO BOX AFTER G49
 DON'T KNOW -8 GO TO BOX AFTER G49

G49. Who was the driver?
(DRVR_FLG, WHODROVE)

[IF NEEDED: Which one drove the longest distance?]

ENTER 1 FOR DRIVER
 REFUSED -7
 DON'T KNOW -8

| Passenger Status | NHTS (2008) | MAG HHTS (2001) |
|------------------|--------------|-----------------|
| Driver | 72.01 % | 72.07% |
| Passenger | 27.99 % | 27.93% |
| Total | 100 % | 100% |

Table 7-2 Passenger Status for Auto Trips in 2001 and 2008 Surveys

Among auto trips, high occupancy trips have increased significantly when compared to 2001 travel survey (Table 7-3). A Rutgers University research report [8] mentioned that when compared to a household travel survey, NHTS captured a higher percentage of high occupancy vehicles historically. The increase is attributed to a better capture of work trips (these trips have lower vehicle occupancy) by NHTS instrument. The percentage share of work trips has been consistently declining over the years. The 2001 MAG household travel survey was commissioned by MAG (showing higher percentage of single occupancy vehicle trips), while the 2008 NHTS dataset indicated a higher percentage of high occupancy vehicle trips. The relevant question from the survey is as follows:

| Auto-Based Trips | | |
|---------------------|--------------|-----------------|
| Occupancy | NHTS (2008) | MAG HHTS (2001) |
| Single Occupancy | 47.91 % | 72.5 % |
| High Occupancy (2+) | 52.09 % | 27.5 % |
| Total | 100 % | 100 % |

Table 7-3 Auto-Based Trip Occupancy in 2001 and 2008 Household Transportation Surveys

| Auto Occupancy | Value |
|---|-------|
| Weighted Average Weekday Vehicle Occupancy (HBO) | 2.07 |
| Weighted Average Weekday Vehicle Occupancy (HBSshop) | 1.83 |
| Weighted Average Weekday Vehicle Occupancy (HBSocRec) | 2.26 |
| Weighted Average Weekday Vehicle Occupancy (NHB) | 1.94 |
| Weighted Average Weekday Vehicle Occupancy (HBW) | 1.19 |
| Weighted Average Weekend Vehicle Occupancy (HBO) | 2.71 |
| Weighted Average Weekend Vehicle Occupancy (HBSshop) | 2.48 |
| Weighted Average Weekend Vehicle Occupancy (HBSocRec) | 3.39 |
| Weighted Average Weekend Vehicle Occupancy (NHB) | 3.63 |
| Weighted Average Weekend Vehicle Occupancy (HBW) | 1.07 |

Table 7-4 Variation in Auto Occupancy-Weekday versus Weekend

| Mode to Work | NHTS (W*,2008) | MAG HHTS (UW,2001) | CTPP (2000) | ACS (W,2008) |
|--------------|----------------|--------------------|-------------|--------------|
| Car Only | 92.16% | 81.60% | 89.90% | 88.51% |
| Transit | 0.98% | 3.10% | 1.90% | 2.74% |
| Walk | 0.26% | 2.10% | 2.10% | 1.47% |
| Bike | 5.23% | 1.40% | 1.00% | 0.82% |
| Motor Cycle | 0.80% | 0.00% | 0.40% | 0.46% |
| Other | 0.52% | 0.70% | 4.70% | 6.00% |
| Refused | 0.04% | 11.10% | 0.00% | N/A |

*Weekday and Weekend

Table 7-5 Mode to Work in Multiple Surveys

The variation in average auto occupancy by purpose (from NHTS) is shown in Table 7-4. The table indicates that auto occupancy for HBW during a weekday is slightly higher than its corresponding weekend value. However, auto occupancy values for all other purposes (Home based other, Home based Shop, Home based social recreation and Non-Home based) is higher during weekend than during weekday.

The analysis on mode of transportation to work (Table 7-5) indicated that a significant number of travelers-about 93% preferred auto, while transit was used by just 1% of the workers. The percentage of transit use is less than the corresponding number from ACS, probably because of poor response rates from low-income households. Light rail travel was not captured in this survey as most of the survey took place prior to the opening of light rail.

Transit share was higher as a mode to school (Table 7-6) than when compared to work.

| Mode to School | Frequency | 2008 NHTS | 2001 Survey |
|----------------|--------------|----------------|----------------|
| Car only | 917 | 68.70% | 55.10% |
| Transit | 255 | 19.10% | 22.90% |
| Walk | 120 | 9.00% | 15.70% |
| Bike | 33 | 2.50% | 2.80% |
| Motor Cycle | 0 | 0.00% | 0.20% |
| Other | 8 | 0.60% | 0.60% |
| Refused | 2 | 0.10% | 2.70% |
| Total | 1,335 | 100.00% | 100.00% |

Table 7-6 Mode to School in 2001 and 2008 Household Transportation Surveys

Nine percent of trips to school are by walk, which is indicative of a student’s physical activity. All respondents who reported making an auto trip were asked how many traveled along with them during the trip. The following tables (Table 7-7 and Table 7-8) show the distribution of auto occupancy for all auto-driver trips by trip purpose (using unweighted data). The tables once again confirm that the percentage of single occupancy vehicle trips for each purpose, were less than their corresponding numbers from MAG 2001 Household Travel Survey.

| Occupancy | HBW | HBS | HBO | NHB | Total |
|--------------|---------------|---------------|---------------|---------------|---------------|
| 1 | 77.1% | 25.7% | 17.9% | 22.0% | 24.7% |
| 2 | 13.5% | 37.9% | 30.8% | 33.3% | 32.3% |
| 3 | 4.7% | 15.1% | 18.8% | 17.1% | 16.5% |
| 4+ | 4.8% | 21.3% | 32.6% | 27.5% | 26.5% |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

Table 7-7 Auto Occupancy by Trip Purpose in 2008 NHTS

| Occupancy | HBW | HBS | HBO | NHB | Total |
|--------------|---------------|---------------|---------------|---------------|---------------|
| 1 | 93.0% | 70.4% | 66.8% | 69.4% | 72.5% |
| 2 | 5.2% | 22.4% | 22.7% | 21.3% | 19.2% |
| 3 | 1.1% | 4.5% | 6.7% | 6.2% | 5.4% |
| 4+ | 0.7% | 2.7% | 3.8% | 3.1% | 2.9% |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

Table 7-8 Auto Occupancy by Trip Purpose in 2001 Household Survey

The travelers were asked about their arrival and departure times of the trips they made throughout the travel survey. Figure 7-9 shows the spread of travel times by arrivals and departures for all the trips.

Number of Trips by Arrival and Departure Time

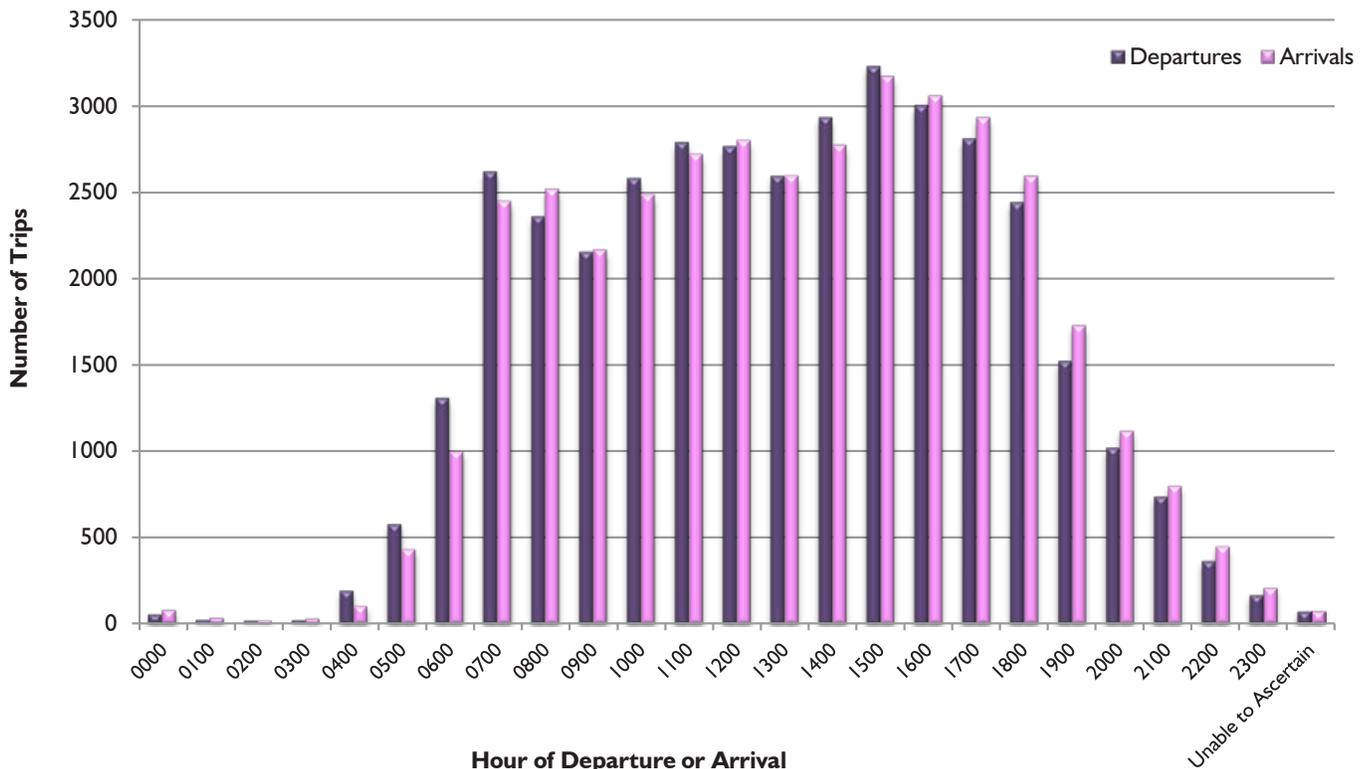


Figure 7-9 Trips in 2008 NHTS by Departure and Arrival Times

Figure 7-10 shows the frequency distribution of all trips by trip duration. About 65 percent of all reported trips have duration of at the most 15 minutes. Similarly, Figure 7-11 shows the frequency distribution of all trips by trip

length. About 42 percent of all reported trips have a trip length of at the most 3 miles. From the NHTS data, the average reported trip length for HBW trip (all days) was about 12.61 miles.

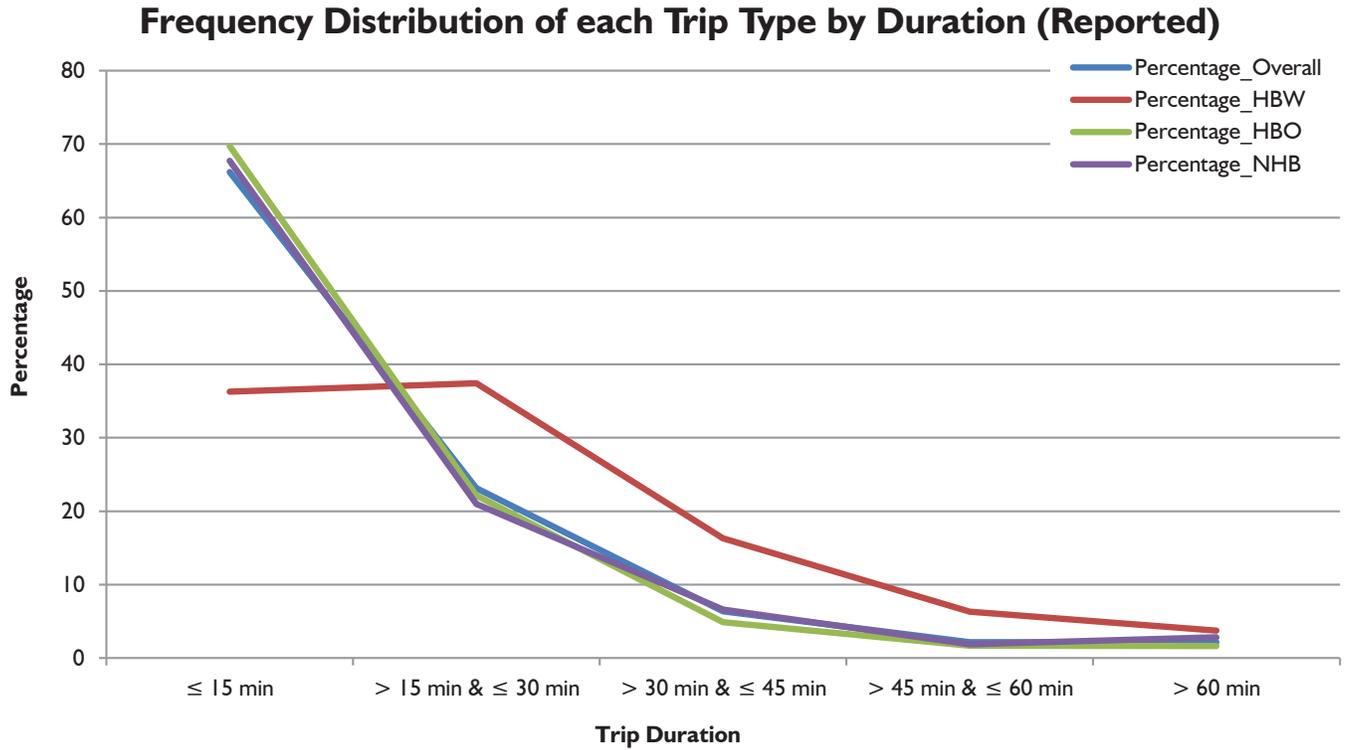


Figure 7-10 Frequency Distribution of Trip Duration by Purpose

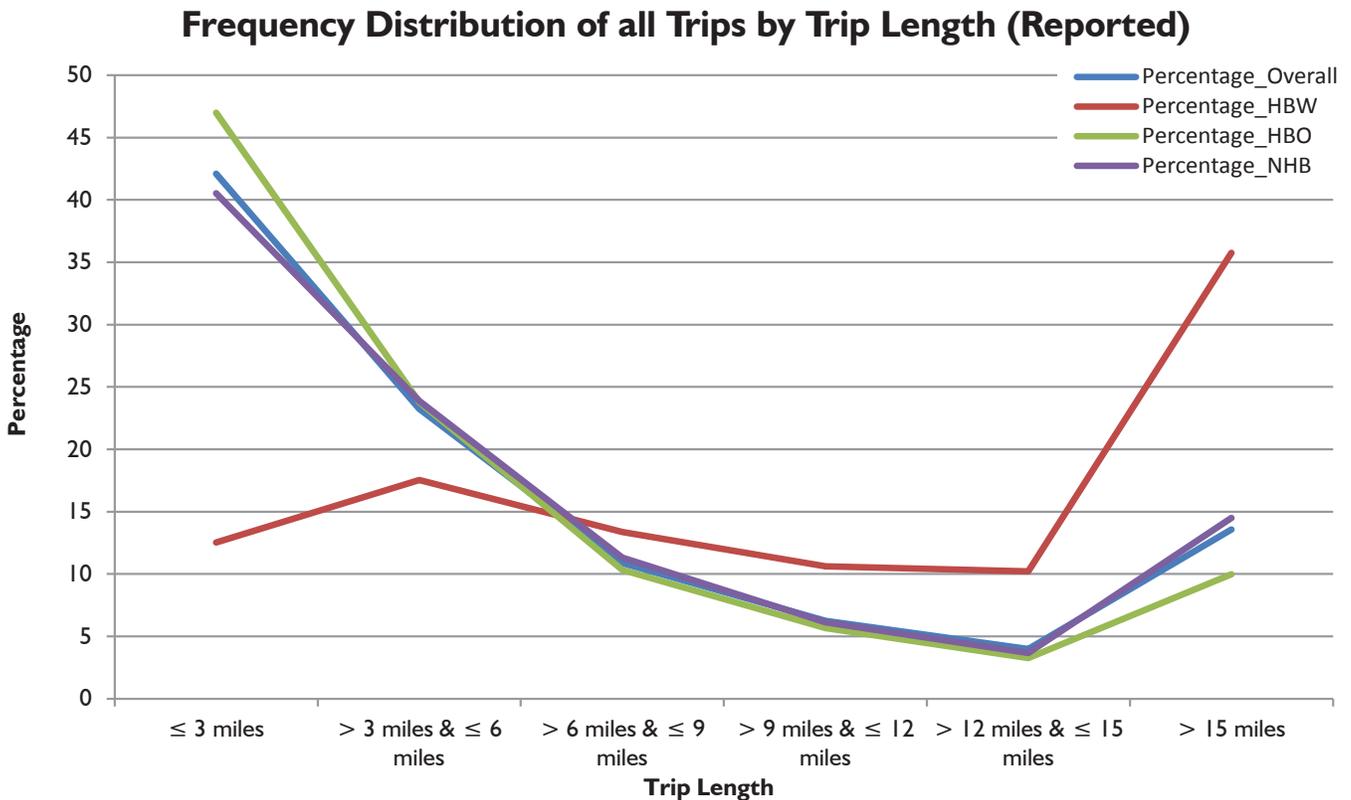


Figure 7-11 Frequency Distribution of Trip Length by Purpose

7.1 Variation in Trip Rate-Weekday Versus Weekend

Table 7-9 indicates the variation in vehicle trip rate by day of week. The average household trip rate was highest on Saturdays. The average auto occupancy was also highest on Saturdays. However, the average vehicle trip rate was highest on a weekday (Tuesday). Weekday vehicle trip rate on any given day was higher than vehicle trip rate for Saturday or Sunday. Freeway traffic counts for the Valley indicate more volumes during weekdays than during weekends.



| Vehicle Trip Rate by Day of Week | | | |
|----------------------------------|--|----------------------------------|--|
| Travel Day | Average Household Trip Rate by Day of Week | Average Occupancy by Day of Week | Average Vehicle Trip Rate by Day of Week |
| Sunday | 9.26 | 2.49 | 3.72 |
| Monday | 9.05 | 1.98 | 4.57 |
| Tuesday | 11.04 | 1.52 | 7.26 |
| Wednesday | 11.09 | 1.83 | 6.06 |
| Thursday | 8.52 | 2.11 | 4.04 |
| Friday | 10.89 | 2.04 | 5.34 |
| Saturday | 13.67 | 3.44 | 3.97 |

Table 7-9 Variation in Vehicle Trip Rate by Day of Week

8. Cross-Classification Relationships

The NHTS will serve as a resource to understand the travel behavior of the Phoenix region and to provide input information for future travel demand model development. Chapter 9 mentions the utility of NHTS data in the development of the region's first Activity Based Model. In the previous Chapters, a basic review of data distribution was presented. In this section, various cross-sectional tables that were developed during data analysis, are presented.

When compared to 2001 Household Travel Survey, respondents had reported a higher share of HBO and NHB trips. The variation of person trip rates by purpose confirms similar trend. Since average household size has increased slightly when compared to 2001 Household Travel Survey, household trip rates by purpose indicated an increase. Similar trends were observed as follows:

- Household trip rates increased with Income.
- Household trip rates increased with Auto Ownership.
- Household trip rates increased with Number of Workers.
- Household trip rates increased with Household Size.
- Person trip rate by age also showed an increase for each age category when compared to 2001 Household Travel Survey.



8.1 Household Size and Auto Ownership:

Table 8-1 indicates that the percentage of households with zero car ownership (using weighted NHTS data) has slightly reduced when compared to 2000 CTPP data (Table 8-2). The percentage of households with household size of one and with one auto ownership had the highest representation in Table 8-1. Overall, Auto Ownership distribution by household size is similar to the one observed using 2000 CTPP.

| Household Size | | | | | |
|----------------|---------------|---------------|---------------|---------------|----------------|
| Auto Ownership | 1 | 2 | 3 | 4+ | Totals |
| 0 | 5.13% | 0.64% | 0.22% | 0.17% | 6.16% |
| 1 | 22.32% | 9.67% | 1.86% | 5.03% | 38.87% |
| 2 | 0.91% | 15.24% | 6.39% | 16.41% | 38.96% |
| 3+ | 0.22% | 4.21% | 5.46% | 6.13% | 16.01% |
| Totals | 28.58% | 29.76% | 13.93% | 27.74% | 100.00% |

Table 8-1 Household Size and Auto Ownership in 2008 NHTS (W)

| Household Size | | | | | |
|----------------|---------------|---------------|---------------|---------------|----------------|
| Auto Ownership | 1 | 2 | 3 | 4+ | Totals |
| 0 | 3.51% | 1.37% | 0.69% | 1.28% | 6.85% |
| 1 | 18.13% | 10.96% | 3.81% | 5.60% | 38.51% |
| 2 | 2.35% | 18.45% | 6.90% | 12.57% | 40.28% |
| 3+ | 0.50% | 3.07% | 3.72% | 7.07% | 14.36% |
| Totals | 24.49% | 33.85% | 15.12% | 26.53% | 100.00% |

Table 8-2 Household Size and Auto Ownership in 2000 CTPP

8.2 Household Size and Income:

The 2008 NHTS had a higher percentage of respondents who have a household income of more than \$75,000 (unweighted data), than the corresponding number from 2000 Census data. The percentage of households with total income less than \$10,000 reduced significantly in 2008 when compared to CTPP 2000. *Table 8-3* demonstrates that households with at least four persons have increased when compared to Census 2000.

8.3 Number of Workers and Auto Ownership

The percentage of households with one worker was significantly higher in 2008 than when compared to CTPP 2000 (One-worker one-Auto households had the highest representation). Percentage of households with auto ownership of at least two remained almost the same. *Table 8-5* demonstrates that as number of workers increased per household, auto ownership has also increased (a logical trend).

| Household Size | | | | | |
|-----------------------|---------------|---------------|---------------|---------------|----------------|
| Income* | 1 | 2 | 3 | 4+ | Totals |
| < \$10,000 | 1.29% | 0.46% | 0.49% | 0.44% | 2.69% |
| \$10,000 to <\$20,000 | 3.67% | 1.71% | 0.84% | 5.83% | 12.05% |
| \$20,000 to <\$35,000 | 7.47% | 5.50% | 0.48% | 4.70% | 18.14% |
| \$35,000 to <\$50,000 | 7.81% | 6.98% | 2.37% | 1.11% | 18.27% |
| \$50,000 to <\$75,000 | 5.35% | 5.76% | 2.35% | 8.35% | 21.81% |
| \$75,000+ | 2.27% | 8.90% | 7.22% | 8.65% | 27.03% |
| Totals | 27.86% | 29.31% | 13.75% | 29.08% | 100.00% |

* Households that refused to state total income were excluded from the analysis

Table 8-3 Household Size and Income in 2008 NHTS (W)

| Household size | | | | | |
|-----------------------|---------------|---------------|---------------|---------------|----------------|
| Income | 1 | 2 | 3 | 4+ | Totals |
| < \$10,000 | 3.89% | 1.28% | 0.62% | 1.01% | 6.80% |
| \$10,000 to <\$20,000 | 5.30% | 2.75% | 1.10% | 1.91% | 11.06% |
| \$20,000 to <\$35,000 | 6.86% | 6.26% | 2.37% | 4.05% | 19.54% |
| \$35,000 to <\$50,000 | 3.99% | 6.44% | 2.60% | 4.42% | 17.46% |
| \$50,000 to <\$75,000 | 2.69% | 7.85% | 3.74% | 6.44% | 20.72% |
| \$75,000+ | 1.75% | 9.27% | 4.71% | 8.69% | 24.42% |
| Totals | 24.49% | 33.85% | 15.12% | 26.53% | 100.00% |

Table 8-4 Household Size and Income from 2000 CTPP

| Number of Workers | | | | | |
|-------------------|---------------|---------------|---------------|--------------|-------------|
| Auto Ownership | 0 | 1 | 2 | 3+ | Totals |
| 0 | 4.95% | 1.11% | 0.10% | 0.00% | 6.16% |
| 1 | 11.47% | 26.07% | 1.28% | 0.05% | 38.87% |
| 2 | 5.76% | 17.33% | 13.75% | 2.12% | 38.96% |
| 3+ | 1.49% | 3.21% | 7.86% | 3.45% | 16.01% |
| Totals | 23.67% | 47.71% | 22.99% | 5.62% | 100% |

Table 8-5 Auto Ownership by Number of Workers in Household in 2008 NHTS (W)

| Number of Workers | | | | | |
|-------------------|---------------|---------------|---------------|--------------|-------------|
| Auto Ownership | 0 | 1 | 2 | 3+ | Totals |
| 0 | 3.63% | 2.16% | 0.80% | 0.26% | 6.85% |
| 1 | 14.18% | 18.68% | 4.76% | 0.90% | 38.51% |
| 2 | 6.11% | 12.99% | 19.21% | 1.97% | 40.28% |
| 3+ | 1.11% | 3.15% | 5.78% | 4.32% | 14.36% |
| Totals | 25.03% | 36.98% | 30.55% | 7.44% | 100% |

Table 8-6 Auto Ownership by Number of Workers in Households in 2000 CTPP

8.4 Household Number of Workers and Income

As noted in Section 8.2, the 2008 NHTS had a higher percentage of respondents who had a household income of more than \$75,000, when compared to the corresponding number for 2000 Census. The percentage of households with total income less than \$10,000 reduced significantly in 2008 when compared to CTPP 2000. *Table 8-7* demonstrates that a higher number of workers per household translated to higher income levels.

| Income* | Number of Workers | | | | Totals |
|-----------------------|-------------------|---------------|---------------|--------------|----------------|
| | 0 | 1 | 2 | 3+ | |
| < \$10,000 | 1.46% | 0.92% | 0.22% | 0.09% | 2.69% |
| \$10,000 to <\$20,000 | 3.80% | 6.32% | 0.30% | 1.63% | 12.05% |
| \$20,000 to <\$35,000 | 9.82% | 5.43% | 2.83% | 0.06% | 18.14% |
| \$35,000 to <\$50,000 | 4.72% | 11.09% | 2.33% | 0.13% | 18.27% |
| \$50,000 to <\$75,000 | 1.75% | 12.14% | 4.83% | 3.09% | 21.81% |
| \$75,000+ | 2.25% | 10.71% | 13.14% | 0.94% | 27.03% |
| Totals | 23.81% | 46.60% | 23.64% | 5.95% | 100.00% |

* Households that refused to state total income were excluded from the analysis

Table 8-7 Household Income by Number of Workers in 2008 NHTS (W)

| Income | Number of Workers | | | | Totals |
|-----------------------|-------------------|---------------|---------------|--------------|----------------|
| | 0 | 1 | 2 | 3+ | |
| < \$10,000 | 4.57% | 1.92% | 0.28% | 0.04% | 6.80% |
| \$10,000 to <\$20,000 | 5.32% | 4.69% | 0.94% | 0.11% | 11.06% |
| \$20,000 to <\$35,000 | 6.07% | 9.68% | 3.29% | 0.50% | 19.54% |
| \$35,000 to <\$50,000 | 3.76% | 7.51% | 5.30% | 0.90% | 17.46% |
| \$50,000 to <\$75,000 | 2.81% | 6.77% | 9.12% | 2.01% | 20.71% |
| \$75,000+ | 2.50% | 6.40% | 11.63% | 3.88% | 24.41% |
| Totals | 25.03% | 36.98% | 30.55% | 7.44% | 100.00% |

Table 8-8 Household Income by Number of Workers in 2000 CTPP

| Auto Ownership | Household Income* | | | Total |
|----------------|-------------------|--------------------|---------------|----------------|
| | <\$20,000 | \$20,000-<\$50,000 | >\$50,000 | |
| 0 | 1.97% | 3.31% | 0.15% | 5.43% |
| 1 | 9.85% | 18.48% | 9.93% | 38.25% |
| 2+ | 2.92% | 14.64% | 38.76% | 56.32% |
| Total | 14.74% | 36.42% | 48.84% | 100.00% |

* Households that refused to state total income were excluded from the analysis

Table 8-9 Auto Ownership by Income Groups in 2008 NHTS (W)

8.5 Household Auto Ownership and Income

Table 8-9 demonstrates that higher household income translated to higher auto ownership. The Table indicates a higher response rate from households with total income of more than fifty thousand dollars when compared to 2001 MAG household travel survey. The table also confirms that the percentage of zero car ownership households have reduced in 2008 when compared to 2001.

| Auto Ownership | Household Income | | | Total |
|----------------|------------------|--------------------|---------------|----------------|
| | <\$20,000 | \$20,000-<\$50,000 | >\$50,000 | |
| 0 | 6.66% | 2.60% | 0.41% | 9.67% |
| 1 | 11.91% | 21.52% | 7.40% | 40.83% |
| 2+ | 3.76% | 18.18% | 27.57% | 49.50% |
| Total | 22.32% | 42.29% | 35.39% | 100.00% |

Table 8-10 Auto Ownership by Income Groups in 2001 Household Survey

9. Tour Data Consistency

MAG is currently working with a Consultant to develop an Activity Based Model for the region. The first phase of model development was model estimation using 2008 NHTS data, a task that was recently completed. A brief overview of the model estimation is presented in this Chapter. The Model Estimation Report [17] provides detailed information regarding estimation results for some model components. Several choice models were estimated based upon NHTS data for Phoenix and Tucson area (which did not include any special events data).

There were a total of 7,068 households that were included in the survey from MAG and PAG (Pima Association of Governments) regions. Only households that reported travel on a weekday (5,067) were used in model estimation. Certain data transformation was necessary to create the required dimensions for Activity Based model estimation. For example, tours were developed using NHTS trips table. A tour represents all trips performed sequentially by a respondent throughout the whole day. Various quality control procedures were implemented for trips as well as for tours.

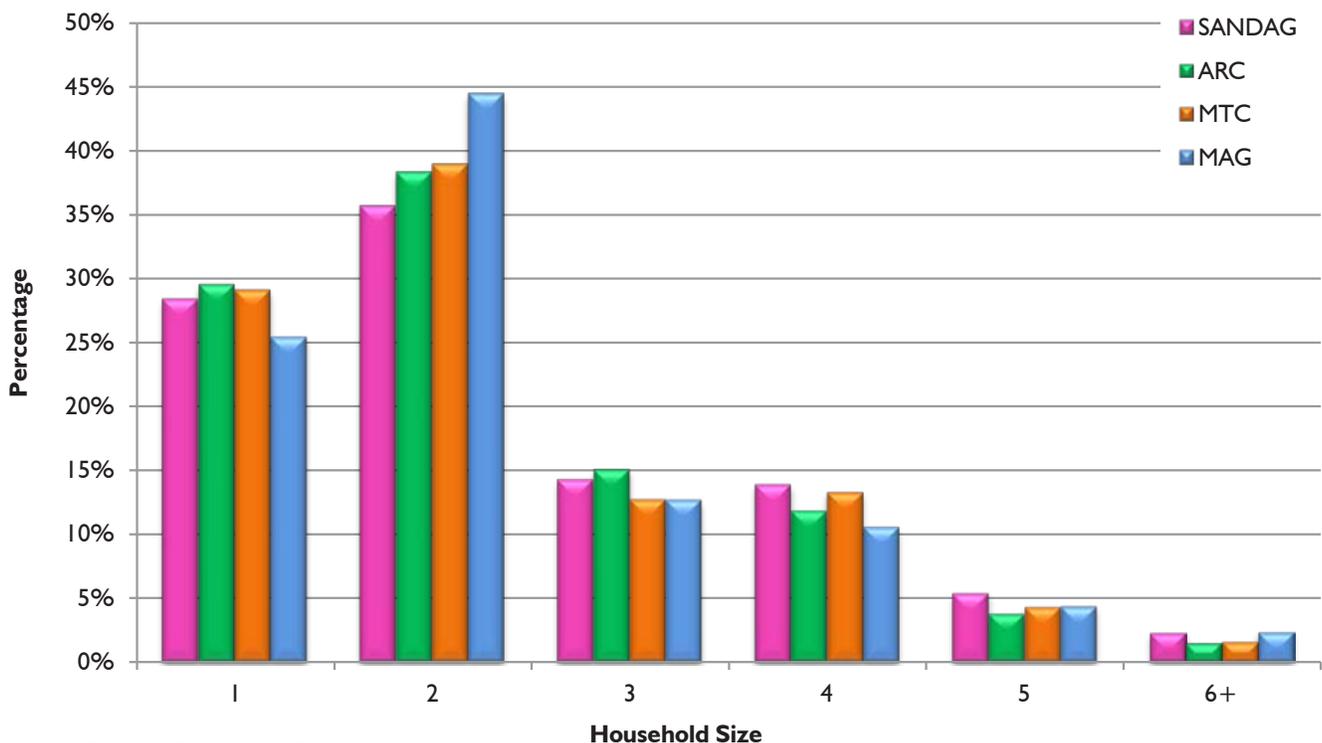
If a record did not meet any quality control criteria, this record was further analyzed. Either the error was fixed or the record got discarded. The raw survey files did not



include trips of preschool age children. For the purpose of the activity-based model, those trips were synthesized. Also, in the case of joint trips if one of the participants did not report her/his trips then the missing trips were synthesized as long as their description could be imputed from available records of other participants. There should be enough data to construct full daily tours for all members for a household to be included in the estimation of an activity based model.

In addition, all trips need to originate and end inside the modeling area. The household size distribution from MAG dataset was comparable to household travel surveys commissioned for metropolitan areas that have Activity Based Models (San Francisco, Atlanta and San Diego). Refer to *Figure 9-1* for the comparison. The household

Household Size Distribution for MAG and Other Similar Size Metros



Courtesy: Parsons Brinckerhoff

Figure 9-1 Household Size Distributions for MAG and other Similar Size Metros

travel surveys for the regions mentioned above were comparable to MAG/PAG NHTS dataset in terms of sample size and complexity of the region even though the questionnaires were not necessarily the same [17]. Household composition is indicative of a household's propensity to undertake joint travel.

The MAG/PAG dataset is recognized to have a very good quality of timing, mode and destination trip data with about 96% of trip records useable for tour-construction

purposes across all dimensions (mode, time-of-day and destination). In relative terms, it is close to the quality of household travel surveys for the metro areas mentioned above that have Activity Based Models [17].

The Model Estimation Report includes a detailed description of data sources used for model estimation and corresponding data processing steps and a description of a few model components. The data processing for the estimation is as shown in *Figure 9-2*.

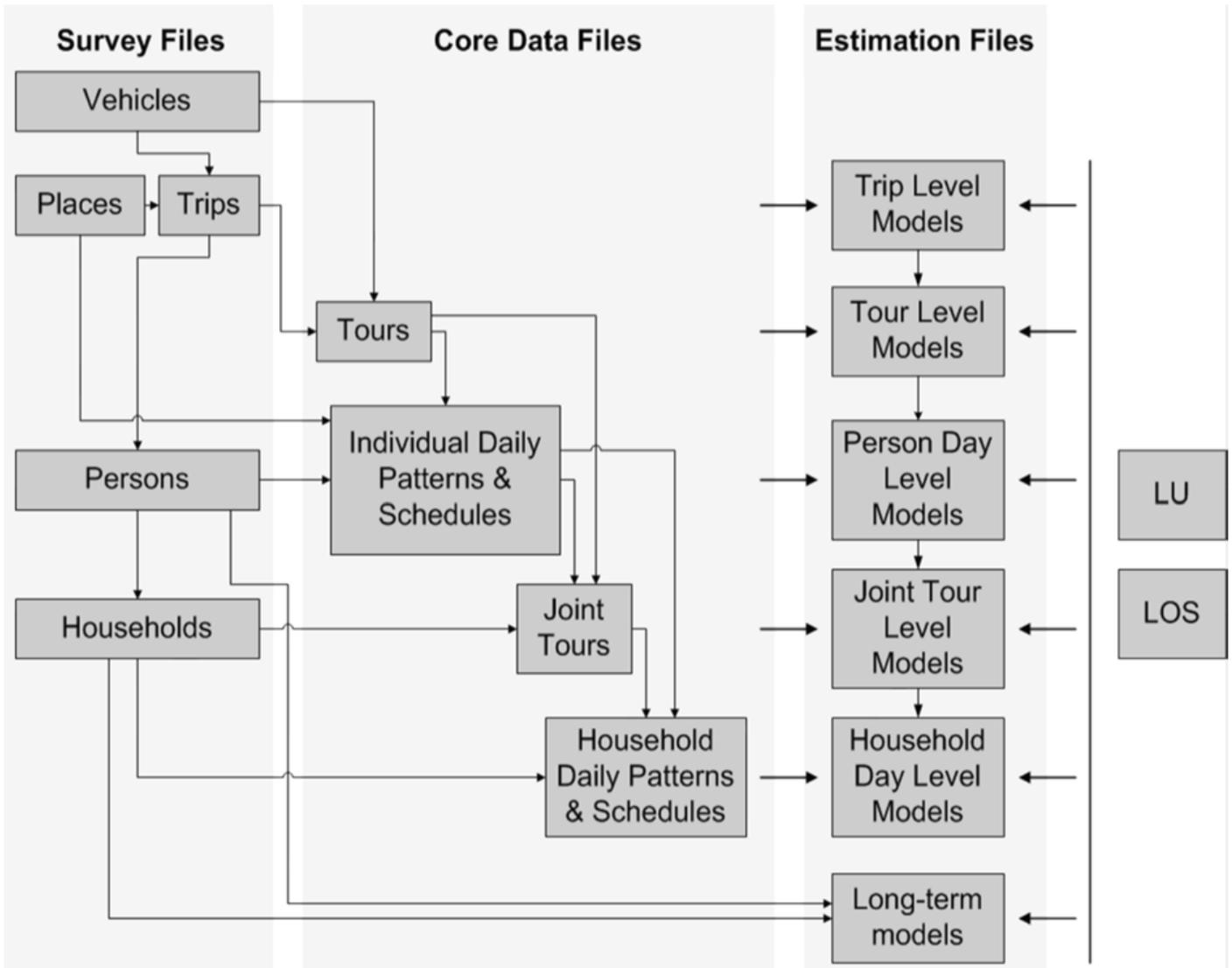


Figure 9-2 Model Estimates in MAG Activity Based Model

Reference: http://www.azmag.gov/Documents/TRANS_2010-12-06_MAG-CT-RAMP-Activity-Based-Model-Phase1-Model-Estimation-Results.pdf

The methodology for tour development is shown in *Figure 9-3*.

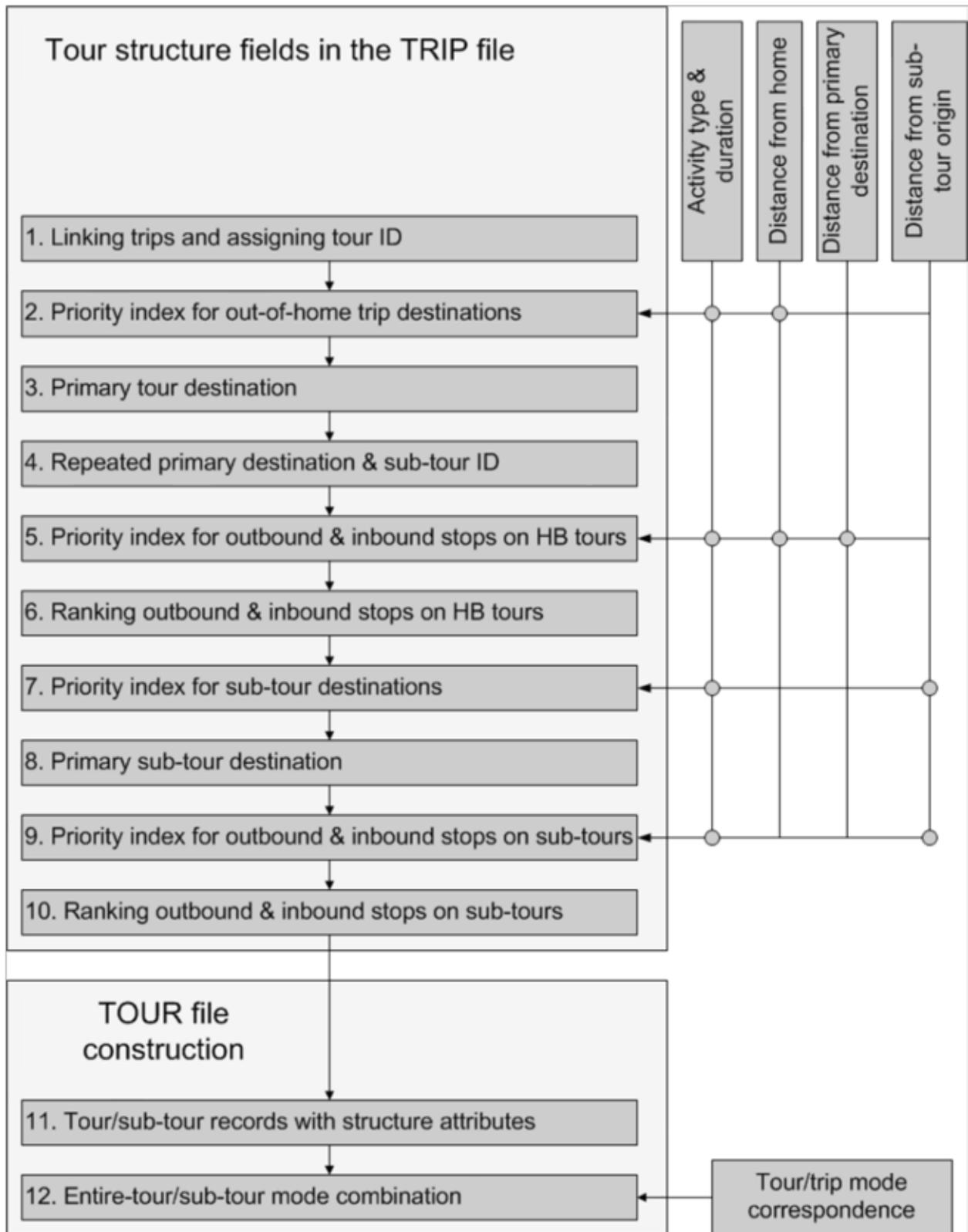


Figure 9-3 Tour Construction Procedure in MAG Activity Based Model

Reference: http://www.azmag.gov/Documents/TRANS_2010-12-06_MAG-CT-RAMP-Activity-Based-Model-Phasel-Model-Estimation-Results.pdf

The quality controls at tour level are shown in *Table 9-1* below, indicating a good quality of tour records. Overall quality of tour records was acceptable for ABM estimation purposes with more than 88% of tours satisfied all main validity criteria compared to 85% for BATS2000 (Bay Area Travel Survey) and 93% for CMAP HTS2007 (Chicago Metropolitan Agency for Planning).

| Primary destination purpose | Number of tours | | | | | | |
|---|-----------------|---------------|---------------|---------------|---------------------------|---------------|----------------|
| | Total | Valid mode | Closed | Valid timing | Valid primary destination | All valid | Symmetric mode |
| Absolute number of tours in the survey (not expanded): | | | | | | | |
| 1=Work | 3,532 | 3,509 | 3,292 | 3,527 | 3,367 | 3,215 | 2,925 |
| 2=University | 258 | 258 | 248 | 258 | 257 | 247 | 222 |
| 3=School | 1,340 | 1,335 | 1,319 | 1,339 | 1,281 | 1,255 | 1,073 |
| 4=Escort | 1,354 | 1,351 | 1,327 | 1,354 | 1,289 | 1,262 | 581 |
| 5=Shopping | 2,558 | 2,546 | 2,480 | 2,554 | 2,407 | 2,334 | 2,425 |
| 6=Other maintenance | 2,027 | 2,015 | 1,963 | 2,025 | 1,932 | 1,880 | 1,846 |
| 7=Eating out | 776 | 769 | 749 | 775 | 728 | 701 | 745 |
| 8=Visiting | 581 | 578 | 512 | 580 | 540 | 490 | 488 |
| 9=Other discretionary | 2,681 | 2,669 | 2,522 | 2,678 | 2,512 | 2,392 | 2,357 |
| 10=Unknown | 437 | 425 | 398 | 429 | 0 | 0 | 12 |
| Total | 15,544 | 15,455 | 14,810 | 15,519 | 14,313 | 13,776 | 12,674 |
| Row percent: | | | | | | | |
| 1=Work | 100.0% | 99.3% | 93.2% | 99.9% | 95.3% | 91.0% | 82.8% |
| 2=University | 100.0% | 100.0% | 96.1% | 100.0% | 99.6% | 95.7% | 86.0% |
| 3=School | 100.0% | 99.6% | 98.4% | 99.9% | 95.6% | 93.7% | 80.1% |
| 4=Escort | 100.0% | 99.8% | 98.0% | 100.0% | 95.2% | 93.2% | 42.9% |
| 5=Shopping | 100.0% | 99.5% | 97.0% | 99.8% | 94.1% | 91.2% | 94.8% |
| 6=Other maintenance | 100.0% | 99.4% | 96.8% | 99.9% | 95.3% | 92.7% | 91.1% |
| 7=Eating out | 100.0% | 99.1% | 96.5% | 99.9% | 93.8% | 90.3% | 96.0% |
| 8=Visiting | 100.0% | 99.5% | 88.1% | 99.8% | 92.9% | 84.3% | 84.0% |
| 9=Other discretionary | 100.0% | 99.6% | 94.1% | 99.9% | 93.7% | 89.2% | 87.9% |
| 10=Unknown | 100.0% | 97.3% | 91.1% | 98.2% | 0.0% | 0.0% | 2.7% |
| Total | 100.0% | 99.4% | 95.3% | 99.8% | 92.1% | 88.6% | 81.5% |

Table 9-1 Quality Control in Workday Tour Construction Procedure in MAG/PAG NHTS Dataset

Reference: http://www.azmag.gov/Documents/TRANS_2010-12-06_MAG-CT-RAMP-Activity-Based-Model-Phasel-Model-Estimation-Results.pdf

A comparison of tour rates for the geographic regions mentioned previously is shown in *Table 9-2* and *Figure 9-4* below. Tour rates by purpose in MAG region are mostly higher than other similar six Metros, except for the preschool child tour rate.

The tour mode choice is shown in *Table 9-3* and *Figure 9-5*. Due to the inconsistencies in the attributes of some of the trips, the percentage of escort trips for SOV mode is

greater than zero in the table. (See following page.)

The estimated models show logical results as they capture travel behavior better in terms of explanatory variables. NHTS data supported estimation of several advanced models as part of Activity Based Model. Data from the survey was cleaned substantially and some data was imputed to construct estimation files. It included building tours from elemental trips, building person patterns and

| Person Type | SANDAG | ARC | MTC | MAG |
|-------------------------------|--------|-------|-------|-------|
| 1=Full-time worker | 1.347 | 1.283 | 1.243 | 1.476 |
| 2=Part-time worker | 1.606 | 1.478 | 1.535 | 1.659 |
| 3=University student | 1.470 | 1.388 | 1.341 | 1.770 |
| 4=Homemaker | 1.275 | 1.165 | 1.320 | 1.483 |
| 5=Retiree | 1.100 | 0.881 | 1.034 | 1.303 |
| 6=Driving-age school child | 1.343 | 1.326 | 1.328 | 1.574 |
| 7=Predriving-age school child | 1.274 | 1.202 | 1.160 | 1.387 |
| 8=Preschool child | 1.272 | 0.399 | 1.168 | 0.206 |

Courtesy: Parsons Brinckerhoff

Table 9-2 Regional Comparison of Total Tour Rates

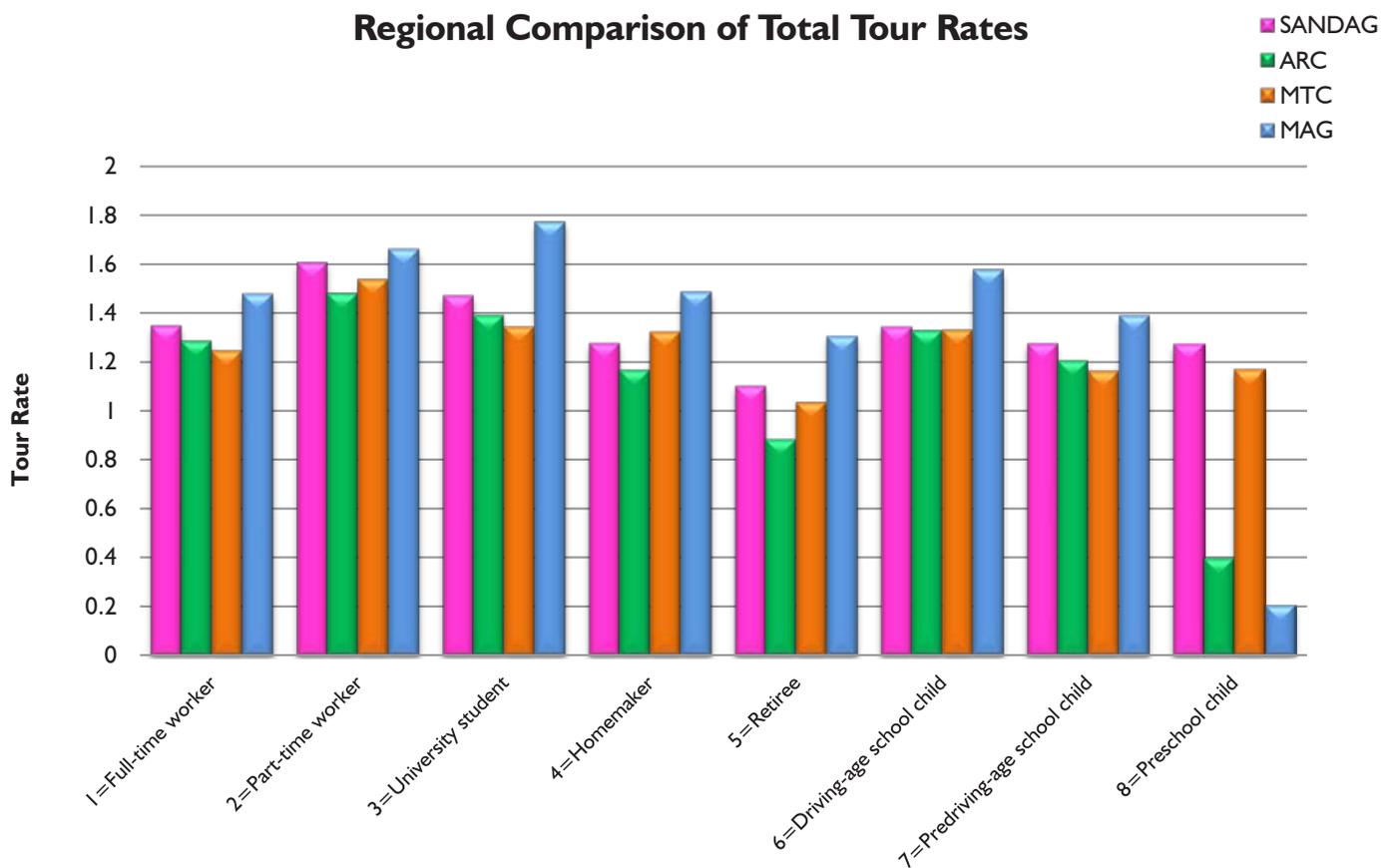


Figure 9-4 Tour Regional Comparison of Total Tour Rates

joint travel situations. In this process, the survey records were combined with several level-of-service variables provided by MAG. As a result of this exercise, a fully

functional database for estimation of an advanced ABM was created that will be used for the subsequent development of the model.

| Mode | Work | University | School | Escort | Shop | Main | Eating | Visit | Discretionary |
|------------|--------|------------|--------|--------|--------|--------|--------|--------|---------------|
| SOV | 73.13% | 54.26% | 3.60% | 2.15% | 46.54% | 46.35% | 27.96% | 36.85% | 28.10% |
| HOV-driv | 18.64% | 23.26% | 3.15% | 80.75% | 25.77% | 19.90% | 33.55% | 17.82% | 17.01% |
| HOV-pass | 4.33% | 11.24% | 52.06% | 10.51% | 20.62% | 18.76% | 33.29% | 25.95% | 18.02% |
| Bus-walk | 1.40% | 5.81% | 1.87% | 0.30% | 1.26% | 1.14% | 0.52% | 1.56% | 0.82% |
| Bus-P&R | 0.28% | 0.78% | 0.07% | 0.00% | 0.08% | 0.00% | 0.13% | 0.00% | 0.07% |
| Bus-K&R | 0.37% | 0.78% | 0.30% | 0.00% | 0.00% | 0.05% | 0.00% | 0.17% | 0.11% |
| LRT-walk | 0.06% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.22% |
| LRT-P&R | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| LRT-K&R | 0.03% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.11% |
| Rail-walk | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Rail-P&R | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Rail-K&R | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Non-motor | 1.60% | 2.33% | 10.41% | 6.14% | 5.50% | 13.20% | 4.55% | 17.65% | 35.37% |
| School bus | 0.11% | 1.55% | 28.54% | 0.15% | 0.00% | 0.00% | 0.00% | 0.00% | 0.07% |
| Taxi | 0.06% | 0.00% | 0.00% | 0.00% | 0.24% | 0.60% | 0.00% | 0.00% | 0.07% |

Table 9-3 MAG Tour Mode Choice

MAG Tour Mode Choice

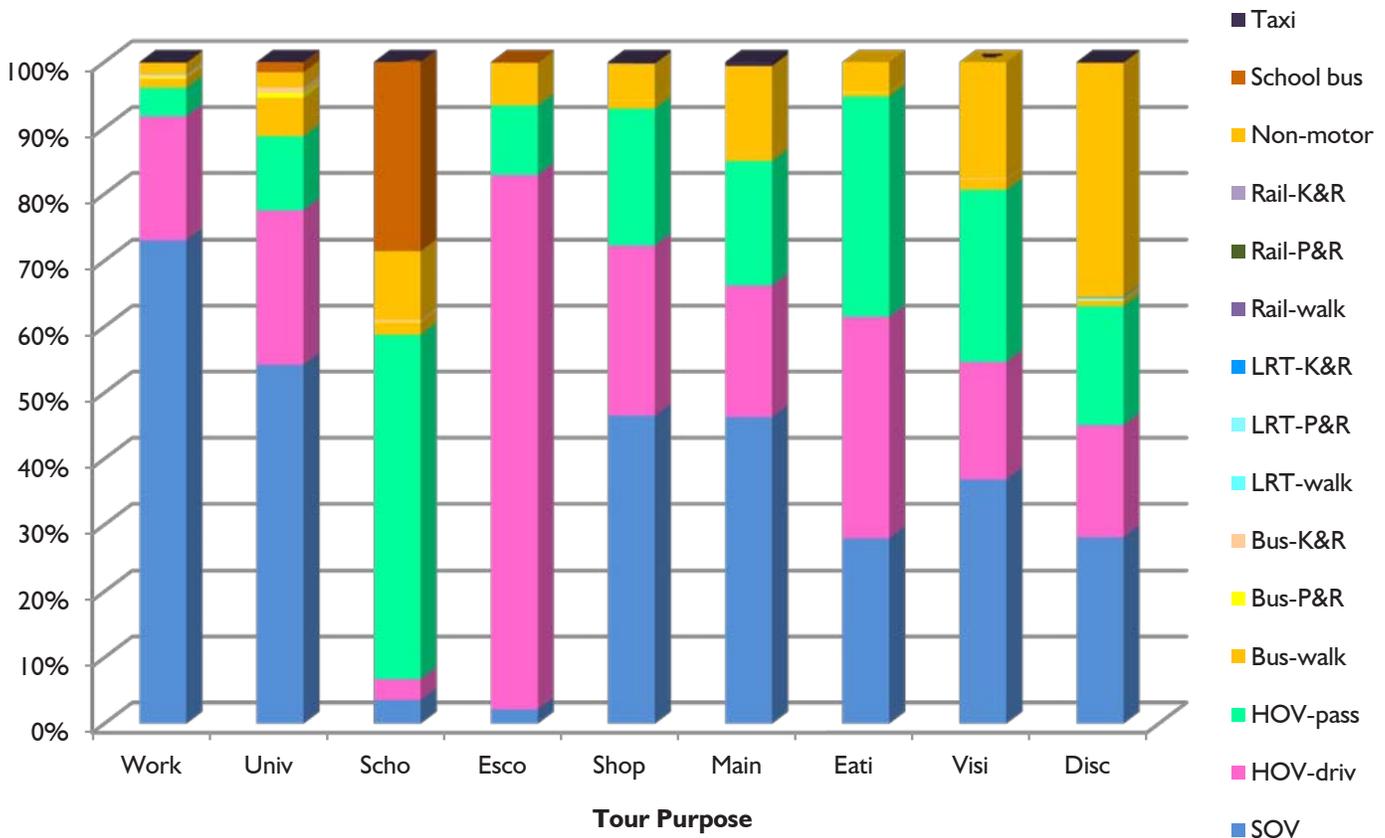


Figure 9-5 MAG Tour Mode Choice

10. Data Analysis Observations and Conclusions

10.1 NHTS Data Analysis Observations

Commercial and institutional travel was not included in the survey. People living in college dormitories, nursing homes, other medical institutions, prisons and on military bases were excluded from the sample. This report highlights the similarities and differences in travel patterns, but does not address the causes of differences. Based upon the analysis presented in the report, the following observations can be made:

Households Table

1. According to U.S. Census Bureau's statistics for 2010, the percent of Hispanics for the State is close to 31 percent, but 2008-2009 NHTS reported percent of Hispanics close to 10.5 percent within MAG area. This is an indication of underreporting. The response rate of Hispanics has been traditionally low and the survey results revealed a tendency of even bigger underreporting of Hispanics compared to previously completed surveys. The need to address the above issue was communicated to NHTS by MAG staff.
2. Percentage of households with 3 or more cars has increased when compared to 2001 MAG household travel survey. Percentage of households with zero cars has reduced when compared to the 2001 survey.
3. Percentage of households with four or more persons has increased when compared to 2001 MAG household travel survey.
4. Single Family homes are the predominant residence type in all surveys. The 2008 NHTS survey represents a 10% increase in single-family residences than the 2008 ACS.
5. About eight percent of all respondents refused to disclose their income. Some of the difference between 2001 and 2008 percentages (unweighted data distribution) could be attributed to these non-disclosures.
6. Percentage of households with household income at least \$35,000 has increased in 2008-2009 NHTS when compared to 2000 Census. There was a decrease in percentage of households with income levels less than 10k. Percentage of households with income levels below \$50k overall has reduced, but those with income levels of \$50k or higher increased. The incidence of households

with \$75k or higher incomes is greater than the corresponding percentage from MAG 2001 household travel survey. ACS Survey data (2008) actually has higher incidence of households with \$75k plus income.

7. Home ownership has reduced in 2008 when compared to 2001 MAG household travel survey. The same trend is confirmed with 2008 American Community Survey (ACS) as well.
8. Percentage of households with one worker has increased when compared to 2001 MAG household travel survey. Percentage of households with two or more workers has decreased when compared to Census 2000 and 2001 MAG household travel survey.
9. Number of persons from household table, is more than the number of records in the person table. Observations indicate that all persons within the household were counted in the household file. However, not all household members undertook a trip. If no trips were made by an individual, he/she did not have a record in trips file.
10. Number of vehicles from the household table is less than the number of records in vehicle table.

Persons Table

1. The representation of Hispanics is a lot less than the percentage of Hispanics reported in the 2008 ACS. Response rate from Hispanic households was lowest among the ethnic groups those were analyzed. There could be respondent confusion between race and ethnicity. 211 households identified their ethnicity as Hispanic but did not identify their race as Hispanic.
2. Persons aged 60 years and above had a greater representation in the 2008-2009 NHTS survey than Census 2000, 2001 MAG household travel survey, or the 2008 ACS Survey.

Vehicles Table

1. Approximately three and a half percent of vehicles (weighted) were reported to be hybrid.
2. The self-reported annual VMT range of 10,000 miles to 14,999 miles had the highest frequency (weighted).

Locations Table

1. All home locations were geo-coded.
2. About ninety-five percent of work and school locations were geo-coded.

Trips Table

1. Based upon weighted data, Auto continues to be a dominant mode of transportation. Walk trips constitute 9 percent of overall trips (but not all of these trips are modeled), while bike trips constituted about 1 percent of overall trips. The transit share of trips is slightly above 1 percent.
2. Overall auto occupancy is higher in 2008-2009 NHTS than when compared to 2001 MAG household travel survey. NHTS captured a much higher rate of HOV travel than the MAG 2001 household travel survey.
3. Work trips constitute a lower percentage of overall trips in 2008-2009 than when compared to 2001 MAG household travel survey.
4. Average trip length between home and work has increased between 2001 MAG household travel survey and 2008-2009 National Household Travel Survey dataset for MAG. The average (reported) trip length increased to 12.92 miles (weighted data for weekday) in 2008 NHTS from 10.6 miles (estimated) in 2001 survey.
5. The average daily household trip rate (weighted) in 2008 travel survey (10.50) is higher than the corresponding value in 2001 household travel survey (7.38).
6. The average vehicle occupancy (weighted) was higher during the weekends (3.44 on Saturday and 2.49 on Sunday) than during weekdays (1.88).
7. The average person trip rate was highest during a weekend and the average auto occupancy was highest during a weekend. However, the average vehicle trip rate was the highest during the weekday.

10.2 Conclusions

Data from the NHTS Add-on surveys have been successfully used for travel demand models estimation and calibration. Data quality was either comparable to or exceeded that of similar surveys and was suitable for its intended applications. The data set contains necessary details and is easy to work with. Data imputation was required (example, for school locations) and warrants consideration of innovative GPS-based approaches.

The performed analysis demonstrated general applicability of the survey data for analytical purposes as well as for the purposes of models estimation, calibration and validation. A few issues with the survey data were identified and analyzed. The survey had a relatively small sample of transit users, thus its applicability for some of transit modeling tasks is questionable.

Segments like low-income households and Hispanic households were under-sampled. Targeted effort to reach these population groups will be required in future regional travel surveys. Pilot studies could be recommended prior to the original survey, concentrating on these household segments. For the 2008 NHTS, there is no record of any pilot study in the literature provided to MAG.

The NHTS survey tour/trip production rates were found to be comparable to other surveys. Overall 2008 Add-on NHTS survey data proved to be a valuable dataset suitable for advanced transportation modeling, planning and analytical work. Emerging GPS-based methodologies should be carefully considered for future survey efforts in order to support advanced transportation models and analyses.

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Appendices

- Appendix A. Data Integrity Checks
- Appendix B. National Household Travel Survey Telephone (CATI) Questionnaire Screener Interview
- Appendix C. National Household Travel Survey Telephone (CATI) Questionnaire Extended Interview
- Appendix D. National Household Travel Survey Travel Diary
- Appendix E. Data Dictionary for Household Table
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- Appendix J. Derived Variables
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Appendix A. Data Integrity Checks

QA/QC Checks on Household Travel Survey Data

Source 1: MAG 2001 Household Travel Survey

2.1 Quality Assurance

The data that summarizes the demographic and travel behavior characteristics of the 4,018 households was subjected to both manual and electronic quality checks. These checks reviewed the data for conformity to variable requirements, logical consistency and quality standards. The checks included:

- a. **Across all files**
 - Range of values for each data item is valid, including values for non-response (i.e., responses cannot be outside range)
- b. **Household file**
 - Compare the size of each household in household file with number of person records for the same household, in the person file.
 - Compare the number of vehicles recorded in the household file with number of vehicle records in vehicle file for each household.
 - Sum the number of places and trips in trip file for each household, by each travel day as well as for the 48-hour travel period.
- c. **Person file**
 - Verify that the number of places recorded for each person is at least as many as the number of places the respondent indicated visiting at the start of the retrieval interview.
 - Verify that if employed, respondent went to work on travel day or provided reason for being absent.
 - Verify that if a student, respondent went to school on travel day or provided reason for being absent.
- d. **Vehicle file**
 - Verify vehicle year if older than 1960.
 - Re-contact household if vehicle make and model were not reported.
- e. **Trip file**
 - Verify that each household member has at least one place record.
 - Verify that household and person records exist for each sample number in the trip file.
 - Verify that travel times are consistent and logical: (1) arrival at place N is prior to departure from place N; (2) arrival at place N+1 is after departure from place N.
 - Re-contact household if extreme trip durations and/or activity durations.
 - Verify that all household members returned home at the end of the travel day or that the last reported location was plausible.
 - Verify that travel data exists for all places except Place 1.
 - Verify that reported activities are consistent with the reported locations.

Any discrepancies were flagged for research, corrections and/or verification.

Source 2: From the MAG 2001 Household Travel Survey Final Scope Document

The customized data checks are developed on a project specific basis and ensure the final data set conforms to project quality and contractual standards. Efficient methods for processing routine and customized data checks and addressing data issues are continually developed and improved upon. The customized edit-check program processes data and may flag them if:

- Household size does not equal total person file record count.
- Diaries are not obtained from all household members.
- Total vehicle count does not equal total vehicle file record count.
- Trip summary does not equal total trip file record count.
- Income is missing or refused (verify from all stages).
- Arrival time is before departure time or times are missing.
- No driver is reported for an auto trip.
- Student Information is not complete.
- Worker information is not complete.
- Transit information is not complete.
- Parking information is not complete.
- Unemployed person reports work activity.
- Loop trip (trip began and ended at the same place) are present.
- Occupation is not given or is out of range.
- Household address is not geocoded.
- Household members traveled together but data are inconsistent.
- Vehicle year is <1960.
- Auto driver is underage.
- Auto driver is unlicensed or unknown.
- Place numbers are not sequential and inclusive.
- Person did not return home at the end of day – check for missing trip.

NuStats will be delivering ready-to-use data on a continuous schedule as indicated in previous sections. These periodic deliveries will be constantly reviewed by MAG so that the final delivery will fully meet all MAG expectations, as communicated to NuStats. As with all the partial deliveries during the project, the final data set will be a group of relational files, linked by identification numbers uniquely associated with each household. In addition to the four principal files (household, vehicle, person, activity or trip), NuStats will maintain and deliver a place file that will have an unduplicated list of all locations reflected in the entire survey. Each unique place will have a unique numeric identifier and a code for whether it is a home, work, school, or other location. The value of the place file is that it allows for several useful quality control tests of geocoding and is a useful reference resource for subsequent analysis. The activity/trip file will use the unique place identifier to document the place where the trip or activity took place. The unique place identifier would be in addition to the required set of descriptors and geocoding information that is provided for in the data structure documentation.

Each of the data files will have calculated summary statistics reflecting frequencies of observations in subordinate files. For example, the household file will have a vehicle inventory count of the number of vehicles in the household; this count will be consistent with the number of vehicle records in the vehicle file that are associated with that household. Similar summary counts will be generated for number of total persons, number of licensed drivers, number of employed persons, number of activities/trips, and other useful indicators of data consistency.

Source 3. SEMCOG's Post-Processing Data Checks

Database Integrity Checks:

1. Check primary keys for each table.
2. Check relationships between tables.

Individual Field Checks:

1. Check if attribute values fall within valid ranges.
2. Flag obvious errors.
3. Flag unusual errors.

Intra-Record Checks:

1. Date versus day of week.
2. Related age fields.
3. Related school variables and work variables.
4. Related transit pass/cost fields.
5. Fields containing geo-coding information.
6. Origin/destination, arrival/departure fields.
7. Trip table fields related to travel modes, travel costs and number of passengers.
8. Flag trips if average travel speed was less than 5 mph.
9. Flag trips if average travel speed was greater than 80 mph, for trip lengths more than 30 mph.
10. For Walk trips, check trips greater than 3 miles and speeds greater than 6 MPH.
11. For Bike trips, check trips longer than 17 miles and shorter than 0.4 miles.
12. For Bike trips, check trips with average speed over 15 mph; Short bike trips attributable to trip chaining.
13. If all locations were geocoded to TAZ's, then using the model skims, check the travel time and travel distance for reasonableness.

Inter-Record Checks:

1. Arrival location, time compared to subsequent departure location, time.
2. Destination activity compared to subsequent origin activity.
3. Trip characteristics for members of same household.
4. Identify and flag records that did not have either origin or destination geocoded.
5. Identify and flag records that had both origin and destination geocoded as the same point (turn-around trips).
6. Records with geo-coding errors. Origin/Destination is in one City, but geocoded to a different city.

Distribution Plots:

1. Distributions plotted for travel times, distances, speeds, activities.
2. Distributions stratified by mode, purpose and geographic area.
3. Identify outliers.

Source 4. PSRC Data Checks

Across all Files:

- Range of values for each data item is valid, including values for non-response (logic: responses cannot be outside range).

Household File:

- Compare number of persons in household with number of person records in person file for that household.
- Compare number of vehicles in household with number of vehicle records in vehicle file for that household.

Person File:

- Check to see if the number of persons indicated in the household file matches the number of person records.
- Check to see if persons traveled on travel days. If not, reason must be provided.
- If person is not licensed, check to make sure there are no trips in which he/she was a driver.

Vehicle File:

- Check year of vehicle. Verify if year is 1960 or earlier.
- Check make and model. Flag if blank.

Comparison of Household Travel Surveys:

Trip File:

- Verify that each person has at least one place per day.
- Verify that household and person records exist for each sample number in the trip file.
- Check the travel times. Arrival at place (n) must be after departure from place (n-1). Arrival at place (n+1) must be after departure from place (n).
- Place numbers must be sequential and inclusive.
- Check to see if the person returned home at the end of each day. If not, flag as potential missing trip.
- Verify that each place has address and trip data associated with it.
- Ensure that activities are consistent with reported location.

Geocoding: All locations were geocoded using Arc View 3.1 against a 1998 street coverage file for the four-county region obtained from PSRC. Home addresses were geocoded soon after sample generation. Home addresses that did not geocode were investigated and corrected during the recruitment interview. Each of the 6,000 household addresses was geocoded (100 percent match rate).

Work and school addresses for all household members were collected during the recruitment interview. Those addresses that did not geocode were investigated and corrected during reminder and retrieval calls. Ninety-five percent of the work and school addresses traveled to are geocoded. All other addresses (non-home, non-work and non-school) were forwarded to PSRC for geocoding.

Quality Control

Quality control procedures to check the accuracy of the geocoding were performed by NuStats. The main procedure

involved sorting geocoded locations by county, then displaying all geocoded points for a particular county using the county coverage file. Any points falling outside the county boundaries were verified and re-geocoded if necessary. The final data file contains a geocoding quality control variable that identifies the action taken on a particular record, the quality control check performed, and/or the outcome of the check.

Key Findings to report:

1. Average HH size.
 2. Average Vehicle Ownership.
 3. % of Zero Vehicle HHs.
 4. Average trip rate per household; Average trip rate per person;
 5. Variation of HH size by Vehicle Ownership;
 6. Variation of HH size by Income;
 7. Person Trip Rates by Household Income.
 8. Person Trip Rates by Household Vehicles.
 9. Person Trip Rates by Household Size.
 10. Total person trip rates by Household Size and Household Vehicles.
 11. Person trip rates by gender.
 12. Person trip rates by age.
 13. Household Size and Auto Ownership.
 14. Household Size and Income.
 15. Mode to Work; Trip Mode.
 16. Average trips per household.
 17. Average trips per person.
 18. Person Trip Rate by Household Income.
 19. Person Trip Rate by Household Vehicles.
 20. Person Trip Rate by Household Size.
 21. Household Lifecycle Stage (Number and percentage).
 22. Household trip rates by purpose.
 23. Total trips by trip purpose.
 24. Household trip rates by household size.
 25. Household trip rates by household income.
 26. Household trip rates by household vehicles.
 27. Household trip rates by lifecycle stage.
 28. Mode by Household Lifecycle.
 29. Mode by Vehicle Availability.
 30. Distribution of Trip Time and Length.
 31. Time of Day.
 32. Trip Length Frequency distribution for each trip purpose.
- Assessment of Data Quality Section should be the one we should document, following the checks.
 - Are there any records that can be imputed (the record might be flagged for further review as it might not have complete information, but it might just have the information relevant to the analysis. In that case, data imputation may be conducted using the nearest neighbor technique).
 - How was the weighting done? Was it similar to 2001 HH Travel Survey? The weighting for the latter was done by PB (using Nu Stats data), while the weighting for NHTS 2008 was done by Westat. It is assumed that the weighting process was similar.
 - According to NuStats surveys that were conducted nationwide, the following households were less likely to participate in travel studies:
 - a. Households with four or more persons.
 - b. Households with no workers or more than two workers.
 - c. Households earning less than \$20,000.
 - d. Households earning between \$60,000 and \$75,000.
 What was the response rate from households belonging to each of the above mentioned categories?

Data Integrity Checks for Household Travel Survey 2008

The tables that are part of any Household Travel Survey are as follows:

- Household Table.
- Persons Table.
- Vehicle Table.
- Trip Table.
- Location Table.

Household Table [The primary fields are as follows]:

Sample #
 Address
 Area Type
 HH size
 Vehicle Ownership
 # of Bikes
 Dwelling Type
 # of Workers
 # of Students
 Home Ownership
 HH Income
 Trips made on Day 1
 Trips made on Day 2
 Expansion Factor
 Weight.

Notes: A House is the source of trip generation. This table will have information about each occupant and their trip making characteristics that are influenced by their personal attributes like age, income level, etc.

- Check to see if you can explain each record in the table;
- Check to see if there is a unique SAMPN; That is, one record per household. ID variables within a file are not necessarily sequential.
- Using AREATYPE or a similar variable, check if trips are originating from a Residential Neighborhood;
- Check to see total number of HH trips is the sum of trips undertaken on Day 1 and Day 2;
- Check to see if a HH interview has at least 50 percent of all adult members (at least 16 years old).
- Eligible household members are aged 5 and older. Proxies from within their household can fill up trip information for them.
- Is trip from a home or a group quarter or a business?
- How are the weights calculated?
- HH table being the main table pay close attention to all variables. You may come up with derived variables as per your analysis requirements;
- Any criteria to check for household members? Like someone who is staying at a home since last one year, for example?

Person Table [The primary fields are as follows]:

Sample # [Tied to Sample # from Household Table]

Person #

First Name

Last Name

Age

Gender

Drivers License

Disability Status

Work 1 Reference Number [Should be a look up table].

School 1 Reference Number [Should be a look up table].

of Working Hours

Working Location

Mode to Work

of hours at work at main job.

Work start time.

Work end time.

Employer parking subsidy

Cost to park at work

Student Status

School Location

Mode to School

Cost to park at school

Person Trips Day 1

Person Trips Day 2

Total Person Trips

Notes: This table will have all information about trips taken by each individual in a household. Various trip attributes can be obtained from this table like trip travel time, trip travel distance, mode of travel, etc.

- This table is the best candidate for logical checks. Check to see if you can explain each record in the table;
- Check to see if there is a unique record for each person from a HH. Perform logical checks straight-away on each record. For example, a person less than 16 years of age [minimum employable age] cannot declare himself/herself to be employed.
- As it contains personal information, check to see how confidentiality is maintained;
- Check to see if all persons who reported to have made trips from HH table have a record of trips in Person table.
- Check to see if transit usage is influenced by high parking cost at destination. The new 2008 survey might also indicate if transit option is available for destination. Transit trips can be made based upon connectivity.
- Check to see that persons tele-commuting have reported to have internet connection at home; If a person goes to school either part time or full time, check the work trip timings and distance between school to work or vice versa;

Vehicle Table [The primary fields are as follows]:

Sample # [Tied to Sample # from Household Table]

Vehicle #

Vehicle Year

Vehicle Ownership

Notes: If the trip was undertaken by a Vehicle, then this table would provide all information about the vehicle. # of Auto trips can be obtained from this table.

- Check to see if there is a unique record for a Vehicle.
- Check to see if you can explain each record in the table;
- Check to see if this table can answer the Vehicle Occupancy question.
- Can annual VMT be estimated for one household vehicle, based upon the propensity of the vehicle owner (his or her job stability, for example) to undertake similar trips (he or she reported) throughout the year. Is the annual VMT within an acceptable range? (less than 30,000 miles an year).
- Is there any odometer reading?
- What types of vehicles are captured? Cars, Mopeds, Motor Cycles, etc.

Trip Table [The primary fields are as follows]:

Sample # [Tied to Sample # from Household Table]

Person #

Day #

Location Reference #

Place Type

Land Use Type

Arrival Time (At Destination)

Departure Time (From Destination)

Mode of Trip.

Vehicle # (Tied to Vehicle # from Vehicle Table).

Arrival Time at Bus Stop.

Bus Stop Boarding Location

Access Mode to Bus Stop

Bus Route

Fare Paid

Trip Duration

Time got off Bus

Bus Stop Existed At

Egress Mode from Bus Stop

Notes: This table provides details of each trip that was reported. Trip attributes by both Auto and by Transit are provided. Check for trips made by transfers and wait time.

- Check to see if you have one record for each trip each person made.
- Check to see if consistency in person making the trip (Person who was reported to have made the trip in the Household table, might not have undertaken the trip in the Trip table).
- Check to see if you can explain each record in the table;
- Checks to see if only Households with bikes can have its occupants use bikes as an Access Mode, in order to arrive at the Transit Station;
- Which prompts are specified periodically, to confirm and capture each trip?

Location Table (The primary fields are as follows):

Location Reference #

Location Type

Address

City

County

State

Zip

Census Tract

X-Coordinate

Y-Coordinate

Notes: This table provides us with information of each trip end location. Trip lengths can be deduced based upon information available from the table.

- Check to see if you can explain each record in the table;
 - Check the number of trips not originating from home.
 - Check Invalid Trip Location.
 - Check Outside metropolitan area (since the approximate breadth of the metro area is about 100 miles); From NHTS 2001, any trip more than 50 miles in length, can be considered as a long trip.
 - Check to see if there is a disposition of people to select transit as an option if it is close to home.
-

Data Analysis following Data Integrity Checks

Data Analysis should be able to quantify travel behavior and should study the relationships of demographics and travel over time. Data can easily be tied as shown in Table 1.

Table 1. Common Variables between Files.

| File 1 | File 2 | Common Variable |
|----------------|---------------|----------------------------|
| Household File | Person File | Household ID |
| Household File | Vehicle File | Household ID |
| Household File | Trip File | Household ID |
| Person File | Vehicle File | Household ID |
| Person File | Trip File | Household ID and PERSONID |
| Vehicle File | Trip File | Household ID |
| Household File | Location File | Household ID |
| Trip File | Location File | Household ID and TDCASE ID |

The data analysis should provide the following information:

- Trip Purpose.
- Trip Mode.
- Travel Time.
- Travel Distance.
- Time of Day.
- Day of Week [less important].
- Vehicle Occupancy.
- Driver Attributes
- Vehicle Attributes
- Urban versus Rural Analysis.
- Travel Cost [Derived Variable].
- Trip rates by purpose [Derived Variable]. Development of cross-classification tables for trip generation.
- Trip Chaining, an important travel characteristic.
- Person Trips.
- Vehicle Trips.
- Person Miles Traveled.
- Vehicle Miles Traveled.
- Vehicle Operating Cost [Derived Variable].

Analysis Use:

The results from household travel survey will help us identify deficiencies in the network and would help us plan for future transportation policies.

Appendix B. National Household Travel Survey Telephone (CATI) Questionnaire Screener Interview

NATIONAL HOUSEHOLD TRAVEL SURVEY

Telephone (CATI) Questionnaire

SCREENER INTERVIEW

SECTION A: TELEPHONE NUMBER SCREENING

A1.

Hello, this is {INTERVIEWER'S NAME} and I'm calling for the U.S. Department of Transportation. We are conducting the National Household Travel Survey.

(RESIDENTIAL)

Are you a member of this household and at least 18 years old?

- YES..... 1 GO TO BUSINESS
- NO..... 2 GO TO A2
- PROBABLE BUSINESS..... 3 GO TO BUSINESS
- ANSWERING MACHINEAM GO TO READMSG
- RETRY AUTODIALER.....RT GO TO AUTODIALER
- NONWORKING,
- DISCONNECTED, CHANGED...NW GO TO WORK A CASE
- GO TO RESULTGT GO TO RESULT

(BUSINESS)

Is this phone number used for...

- Home use, 4 GO TO BINTRO
- Home and business use, or..... 5 GO TO BINTRO
- Business use only?..... 6 GO TO THANK01
- GO TO RESULT GT GO TO RESULT

A2. May I please speak with a household member who is at least 18 years old?

- AVAILABLE 1 GO TO A4
- NOT AVAILABLE 2 GO TO RESULT
- THERE ARE NONE 3 GO TO A3
- GO TO RESULT GT GO TO RESULT

A3. [IF RESPONDENT IS A CHILD, ASK FOR AN OLDER HOUSEHOLD MEMBER.]

- NO ONE LIVING IN HH IS 18 OR OLDER..... 1 END & CODE IE
- THERE ARE HH MEMBERS 18 OR OLDER..... 2 GO TO A2
- GO TO RESULT GT GO TO RESULT

A4. Hello, this is {INTERVIEWER'S NAME} and I'm calling for the U.S. Department of Transportation. We are conducting the National Household Travel Survey. Are you a member of this household and at least 18 years old?

- YES 1
- NO..... 2 REPEAT A2 (S3A)
- GO TO RESULT GT GO TO RESULT
- REFUSED -7 GO TO REFUSAL NIRF
- DON'T KNOW -8 GO TO REFUSAL NIRF

A5 Is this phone number used for...

Home use,..... 1
 Home and Business use, or..... 2
 Business use only? 3 GO TO THANK01
 GO TO RESULT GT GO TO RESULT

SECTION B: VEHICLE DATA

The purpose of this survey is to understand your travel, help reduce congestion and improve transportation safety in {ADD-ON/your area}.

Your participation is voluntary, and your answers will be completely confidential.

{[IF ASKED: The survey has been authorized by Title 23, United States Code. The OMB clearance number is 2125-0545 with an expiration date of February 28, 2011.]}

C3. To help us understand the things that impact your travel choices, I have a few questions about your household. Including yourself, how many people live in your household? Please do **not** include anyone who usually lives somewhere else or is just visiting, such as a college student away at school.

NUMBER OF PEOPLE|__|__|
 REFUSED -7
 DON'T KNOW -8

C4. Are any of these people related to each other?

YES 1
 NO 2 GO TO THANK02
 REFUSED -7
 DON'T KNOW -8

B1. How many vehicles are owned, leased, or available for **regular use** by the people who currently live in your household? Please be sure to include motorcycles, mopeds and RVs.

NUMBER OF VEHICLES.....|__|__|
 NONE 0 GO TO C1
 REFUSED -7 GO TO C1
 DON'T KNOW -8 GO TO C1

B2. {I have a few questions about each of these vehicles. Let's start with the newest vehicle.} What is the make, model and year of this vehicle?

| <u>KEY</u> (MAKEALPH) | <u>MAKE</u> (MAKECODE) | <u>MODEL</u> (MODLCODE) | <u>YEAR</u> (VEHYEAR) | <u>TYP</u> (VEHTYPE) |
|--------------------------|---------------------------|----------------------------|--------------------------|-------------------------|
| 01 | | | | |
| 02 | | | | |
| 03 | | | | |
| 04 | | | | |
| 05 | | | | |
| thru' 99 | | | | |

What type of vehicle is it?

- | | |
|---|-------------------------------|
| 1. AUTOMOBILE/CAR/STATION WAGON | 4. PICKUP TRUCK |
| 2. VAN [MINI, CARGO, PASSENGER] | 5. OTHER TRUCK |
| 3. SPORTS UTILITY VEHICLE [BRONCO, BLAZER, 4RUNNER, PATHFINDER, JEEP, ETC.] | 6. RV [RECREATIONAL VEHICLE] |
| | 7. MOTORCYCLE/MOTORBIKE |
| | 91. OTHER? (SPECIFY) _____ |

B4. I have recorded {VEHICNT} vehicles.

Are these all of the vehicles that are available to the people that currently live in your household?

- | | | |
|--------------------|----|------------------|
| YES | 1 | GO TO C1 |
| NO | 2 | RETURN TO MATRIX |
| GO TO RESULT | GT | |

SECTION C: PERSON DATA FOR EACH HOUSEHOLD MEMBER

C1. Now I have a few questions about your home.
Do you live in a...

- | | |
|---|----|
| Single family detached house, | 1 |
| Single family attached house, | 2 |
| A building with 2 or more apartments or condos, or | 3 |
| A mobile home or trailer?, | 4 |
| BOAT, RV, VAN, ETC..... | 5 |
| DORM ROOM, FRATERNITY OR SORORITY HOUSE..... | 6 |
| OTHER | 91 |
| (SPECIFY) _____ | |
| REFUSED | -7 |
| DON'T KNOW | -8 |

C2. Is your home owned or rented?

- | | |
|----------------------------------|----|
| OWNED | 1 |
| RENTED | 2 |
| OCCUPIED WITHOUT PAYMENT OF RENT | 3 |
| OTHER | 91 |
| [SPECIFY] _____ | |
| REFUSED | -7 |
| DON'T KNOW | -8 |

SE1. (FLORIDA & ARIZONA) How many months of the year do you live in {Florida/Arizona}?

- NUMBER OF MONTHS.....|__|__|
- JUST MOVED TO THE STATE 99
- REFUSED -7
- DON'T KNOW -8

SE2. (FL & AZ) How long ago did you move to this home?

- NUMBER OF YEARS|__|__|
- NUMBER OF MONTHS.....|__|__|
- REFUSED -7
- DON'T KNOW -8

SE3a. (FL & AZ) What is the most important reason you chose your current home location?

- COST/PRICE OF HOME 1
- QUALITY OF HOME 2
- HOME OR LOT SIZE 3
- SCHOOL SYSTEM 4
- NEIGHBORHOOD QUALITY 5
- CONVENIENT TO WORK 6
- CONVENIENT TO SCHOOL 7
- CONVENIENT TO RETAIL
(SHOPPING, ENTERTAINMENT,
RESTAURANTS) 8
- CLOSE TO FRIENDS & FAMILY 9
- CLOSE TO PUBLIC TRANSPORTATION 10
- CLOSE TO SCENIC LOCATIONS
(BEACH, LAKE, GOLF COURSES) . 11
- OTHER 91
- [SPECIFY] _____
- REFUSED -7
- DON'T KNOW -8

SE3b. (FL & AZ) Were there any other important reasons?

- COST/PRICE OF HOME 1
- QUALITY OF HOME 2
- HOME OR LOT SIZE 3
- SCHOOL SYSTEM 4
- NEIGHBORHOOD QUALITY 5
- CONVENIENT TO WORK 6
- CONVENIENT TO SCHOOL 7
- CONVENIENT TO RETAIL
(SHOPPING, ENTERTAINMENT,
RESTAURANTS) 8

| | |
|--|----|
| CLOSE TO FRIENDS & FAMILY..... | 9 |
| CLOSE TO PUBLIC TRANSPORTATION | 10 |
| CLOSE TO SCENIC LOCATIONS (BEACH, LAKE, GOLF COURSES) . | 11 |
| NO OTHER REASON | 12 |
| OTHER | 91 |
| [SPECIFY]_____ | |
| REFUSED | -7 |
| DON'T KNOW | -8 |

SE4a. (FL & AZ) What is the most important reason you have stayed in your current home?

| | |
|---|----|
| COST/PRICE OF HOME | 1 |
| QUALITY OF HOME | 2 |
| HOME OR LOT SIZE | 3 |
| SCHOOL SYSTEM | 4 |
| NEIGHBORHOOD QUALITY..... | 5 |
| CONVENIENT TO WORK | 6 |
| CONVENIENT TO SCHOOL | 7 |
| CONVENIENT TO RETAIL (SHOPPING, ENTERTAINMENT, RESTAURANTS) | 8 |
| CLOSE TO FRIENDS & FAMILY..... | 9 |
| CLOSE TO PUBLIC TRANSPORTATION | 10 |
| CLOSE TO SCENIC LOCATIONS (BEACH, LAKE, GOLF COURSES) . | 11 |
| HAVE ROOTS IN COMMUNITY..... | 12 |
| MOVING IS TOO DIFFICULT | 13 |
| MOVING IS TOO EXPENSIVE | 14 |
| OTHER | 91 |
| [SPECIFY]_____ | |
| REFUSED | -7 |
| DON'T KNOW | -8 |

SE4b. (FL & AZ) Were there any other important reasons?

| | |
|---|----|
| COST/PRICE OF HOME | 1 |
| QUALITY OF HOME | 2 |
| HOME OR LOT SIZE | 3 |
| SCHOOL SYSTEM | 4 |
| NEIGHBORHOOD QUALITY..... | 5 |
| CONVENIENT TO WORK | 6 |
| CONVENIENT TO SCHOOL | 7 |
| CONVENIENT TO RETAIL (SHOPPING, ENTERTAINMENT, RESTAURANTS) | 8 |
| CLOSE TO FRIENDS & FAMILY..... | 9 |
| CLOSE TO PUBLIC TRANSPORTATION | 10 |
| CLOSE TO SCENIC LOCATIONS (BEACH, LAKE, GOLF COURSES) . | 11 |
| HAVE ROOTS IN COMMUNITY..... | 12 |
| MOVING IS TOO DIFFICULT | 13 |

| | |
|-------------------------------|----|
| MOVING IS TOO EXPENSIVE | 14 |
| NO OTHER REASONS | 15 |
| OTHER | 91 |
| [SPECIFY] _____ | |
| REFUSED | -7 |
| DON'T KNOW | -8 |

C5. Please tell me your first name, age and gender.

| | |
|-------------------|----|
| FIRST NAME: _____ | |
| AGE: _____ | |
| GENDER: _____ | |
| REFUSED..... | -7 |
| DON'T KNOW..... | -8 |

C6. Are you of Hispanic, Latino, or Spanish origin?

| | |
|------------------|----|
| YES | 1 |
| NO | 2 |
| REFUSED | -7 |
| DON'T KNOW | -8 |

C7. I'm going to read a list of races. {In addition to being Hispanic, please/Please} tell me which best describes your race. Are you...

| | |
|--|----|
| White, | 1 |
| African American, Black, | 2 |
| Asian, | 3 |
| American Indian, Alaskan Native, | 4 |
| Native Hawaiian, or other Pacific Islander? | 5 |
| MULTIRACIAL | 6 |
| HISPANIC/MEXICAN..... | 7 |
| OTHER | 91 |
| [SPECIFY] _____ | |
| REFUSED | -7 |
| DON'T KNOW | -8 |

C8. Please tell me the first name and age of everyone living in the household.

[What is {FNAME/AGE/SEX OF NEXT HHM}'s relationship to {you/FNAME/AGE/SEX OF 1ST SCREENER RESPONDENT}?]

{{Are you/Is {FNAME/AGE/SEX}} a driver?}

{{Have you/Has FNAME/AGE/SEX}} ever been a driver?}

[1=YES, 2=NO]

| FIRST NAME | AGE | M/F | X BY SCREENER RESPONDENT | RELATIONSHIP TO REFERENCE PERSON | DRIVER | EVER |
|------------|-----|-----|-----------------------------|-------------------------------------|--------|------|
| 01 | | | | | | |
| 02 | | | | | | |
| 03 | | | | | | |
| 04 | | | | | | |
| 05 | | | | | | |
| thru' 99 | | | | | | |

- | | |
|----------------------------|-----------------------------|
| 1. REFERENCE PERSON | 5. BROTHER/SISTER |
| 2. SPOUSE | 6. OTHER RELATIVE |
| 3. CHILD | 7. UNMARRIED PARTNER |
| 4. PARENT | 8. NON-RELATIVE |

C9. I have recorded {SELCTCNT} {people/person}. Have we missed anyone else who usually lives there but is temporarily away on business, vacation, or in the hospital?

| | | |
|--|----|----------------|
| NUMBER OF HOUSEHOLD MEMBERS IN MATRIX CORRECT | 1 | |
| RETURN TO MATRIX..... | 2 | SKIP TO MATRIX |
| GO TO RESULT | GT | GO TO RESULT |

C10. Going back to the ages of the members of your household, is {FNAME/AGE/SEX} 18 years or older?

| | | |
|------------------------|----|---------------------|
| YES (18 OR OLDER)..... | 1 | |
| NO (UNDER 18)..... | 2 | |
| REFUSED | -7 | GO TO BOX BEFORE Ca |
| DON'T KNOW | -8 | GO TO BOX BEFORE Ca |

SC20a. Is {FNAME/AGE/SEX} between 5 and 16 years old?

| | |
|---------------------------|----|
| YES (5-16 YEARS OLD)..... | 1 |
| NO | 2 |
| REFUSED | -7 |
| DON'T KNOW | -8 |

Ca. {Do you/Does FNAME/AGE/SEX} have a job?

- YES 1
- NO 2
- REFUSED -7
- DON'T KNOW -8

M7. What is the highest grade or year of school {you have/FNAME/AGE/SEX has } completed?

- LESS THAN HIGH SCHOOL GRADUATE 1
- HIGH SCHOOL GRADUATE, INCLUDING GED 2
- SOME COLLEGE OR ASSOCIATE'S DEGREE (FOR EXAMPLE, AA ALSO INCLUDES VOCATIONAL, BUSINESS OR TRADE SCHOOL) 3
- BACHELOR'S DEGREE (FOR EXAMPLE, BA, AB, BS) 4
- GRADUATE OR PROFESSIONAL SCHOOL DEGREE (FOR EXAMPLE, MA, MS, MBA, MD, DDS, PHD, EdD, JD) 5
- REFUSED -7
- DON'T KNOW -8

C12. [Now, about the household vehicle(s) you told me about earlier,] who drives the {VEHYEAR, MAKECODE, AND MODLCODE} most of the time?

|_|_|

- NO MAIN DRIVER 99
- REFUSED -7
- DON'T KNOW -8

C13. Should {FNAME/AGE/SEX} have been recorded as a driver?

- YES 1
- NO 2
- REFUSED -7
- DON'T KNOW -8

C22b. Does the {VEHYEAR, MAKECODE, AND MODLCODE} have a commercial license plate?

- YES 1
- NO 2
- REFUSED -7
- DON'T KNOW -8

C22c. Is it a hybrid or alternative fuel use vehicle?

[EXAMPLES OF ALTERNATIVE FUELS INCLUDE:
ETHANOL, BIODIESEL, NATURAL GAS, PROPANE, HYDROGEN]

- YES 1
- NO 2
- REFUSED -7
- DON'T KNOW -8

C15. How many home telephone numbers does your household have in addition to {BASE.BASEAREA, BASE.BASEEXCH, BASE.BASELOCL}?

NUMBER OF ADDITIONAL HOME TELEPHONE
 NUMBERS|_|_|
 REFUSED -7
 DON'T KNOW -8

C16. How many of these telephone numbers excluding cellular phones are used **exclusively** for business, fax or computer modems?

NUMBER OF TELEPHONE
 NUMBERS|_|_| GO TO BOX BEFORE D1
 REFUSED -7 GO TO BOX BEFORE D1
 DON'T KNOW -8 GO TO BOX BEFORE D1

C17. Is that telephone number used exclusively for business, fax or computer modem?

YES 1
 NO 2
 REFUSED -7
 DON'T KNOW -8

SECTION D. DIARY REQUEST

D1. Understanding {your travel/travel by you and each member of your household} is very important for improving transportation in your area. We would like to send {you/each of you} a diary for you to record your travel for just one day {TRDDATE}. The diary packet we mail you will include a small monetary incentive, information about the study, and your trip {diary/diaries}.

CONTINUE1 GO TO D4
 RESPONDENT UNSURE ABOUT PARTICIPATION2

D2. This study is vital to reducing congestion and improving transportation safety. We want to make sure that your household is represented in this important survey. No one else can substitute for you. Will you help the Department of Transportation by participating in this national survey?

AGREE TO PARTICIPATE 1
 REFUSAL..... GT

D4. In order to mail the {diary/diaries} to you, I need to verify that your address is...

| | | |
|-----------------|-------|----------|
| _____ | | _____ |
| STREET ADDRESS | | APT # |
| _____ | | _____ |
| CITY/TOWN | STATE | ZIP CODE |
| REFUSED..... | -7 | |
| DON'T KNOW..... | -8 | |

D5. In order to mail the {diary/diaries} to you, could you please tell me your mailing address?

| | | |
|-----------------|-------|----------|
| _____ | | _____ |
| STREET ADDRESS | | APT # |
| _____ | | _____ |
| CITY/TOWN | STATE | ZIP CODE |
| REFUSED..... | -7 | |
| DON'T KNOW..... | -8 | |

D6. Is this your home address?

- YES 1
- NO 2 GO TO D3
- REFUSED -7 GO TO D3
- DON'T KNOW -8 GO TO D3

D7. STREET ADDRESS:
APARTMENT NUMBER:
CITY:
STATE:
ZIP CODE:

- NORMAL STREET ADDRESS [NOT A
PO BOX, RURAL ROUTE/RR,
RURAL DELIVERY/RD, OR RFD]..... 1
- PO BOX, RR, RD, OR RFD 2

D3. To whom should we address the envelope?

| | | |
|-----------------|-----------|-------|
| _____ | | _____ |
| FIRST NAME | LAST NAME | |
| REFUSED..... | -7 | |
| DON'T KNOW..... | -8 | |

D8. Travel patterns are affected by where people choose to live. It is important that we get at least a general location of your household. {Would you please give me the name of the street or road you live on?}

[IF NEEDED: Transportation planners use data from this survey to assess current travel patterns and anticipate new ones. These patterns are affected by where people choose to live.]

_____ FIRST CROSS ROAD

{And what is the name of the nearest intersecting street or road?}

_____ SECOND CROSS ROAD

REFUSED..... -7
DON'T KNOW..... -8

D9. What is the ZIP Code for where your home is located?

[IF NEEDED: Transportation planners use data from this survey to assess current travel patterns and anticipate new ones. These patterns are affected by where people choose to live.]

_____ ZIP CODE
REFUSED..... -7
DON'T KNOW..... -8

D10. In what borough or county do you live?

_____ 91. OTHER (SPECIFY) _____
REFUSED..... -7
DON'T KNOW..... -8

D11. We will mail the {diary/diaries} to you in a few days and will call you again on {REM1DATE}, to make sure you have received your {diary/diaries} and answer any questions.

Then we will call to ask about your travel on {DATE}. What would be a good time to reach you?

DATE: _____
MONTH DAY YEAR
TIME: _____
HOUR MINUTES AM/PM

D12. When we call back to collect your diary information, we will not ask to speak to anyone under 16 years old, but we would like to ask about their travel. Who would be the best person to give the information about them?

|_|_|

D13. Thank you for agreeing to take part in this important national travel study sponsored by the Department of Transportation. {Please tell the other members of your household how important their participation is.} We look forward to talking with you again.

TERMINATIONS:

[PLEASE READ THE FOLLOWING MESSAGE INTO THE ANSWERING MACHINE.]

This is {INTERVIEWER'S NAME} calling for the National Household Travel Survey that is being conducted by the U.S. Department of Transportation. We would like to talk to you about your household's travel. Your participation is extremely important to the success of this survey. We will try to reach you again in the next few days.

THANK 01 Thank you, but we are only interviewing in private residences.

THANK 02 Thank you very much. Those are all the questions that I have at this time.

Appendix C. National Household Travel Survey Telephone (CATI) Questionnaire Extended Interview

NATIONAL HOUSEHOLD TRAVEL SURVEY

Telephone (CATI) Questionnaire

EXTENDED INTERVIEW

SECTION E: TRAVEL TO WORK

INTRO2. Hello, may I please speak to {SUBJECT/WHOPROXY (WHOPROXY IS THE PROXY FOR SUBJECT/AGE/SEX)}?

[Hello, this is {INTERVIEWER'S NAME} and I am calling for the U.S. Department of Transportation. We recently spoke with {SCRESP} about the National Household Travel Survey. We're calling back now to complete the interview.

SUBJECT SPEAKING/COMING TO THE PHONE..... 1 GO TO E1
SUBJECT LIVES HERE, NEEDS APPOINTMENT. 2 APPT SCREENS
SUBJECT KNOWN, LIVES AT ANOTHER NUMBER . 3 RECORDN1
NEVER HEARD OF SUBJECT 4 CHECKNO
TELEPHONE COMPANY RECORDING..... 5 RECORD
ANSWERING MACHINEAM GO TO READMSG
RETRY AUTODIALERRT GO TO AUTODIAL
GO TO RESULTGT GO TO RESULT

THIS IS A RESTART CASE THAT WILL BEGIN AT QUESTION {INSERT QUESTION #}

RESTART2. Hello, may I please speak to {SUBJECT/WHOPROXY}?

This is {INTERVIEWER'S NAME} and I am calling back for the U.S. Department of Transportation. We recently spoke with {you/SCRESP} about the National Household Travel Survey. We're calling back now to complete the interview.

SUBJECT AVAILABLE/COMING TO PHONE 1 GO TO E1 (E2)
SUBJECT LIVES HERE - NEEDS APPOINTMENT. ... 2 APPT SCREENS
SUBJECT KNOWN LIVES AT ANOTHER NUMBER .. 3 RECORDN1
NEVER HEARD OF SUBJECT 4 CHECKNO
TELEPHONE COMPANY RECORDING..... 5 RECORD
ANSWERING MACHINEAM GO TO READMSG
RETRY DIALINGRT GO TO AUTODIAL
GO TO RESULTGT GO TO RESULT

E1. [YOU ARE IN {SUBJECT'S NAME/AGE/SEX}'S CASE.]

[INDICATE IF TRIP INFORMATION IS BEING PROVIDED BY THE SUBJECT OR BY PROXY.]
(RESPROXY)

SUBJECT 1
PROXY 2

[FINTRO]

E2. A COUPLE OF WEEKS AGO WE SPOKE WITH {YOU/SCRESP} ABOUT THE NATIONAL HOUSEHOLD TRAVEL SURVEY. WE SENT YOU A DIARY TO RECORD YOUR TRAVEL ON {TRDDATE}. I'D LIKE TO COLLECT {YOUR/SUBJECT'S} INFORMATION NOW.

LET'S START WITH SOME GENERAL QUESTIONS ABOUT {YOU/SUBJECT}.

[IF NEEDED: ALL OF YOUR ANSWERS WILL BE KEPT CONFIDENTIAL; YOUR PARTICIPATION IS VOLUNTARY.]

L3. In the **past week**, how many times did {you/SUBJECT} take a walk outside including walking the dog and walks for exercise?

(NWALKTRP)

[DO NOT INCLUDE WALKS ON A TREADMILL.]

WALKS OUTSIDE IN PAST WEEK..... |__|__|
REFUSED -7
DON'T KNOW -8

LCA1. And in the past week, how much total time did {you/SUBJECT} spend walking?
(CA1_HR, CA1_MIN)

[DO NOT INCLUDE WALKS ON A TREADMILL.]

HOURS |__|__|
MINUTES |__|__|
REFUSED -7
DON'T KNOW -8

L4. In the **past week**, how many times did {you/SUBJECT} ride a bicycle outside including bicycling for exercise?

(BIKETRIP)

[DO NOT INCLUDE BICYCLING ON A STATIONARY BIKE.]

BIKE RIDES |__|__|
REFUSED -7
DON'T KNOW -8

LCA2. And in the past week, how much total time did {you/SUBJECT} spend biking?
(CA2_HR, CA2_MIN)

[DO NOT INCLUDE BICYCLING ON A STATIONARY BIKE.]

HOURS |__|__|
MINUTES |__|__|
REFUSED -7
DON'T KNOW -8

LCA3.

Were any of these bike rides {you/SUBJECT} took...

| | YES | NO | REF | DK |
|---|-----|----|-----|----|
| a. On the way to or from work? (LCA3_A) | 1 | 2 | -7 | -8 |
| b. On the way to or from public transportation? (LCA3_B) | 1 | 2 | -7 | -8 |
| c. Escorting children to or from school? (LCA3_C) | 1 | 2 | -7 | -8 |
| d. Running errands or shopping? (LCA3_D) | 1 | 2 | -7 | -8 |
| e. For exercise? (LCA3_E) | 1 | 2 | -7 | -8 |
| f. To exercise the dog? (LCA3_F) | 1 | 2 | -7 | -8 |
| g. For any other reasons? [SPECIFY]: (LCA3_G) _____ (LCA3_OTH) | 1 | 2 | -7 | -8 |

LCA4. Now I'd like you to think about things that may keep you from doing more biking. Please tell me if any of the following keep {you/SUBJECT} from doing more biking? Would you say it's because...

| | YES | NO | REF | DK |
|---|-----|----|-----|----|
| a. You're too busy? (BIKE_A) | 1 | 2 | -7 | -8 |
| b. You have poor health? (BIKE_B) | 1 | 2 | -7 | -8 |
| c. You have no one to bike with? (BIKE_C) | 1 | 2 | -7 | -8 |
| d. There are no nearby paths or trails? (BIKE_D) | 1 | 2 | -7 | -8 |
| e. There are not enough bike or wide curb lanes? (BIKE_E) | 1 | 2 | -7 | -8 |
| f. There are no sidewalks or the sidewalks are in poor condition (BIKE_F) | 1 | 2 | -7 | -8 |
| g. Street crossings are unsafe? (BIKE_G) | 1 | 2 | -7 | -8 |
| h. There are no shops or other interesting places to go? (BIKE_H) | 1 | 2 | -7 | -8 |
| i. There are not enough people around? (BIKE_I) | 1 | 2 | -7 | -8 |
| j. You fear street crime? (BIKE_J) | 1 | 2 | -7 | -8 |
| k. There are too many cars? (BIKE_K) | 1 | 2 | -7 | -8 |
| l. Of fast traffic? (BIKE_L) | 1 | 2 | -7 | -8 |
| m. Of air pollution? (BIKE_M) | 1 | 2 | -7 | -8 |
| n. You have too many things to carry? (BIKE_N) | 1 | 2 | -7 | -8 |
| o. You have small children along? (BIKE_O) | 1 | 2 | -7 | -8 |
| p. There is not enough light at night? (BIKE_P) | 1 | 2 | -7 | -8 |

LCA5. {You/SUBJECT} mentioned that you walked outside in the past week. Were any of these walks {you/SUBJECT} took...

| | | YES | NO | REF | DK |
|----|---|-----|----|-----|----|
| a. | To walk or exercise the dog? (LCA5_A) | 1 | 2 | -7 | -8 |
| b. | On the way to or from work? (LCA5_B) | 1 | 2 | -7 | -8 |
| c. | On the way to or from public transportation? (LCA5_C) | 1 | 2 | -7 | -8 |
| d. | Escorting children to or from school? (LCA5_D) | 1 | 2 | -7 | -8 |
| e. | Running errands or shopping? (LCA5_E) | 1 | 2 | -7 | -8 |
| f. | For exercise? (LCA5_F) | 1 | 2 | -7 | -8 |
| g. | For any other reasons? [SPECIFY]: (LCA5_G) | 1 | 2 | -7 | -8 |
| | _____ (LCA5_OTH) | | | | |

LCA6. Now I'd like you to think about things that may keep you from doing more walking. Please tell me if any of the following keep {you/SUBJECT} from doing more walking? Would you say it's because...

| | | YES | NO | REF | DK |
|----|---|-----|----|-----|----|
| a. | You're too busy? (WALK_A) | 1 | 2 | -7 | -8 |
| b. | You have poor health? (WALK_B) | 1 | 2 | -7 | -8 |
| c. | You have no one to walk with? (WALK_C) | 1 | 2 | -7 | -8 |
| d. | There are no nearby paths or trails? (WALK_D) | 1 | 2 | -7 | -8 |
| e. | There are no nearby parks? (WALK_E) | 1 | 2 | -7 | -8 |
| f. | There are no sidewalks or the sidewalks are in poor condition? (WALK_F) | 1 | 2 | -7 | -8 |
| g. | Street crossings are unsafe? (WALK_G) | 1 | 2 | -7 | -8 |
| h. | There are no shops or other interesting places to go? (WALK_H) | 1 | 2 | -7 | -8 |
| i. | There are not enough people walking around? (WALK_I) | 1 | 2 | -7 | -8 |
| j. | You fear street crime? (WALK_J) | 1 | 2 | -7 | -8 |
| k. | There are too many cars? (WALK_K) | 1 | 2 | -7 | -8 |
| l. | Of fast traffic? (WALK_L) | 1 | 2 | -7 | -8 |
| m. | Of air pollution? (WALK_M) | 1 | 2 | -7 | -8 |
| n. | Streets are too wide? (WALK_N) | 1 | 2 | -7 | -8 |
| o. | You have things to carry? (WALK_O) | 1 | 2 | -7 | -8 |
| p. | You have small children along? (WALK_P) | 1 | 2 | -7 | -8 |
| q. | There is not enough light at night? (WALK_Q) | 1 | 2 | -7 | -8 |

EVA6. Thinking about your area, please tell me if you agree or disagree with the following statements about walking and biking.

(EVA6a-EVA6d)

| | AGREE | DISAGREE | REF | DK |
|--|-------|----------|-----|----|
| a. Improving bicycle and walking facilities is a good investment | 1 | 2 | -7 | -8 |
| b. I would walk more if sidewalks were better | 1 | 2 | -7 | -8 |
| c. Improving bicycle and walking facilities is important to help reduce traffic congestion | 1 | 2 | -7 | -8 |
| d. I would bike more if the bike facilities were better | 1 | 2 | -7 | -8 |

E3. During most of last week, {were you/was SUBJECT}...
(PRMACT)

| | | |
|--|----|---------------------|
| working, | 1 | GO TO BOX BEFORE Ea |
| temporarily absent from a job or business, . | 2 | GO TO BOX BEFORE Ea |
| looking for work, | 3 | |
| a homemaker, | 4 | |
| going to school, | 5 | |
| retired, | 6 | |
| or doing something else? | 7 | |
| REFUSED | -7 | |
| DON'T KNOW | -8 | |

E4. Last week, did {you/SUBJECT} do **any** work for either pay or profit?
(PAYPROF)

| | |
|------------------|----|
| YES | 1 |
| NO | 2 |
| REFUSED | -7 |
| DON'T KNOW | -8 |

Ea. {Are you/Is SUBJECT} self-employed?
(SELF_EMP)

| | |
|------------------|----|
| YES | 1 |
| NO | 2 |
| REFUSED | -7 |
| DON'T KNOW | -8 |

E5. {Do you/Does SUBJECT} work...
(WKFTPT)

[IF ASKED: A full time job is at least 35 hours per week.]

[

| | |
|---------------------|----|
| full-time, or..... | 1 |
| part-time? | 2 |
| MULTIPLE JOBS | 3 |
| REFUSED | -7 |
| DON'T KNOW | -8 |

E6. {Do you/Does {SUBJECT}} have more than one job?
(GT1JBLWK)

[IF NEEDED: We mean more than one employer, not just multiple job sites.]

- YES 1
- NO 2
- REFUSED -7
- DON'T KNOW -8

E7. I am going to read {some/four} categories of occupations. Please tell me which one
 {your/SUBJECT'S} {primary} job falls under.
(JOBATEG - JOBATAZ)

- Sales or service,..... 1
- Clerical or administrative support,..... 2
- Manufacturing, construction, maintenance,
or farming, or 3
- Professional, managerial, or technical? 4
- OTHER..... 91
- (SPECIFY) _____
- (JOBATOS)**
- REFUSED -7
- DON'T KNOW -8

- Sales or Marketing, 1
- Clerical, Administrative, or Retail, 2
- Production, Construction, Farming, or Transport, 3
- Professional, Managerial, or Technical..... 4
- Personal Care and Services, or 5
- Some other type of employment? 91
- (SPECIFY) _____
- (JOBATOZ)**
- REFUSED -7
- DON'T KNOW -8

E12. What is the name of {your/SUBJECT'S} {employer/company} ?
 (EMPLOYER)

[IF NEEDED: We are not going to contact {you/SUBJECT} there. Transportation planners are interested in workplace location because travel to work often affects other daily travel.]

 NAME OF EMPLOYER

- REFUSED -7
- DON'T KNOW -8

E10. What is the street address of {your/SUBJECT'S} {primary} workplace?
(WKSTNUM, WKSTNAME, WKCITY, WKSTATE, WKZIP)

[IF S WORKS AT OR OUT OF HOME, ENTER "HOME" FOR STREET NUMBER.
 IF S SAYS "I work both at home and work" GET THE WORK ADDRESS. IF S HAS NO FIXED
 WORKPLACE, ENTER "NONE" FOR STREET NUMBER.]

**[IF NEEDED: We are not going to contact you there. Transportation planners are
 interested in workplace location because travel to work often affects other daily travel.]**

| | | | |
|------------------|-------------|----------|--|
| | | | |
| STREET NUMBER | STREET NAME | | |
| | | | |
| CITY | STATE | ZIP CODE | |
| REFUSED | -7 | | |
| DON'T KNOW | -8 | | |

E11. {We would like to know the approximate location of {your/SUBJECT'S} {primary} workplace. What
 is the name of the street or road nearest {your/SUBJECT'S} {primary} workplace?}

{I have recorded that your {primary} workplace is on...

[IF STREET NAME IS CORRECT PRESS RETURN OR RETYPE ENTIRE FIELD.]

(WKROAD1)

{WKSTNAME}

FIRST ROAD: _____

{What is the name of the nearest intersecting street or road?}

(WKROAD2)

SECOND ROAD: _____

REFUSED

DON'T KNOW

E13. Would you please provide a landmark that is close to {your/his/her} {primary} workplace? This
 could be a well-known building, park, monument, or school.

(WKLDMRK1-3)

[IF NEEDED: Transportation planners are interested in workplace location because travel to work often affects other daily travel.]

NAME OF A LANDMARK

REFUSED

DON'T KNOW

E14. What is the **one-way** distance from {your/SUBJECT'S} home to {your/his/her} {primary} workplace?
(DISTTOWK, DISTUNIT)

[IF LESS THAN 1 BLOCK, ENTER 0 BLOCKS. IF LESS THAN 1 MILE ENTER AS BLOCKS.]

**[$\frac{1}{4}$ MILE = 2 BLOCKS
 $\frac{1}{2}$ MILE = 5 BLOCKS
 $\frac{3}{4}$ MILE = 7 BLOCKS]**

NUMBER..... |__|__|__|
 UNIT |__|

1 = BLOCKS
 2 = MILES

REFUSED -7
 DON'T KNOW -8

E15. How many minutes did it usually take {you/SUBJECT} to get from home to work last week?
(TIMETOWK)

[ENTER 998 IF S DID NOT WORK IN USUAL WORKPLACE LAST WEEK.]
[ENTER 999 IF S DID NOT WORK LAST WEEK.]

MINUTES |__|__|__|

DID NOT WORK IN USUAL
 WORKPLACE LAST WEEK..... 998 GO TO BOX BEFORE E5
 DID NOT WORK LAST WEEK..... 999 GO TO BOX BEFORE E5
 REFUSED -7
 DON'T KNOW -8

E16. How did {you/SUBJECT} **usually** get to work last week?
(WRKTRANS)

[IF NEEDED: That is, the one used for most of the distance?]

PERSONAL VEHICLES

- CAR..... 1
- VAN..... 2
- SUV..... 3
- PICKUP TRUCK 4
- OTHER TRUCK 5
- RV 6
- MOTORCYCLE..... 7
- LIGHT ELECTRIC VEHICLE (GOLF CART) 8

BUS TRAVEL

- LOCAL PUBLIC TRANSIT..... 9
- COMMUTER BUS..... 10
- SCHOOL BUS..... 11
- CHARTER/TOUR BUS 12
- CITY TO CITY (GREYHOUND/PETERPAN) 13
- SHUTTLE BUS (SUCH AS A SENIOR
 OR AIRPORT SHUTTLE) 14

E16. Continued

TRAIN TRAVEL

| | |
|--------------------------|----|
| AMTRAK/INTER CITY | 15 |
| COMMUTER TRAIN | 16 |
| SUBWAY/ELEVATED | 17 |
| STREET CAR/TROLLEY | 18 |

OTHER

| | |
|---|----|
| TAXICAB..... | 19 |
| FERRY | 20 |
| AIRPLANE | 21 |
| BICYCLE..... | 22 |
| WALK..... | 23 |
| SPECIAL TRANSIT FOR PEOPLE WITH DISABILITIES (DIAL-A-RIDE) | 24 |
| OTHER?..... | 91 |
| (SPECIFY)_____ | |

(WRKTRNOS)

| | |
|------------------|----|
| REFUSED | -7 |
| DON'T KNOW | -8 |

IF OUT OF RANGE, DISPLAY:

“I have recorded that {you/SUBJECT} usually {get/gets} to work by {WRKTRANS}.
{Your/His/Her} workplace is {DISTTOWK, DISTUNIT} from home and it takes
{you/SUBJECT} {TIMETOWK} to get to work. Is that correct?”
(F567CHK)

| | | |
|-----------|---|-----------------------------|
| YES | 1 | GO TO BOX BEFORE E17 |
| NO | 2 | |

IF NO, DISPLAY “Okay, please let me verify that information.”

E18. How many people, including {yourself/SUBJECT}, **usually** rode in the vehicle last week?

(CARRODE)

[IF S DID NOT WORK LAST WEEK ENTER 99.]

| | |
|------------------------|-------|
| NUMBER OF PEOPLE | __ __ |
| REFUSED | -7 |
| DON'T KNOW | -8 |

EVA1. {Do you/Does SUBJECT} usually park {your/his/her} vehicle more than one block from {your/their} workplace?

(EVA1)

| | | |
|------------------|----|-----------------|
| YES | 1 | |
| NO | 2 | GO TO Eb |
| REFUSED | -7 | GO TO Eb |
| DON'T KNOW | -8 | GO TO Eb |

EVA2. How many minutes does it take {you/SUBJECT} to walk from where {you park/he/she parks} to {your/their} workplace?
(EVA2)

NUMBER OF MINUTES |__|__|
 REFUSED -7
 DON'T KNOW -8

E5. For public transit like a bus, the subway, or a train to be a good option for {your/FNAME/AGE/SEX's} commute, which of the following would be most important to you? Would you say that it's...
(FL5, AZ5)

a. Close to work and home, 1
 b. Faster than driving, 2
 c. Reasonable in cost, 3
 d. Consistently on time, or 4
 e. Fits your schedule. 5
 REFUSED -7
 DON'T KNOW -8

E5a. For public transit like a bus, the subway, or a train to be a good option for the trips {you make/FNAME/AGE/SEX makes} most frequently, which of the following would be most important to you? Would you say that it's...
(FL6, AZ6)

a. Close to work and home, 1
 b. Faster than driving, 2
 c. Reasonable in cost, 3
 d. Consistently on time, or 4
 e. Fits your schedule. 5
 REFUSED -7
 DON'T KNOW -8

Eb. What time {do you/does SUBJECT} usually arrive at work?
(WRKHR, WRKMIN, WRKAMPM – DERIVE WRKTIME AS HR:MINAM/PM)

HOUR |__|__|
 TIME OF DAY |__|
 1 = AM
 2 = PM
 REFUSED -7
 DON'T KNOW -8

EVA3. Which of the following best describes {your/SUBJECT's} current work schedule on a weekly basis? Would you say...
(EVA3)

- a. {I work/SUBJECT works} the same schedule every week, 1
- b. {I often work/SUBJECT often works} a different schedule from week to week, or 2
- c. {My/SUBJECT's} work schedule changes once in a while? 3
- REFUSED -7
- DON'T KNOW -8

Ec. {Do you/Does SUBJECT} have the ability to set or change your own start work time?
(FLEXTIME)

- YES 1
- NO 2
- REFUSED -7
- DON'T KNOW -8

Ed. {Do you/Does SUBJECT} have the option of working at home instead of going into your primary workplace?
(WKRMMH)

- YES 1
- NO 2 GO TO BOX BEFORE F1
- REFUSED -7 GO TO BOX BEFORE F1
- DON'T KNOW -8 GO TO BOX BEFORE F1

E20. How many times in the last month did {you/SUBJECT} work only at home for an entire work day instead of traveling to your usual {primary} workplace?
(WKFMHMXX)

[DO NOT INCLUDE DAYS WORKED AT HOME IN ADDITION TO AT THE WORKPLACE.]

- TIMES |__|__|
- REFUSED -7
- DON'T KNOW -8

SECTION F - TRAVEL TO SCHOOL

F1. The Department of Transportation and your local community are interested in providing safe routes to school. My next questions will help identify issues that children might face while traveling to school.

{Does FNAME/AGE/SEX/Do you} attend a public or private school?

(SCHTYPE)

- PUBLIC 1
- PRIVATE 2
- HOME SCHOOLED 3 GO TO STHANK
- REFUSED -7
- DON'T KNOW -8

F2. What is the name of the school {FNAME/AGE/SEX attends/you attend}?

(SCHNAME)

[SCHOOL NAME] _____

- REFUSED -7
- DON'T KNOW -8

[IF NEEDED: Knowing the name of your child's school will help identify issues that children might face traveling to school.]

F3. How far {does FNAME/AGE/SEX/do you} live from school? Would you say...

(DISTTOSC)

- Less than ¼ mile, 1
- Between a ¼ to ½ mile, 2
- ½ mile to 1 mile, 3
- 1 mile to 2 miles, or 4
- More than 2 miles from school?..... 5
- REFUSED -7
- DON'T KNOW -8

F4. On most school days, {does FNAME/AGE/SEX/do you} go to before or after-school care outside the home?

(SCHCARE)

- BEFORE 1
- AFTER 2
- BOTH 3
- NEITHER 4
- REFUSED -7
- DON'T KNOW -8

F5. On most school days, how {does FNAME/AGE/SEX/do you} usually get to school?
(SCHTRN1)

PERSONAL VEHICLES

| | |
|------------------------------------|---|
| CAR..... | 1 |
| VAN..... | 2 |
| SUV..... | 3 |
| PICKUP TRUCK..... | 4 |
| OTHER TRUCK..... | 5 |
| RV..... | 6 |
| MOTORCYCLE..... | 7 |
| LIGHT ELECTRIC VEHICLE (GOLF CART) | 8 |

BUS TRAVEL

| | |
|---|----|
| LOCAL PUBLIC TRANSIT..... | 9 |
| COMMUTER BUS..... | 10 |
| SCHOOL BUS..... | 11 |
| CHARTER/TOUR BUS..... | 12 |
| CITY TO CITY (GREYHOUND/PETERPAN) | 13 |
| SHUTTLE BUS (SUCH AS A SENIOR OR AIRPORT SHUTTLE)..... | 14 |

TRAIN TRAVEL

| | |
|-------------------------|----|
| AMTRAK/INTER CITY..... | 15 |
| COMMUTER TRAIN..... | 16 |
| SUBWAY/ELEVATED..... | 17 |
| STREET CAR/TROLLEY..... | 18 |

OTHER

| | |
|--|----|
| TAXICAB..... | 19 |
| FERRY..... | 20 |
| AIRPLANE..... | 21 |
| BICYCLE..... | 22 |
| WALK..... | 23 |
| SPECIAL TRANSIT FOR PEOPLE WITH DISABILITIES (DIAL-A-RIDE)..... | 24 |
| OTHER?..... | 91 |
| (SPECIFY)_____ | |

(SCHTRN10)

| | |
|-----------------|----|
| REFUSED..... | -7 |
| DON'T KNOW..... | -8 |

F6. How many people {does FNAME/AGE/SEX/do you} usually {walk/bike} to school with?
(TOSCSIZE)

NUMBER |__|__|

| | |
|-----------------|----|
| REFUSED..... | -7 |
| DON'T KNOW..... | -8 |

**F7. On most school days, how {does FNAME/AGE/SEX/do you} usually leave school?
(SCHTRN2)**

PERSONAL VEHICLES

| | |
|------------------------------------|---|
| CAR..... | 1 |
| VAN..... | 2 |
| SUV..... | 3 |
| PICKUP TRUCK..... | 4 |
| OTHER TRUCK..... | 5 |
| RV..... | 6 |
| MOTORCYCLE..... | 7 |
| LIGHT ELECTRIC VEHICLE (GOLF CART) | 8 |

BUS TRAVEL

| | |
|---|----|
| LOCAL PUBLIC TRANSIT..... | 9 |
| COMMUTER BUS..... | 10 |
| SCHOOL BUS..... | 11 |
| CHARTER/TOUR BUS..... | 12 |
| CITY TO CITY (GREYHOUND/PETERPAN) | 13 |
| SHUTTLE BUS (SUCH AS A SENIOR OR AIRPORT SHUTTLE)..... | 14 |

TRAIN TRAVEL

| | |
|-------------------------|----|
| AMTRAK/INTER CITY..... | 15 |
| COMMUTER TRAIN..... | 16 |
| SUBWAY/ELEVATED..... | 17 |
| STREET CAR/TROLLEY..... | 18 |

OTHER

| | |
|--|----|
| TAXICAB..... | 19 |
| FERRY..... | 20 |
| AIRPLANE..... | 21 |
| BICYCLE..... | 22 |
| WALK..... | 23 |
| SPECIAL TRANSIT FOR PEOPLE WITH DISABILITIES (DIAL-A-RIDE)..... | 24 |
| OTHER?..... | 91 |
| (SPECIFY)_____ | |

(SCHTRN20)

| | |
|-----------------|----|
| REFUSED..... | -7 |
| DON'T KNOW..... | -8 |

**F8. How many people {does FNAME/AGE/SEX/do you} usually {walk/bike} from school with?
(FMSCSIZE)**

NUMBER |__|__|

| | |
|-----------------|----|
| REFUSED..... | -7 |
| DON'T KNOW..... | -8 |

F9. How long does it normally take {FNAME/AGE/SEX/you} to get to school?

(TIMETOSC)

[PROBE: ON AN AVERAGE DAY HOW LONG WOULD IT TAKE TO GO FROM HOME TO SCHOOL.]

MINUTES |__|__|__|
 REFUSED -7
 DON'T KNOW -8

F10. At what grade {would you allow FNAME/AGE/SEX/did you allow FNAME/AGE/SEX/would you be allowed/were you allowed} to walk or bike to or from school without an adult?
(GRADE)

[ENTER 0 FOR KINDERGARTEN]

GRADE K-12..... |__|__|
 NEVER 99
 REFUSED -7
 DON'T KNOW -8

F11. On a scale of 1 to 5, where 1 means “not an issue” and 5 means “a serious issue” , please tell me how much each of the following affects your decision to allow {FNAME/AGE/SEX} to walk or bike to or from school. On a scale of 1 to 5, how much of an issue is...

| | NOT AN ISSUE | A LITTLE BIT OF AN ISSUE | SOMEWHAT OF AN ISSUE | VERY MUCH AN ISSUE | A SERIOUS ISSUE | RF | DK |
|---|--------------|--------------------------|----------------------|--------------------|-----------------|----|----|
| a. the distance between home and school? Would you say it's not an issue, a little bit of an issue, somewhat of an issue, very much an issue, or a serious issue? (SCHDIST) | 1 | 2 | 3 | 4 | 5 | -7 | -8 |
| b. the amount of traffic along the route? [Would you say it's not an issue, a little bit of an issue, somewhat of an issue, very much an issue, or a serious issue?] (SCHTRAF) | 1 | 2 | 3 | 4 | 5 | -7 | -8 |
| c. the speed of traffic along route? (SCHSPD) | 1 | 2 | 3 | 4 | 5 | -7 | -8 |
| d. violence or crime along route? (SCHCRIM) | 1 | 2 | 3 | 4 | 5 | -7 | -8 |
| e. poor weather or climate in your area? (SCHWTHR) | 1 | 2 | 3 | 4 | 5 | -7 | -8 |

F12. Are there any other issues that affect your decision to allow or not allow your child to walk or bike to or from school?

(F12, F12_01 – F12_05)

<OPEN RESPONSE>

- YES 1
- NO 2
- REFUSED -7
- DON'T KNOW -8

STHANK

My school questions are about travel to school. Because your child is home schooled I will skip that section.

SECTION G - TRAVEL DAY

G1. [Now I'd like to talk about the trips {you/SUBJECT} recorded in the diary we sent.]

[Now] I have some questions about **all** trips {you/SUBJECT} took on {TRIPDATE}. {Even though {your/his/her} travel on this day may have been unusual for some reason, we still want to know about {your/SUBJECT'S} trips on this particular day.}

G2. Did {you/someone/SUBJECT} fill-out the diary {for SUBJECT}?
(DIARYCMP)

- YES [COMPLETED]..... 1
- NO [NOT COMPLETED]..... 2 GO TO G4
- DID NOT RECEIVE MATERIALS 3 GO TO G4
- REFUSED -7 GO TO G4
- DON'T KNOW -8 GO TO G4

G3. Do you have {your/SUBJECT'S} completed diary with you now?
(DIARYHAV)

[IF NEEDED: I can wait while you get it.]

- YES 1 GO TO BOX BEFORE G8
- NO 2
- REFUSED -7
- DON'T KNOW -8

G4. Let's continue with the interview anyway. Information on {your/SUBJECT'S} travel is important to us. Please try to recall the information as best you can.

- G8.** To be sure we include all the trips {you/SUBJECT} took during {your/his/her} travel day, we'll list all {your/SUBJECT'S} trips that occurred between 4 in the morning on {TRDDATE} and 4 the next morning.

On {TRIPDATE} at 4 in the morning, {were you/was SUBJECT} at home or someplace else?
(FRSTHM)

HOME..... 1 GO TO G11
SOMEPLACE ELSE..... 2
REFUSED -7
DON'T KNOW -8

- G9.** {Were you/Was SUBJECT} out of town for the **entire travel day?**
(OUTOFTWN)

[ENTER YES IF SUBJECT WAS OUT OF TOWN STARTING AT 4 A.M. ON THE TRAVEL DAY UNTIL 4 A.M. THE NEXT DAY.]

YES 1
NO 2 GO TO G11
REFUSED -7 GO TO G11
DON'T KNOW -8 GO TO G11

- G14.** {Were you/Was SUBJECT} out of the country for the entire travel day?
(OUTCNTRY)

YES 1 GO TO BOX BEFORE L1
NO 2
REFUSED -7
DON'T KNOW -8

- G11.** For the next questions, a "trip" is any time {you/SUBJECT} went from one address to another. Be sure to include stops made for **any** reason, such as buying gas or taking someone somewhere. However, do not include stops made just to change {your/his/her} type of transportation.

- G12.** Where did {you/SUBJECT} go first/next on {TRIPDATE}?
(WHERE)

HOME..... 1 GO TO BOX BEFORE G16
WORK 2 GO TO BOX BEFORE G16
NOWHERE..... 3
NO MORE TRIPS TAKEN ON
TRAVEL DAY 4 GO TO BOX BEFORE G18
OTHER..... 91
(SPECIFY)..... GO TO BOX BEFORE G16
(WHEREOS)
REFUSED -7
DON'T KNOW -8

G13. Does this mean {you/SUBJECT} stayed at {the same place/home} all day?
(SAMEPLC)

YES 1
NO 2 RE-ASK G12
REFUSED -7 RE-ASK G12
DON'T KNOW -8 RE-ASK G12

G15. About how long ago before {TRIPDATE} did {you/SUBJECT} last take a trip to another address?
(LASTRPNU, LASTRPUT)

NUMBER..... |__|__|__|
UNIT |__|
1 = DAYS
2 = WEEKS
3 = MONTHS
4 = YEARS
REFUSED -7
DON'T KNOW -8

Ga. Would you like to get out more often?
(MOROFTEN)

YES 1
NO 2
REFUSED -7
DON'T KNOW -8

G16. What time did this trip begin?

(STRTHR, STRTMIN, STRTAMPM)

TIME (A) |__|__| : (B) |__|__|
UNIT |__| (C)
1 = AM
2 = PM
REFUSED -7
DON'T KNOW -8

G17. What time did {you/SUBJECT} arrive?
(ENDHOUR, ENDMINTE, ENDAMPM)

TIME |__|__| : |__|__|
UNIT |__|
1 = AM
2 = PM
REFUSED -7
DON'T KNOW -8

G18. So far, I have recorded {N} trip(s). Before we continue, did {you/SUBJECT} take any other walks, bike rides, or drives on {TRIPDATE}? Please include any other trips where {you/SUBJECT} used public transit or started and ended in the same place.

CONTINUE..... 1
 ADD MORE TRIPS 2 RETURN TO MATRIX

| | |
|---|---|
| SPECIFICATION NOTE: | |
| I also show a trip to {PLACE} at {TIME} reported by {NAME}. Did you take this trip? | |
| YES | 1 ADD THIS TRIP TO LIST OF TRIPS |
| NO | 2 |
| WHEN ALL TRIPS MADE ON TRAVEL DAY HAVE BEEN LISTED, DISPLAY: “While I read the trips I’ve recorded, please think back to see if there were any additional ones.” | |
| IF TWO TRIPS HAVE THE SAME TIME, DISPLAY BOTH AND SAY: “I have recorded that {you/SUBJECT} left for {PLACE1} and {PLACE2} at {TIME}. Which place did {you/s(he)} leave for at {TIME}?” | |
| | <u>Start Time</u> |
| PLACE 1 | _ _ : _ _ AM/PM |
| PLACE 2 | _ _ : _ _ AM/PM |
| At what time did {you/SUBJECT} begin {your/his/her} trip to [READ THE PLACE WITH NO TIME]?” | |
| PLACE | _ _ : _ _ AM/PM |
| THEY ARE THE SAME TRIP | 99 |

N_G19. Did {you/SUBJECT} use an Interstate or turnpike during any part of these trips?
 (USEINTST)

YES 1
 NO 2
 REFUSED -7
 DON'T KNOW -8

G19. Did {you/SUBJECT} use a bus, subway, train, or some other type of public transportation during any part of these trips?
 (USEPUBTR)

[PUBLIC TRANSPORTATION DOES NOT INCLUDE A TAXI, AIRPLANE, SCHOOL OR CHARTER BUS.]

YES 1
 NO 2
 REFUSED -7
 DON'T KNOW -8

G20. [Now I have a few questions about each trip.]

I have recorded that {you/SUBJECT} went to...
(PLACNAME)

[IF NAME OF LOCATION, PLACE, STORE, ETC. NOT PROVIDED PROBE FOR "NAME" AND RECORD.]

{WHERE}

NAME OF PLACE: _____

G21. What is the address of {PLACNAME}?
(PLSTNUM, PLSTNAME, PLCITY, PLSTATE, PLZIP)

STREET NUMBER STREET NAME

CITY/TOWN/VILLAGE/BOROUGH STATE ZIP CODE

REFUSED -7
DON'T KNOW -8

G22. {What is the name of the street or road that {PLACNAME} is on?/I have recorded that {PLACNAME} is on {PLSTNAME/PLADDR}.

[IF HOME ADDRESS DISPLAYED YOU MUST RE-TYPE STREET NAME BELOW.]

{PLSTNAME/PLADDR}

STREET NAME
(PLROAD1)

What is the name of the nearest intersecting street or road?

STREET NAME
(PLROAD2)

REFUSED -7
DON'T KNOW -8

G23. Would you please provide a landmark that is close to {PLACNAME}? [This could be a well-known building, park, monument, or school.]
(PLLNMRK1-3)

[IF NEEDED: PROBE FOR LANDMARK/BUSINESS NAME/TRANSIT STATION]

REFUSED -7
 DON'T KNOW -8

G24. What {borough or} county is {PLACNAME} in?

(PLCNTYNY, PLCNTYWI)

91. OTHER SPECIFY **(PLCYNYOS, PLCYWIOS)** _____

G25. Now I have a few questions about each trip.

You told me the first place {you/SUBJECT} went was home. What was the **main** reason {you were/SUBJECT was} away from home?

(AWAYHOME)

| | |
|--|----------------------|
| 10 WORK | GO TO G25A |
| 20 SCHOOL/DAYCARE/RELIGIOUS ACTIVITY | GO TO G25B |
| 30 MEDICAL/DENTAL SERVICES..... | GO TO BOX BEFORE G26 |
| 40 SHOPPING/ERRANDS..... | GO TO G25C |
| 50 SOCIAL/RECREATIONAL | GO TO G25D |
| 60 FAMILY PERSONAL BUSINESS/OBLIGATIONS | GO TO G25C |
| 70 TRANSPORT SOMEONE | GO TO G25E |
| 80 MEALS | GO TO G25D |
| 91 MISC REASONS (AWAYHMSP) | GO TO BOX BEFORE G26 |
| -7 REFUSED | GO TO BOX BEFORE G26 |
| -8 DON'T KNOW | GO TO BOX BEFORE G26 |

G25A. [Now I have a few questions about each trip.

You told me the first place {you/SUBJECT} went was home. What was the **main** reason {you were/SUBJECT was} away from home?]

(AWAYHOME)

| | |
|--------------------------------------|----------------------|
| 11 GO TO WORK | GO TO BOX BEFORE G26 |
| 12 RETURN TO WORK..... | GO TO BOX BEFORE G26 |
| 13 ATTEND BUSINESS MEETING/TRIP..... | GO TO BOX BEFORE G26 |
| 14 OTHER WORK RELATED | GO TO BOX BEFORE G26 |
| 99 RETURN TO MAIN SCREEN | GO TO G25 |

G25B. [Now I have a few questions about each trip.

You told me the first place {you/SUBJECT} went was home. What was the **main** reason {you were/SUBJECT was} away from home?]

(AWAYHOME)

| | |
|---|----------------------|
| 20 SCHOOL/RELIGIOUS ACTIVITY | GO TO BOX BEFORE G26 |
| 21 GO TO SCHOOL AS A STUDENT | GO TO BOX BEFORE G26 |
| 22 GO TO RELIGIOUS ACTIVITY | GO TO BOX BEFORE G26 |
| 23 GO TO LIBRARY: SCHOOL RELATED | GO TO BOX BEFORE G26 |
| 24 GO TO DAYCARE/BEFORE OR AFTER SCHOOL CARE | GO TO BOX BEFORE G26 |
| 99 RETURN TO MAIN SCREEN | GO TO G25 (N_G21) |

G25C. [Now I have a few questions about each trip.

You told me the first place {you/SUBJECT} went was home. What was the **main** reason {you were/SUBJECT was} away from home?]

(AWAYHOME)

| | |
|---|----------------------|
| 40 SHOPPING/ERRANDS..... | GO TO BOX BEFORE G26 |
| 41 BUY GOODS: GROCERIES/CLOTHING/ HARDWARE STORE..... | GO TO BOX BEFORE G26 |
| 42 BUY SERVICES: VIDEO RENTALS/DRY CLEANER/POST OFFICE/ CAR SERVICE/BANK..... | GO TO BOX BEFORE G26 |
| 43 BUY GAS | GO TO BOX BEFORE G26 |
| 60 FAMILY PERSONAL BUSINESS/OBLIGATIONS.. | GO TO BOX BEFORE G26 |
| 61 USE PROFESSIONAL SERVICES: ATTORNEY/ACCOUNTANT | GO TO BOX BEFORE G26 |
| 62 ATTEND FUNERAL/WEDDING | GO TO BOX BEFORE G26 |
| 63 USE PERSONAL SERVICES: GROOMING/ HAIRCUT/NAILS | GO TO BOX BEFORE G26 |
| 64 PET CARE: WALK THE DOG/VET VISITS.... | GO TO BOX BEFORE G26 |
| 65 ATTEND MEETING: PTA/HOME OWNERS ASSOCIATION/LOCAL GOVERNMENT | GO TO BOX BEFORE G26 |
| 99 RETURN TO MAIN SCREEN | GO TO G25 |

G25D. [Now I have a few questions about each trip.

You told me the first place {you/SUBJECT} went was home. What was the **main** reason {you were/SUBJECT was} away from home?]

(AWAYHOME)

| | |
|--|----------------------|
| 50 SOCIAL/RECREATIONAL | GO TO BOX BEFORE G26 |
| 51 GO TO GYM/EXERCISE/PLAY SPORTS | GO TO BOX BEFORE G26 |
| 52 REST OR RELAXATION/VACATION..... | GO TO BOX BEFORE G26 |
| 53 VISIT FRIENDS/RELATIVES | GO TO BOX BEFORE G26 |
| 54 GO OUT/HANG OUT: ENTERTAINMENT/ THEATER/SPORTS EVENT/GO TO BAR | GO TO BOX BEFORE G26 |
| 55 VISIT PUBLIC PLACE: HISTORICAL SITE/ MUSEUM/PARK/LIBRARY | GO TO BOX BEFORE G26 |

- G25D:** Continued
- 80 MEALS GO TO BOX BEFORE G26
 - 81 SOCIAL EVENT GO TO BOX BEFORE G26
 - 82 GET/EAT MEAL GO TO BOX BEFORE G26
 - 83 COFFEE/ICE CREAM/SNACKS GO TO BOX BEFORE G26
 - 99 RETURN TO MAIN SCREEN GO TO G25

G25E. [Now I have a few questions about each trip.

You told me the first place {you/SUBJECT} went was home. What was the **main** reason {you were/SUBJECT was} away from home?]

(AWAYHOME)

- 70 TRANSPORT SOMEONE GO TO BOX BEFORE G26
- 71 PICKUP SOMEONE GO TO BOX BEFORE G26
- 72 TAKE AND WAIT GO TO BOX BEFORE G26
- 73 DROP SOMEONE OFF GO TO BOX BEFORE G26
- 99 RETURN TO MAIN SCREEN GO TO G25

G26. {Now I have a few questions about each trip.}

What was the **main** reason for the trip to {DISPLAY CURRENT TRIP DESTINATION}?

(WHYTO)

- 1 HOME GO TO BOX BEFORE G28
- 10 WORK GO TO G26A
- 20 SCHOOL/DAYCARE/RELIGIOUS ACTIVITY GO TO G26B
- 30 MEDICAL/DENTAL SERVICES GO TO BOX BEFORE G28
- 40 SHOPPING/ERRANDS GO TO G26C
- 50 SOCIAL/RECREATIONAL GO TO G26D
- 60 FAMILY PERSONAL BUSINESS/OBLIGATIONS.. GO TO G26C
- 70 TRANSPORT SOMEONE GO TO G26E
- 80 MEALS GO TO G26D
- 91 MISC REASONS (**WHYTRPSP**) GO TO BOX BEFORE G28
- 7 REFUSED GO TO BOX BEFORE G28
- 8 DON'T KNOW GO TO BOX BEFORE G28

G26A. [Now I have a few questions about each trip.

What was the **main** reason for the trip to {DISPLAY CURRENT TRIP DESTINATION}??]

(WHYTO)

- 11 GO TO WORK GO TO BOX BEFORE G28
- 12 RETURN TO WORK GO TO BOX BEFORE G28
- 13 ATTEND BUSINESS MEETING/TRIP GO TO BOX BEFORE G28
- 14 OTHER WORK RELATED GO TO BOX BEFORE G28
- 99 RETURN TO MAIN SCREEN GO TO G26

G26B. [Now I have a few questions about each trip.

What was the **main** reason for the trip to {DISPLAY CURRENT TRIP DESTINATION}?

(WHYTO)

- 20 SCHOOL/RELIGIOUS ACTIVITY GO TO BOX BEFORE G28
- 21 GO TO SCHOOL AS A STUDENT GO TO BOX BEFORE G28
- 22 GO TO RELIGIOUS ACTIVITY GO TO BOX BEFORE G28
- 23 GO TO LIBRARY: SCHOOL RELATED GO TO BOX BEFORE G28
- 24 GO TO DAYCARE/BEFORE
OR AFTER SCHOOL CARE GO TO BOX BEFORE G28
- 99 RETURN TO MAIN SCREEN GO TO G26

G26C. [Now I have a few questions about each trip.

What was the **main** reason for the trip to {DISPLAY CURRENT TRIP DESTINATION}?

(WHYTO)

- 40 SHOPPING/ERRANDS..... GO TO BOX BEFORE G28
- 41 BUY GOODS: GROCERIES/CLOTHING/.....
HARDWARE STORE..... GO TO BOX BEFORE G28
- 42 BUY SERVICES: VIDEO RENTALS/DRY
CLEANER/POST OFFICE/CAR SERVICE/
BANK GO TO BOX BEFORE G28
- 43 BUY GAS GO TO BOX BEFORE G28
- 60 FAMILY PERSONAL BUSINESS/OBLIGATIONS.. GO TO BOX BEFORE G28
- 61 USE PROFESSIONAL SERVICES:
ATTORNEY/ACCOUNTANT GO TO BOX BEFORE G28
- 62 ATTEND FUNERAL/WEDDING GO TO BOX BEFORE G28
- 63 USE PERSONAL SERVICES: GROOMING/
HAIRCUT/NAILS GO TO BOX BEFORE G28
- 64 PET CARE: WALK THE DOG/VET VISITS.... GO TO BOX BEFORE G28
- 65 ATTEND MEETING: PTA/HOME OWNERS
ASSOCIATION/LOCAL GOVERNMENT GO TO BOX BEFORE G28
- 99 RETURN TO MAIN SCREEN GO TO G26

G26D. [Now I have a few questions about each trip.

What was the **main** reason for the trip to {DISPLAY CURRENT TRIP DESTINATION}?

(WHYTO)

- 50 SOCIAL/RECREATIONAL GO TO BOX BEFORE G28
- 51 GO TO GYM/EXERCISE/PLAY SPORTS GO TO BOX BEFORE G28
- 52 REST OR RELAXATION/VACATION..... GO TO BOX BEFORE G28
- 53 VISIT FRIENDS/RELATIVES GO TO BOX BEFORE G28
- 54 GO OUT/HANG OUT: ENTERTAINMENT/
THEATER/SPORTS EVENT/GO TO BAR GO TO BOX BEFORE G28
- 55 VISIT PUBLIC PLACE: HISTORICAL SITE/
MUSEUM/PARK/LIBRARY GO TO BOX BEFORE G28

G26D. Continued

- 80 MEALS GO TO BOX BEFORE G28
- 81 SOCIAL EVENT GO TO BOX BEFORE G28
- 82 GET/EAT MEAL GO TO BOX BEFORE G28
- 83 COFFEE/ICE CREAM/SNACKS GO TO BOX BEFORE G28
- 99 RETURN TO MAIN SCREEN GO TO G26

G26E. [Now I have a few questions about each trip.

What was the **main** reason for the trip to {DISPLAY CURRENT TRIP DESTINATION}?

(WHYTO)

- 70 TRANSPORT SOMEONE GO TO BOX BEFORE G28
- 71 PICKUP SOMEONE GO TO BOX BEFORE G28
- 72 TAKE AND WAIT GO TO BOX BEFORE G28
- 73 DROP SOMEONE OFF GO TO BOX BEFORE G28
- 99 RETURN TO MAIN SCREEN GO TO G26

G28. I've recorded {your/SUBJECT's} next trip was from {ORIGINATION} to home.

G29. Was the {VEHICLE} used on this trip?

(VEHSAME)

- YES 1 AUTOCODE G30 & G31 & GOTO BOX BEFORE G32
- NO 2
- REFUSED -7
- DON'T KNOW -8

G30. Was a household vehicle used for this trip?

(TRPHHVEH)

- YES 1
- NO 2 GO TO BOX BEFORE G32
- REFUSED -7 GO TO BOX BEFORE G32
- DON'T KNOW -8 GO TO BOX BEFORE G32

G31. Which vehicle?

(VEHID)

[IF NEEDED: Which one was used for the longest distance?]

VEHICLE NUMBER |__|__|

VEHICLE NOT ON LIST 99 ADD VEHICLE TO HH.
RECORD MAKE, MODEL AND
YEAR OF NEW VEHICLE

- REFUSED -7
- DON'T KNOW -8

G32. Did {you/SUBJECT} take a bus, subway, train, or some other type of public transportation during **this** trip?
(TRPPUB)

[PUBLIC TRANSPORTATION DOES NOT INCLUDE A TAXI, AIRPLANE, SCHOOL OR CHARTER BUS.]

- YES 1
- NO 2 GO TO G34
- REFUSED -7 GO TO G34
- DON'T KNOW -8 GO TO G34

G33. Which one?
(PUBTYPE)

[PROBE FOR MAIN TYPE OF PUBLIC TRANSPORTATION USED.]

- BUS 1
- SUBWAY/TRAIN 2
- FERRY/BOAT 3
- REFUSED -7
- DON'T KNOW -8

G34. How did {you/SUBJECT} get to {CURRENT TRIP DESTINATION}?
(TRPTRANS)

[IF NEEDED: That is, what means of transportation did {you/SUBJECT} use for this trip?]

PERSONAL VEHICLES

- CAR 1
- VAN 2
- SUV 3
- PICKUP TRUCK 4
- OTHER TRUCK 5
- RV 6
- MOTORCYCLE 7
- LIGHT ELECTRIC VEHICLE (GOLF CART) 8

BUS TRAVEL

- LOCAL PUBLIC TRANSIT 9 GO TO NY_G27a
- COMMUTER BUS 10 GO TO NY_G27a
- SCHOOL BUS 11
- CHARTER/TOUR BUS 12
- CITY TO CITY (GREYHOUND/PETERPAN) 13
- SHUTTLE BUS (SUCH AS A SENIOR OR AIRPORT SHUTTLE) 14

TRAIN TRAVEL

- AMTRAK/INTER CITY 15
- COMMUTER TRAIN 16 GO TO NY_G27b
- SUBWAY/ELEVATED 17 GO TO NY_G27c
- STREET CAR/TROLLEY 18

**G34. Continued
OTHER**

| | | |
|---|----|---------------|
| TAXICAB | 19 | |
| FERRY | 20 | GO TO NY_G27d |
| AIRPLANE | 21 | GO TO NY_G27e |
| BICYCLE | 22 | |
| WALK | 23 | |
| SPECIAL TRANSIT FOR PEOPLE WITH DISABILITIES (DIAL-A-RIDE) | 24 | |
| OTHER?..... (SPECIFY)_____ | 91 | |
| (TRPTRNOS) | | |
| REFUSED | -7 | |
| DON'T KNOW | -8 | |

NY_G27a.

Which bus system did {you/SUBJECT} use?

NY1

| | | |
|---|----|---------------------|
| MTA (METROPOLITAN TRANSIT AUTHORITY) BEFORE Gb | 1 | GO TO BOX |
| NJ TRANSIT | 2 | GO TO BOX BEFORE Gb |
| REFUSED | -7 | GO TO BOX BEFORE Gb |
| DON'T KNOW | -8 | GO TO BOX BEFORE Gb |

NY_G27b.

Which train did {you/SUBJECT} use?

NY2

| | | |
|-----------------------------|----|---------------------|
| LIRR (LONG ISLAND RAILROAD) | 1 | GO TO BOX BEFORE Gb |
| NJ TRANSIT | 2 | GO TO BOX BEFORE Gb |
| METRO NORTH | 3 | GO TO BOX BEFORE Gb |
| REFUSED | -7 | GO TO BOX BEFORE Gb |
| DON'T KNOW | -8 | GO TO BOX BEFORE Gb |

NY_G27c.

Which train did {you/SUBJECT} use?

NY3

| | | |
|---|----|---------------------|
| PATH | 1 | GO TO BOX BEFORE Gb |
| NYCTA SUBWAY (NY CITY TRANSIT AUTHORITY) | 2 | GO TO BOX BEFORE Gb |
| SI RAPID TRANSIT | 3 | GO TO BOX BEFORE Gb |
| NJ TRANSIT | 4 | GO TO BOX BEFORE Gb |
| REFUSED | -7 | GO TO BOX BEFORE Gb |
| DON'T KNOW | -8 | GO TO BOX BEFORE Gb |

NY_G27d.

Which ferry did {you/SUBJECT} use?

NY4

| | | |
|------------------|----|---------------------|
| HUDSON RIVER | 1 | GO TO BOX BEFORE Gb |
| STATEN ISLAND | 2 | GO TO BOX BEFORE Gb |
| OTHER | 3 | GO TO BOX BEFORE Gb |
| REFUSED | -7 | GO TO BOX BEFORE Gb |
| DON'T KNOW | -8 | GO TO BOX BEFORE Gb |

NY_G27e.

Which airport did {you/SUBJECT} use?

NY5

| | | |
|------------------|----|---------------------|
| JFK | 1 | GO TO BOX BEFORE Gb |
| LAGUARDIA | 2 | GO TO BOX BEFORE Gb |
| NEWARK | 3 | GO TO BOX BEFORE Gb |
| NEWBURG | 4 | GO TO BOX BEFORE Gb |
| OTHER | 5 | GO TO BOX BEFORE Gb |
| REFUSED | -7 | GO TO BOX BEFORE Gb |
| DON'T KNOW | -8 | GO TO BOX BEFORE Gb |

Gb. Was any part of this trip made on an Interstate or turnpike?

INTSTATE

| | | |
|------------------|----|--------------------|
| YES | 1 | |
| NO | 2 | GO TO BOX AFTER Gc |
| REFUSED | -7 | GO TO BOX AFTER Gc |
| DON'T KNOW | -8 | GO TO BOX AFTER Gc |

Gc. Did {you/SUBJECT} pay a toll while traveling on this Interstate?

PAYTOLL

| | | |
|------------------|----|--|
| YES | 1 | |
| NO | 2 | |
| REFUSED | -7 | |
| DON'T KNOW | -8 | |

G35. How did {you/SUBJECT} get to the {bus/train/subway/street car/pier/terminal}? {Anything else?}
(HOWPUB1-5)

[CODE ALL THAT APPLY.]

PERSONAL VEHICLES

| | |
|------------------------------------|---|
| CAR | 1 |
| VAN | 2 |
| SUV | 3 |
| PICKUP TRUCK | 4 |
| OTHER TRUCK | 5 |
| RV | 6 |
| MOTORCYCLE | 7 |
| LIGHT ELECTRIC VEHICLE (GOLF CART) | 8 |

BUS TRAVEL

| | |
|--|----|
| LOCAL PUBLIC TRANSIT | 9 |
| COMMUTER BUS | 10 |
| SCHOOL BUS | 11 |
| CHARTER/TOUR BUS | 12 |
| CITY TO CITY (GREYHOUND/PETERPAN) | 13 |
| SHUTTLE BUS (SUCH AS A SENIOR OR AIRPORT SHUTTLE) | 14 |

G35. Continued

TRAIN TRAVEL

| | |
|--------------------------|----|
| AMTRAK/INTER CITY | 15 |
| COMMUTER TRAIN | 16 |
| SUBWAY/ELEVATED..... | 17 |
| STREET CAR/TROLLEY | 18 |

OTHER

| | |
|---|----|
| TAXICAB..... | 19 |
| FERRY | 20 |
| AIRPLANE | 21 |
| BICYCLE..... | 22 |
| WALK..... | 23 |
| SPECIAL TRANSIT FOR PEOPLE WITH DISABILITIES (DIAL-A-RIDE) | 24 |
| OTHER?..... | 91 |
| (SPECIFY)_____ | |

(HOWPUBOS)

| | |
|------------------|----|
| REFUSED | -7 |
| DON'T KNOW | -8 |

G35a. Did you park at the {bus/train/subway/street car/pier/terminal} or were {you/he/she} dropped off?
(DROP_PRK)

| | |
|-------------------|----|
| PARKED | 1 |
| DROPPED OFF | 2 |
| REFUSED | -7 |
| DON'T KNOW | -8 |

G36. How long did it take {you/SUBJECT} to get to the {bus/train/subway/street car/pier/terminal}?

(LONGTOHR, LONGTOMN)

HOURS |__|__|
MINUTES |__|__|__|

| | |
|------------------|----|
| REFUSED | -7 |
| DON'T KNOW | -8 |

G37. How long did {you/SUBJECT} have to wait for the {bus/train/subway/street car/boat or ferry/transportation}?

(WAIT_HR, WAIT_MIN)

HOURS |__|__|
MINUTES |__|__|__|

| | |
|------------------|----|
| REFUSED | -7 |
| DON'T KNOW | -8 |

G38. How did {you/SUBJECT} get **from** the {bus/train/subway/street car/pier/terminal} to {DESTINATION}? {Anything else?}

(HOWFRP1-5)

[CODE ALL THAT APPLY. CTRL/P TO EXIT.]

PERSONAL VEHICLES

| | |
|------------------------------------|---|
| CAR..... | 1 |
| VAN..... | 2 |
| SUV..... | 3 |
| PICKUP TRUCK..... | 4 |
| OTHER TRUCK..... | 5 |
| RV..... | 6 |
| MOTORCYCLE..... | 7 |
| LIGHT ELECTRIC VEHICLE (GOLF CART) | 8 |

BUS TRAVEL

| | |
|---|----|
| LOCAL PUBLIC TRANSIT..... | 9 |
| COMMUTER BUS..... | 10 |
| SCHOOL BUS..... | 11 |
| CHARTER/TOUR BUS..... | 12 |
| CITY TO CITY (GREYHOUND/PETERPAN) | 13 |
| SHUTTLE BUS (SUCH AS A SENIOR OR AIRPORT SHUTTLE)..... | 14 |

TRAIN TRAVEL

| | |
|-------------------------|----|
| AMTRAK/INTER CITY..... | 15 |
| COMMUTER TRAIN..... | 16 |
| SUBWAY/ELEVATED..... | 17 |
| STREET CAR/TROLLEY..... | 18 |

OTHER

| | |
|--|----|
| TAXICAB..... | 19 |
| FERRY..... | 20 |
| AIRPLANE..... | 21 |
| BICYCLE..... | 22 |
| WALK..... | 23 |
| SPECIAL TRANSIT FOR PEOPLE WITH DISABILITIES (DIAL-A-RIDE)..... | 24 |
| OTHER?..... | 91 |
| (SPECIFY)_____ | |

(HOWFRPOS)

| | |
|-----------------|----|
| REFUSED..... | -7 |
| DON'T KNOW..... | -8 |

G39. How long did it take {you/SUBJECT} to get to {DESTINATION **from** the {bus/train/subway/street car/pier/terminal/airport}?

(LONGFRHR, LONGFRMN)

| | |
|------------|-------|
| HOURS | _ _ |
| MINUTES | _ _ _ |
| REFUSED | -7 |
| DON'T KNOW | -8 |

G40. How far is it from {LAST DESTINATION} to {CURRENT DESTINATION}?
(TRIPDIST, TRIPUNIT - TRAVTIME)

[IF LESS THAN 1 BLOCK ENTER 0. IF LESS THAN 1 MILE ENTER AS BLOCKS.]

**[$\frac{1}{4}$ MILE = 2 BLOCKS
 $\frac{1}{2}$ MILE = 5 BLOCKS
 $\frac{3}{4}$ MILE = 7 BLOCKS]**

IF ASKED, RECORD ACTUAL DISTANCE TRAVELED, NOT DISTANCE "AS THE CROW FLIES."]

NUMBER |__|__|__|__|__|
UNIT |__|
1 = BLOCKS
2 = MILES
REFUSED -7
DON'T KNOW -8

G41. Earlier I recorded this entire trip took you {TIME}. Is that about right?
(TRIPTIME)

YES 1
NO 2
REFUSED -7
DON'T KNOW -8

G42. {About how long did this trip take?/About how long did the entire trip to {CURRENT TRIP DESTINATION} take you?}
(TRVL_HR, TRVL_MN)

[IF LESS THAN 1 MINUTE, ENTER 1]

HOURS |__|__|
MINUTES |__|__|__|
REFUSED -7
DON'T KNOW -8

G43. How many people went with {you/SUBJECT} on this trip?
(TRPACCOMP)

PEOPLE |__|__|
REFUSED -7
DON'T KNOW -8

G44. How many were household members?
(TRPHHACC)

HOUSEHOLD MEMBERS |__|__|

REFUSED -7 GO TO BOX AFTER G45
DON'T KNOW -8 GO TO BOX AFTER G45

G45. Which household members?

(WHOACC1_15)

[CODE ALL THAT APPLY.]

ENTER ROSTER NUMBER(S): _____

NO HHM ON THE TRIP 98
RECORD NEW HHM 99

G48. Did {you/SUBJECT/a member of the household} drive on the trip?

(HHMEMDRV)

YES 1
NO 2 GO TO BOX AFTER G49
PART OF TRIP 3
REFUSED -7 GO TO BOX AFTER G49
DON'T KNOW -8 GO TO BOX AFTER G49

G49. Who was the driver?

(DRVR_FLG, WHODROVE)

[IF NEEDED: Which one drove the longest distance?]

ENTER 1 FOR DRIVER

REFUSED -7
DON'T KNOW -8

SECTION L: GENERAL TRAVEL AND VEHICLE MILEAGE

L1. Now I just have some final question related to you and your travel.

L2a. Of the following issues, please tell me which one is the most important to you. Would you say...
(ISSUE)

- a. highway congestion, 1
- b access to or availability of public transit, 2
- c. lack of walkways or sidewalks, 3
- d. the price of travel including things like transit fees, tolls and the cost of gasoline, 4
- e. aggressive or distracted drivers, {or} 5
- f. safety concerns, like worrying about being in a traffic accident? 6
- REFUSED -7
- DON'T KNOW -8

L2. How much of an issue {is/are} {RESPONSE FROM L2a} to you? Would you say...
(VARIABLES LISTED IN BOX ABOVE)

- A little issue, 1
- A moderate issue, 2
- A big issue, 3
- REFUSED -7
- DON'T KNOW -8

L5. About how many miles did {you/SUBJECT} personally drive during the past 12 months in **all** motorized vehicles?
(YEARMILE)

[INCLUDE MILES DRIVEN AS A PART OF WORK.]

MILES..... |__|__|__|,|__|__|__|

- REFUSED -7
- DON'T KNOW -8

L5A. I recorded that {you/she/he} drove a total of about {YEARMILE} miles during the past year. Is that correct?
(VERYRMIL)

- YES 1 GO TO BOX BEFORE L6
- NO 2
- REFUSED -7
- DON'T KNOW -8

L5B. Would you say it was...
(YEARMIL2)

- 5,000 miles or less, 1
- 5,001 to 10,000 miles,..... 2
- 10,001 to 15,000 miles,..... 3
- 15,001 to 20,000 miles, or 4
- More than 20,000 miles? 5
- REFUSED -7
- DON'T KNOW -8

L6. Now we'd like to ask a few questions about the household {vehicle/vehicles} {for which you are the primary driver.}

L7. Please verify that you have a . . .
 (L_MAKE, L_MODL, L_VYEAR)

| KEY | MAKE | MODEL | YEAR | TYP |
|-------|-------|-------|-------|-------|
| _____ | _____ | _____ | _____ | _____ |

L8. How long have you had the {VEHYEAR, MAKECODE, MODLCODE}?
(VEHOWNED, OWNUNIT)

NUMBER.....|_|_|
 UNIT.....|_|_|

- DAYS 1
- WEEKS 2
- MONTHS..... 3
- YEARS 4

- REFUSED -7
- DON'T KNOW -8

L9. During the past 12 months, about how many miles was the {VEHYEAR, MAKECODE, MODLCODE} driven by all drivers?

(VEHMILES)

MILES |_|_|_|_|,|_|_|_|_|

- REFUSED..... -7
- DON'T KNOW..... -8

L9A. I recorded that this vehicle was driven a total of about {VEHMILES} miles by **all** drivers during the past year. Is that correct?

(VERMILES)

- YES 1 GO TO L11
- NO 2
- REFUSED -7
- DON'T KNOW -8

L9B. Would you say it was...
(VEHMILE2)

- 5,000 miles or less, 1
- 5,001 to 10,000 miles,..... 2
- 10,001 to 15,000 miles,..... 3
- 15,001 to 20,000 miles, or 4
- More than 20,000 miles? 5
- REFUSED -7
- DON'T KNOW -8

L10. About how many miles has this vehicle been driven since you've had it?
(ESTMILES)

- MILES..... |__|__|__|,|__|__|__|
- REFUSED -7
- DON'T KNOW -8

L10A. I recorded that this vehicle was driven a total of about {ESTMILES} miles by **all** drivers since you've had it. Is that correct?

(VERESTML)

- YES 1 GO TO L11
- NO 2
- REFUSED -7
- DON'T KNOW -8

L10B. Would you say it was...
(ESTMILE2)

- 5,000 miles or less, 1
- 5,001 to 10,000 miles,..... 2
- 10,001 to 15,000 miles,..... 3
- 15,001 to 20,000 miles, or 4
- More than 20,000 miles? 5
- REFUSED -7
- DON'T KNOW -8

L11. In the past month, about how often {have you/has SUBJECT} used public transportation such as buses, subways, streetcars, or commuter trains?
(PTUSED)

[DO NOT INCLUDE TAXIS.]

[ENTER 999 IF NOT AVAILABLE.]
 [IF R ANSWERS NONE OR ZERO, PROBE "Is it available to you?"]

NUMBER |__|__|__|

NOT AVAILABLE 999 GO TO BOX BEFORE La
 REFUSED -7
 DON'T KNOW -8

EVA5. Thinking about travel on public transit in your area, please tell me if you agree or disagree with the following statements.
(EVA5a-EVA5f)

| | | AGREE | DISAGREE | REF | DK |
|----|--|-------|----------|-----|----|
| a. | Local public transit provides a good travel experience | 1 | 2 | -7 | -8 |
| b. | Local public transit service is reliable | 1 | 2 | -7 | -8 |
| c. | Local public transit service is safe from crime | 1 | 2 | -7 | -8 |
| d. | Local public transit service is easy to use | 1 | 2 | -7 | -8 |
| e. | The cost of local public transit is reasonable | 1 | 2 | -7 | -8 |
| f. | Local public transit service is fast enough for my needs | 1 | 2 | -7 | -8 |

La. In the past month, about how many times {have you/has SUBJECT} driven a motorcycle or moped on public roadways?
(MCUSED)

[ENTER 999 IF NOT AVAILABLE.]

NUMBER |__|__|__|

NOT AVAILABLE 999
 REFUSED -7
 DON'T KNOW -8

SECTION M: INTERNET USAGE AND DEMOGRAPHIC INFORMATION

M2. In the past month, how often {have you/has SUBJECT} used the Internet? Would you say...
(WEBUSE)

- almost everyday, 1
- several times a week,..... 2
- once a week, 3
- once a month, or 4
- never? 5 GO TO M4
- REFUSED -7 GO TO M4
- DON'T KNOW -8 GO TO M4

Ma. In the past month, how many times did {you/SUBJECT} purchase something through the Internet?
(PURCHASE)

- NUMBER OF TIMES |__|__|__|
- REFUSED -7
 - DON'T KNOW -8

Mb. How many of these purchases were delivered to your home?
(DELIVER)

- NUMBER OF DELIVERIES TO HOME |__|__|__|
- REFUSED -7
 - DON'T KNOW -8

M4. Now I'd like to ask a few background questions about {yourself/SUBJECT}.

{Do you/Does SUBJECT} have a temporary or permanent condition or handicap that makes it difficult to travel outside of the home?

(MEDCOND)

- YES 1
- NO 2 GO TO M8
- REFUSED -7 GO TO M8
- DON'T KNOW -8 GO TO M8

M5. How long {have you/has SUBJECT} had this condition?
(MEDCOND6)

- 0 - 5 MONTHS 1
- 6 - 11 MONTHS..... 2
- 1 - 4 YEARS 3
- 5 - 9 YEARS 4
- 10 YEARS OR MORE 5
- ALL HIS/HER LIFE..... 6
- REFUSED -7
- DON'T KNOW -8

MCA7. {Do you/Does SUBJECT} use anything to help {you/him/her} walk or get around, such as a cane, seeing-eye dog, or wheelchair?
(WALKHELP)

YES 1
 NO 2 GO TO M6
 REFUSED -7 GO TO M6
 DON'T KNOW -8 GO TO M6

MCA8. {Do you/Does SUBJECT} use a...

| | YES | NO | DK | REF |
|---|-----|----|----|-----|
| a. Cane? (W_CANE) | 1 | 2 | -7 | -8 |
| b. Walker? (W_WLKR) | 1 | 2 | -7 | -8 |
| c. White cane? (W_WHCANE) | 1 | 2 | -7 | -8 |
| d. Seeing-eye dog or other K-9 assistance? (W_DOG) | 1 | 2 | -7 | -8 |
| e. Crutches (W_CRUTCH) | 1 | 2 | -7 | -8 |
| f. Motorized Scooter? (W_SCOOTR) | 1 | 2 | -7 | -8 |
| g. Manual Wheelchair? (W_CHAIR) | 1 | 2 | -7 | -8 |
| h. Motorized Wheelchair? (W_MTRCHR) | 1 | 2 | -7 | -8 |
| i. Anything else? _____ (MCA8_OS) (MCA8_0TH) | 1 | 2 | -7 | -8 |

M6. Because of this condition, {have you/has SUBJECT}...

| | YES | NO | RF | DK |
|--|-----|----|----|----|
| (CONDTRAV) a) reduced {your/his/her} day-to-day travel? ... | 1 | 2 | -7 | -8 |
| (CONDRIDE) b) asked others for rides?..... | 1 | 2 | -7 | -8 |
| (CONDNIGH) c) limited driving to daytime?..... | 1 | 2 | -7 | -8 |
| (CONDRIVE) d) given up driving altogether? | 1 | 2 | -7 | -8 |
| (CONDPUB) e) used the bus or subway less frequently? | 1 | 2 | -7 | -8 |
| (CONDSPEC) f) used special transportation services such as dial-a-ride?..... | 1 | 2 | -7 | -8 |
| (COND TAX) g) used a reduced fare taxi | 1 | 2 | -7 | -8 |

M8. {Were you/Was SUBJECT} born in the United States?

(BORNINUS)

[IF NEEDED: Sometimes people who have immigrated to the United States have unique travel difficulties and we want to understand this.]

YES 1 GO TO BOX BEFORE M11
 NO 2
 REFUSED -7
 DON'T KNOW -8

M10. In what year did {you/SUBJECT} come to the United States?
(WHENTOUS)

[IF NEEDED: Sometimes people who have immigrated to the United States have unique travel difficulties and we want to understand this.]

YEAR.....|_|_|_|_|

REFUSED -7

DON'T KNOW -8

M11. Transportation planners use data from this survey to assess current travel patterns and anticipate new ones. These patterns are affected by where people choose to live. Would you please tell me the address of your home?
(HMSTNAME, HMAPTNUM, HMCITY, HMSTATE, HMZIP)

[IF NEEDED: It is important that we get at least a general location of your household. Would you please identify the intersection of roads which is closest to your home?]

| | | |
|------------------|-------|----------|
| _____ | | _____ |
| STREET ADDRESS | | APT# |
| _____ | | _____ |
| CITY/TOWN | STATE | ZIP CODE |
| REFUSED | -7 | |
| DON'T KNOW | -8 | |

M12. What is the name of the street or road that {you live/SUBJECT lives} on?
(HMROAD1)

FIRST ROAD: _____

What is the name of the nearest intersecting street or road?
(HMROAD2)

SECOND ROAD: _____

REFUSED -7

DON'T KNOW -8

M13. In surveys like these, households are sometimes grouped according to income. Please stop me when I get to the category that best describes your total household income, before taxes, in the past 12 months.
(HHFAMINC)

[IF NEEDED: We want to include income from sources such as wages and salaries, income from a business or a farm, Social Security, pensions, dividends, interest, rent, and any other income received.]

| | | |
|---------------------------------|----|----------------------|
| Less than \$10,000,..... | 1 | GO TO M14 |
| \$10,000 to \$20,000, | 2 | GO TO M15 |
| \$20,000 to \$30,000, | 3 | GO TO M16 |
| \$30,000 to \$40,000, | 4 | GO TO M17 |
| \$40,000 to \$50,000, | 5 | GO TO M18 |
| \$50,000 to \$60,000, | 6 | GO TO M19 |
| \$60,000 to \$70,000, | 7 | GO TO M20 |
| \$70,000 to \$80,000, | 8 | GO TO M21 |
| \$80,000 to \$100,000, or | 9 | GO TO BOX BEFORE M22 |
| \$100,000 or more? | 10 | GO TO BOX BEFORE M22 |
| REFUSED | -7 | GO TO BOX BEFORE N1 |
| DON'T KNOW | -8 | GO TO BOX BEFORE N1 |

M14. Was your household income more or less than \$5,000?
(HHINC)

| | | |
|-------------------------|----|----------------------|
| \$5,000 OR MORE | 1 | GO TO BOX BEFORE M22 |
| LESS THAN \$5,000 | 2 | GO TO BOX BEFORE M22 |
| REFUSED | -7 | GO TO BOX BEFORE N1 |
| DON'T KNOW | -8 | GO TO BOX BEFORE N1 |

M15. Was your household income more or less than \$15,000?
(HHINC)

| | | |
|--------------------------|----|----------------------|
| \$15,000 OR MORE | 1 | GO TO BOX BEFORE M22 |
| LESS THAN \$15,000 | 2 | GO TO BOX BEFORE M22 |
| REFUSED | -7 | GO TO BOX BEFORE N1 |
| DON'T KNOW | -8 | GO TO BOX BEFORE N1 |

M16. Was your household income more or less than \$25,000?
(HHINC)

| | | |
|--------------------------|----|----------------------|
| \$25,000 OR MORE | 1 | GO TO BOX BEFORE M22 |
| LESS THAN \$25,000 | 2 | GO TO BOX BEFORE M22 |
| REFUSED | -7 | GO TO BOX BEFORE N1 |
| DON'T KNOW | -8 | GO TO BOX BEFORE N1 |

M17. Was your household income more or less than \$35,000?

(HHINC)

| | | |
|--------------------------|----|----------------------|
| \$35,000 OR MORE | 1 | GO TO BOX BEFORE M22 |
| LESS THAN \$35,000 | 2 | GO TO BOX BEFORE M22 |
| REFUSED | -7 | GO TO BOX BEFORE N1 |
| DON'T KNOW | -8 | GO TO BOX BEFORE N1 |

M18. Was your household income more or less than \$45,000?

(HHINC)

| | | |
|--------------------------|----|----------------------|
| \$45,000 OR MORE | 1 | GO TO BOX BEFORE M22 |
| LESS THAN \$45,000 | 2 | GO TO BOX BEFORE M22 |
| REFUSED | -7 | GO TO BOX BEFORE N1 |
| DON'T KNOW | -8 | GO TO BOX BEFORE N1 |

M19. Was your household income more or less than \$55,000?

(HHINC)

| | | |
|--------------------------|----|----------------------|
| \$55,000 OR MORE | 1 | GO TO BOX BEFORE M22 |
| LESS THAN \$55,000 | 2 | GO TO BOX BEFORE M22 |
| REFUSED | -7 | GO TO BOX BEFORE N1 |
| DON'T KNOW | -8 | GO TO BOX BEFORE N1 |

M20. Was your household income more or less than \$65,000?

(HHINC)

| | | |
|--------------------------|----|----------------------|
| \$65,000 OR MORE | 1 | GO TO BOX BEFORE M22 |
| LESS THAN \$65,000 | 2 | GO TO BOX BEFORE M22 |
| REFUSED | -7 | GO TO BOX BEFORE N1 |
| DON'T KNOW | -8 | GO TO BOX BEFORE N1 |

M21. Was your household income more or less than \$75,000?

(HHINC)

| | | |
|--------------------------|----|---------------------|
| \$75,000 OR MORE | 1 | |
| LESS THAN \$75,000 | 2 | |
| REFUSED | -7 | GO TO BOX BEFORE N1 |
| DON'T KNOW | -8 | GO TO BOX BEFORE N1 |

M22. Does this include income of **all** household members?

(NONFMFLG)

| | |
|------------------|----|
| YES | 1 |
| NO | 2 |
| REFUSED | -7 |
| DON'T KNOW | -8 |

SECTION N: COLLECTION OF ODOMETER READINGS

N1. In the packet we sent to {you/your household}, there was a form to record the odometer reading(s) for your vehicle(s).

{Is the reading/Are any of the readings} available now?
(READINGS)

- YES 1
- NO 2
- REFUSED -7
- DON'T KNOW -8

N2. (VEHOD) **[RECORD THE ODOMETER MILEAGE FOR VEHICLES.]**

| <u>MAKE</u> | <u>MODEL</u> | <u>YEAR</u> | <u>ODOMETER READING (OD_READ)</u> | <u>DATE/READING MON/DAY/YEAR (OD_MONTH/OD_YEAR/OD_DAY)</u> |
|-------------|--------------|-------------|---|--|
|-------------|--------------|-------------|---|--|

N3. (ODVERF) **[RECORD THE ODOMETER MILEAGE FOR VEHICLES.]**

| <u>MAKE</u> | <u>MODEL</u> | <u>YEAR</u> | <u>ODOMETER READING (OD_READ)</u> | <u>DATE/READING MON/DAY/YEAR (OD_MONTH/OD_YEAR/OD_DAY)</u> |
|-------------|--------------|-------------|---|--|
|-------------|--------------|-------------|---|--|

Is that all of the readings?

- 1. YES
- 2. NO **RETURN TO MATRIX**

CLOSE1

Thank you very much for your cooperation. Your assistance has been very helpful.

Appendix D. National Household Travel Survey Travel Diary

2008 NATIONAL HOUSEHOLD TRAVEL SURVEY
TRAVEL DIARY

Respondent Label with Name
 Travel day and date

At the beginning of my travel day (4:00 a.m.) I was:

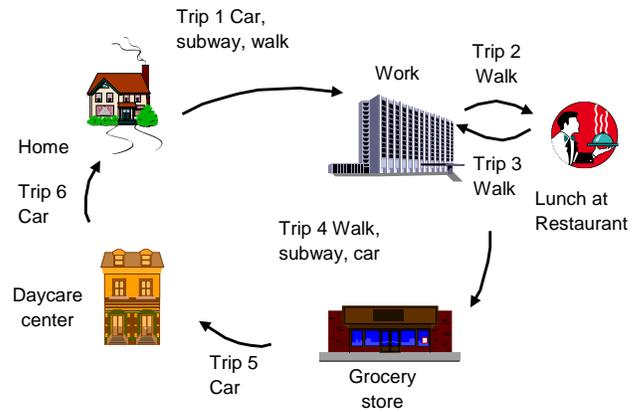
Home Some other place

| WHERE did you go? (Name of place) | What TIME did you start and end each trip? | | WHY did you go there? | HOW did you travel? | How FAR was it? (blocks or miles) |
|-----------------------------------|--|------------------|-----------------------|------------------------|-----------------------------------|
| | Started at: | Arrived at: | | | |
| <i>EXAMPLE: West Park</i> | <i>2:00 p.m.</i> | <i>2:55 p.m.</i> | <i>To see a movie</i> | <i>walk, bus, walk</i> | <i>6 miles</i> |
| 1. | | | | | |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |
| 5. | | | | | |
| 6. | | | | | |
| 7. | | | | | |
| 8. | | | | | |
| 9. | | | | | |
| 10. | | | | | |

Instructions for completing your Travel Diary

- Use this diary on your **assigned travel day**, shown on the front.
- The travel day starts at 4:00 a.m. and ends at 4:00 a.m. the next day.
- A **trip** is whenever you travel **from one address to another**. Use one line to record each trip. **Include:**
 - All trips you made for a specific reason, such as to go to work or school, buy gas, or drop someone off.
 - Return trips, such as coming home from work or school.
 - Walks, jogs, bike rides, and short drives. If you started and ended in the same place, list the farthest point you reached and record a return trip.
 - **Do not** include stops just to change the type of transportation.
 - Record all of your child’s trips on the child’s diary, including trips that were not taken with an adult member of your household, such as riding the school bus.
- If you made more than ten trips as part of your job (examples: a cab driver, delivery person, police officer):
 - **Don’t** record the trips that were made as part of your job.
 - **Do** record the trips that got you to and from your work place.
 - **Do** record all other trips that **were not** part of your job.
- If you made more trips than will fit on the diary, record the rest on a blank sheet of paper.

Example of Trips on a Travel Day



Filled Out Example of Travel Diary matching pictorial example, with car and bus and walk to work, walk to lunch and back, walk and bus and car to grocery store, car to day care to pick up someone, and car to home.

Appendix E. Data Dictionary for Household Table

HHCODEVARS.XLS

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|--|---------|----------|---|--|----------------------|
| HOUSEHOLD FILE | | | | | |
| AZ1 | NUM 8 | SE1. | Number of months S lives in AZ | 0-12 99 Just Moved to State -7 REFUSED -8 DON'T KNOW | |
| AZ2_YR | NUM 8 | SE2. | How long ago did you move here - Years | 0-99 -7 REFUSED -8 DON'T KNOW | |
| AZ2_MO | NUM 8 | | How long ago did you move here - Months | 5-12 -7 REFUSED -8 DON'T KNOW | |
| If SE2 < 5 yrs go to SE3A. Else skip to SE4A. | | | | | |
| AZ3A | CHAR 2 | SE3A. | What is the most important reason you chose your current home location. | 01 Cost/Price of Home 02 Quality of Home 03 Home or Lot Size 04 School System 05 Neighborhood Quality 06 Convenient to Work 07 Convenient to School 08 Convenient to Retail 09 Close to Friends & Family 10 Close to Public Transportation 11 Closet to Scenic Locations 97 OTHER SPECIFY -7 -8 | |
| AZ3A O | CHAR 35 | | OTHER SPECIFY | | Enter Text |
| SE3B. What is the most important reason you chose your current home location. Allow up to 3 responses. | | | | | |
| AZ3B1 | CHAR 2 | SE3B. | Cost/Price of Home | 01 YES | |
| AZ3B2 | | | Quality of Home | 02 NO | |
| AZ3B3 | | | Home or Lot Size | -7 REFUSED | |
| AZ3B4 | | | School System | -8 DON'T KNOW | |
| AZ3B5 | | | Neighborhood Quality | | |
| AZ3B6 | | | Convenient to Work | | |
| AZ3B7 | | | Convenient to School | | |
| AZ3B8 | | | Convenient to Retail | | |
| AZ3B9 | | | Close to Friends & Family | | |
| AZ3B10 | | | Close to Public Transportation | | |
| AZ3B11 | | | Closet to Scenic Locations | | |
| AZ3B12 | | | No Other Reason | | |
| AZ3B97 | | | OTHER SPECIFY | | |
| AZ3BAR1 | | | First Reason Reported | | |
| AZ3BAR2 | | | Second Reason Reported | | |
| AZ3BAR3 | | | Third Reason Reported | | |
| AZ3B O | CHAR 35 | | OTHER SPECIFY | | Enter Text |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---|---------|----------|--|--|----------------------|
| AZ4A | CHAR 2 | SE4A. | What is the most important reason you have stayed in your current home location. | 01 Cost/Price of Home 02 Quality of Home 03 Home or Lot Size 04 School System 05 Neighborhood Quality 06 Convenient to Work 07 Convenient to School 08 Convenient to Retail 09 Close to Friends & Family 10 Close to Public Transportation 11 Closet to Scenic Locations 12 Have Roots in Community 13 Moving is Too Difficult 14 Moving is Too Expensive 97 OTHER SPECIFY -7 -8 | |
| AZ4A O | CHAR 35 | | OTHER SPECIFY | | Enter Text |
| SE4B. Were there any other important reasons? | | | | | |
| AZ4B1 | CHAR 2 | SE4B. | Cost/Price of Home | 01 YES | |
| AZ4B2 | | | Quality of Home | 02 NO | |
| AZ4B3 | | | Home or Lot Size | -7 REFUSED | |
| AZ4B4 | | | School System | -8 DON'T KNOW | |
| AZ4B5 | | | Neighborhood Quality | | |
| AZ4B6 | | | Convenient to Work | | |
| AZ4B7 | | | Convenient to School | | |
| AZ4B8 | | | Convenient to Retail | | |
| AZ4B9 | | | Close to Friends & Family | | |
| AZ4B10 | | | Close to Public Transportation | | |
| AZ4B11 | | | Closet to Scenic Locations | | |
| AZ4B12 | | | Have Roots in Community | | |
| AZ4B13 | | | Moving is Too Difficult | | |
| AZ4B14 | | | Moving is Too Expensive | | |
| AZ4B15 | | | No Other Reason | | |
| AZ4B97 | | | OTHER SPECIFY | | |
| Z4BAR1 | | | First Reason Reported | | |
| AZ4BAR2 | | | Second Reason Reported | | ARRAY VARIABLES |
| AZ4BAR3 | | | Third Reason Reported | | |
| CBSACAT | CHAR 2 | | CBSA category for the HH home address | -9 Not Ascertained 01 I million or more with heavy rail 02 I million or more without heavy rail 03 Less than I million 04 Not in a CBSA | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|---------------|----------|--|--------|---|
| CBSASIZE | CHAR 2 | SE4B. | CBSA population size for the HH home address | -9 | Not Ascertained |
| | | | | 01 | Less than 250,000 |
| | | | | 02 | Less than 250,000 |
| | | | | 03 | 250,000 to 499,999 |
| | | | | 04 | 500,000 to 999,999 |
| | | | | 05 | 1,000,000 to 2,999,999 |
| | | | | 06 | 3 million or more |
| 07 | Not in a CBSA | | | | |
| CDIVMSAR | CHAR 2 | | Grouping of HH by combination of CENSUS_D and MSACAT | | |
| CEN-SUS_D | CHAR 2 | | Census Division | 01 | New England (ME, NH, VT, CT, MA, RI) |
| | | | | 02 | Mid-Atlantic (NY, NJ, PA) |
| | | | | 03 | East North Central (IL, IN, MI, OH, WI) |
| | | | | 04 | West North Central (IA, KS, MO, MN, ND, NE, SD) |
| | | | | 05 | South Atlantic (DE, FL, GA, MD, NC, SC, WV, VA) |
| | | | | 06 | East South Central (AL, KY, MS, TN) |
| | | | | 07 | West South Central (AR, LA, OK, TX) |
| | | | | 08 | Mountain (AZ, CO, ID, MT, NM, NV, UT, WY) |
| | | | | 09 | Pacific (AK, CA, HI, OR, WA) |
| | | | | 00 | Puerto Rico |
| CENSUS_R | CHAR 2 | | Census Region | 01 | Northeast |
| | | | | 02 | Midwest |
| | | | | 03 | South |
| | | | | 04 | West |
| | | | | 00 | Puerto Rico |
| CNTYNYOS | | | County NY Other Specify | -1 | Appropriate Skip |
| COUNTY | CHAR 2 | | County NY Other Specify | -8 | Don't know |
| | | | | | NY County |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | 01 | Albany |
| | | | | 02 | Allegany |
| | | | | 03 | Bronx |
| | | | | 04 | Brooklyn |
| | | | | 05 | Broome |
| | | | | 06 | Cattaraugus |
| | | | | 07 | Cayuga |
| | | | | 08 | Chautauqua |
| 09 | Chemung | | | | |
| 10 | Chenango | | | | |
| 11 | Clinton | | | | |
| 12 | Columbia | | | | |
| 13 | Cortland | | | | |
| 14 | Delaware | | | | |
| 15 | Dutchess | | | | |
| 16 | Erie | | | | |
| 17 | Essex | | | | |
| 18 | Franklin | | | | |
| 19 | Fulton | | | | |
| 20 | Genesee | | | | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|---------------|----------|---|--------|----------------------|
| COUNTY | CHAR 2 | SE4B. | County NY Other Specify (continued) | 21 | Greene |
| | | | | 22 | Hamilton |
| | | | | 23 | Herkimer |
| | | | | 24 | Jefferson |
| | | | | 25 | Kings |
| | | | | 26 | Lewis |
| | | | | 27 | Livingston |
| | | | | 28 | Madison |
| | | | | 29 | Manhattan |
| | | | | 30 | Monroe |
| | | | | 31 | Montgomery |
| | | | | 32 | Nassau |
| | | | | 33 | New York |
| | | | | 34 | Niagara |
| | | | | 35 | Oneida |
| | | | | 36 | Onondaga |
| | | | | 37 | Ontario |
| | | | | 38 | Orange |
| | | | | 39 | Orleans |
| | | | | 40 | Otsego |
| 41 | Oswego | | | | |
| 42 | Putnam | | | | |
| 43 | Queens | | | | |
| 44 | Rensselaer | | | | |
| 45 | Richmond | | | | |
| 46 | Rockland | | | | |
| 47 | Saratoga | | | | |
| 48 | Schenectady | | | | |
| 49 | Schoharie | | | | |
| 50 | Schuyler | | | | |
| 51 | Seneca | | | | |
| 52 | St. Lawrence | | | | |
| 53 | Staten Island | | | | |
| 54 | Steuben | | | | |
| 55 | Suffolk | | | | |
| 56 | Sullivan | | | | |
| 57 | Tioga | | | | |
| 58 | Tompkins | | | | |
| 59 | Ulster | | | | |
| 60 | Warren | | | | |
| 61 | Washington | | | | |
| 62 | Wayne | | | | |
| 63 | Westchester | | | | |
| 64 | Wyoming | | | | |
| 65 | Yates | | | | |
| 97 | Other | | | | |
| DRVRCNT | NUM 8 | | Number of drivers in HH | 0-8 | |
| FLI | NUM 8 | | Number of months S lives in FL | 0-12 | |
| | | | | 99 | Just Moved to State |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| FL2_YR | NUM 8 | SE2. | How long ago did you move to your current home? | 0-99 | |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| FL2_MO | NUM 8 | | | 5-12 | |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | If SE2 < 5 yrs go to SE3A, Else skip to SE4A. | | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|--|---------|----------|--|---------------|--------------------------------|
| FL3A | CHAR 2 | SE3A. | What is the most important reason you chose your current home location. | 01 | Cost/Price of Home |
| | | | | 01 | Cost/Price of Home |
| | | | | 02 | Quality of Home |
| | | | | 03 | Home or Lot Size |
| | | | | 04 | School System |
| | | | | 05 | Neighborhood Quality |
| | | | | 06 | Convenient to Work |
| | | | | 07 | Convenient to School |
| | | | | 08 | Convenient to Retail |
| | | | | 09 | Close to Friends & Family |
| | | | | 10 | Close to Public Transportation |
| | | | | 11 | Closet to Scenic Locations |
| | | | 97 | OTHER SPECIFY | |
| | | | -7 | | |
| | | | -8 | | |
| FL3A_O | CHAR 35 | | OTHER SPECIFY | | Enter Text |
| SE3B. What is the most important reason you chose your current home location. Allow up to 3 responses. | | | | | |
| FL3B1 | CHAR 2 | SE3B. | Cost/Price of Home | 01 | YES |
| FL3B2 | | | Quality of Home | 02 | NO |
| FL3B3 | | | Home or Lot Size | -7 | REFUSED |
| FL3B4 | | | School System | -8 | DON'T KNOW |
| FL3B5 | | | Neighborhood Quality | | |
| FL3B6 | | | Convenient to Work | | |
| FL3B7 | | | Convenient to School | | |
| FL3B8 | | | Convenient to Retail | | |
| FL3B9 | | | Close to Friends & Family | | |
| FL3B10 | | | Close to Public Transportation | | |
| FL3B11 | | | Closet to Scenic Locations | | |
| FL3B12 | | | No Other Reason | | |
| FL3B97 | | | OTHER SPECIFY | | |
| FL3BAR1 | | | First Response | | |
| FL3BAR2 | | | Second Response | | |
| FL3BAR3 | | | Third Response | | |
| FL3B_O | CHAR 35 | | OTHER SPECIFY | | Enter Text |
| FL4A | CHAR 2 | SE4A. | What is the most important reason you have stayed in your current home location. | 01 | Cost/Price of Home |
| | | | | 02 | Quality of Home |
| | | | | 03 | Home or Lot Size |
| | | | | 04 | School System |
| | | | | 05 | Neighborhood Quality |
| | | | | 06 | Convenient to Work |
| | | | | 07 | Convenient to School |
| | | | | 08 | Convenient to Retail |
| | | | | 09 | Close to Friends & Family |
| | | | | 10 | Close to Public Transportation |
| | | | | 11 | Closet to Scenic Locations |
| | | | | 12 | Have Roots in Community |
| | | | | 13 | Moving is Too Difficult |
| | | | | 14 | Moving is Too Expensive |
| | | | | 97 | OTHER SPECIFY |
| | | | -7 | | |
| | | | -8 | | |
| FL4A_O | CHAR 35 | | OTHER SPECIFY | | Enter Text |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---|--------|----------|--------------------------------------|--------|---|
| SE4B. Were there any other important reasons? | | | | | |
| FL4B1 | CHAR 2 | SE4B. | Cost/Price of Home | 01 | YES |
| FL4B2 | | | Quality of Home | 02 | NO |
| FL4B3 | | | Home or Lot Size | -7 | REFUSED |
| FL4B4 | | | School System | -8 | DON'T KNOW |
| FL4B5 | | | Neighborhood Quality | | |
| FL4B6 | | | Convenient to Work | | |
| FL4B7 | | | Convenient to School | | |
| FL4B8 | | | Convenient to Retail | | |
| FL4B9 | | | Close to Friends & Family | | |
| FL4B10 | | | Close to Public Transportation | | |
| FL4B11 | | | Closet to Scenic Locations | | |
| FL4B12 | | | Have Roots in Community | | |
| FL4B13 | | | Moving is Too Difficult | | |
| FL4B14 | | | Moving is Too Expensive | | |
| FL4B15 | | | No Other Reason | | |
| FL4B97 | | | OTHER SPECIFY | | |
| FL4BAR1 | | | First Response | | |
| FL4BAR2 | | | Second Response | | |
| FL4BAR3 | | | Third Response | | |
| HBHRESDN | CHAR 2 | | HU density (units/square mile), BG | | |
| HBHTNRNT | CHAR 2 | | Percent renter occupied, block group | | |
| HBHUR | CHAR 2 | | Urban/rural code, block group | | |
| HBPPOPDN | CHAR 2 | | Population density, block group | | |
| HHBG | CHAR 2 | | HH block group | | |
| HHCITYFP | CHAR 5 | | City FIPS for home address | | |
| HHCNTYFP | CHAR 3 | | County FIPS for home address | | |
| HHCT | CHAR 2 | | HH Census Tract | | |
| HHC_MSA | CHAR 4 | | CMSA FIPS code for HH address | -1 | Appropriate Skip |
| | | | | -9 | Not Ascertained |
| | | | | 1122 | Boston--Worcester--Lawrence, MA--NH--ME--CT |
| | | | | 1602 | Chicago--Gary--Kenosha, IL--IN--WI |
| | | | | 1642 | Cincinnati--Hamilton, OH--KY--IN |
| | | | | 1692 | Cleveland--Akron, OH |
| | | | | 1922 | Dallas--Fort Worth, TX |
| | | | | 2082 | Denver--Boulder--Greeley, CO |
| | | | | 2162 | Detroit--Ann Arbor--Flint, MI |
| | | | | 3362 | Houston--Galveston--Brazoria, TX |
| | | | | 4472 | Los Angeles--Riverside--Orange County, CA |
| | | | | 4992 | Miami--Fort Lauderdale, FL |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|---------------------|----------|---|----------|--|
| HHC_MSA | CHAR 4 | SE4B. | CMSA FIPS code for HH address (continued) | 5082 | Milwaukee--Racine, WI |
| | | | | 5602 | New York--Northern New Jersey--Long Island, NY--NJ--CT--PA |
| | | | | 6442 | Portland--Salem, OR--WA |
| | | | | 6922 | Sacramento--Yolo, CA |
| | | | | 7362 | San Francisco--Oakland--San Jose, CA |
| | | | | 7602 | Seattle--Tacoma--Bremerton, WA |
| | | | | 8872 | Washington--Baltimore, DC--MD--VA--WV |
| | | | | HHFAMINC | CHAR 2 |
| -8 | -8=Don't Know | | | | |
| -9 | -9=Not Ascertained | | | | |
| 01 | < \$5,000 | | | | |
| 02 | \$5,000 - \$9,999 | | | | |
| 03 | \$10,000 - \$14,999 | | | | |
| 04 | \$15,000 - \$19,999 | | | | |
| 05 | \$20,000 - \$24,999 | | | | |
| 06 | \$25,000 - \$29,999 | | | | |
| 07 | \$30,000 - \$34,999 | | | | |
| 08 | \$35,000 - \$39,999 | | | | |
| 09 | \$40,000 - \$44,999 | | | | |
| 10 | \$45,000 - \$49,999 | | | | |
| 11 | \$50,000 - \$54,999 | | | | |
| 12 | \$55,000 - \$59,999 | | | | |
| 13 | \$60,000 - \$64,999 | | | | |
| 14 | \$65,000 - \$69,999 | | | | |
| 15 | \$70,000 - \$74,999 | | | | |
| 16 | \$75,000 - \$79,999 | | | | |
| 17 | \$80,000 - \$99,999 | | | | |
| 18 | \$100,000 or More | | | | |
| HHRESP | CHAR 2 | | Household respondent | | PERSONID of HH Respondent |
| HHSIZE | NUM 8 | | Count of HH members | 1-13 | |
| HHSTATE | CHAR 2 | D4 | State HH location | AK | |
| | | | | AL | |
| | | | | AR | |
| | | | | AZ | |
| | | | | CA | |
| | | | | CO | |
| | | | | CT | |
| | | | | DC | |
| | | | | DE | |
| | | | | FL | |
| | | | | GA | |
| | | | | HI | |
| | | | | IA | |
| | | | | ID | |
| | | | | IL | |
| | | | | IN | |
| | | | | KS | |
| | | | | KY | |
| | | | | LA | |
| | | | | MA | |
| | | | | MD | |
| | | | | ME | |
| | | | | MI | |
| | | | | MN | |
| | | | | MO | |
| | | | | MS | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|---------|----------|--|--------|--|
| HHSTATE | CHAR 2 | D4 | State HH location (continued) | MT | |
| | | | | NC | |
| | | | | ND | |
| | | | | NE | |
| | | | | NH | |
| | | | | NJ | |
| | | | | NM | |
| | | | | NV | |
| | | | | NY | |
| | | | | OH | |
| | | | | OK | |
| | | | | OR | |
| | | | | PA | |
| | | | | RI | |
| | | | | SC | |
| | | | | SD | |
| | | | | TN | |
| | | | | TX | |
| UT | | | | | |
| VA | | | | | |
| VT | | | | | |
| WA | | | | | |
| WI | | | | | |
| WV | | | | | |
| WY | | | | | |
| HHSTFIPS | CHAR 2 | | State FIPS for HH address | -9 | Not Ascertained |
| HHVEHCNT | NUM 8 | B1. | Count of household vehicles | 0-99 | |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| HH_HISP | CHAR 2 | C6. | Are you of Hispanic, Latino, or Spanish origin? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| HH_RACE | CHAR 2 | C7. | Please tell me which best describes your race. Are you...] | 01 | White |
| | | | | 02 | African American, Black |
| | | | | 03 | Asian |
| | | | | 04 | American Indian, Alaskan Native |
| | | | | 05 | Native Hawaiian, or other Pacific Islander |
| | | | | 06 | MULTIRACIAL |
| | | | | 07 | HISPANIC/MEXICAN |
| | | | | 97 | OTHER SPECIFY? |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| HH_RACOS | CHAR 30 | | OTHER SPECIFY | | Enter Text |
| HOMEOWN | CHAR 2 | C2. | Is your home owned or rented? | 01 | OWNED |
| | | | | 02 | RENTED |
| | | | | 03 | Occupied without payment of rent |
| | | | | 97 | OTHER SPECIFY? |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| HOMEOWOS | CHAR 30 | | OTHER SPECIFY | | Enter Text |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|---------|----------|--|-----------|---|
| HOMETYPE | CHAR 2 | CI. | Do you live in a... | 01 | Single Family Detached house |
| | | | | 02 | Single Family Attached, |
| | | | | 03 | A building with 2 or more apartments or condos |
| | | | | 04 | Mobile Home or Trailer |
| | | | | 05 | Boat, RV, Van, etc |
| | | | | 06 | Dorm Room, Fraternity or Sorority House |
| | | | | 97 | OTHER SPECIFY? |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| HOMETYOS | CHAR 30 | | OTHER SPECIFY | | Enter Text |
| HOUSEID | CHAR 9 | | Assigned Unique House Ids | | |
| HTEEMPDN | CHAR 2 | | Jobs per square mile, census tract | | |
| HTHRESDN | CHAR 2 | | HU density (units/square mile), census tract | | |
| HTHTNRNT | CHAR 2 | | Percent renter occupied, census tract | | |
| HTHUR | CHAR 2 | | Urban/rural code, census tract | | |
| HTPPOPDN | CHAR 2 | | Population densities, census tract | | |
| LANG | CHAR 2 | | Language interview was conducted in | 01 | English |
| | | | | 02 | Spanish |
| LIF_CYC | CHAR 2 | | Life Cycle for the HH | (derived) | |
| MSACAT | CHAR 2 | | MSA category for the HH home address | -9 | Not Ascertained |
| | | | | 01 | MSA or CMSA of 1 million or more with heavy rail |
| | | | | 02 | MSA or CMSA of 1 million or more without heavy rail |
| | | | | 03 | MSA of less than 1 million |
| | | | | 04 | Not in a MSA |
| MSASIZE | CHAR 2 | | MSA population size for the HH home address | 01 | MSA of less than 250,000 |
| | | | | 02 | MSA of 250,000 to 499,999 |
| | | | | 03 | MSA of 500,000 to 999,999 |
| | | | | 04 | MSA or CMSA of 1,000,000 to 2,999,999 |
| | | | | 05 | MSA or CMSA of 3 million or more |
| | | | | 06 | Not in a MSA |
| NUMADLT | NUM 8 | | Count of adult HHMs at least 18 years old | 1-10 | |
| | | | | 1 | |
| | | | | 2 | |
| RAIL | CHAR 2 | | MSA heavy rail status for HH | | |
| RESP_CNT | NUM 8 | | Count of responding persons per HH | 1-13 | 4 |
| SCRESP | CHAR 2 | | Screening respondent | -1 | Appropriate Skip |
| | | | | 01 | YES |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|----------|---------------------------------|-----------|----------------------|
| SMPLAREA | CHAR 3 | | Add-On region | AL | |
| | | | | AZ | |
| | | | | CA | |
| | | | | CR | |
| | | | | CT | |
| | | | | FL | |
| | | | | GA | |
| | | | | HI | |
| | | | | IA | |
| | | | | IN | |
| | | | | KY | |
| | | | | MD | |
| | | | | MI | |
| | | | | MO | |
| | | | | NC | |
| | | | | NE | |
| | | | | NH | |
| | | | | NV | |
| | | | | NY | |
| | | | | OK | |
| | | | | PA | |
| | | | | PH | |
| | | | | PI | |
| | | | | SC | |
| | | | | SD | |
| | | | | TN | |
| | | | | TU | |
| TX | | | | | |
| US | | | | | |
| UT | | | | | |
| VA | | | | | |
| VT | | | | | |
| WA | | | | | |
| WI | | | | | |
| SMPLSRCE | CHAR 3 | | Sampled region | CA | |
| | | | | CR | |
| | | | | FL | |
| | | | | GA | |
| | | | | IA | |
| | | | | IN | |
| | | | | NC | |
| | | | | NY | |
| | | | | OK | |
| | | | | PI | |
| | | | | SC | |
| | | | | SD | |
| | | | | TN | |
| | | | | TX | |
| US | | | | | |
| VA | | | | | |
| VT | | | | | |
| WI | | | | | |
| STRATUM | CHAR 2 | | Geographic site within SAMPREGN | 01-51 | |
| TDAYDAT2 | CHAR 8 | | Travel day - date | YYYY MMDD | 20080328-20080831 |
| URBAN | CHAR 2 | | Home address in urbanized area | | |
| URBRUR | CHAR 2 | | Household in urban/rural area | | |
| WKSTFIPS | CHAR 2 | | State FIPS for S work address | | |
| WORKCT | CHAR 2 | | Work place Census Tract | | |
| WRKCOUNT | NUM 8 | E3 | Number of workers in HH | 0-6 | |
| WTHHFIN | NUM 8 | | Final HH weight | | |
| WRKRCNT | NUM 8 | | Total Number of Workers | 1-99 | |

Appendix F. Data Dictionary for Persons Table

PPCODEVARS.XLS

| VARIABLE NAME | TYPE | QUESTION LABEL | VALUES | VARIABLE DESCRIPTION |
|--|--------|---|---|----------------------|
| PERSON FILE | | | | |
| AGE5PLUS | CHAR 2 | SC20A. Age is 5-16 yrs old | 01 YES 02 NO -1 Legitimate Skip -7 REFUSED -8 DON'T KNOW -9 Not Ascertained | |
| AGERANGE | CHAR 2 | C10. Over/Under 18 for HHMs missing age | 01 YES 02 NO -1 Legitimate Skip -7 REFUSED -8 DON'T KNOW -9 Not Ascertained | |
| ASKSECTF | CHAR 2 | Asked Section F | 01 YES 02 NO -1 Legitimate Skip -7 REFUSED -8 DON'T KNOW -9 Not Ascertained | |
| AZ5 | CHAR 2 | E5. For public transit like using a bus, the subway or a train, to be an option for {your/FNAME, AGE/SEX's} commuting, which of the following is the most important to you? Would you say that it's | 01 Close to work and home 02 Faster than driving 03 Reasonable in cost 04 Consistently on time 05 Fits your schedule -7 REFUSED -8 DON'T KNOW | |
| AZ6 | CHAR 2 | E6. For public transit like using a bus, the subway or a train, to be an option for the trips {you make/ FNAME/AGE/SEX makes} most frequently, which of the following is the most important to you? Would you say that it's | 01 Close to work and home 02 Faster than driving 03 Reasonable in cost 04 Consistently on time 05 Fits your schedule -7 REFUSED -8 DON'T KNOW | |
| LCA4. Now I'd like you to think about things that may keep you from doing more biking. Please tell me if any of the following keep {you/SUBJECT} from doing more biking? Would you say it's because... | | | | |
| BIKE_A | CHAR 2 | A. You're too busy? | 01 YES | |
| BIKE_B | | B. You have poor health? | 02 NO | |
| BIKE_C | | C. You have no one to bike with? | -7 REFUSED -8 DON'T KNOW | |
| BIKE_D | | D. Dogs? | | |
| BIKE_E | | E. There are no nearby paths or trails? | | |
| BIKE_F | | F. There are not enough bike or wide curb lanes? | | |
| BIKE_G | | G. There are no sidewalks or the sidewalks are in poor condition? | | |
| BIKE_H | | H. Street crossings are unsafe? | | |
| BIKE_I | | I. There are no shops or other interesting places to go? | | |
| BIKE_J | | J. There are not enough people around? | | |
| BIKE_K | | K. You fear street crime? | | |
| BIKE_L | | L. There are too many cars? | | |
| BIKE_M | | M. Of fast traffic? | | |

| VARIABLE NAME | TYPE | QUESTION LABEL | VALUES | VARIABLE DESCRIPTION |
|-----------------|--------|--|---|---|
| BIKE_N | CHAR 2 | N. Of air pollution? | 01 YES | |
| BIKE_O | | O. You have too many things to carry? | 02 NO -7 REFUSED | |
| BIKE_P | | P. You have small children along? | -8 DON'T KNOW | |
| BORNINUS | CHAR 2 | M8. {Were you/Was SUBJECT} born in the United States? | 01 YES 02 NO -7 REFUSED -8 DON'T KNOW | |
| C13_DRVVR | CHAR 2 | C13. Should {FNAME/AGE/SEX} have been recorded as a driver? | 01 YES 02 NO -7 REFUSED -8 DON'T KNOW | |
| For California: | | | | |
| CA1_HR | NUM 8 | LCA1. And in the past week, how much total time did {you/SUBJECT} spend walking? | 0-30 | |
| CA1_MIN | NUM 8 | | | 0-90 -7 REFUSED -8 DON'T KNOW |
| CA2_HR | NUM 8 | LCA2. And in the past week, how much total time did {you/SUBJECT} spend biking? | 0-30 | |
| CA2_MIN | NUM 8 | | | 0-90 -7 REFUSED -8 DON'T KNOW |
| CARRODE | NUM 8 | Number of People in Vehicle last week | 1-15 | |
| | | | | -1 Legitimate Skip -5 Did not work last week -7 REFUSED -8 DON'T KNOW |
| CBSACAT | CHAR 2 | CBSA category for the HH home address | -9 Not Ascertained | |
| | | | | 01 1 million or more with heavy rail 02 1 million or more without heavy rail 03 Less than 1 million 04 Not in a CBSA |
| CBSASIZE | CHAR 2 | CBSA population size for the HH home address | -9 Not Ascertained | |
| | | | | 01 Less than 250,000 02 Less than 250,000 03 250,000 to 499,999 04 500,000 to 999,999 05 1,000,000 to 2,999,999 06 3 million or more 07 Not in a CBSA |
| CDIVMSAR | CHAR 2 | Grouping of HH by combination of CENSUS_D and MSACAT | | |
| CENSUS_D | CHAR 2 | Census Division | 01 New England (ME, NH, VT, CT, MA, RI) 02 Mid-Atlantic (NY, NJ, PA) 03 East North Central (IL, IN, MI, OH, WI) 04 West North Central (IA, KS, MO, MN, ND, NE, SD) 05 South Atlantic (DE, FL, GA, MD, NC, SC, WV, VA) 06 East South Central (AL, KY, MS, TN) 07 West South Central (AR, LA, OK, TX) 08 Mountain (AZ, CO, ID, MT, NM, NV, UT, WY) | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|----------|--|--------|-------------------------------|
| CENSUS_D | CHAR 2 | | Census Division (continued) | 09 | Pacific (AK, CA, HI, OR, WA) |
| | | | | 00 | Puerto Rico |
| CENSUS_R | CHAR 2 | | Census Region | 01 | Northeast |
| | | | | 02 | Midwest |
| | | | | 03 | South |
| | | | | 04 | West |
| | | | | 00 | Puerto Rico |
| CNTTDTR | NUM 8 | | Sum of all travel day person trips | 0-25 | |
| | | M6. | Because of this condition, {have you/has SUBJECT}... | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| CONDTRAV | CHAR 2 | | a. reduced {your/his/her} day-to-day travel | | |
| CONDRIDE | | | b. asked others for rides? | | |
| CONDNIGH | | | c. limited driving to daytime? | | |
| CONDRIVE | | | d. given up driving altogether? | | |
| CONDPUB | | | e. used the bus and subway less frequently? | | |
| CONDSPEC | | | f. used special transportation services such as dial-a-ride? | | |
| COND TAX | | | g. used a reduced fare taxi? | | |
| DELIVER | HUM 8 | MB. | How many of these purchases were delivered to your home? | 0-200 | NUMBER OF TIMES |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| DIARY | CHAR 2 | | Indicates if travel diary was completed | 01 | YES |
| | | | | 02 | NO |
| | | | | -1 | Legitimate Skip |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| DIARYCMP | CHAR 2 | G2. | Was diary completed? | 01 | YES |
| | | | | 02 | NO |
| | | | | 03 | DID NOT RECEIVE MATERIALS |
| | | | | -1 | Legitimate Skip |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| DIARYHAV | CHAR 2 | | S has completed diary | 01 | YES |
| | | | | 02 | NO |
| | | | | -1 | Legitimate Skip |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| DIFFDATE | NUM 8 | | Number of days between travel date and interview | 0-82 | |
| | | | | -1 | Appropriate Skip |
| DISTTOSC | CHAR 2 | F3. | How far does {your child/Child #1} live from school? | 01 | LESS THAN ¼ MILE |
| | | | | 02 | ¼ TO UP TO ½ MILE |
| | | | | 03 | ½ MILE UP TO 1 MILE |
| | | | | 04 | 1 MILE UP TO 2 MILES |
| | | | | 05 | MORE THAN 2 MILES |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|--|--------|----------|--|--------|---|
| DISTTOWK | NUM 8 | E14. | What is the one-way distance from {your/SUBJECT'S} home to {your/his/her} {primary} workplace? | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| DISTUNIT | CHAR 2 | | | 01 | BLOCKS |
| | | | | 02 | MILES |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| DRIVER | CHAR 2 | C8 | Driver status of S | 01 | 01=Yes, a driver |
| | | | | 02 | 02=No, not a driver |
| | | | | -9 | Not Ascertained |
| DRVR | CHAR 2 | | Is S a driver | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| Of the following issues, please tell me which one is the most important to you. Would you say...How much of a problem {is/are} {response from L2A.} to you? Would you say... | | | | | |
| DTACDT | CHAR 2 | L2A | Safety concerns | 01 | Not a problem |
| DTCONJ | CHAR 2 | L2A | Highway congestion | 02 | A little problem |
| DTCOST | CHAR 2 | L2A | Price of travel (fees, tolls and gas) 03 | 03 | Somewhat of a problem |
| DTRAGE | CHAR 2 | L2A | Aggressive/distracted drivers | 04 | Very much of a problem |
| DTRAN | CHAR 2 | L2A | Access or availability of public transit | 05 | A severe problem |
| DTWALK | CHAR 2 | L2A | Lack of walkways or sidewalks | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| EDUC | CHAR 2 | M7. | What is the highest grade or year of school {you have/FNAME/AGE/SEX} has completed ? | 01 | LESS THAN HIGH SCHOOL GRAD |
| | | | | 02 | HIGH SCHOOL GRADUATE, INCLUDING GED |
| | | | | 03 | SOME COLLEGE, OR ASSOCIATE'S DEGREE (FOR EXAMPLE, AA) |
| | | | | 04 | BACHELOR'S DEGREE (FOR EXAMPLE BA, AB, BS), |
| | | | | 05 | GRADUATE OR PROFESSIONAL SCHOOL DEGREE (FOR EXAMPLE MA, MS, MBA, MD, DDS, PHD, EdD, JD) |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| For Virginia: | | | | | |
| EVA1 | CHAR 2 | EVA1. | Do you usually park your vehicle more than one block from your workplace? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| EVA2 | NUM 8 | EVA2. | How many minutes does it take you to walk from where you park to your workplace? | | Number of Minutes |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| EVA3 | CHAR 2 | EVA3. | Which of the following best describes your current work schedule on a weekly basis? Would you say... | 01 | I work the same schedule every week |
| | | | | 02 | I often work a different schedule from week to week, or |
| | | | | 03 | My work schedule changes once in a while. |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|---------|----------|---|---|------------------------------|
| For Virginia: | | | | | |
| | | EVA5. | Thinking about your travel on public transit in your area, please tell me if you agree or disagree with the following statements. | | Randomly select one question |
| EVA5A | CHAR 2 | | a. Local public transit provides a good travel experience. | 01 YES 02 NO -7 REFUSED -8 DON'T KNOW | |
| EVA5B | | | b. Local public transit service is reliable. | | |
| EVA5C | | | c. Local public transit service is safe from crime. | | |
| EVA5D | | | d. Local public transit service is easy to use. | | |
| EVA5E | | | e. The cost of local public transit is reasonable. | | |
| EVA5F | | | f. Local public transit service is fast enough for my needs. | | |
| For Virginia: | | | | | |
| | | EVA6. | Thinking about our area, please tell me if you agree or disagree with the following statements about walking and biking.... | | |
| EVA6A | CHAR 2 | A. | Improving bicycle and walking facilities is a good investment | 01 YES 02 NO -7 REFUSED -8 DON'T KNOW | |
| EVA6B | | B. | I would walk more if sidewalks were better | | |
| EVA6C | | C. | Improving bicycle and walking facilities is important to help reduce traffic congestion | | |
| EVA6D | | D. | I would bike more if the bike facilities were better | | |
| EVERDROV | CHAR 2 | | If not a Driver, ask did {FNAME/AGE/SEX} ever drive | 01 YES 02 NO -7 REFUSED -8 DON'T KNOW | |
| F12 | CHAR 2 | F12. | Walk/Bike issue: other issues | 01 YES 02 NO -1 Appropriate Skip -7 Refused -8 Don't Know -9 Not Ascertained | |
| F12_01 | CHAR 20 | F12. | Other Issues | | Enter Text |
| F12_02 | CHAR 20 | F12. | | | |
| F12_03 | CHAR 20 | F12. | | | |
| F12_04 | CHAR 20 | F12. | | | |
| F12_05 | CHAR 20 | F12. | | | |
| FL5 | CHAR 2 | E5. | For public transit like using a bus, the subway or a train, to be an option for {your/FNAME, AGE/SEX's} commuting, which of the following is the most important to you? Would you say that it's | 01 Close to work and home 02 Faster than driving 03 Reasonable in cost 04 Consistently on time 05 Fits your schedule -7 REFUSED -8 DON'T KNOW | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|----------|---|--|----------------------|
| FLEXTIME | CHAR 2 | EC. | Do you have any flexibility in changing or setting your arrival time? | 01 YES 02 NO -7 REFUSED -8 DON'T KNOW | |
| FMSCSIZE | NUM 8 | F8. | How many people does {your child/Child #1} walk/bike from school with? | 0-15 -7 REFUSED -8 DON'T KNOW | |
| FRSTHM | CHAR 2 | G8. | On {TRIPDATE} at 4 in the morning, {were you/was SUBJECT} at home or someplace else? | 01 YES 02 SOMEPLACE ELSE -7 REFUSED -8 DON'T KNOW | |
| FXDWKPL | CHAR 2 | | No fixed workplace | 01 YES 02 NO -1 Legitimate Skip | |
| GCDWORK | NUM 8 | | Great circle distance between home and work | | |
| GRADE | CHAR 2 | F10. | At what grade would you allow your child to walk or bike without an adult to/from school? | 99 NEVER K KINDERGARTEN 01 GRADE 1 02 GRADE 2 03 GRADE 3 04 GRADE 4 05 GRADE 5 06 GRADE 6 07 GRADE 7 08 GRADE 8 09 GRADE 9 10 GRADE 10 11 GRADE 11 12 GRADE 12 -7 REFUSED -8 DON'T KNOW | |
| GTIJBWLK | CHAR 2 | E6. | Do you/ Does SUBJECT have more than one job? | 01 YES 02 NO -7 REFUSED -8 DON'T KNOW | |
| HBHRESDN | CHAR 2 | | HU density (units/square mile), BG | | |
| HBHTNRNT | CHAR 2 | | Percent renter occupied, block group | | |
| HBHUR | CHAR 2 | | Urban/rural code, block group | | |
| HBPPDPDN | CHAR 2 | | Population density, block group | | |
| HHBG | CHAR 2 | | HH block group | | |
| HHCITYFP | CHAR 5 | | City FIPS for home address | | |
| HHCNTYFP | CHAR 3 | | County FIPS for home address | | |
| HHCT | CHAR 2 | | HH Census Tract | | |
| HHC_MSA | CHAR 4 | | CMSA FIPS code for HH address | -1 Appropriate Skip -9 Not Ascertained 1122 Boston--Worcester--Lawrence, MA--NH--ME--CT 1602 Chicago--Gary--Kenosha, IL--IN--WI 1642 Cincinnati--Hamilton, OH--KY--IN 1692 Cleveland--Akron, OH 1922 Dallas--Fort Worth, TX 2082 Denver--Boulder--Greeley, CO | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|---------------------|----------|---|--------|--|
| HHC_MSA | CHAR 4 | | CMSA FIPS code for HH address (continued) | 2162 | Detroit--Ann Arbor--Flint, MI |
| | | | | 3362 | Houston--Galveston--Brazoria, TX |
| | | | | 4472 | Los Angeles--Riverside--Orange County, CA |
| | | | | 4992 | Miami--Fort Lauderdale, FL |
| | | | | 5082 | Milwaukee--Racine, WI |
| | | | | 5602 | New York--Northern New Jersey--Long Island, NY--NJ--CT--PA |
| | | | | 6162 | Philadelphia--Wilmington--Atlantic City, PA--NJ--DE--MD |
| | | | | 6442 | Portland--Salem, OR--WA |
| | | | | 6922 | Sacramento--Yolo, CA |
| | | | | 7362 | San Francisco--Oakland--San Jose, CA |
| | | | | 7602 | Seattle--Tacoma--Bremerton, WA |
| | | | | 8872 | Washington--Baltimore, DC--MD--VA--WV |
| HHFAMINC | CHAR 2 | M14 | Derived total HH income | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| | | | | 01 | < \$5,000 |
| | | | | 02 | \$5,000 - \$9,999 |
| | | | | 03 | \$10,000 - \$14,999 |
| | | | | 04 | \$15,000 - \$19,999 |
| | | | | 05 | \$20,000 - \$24,999 |
| | | | | 06 | \$25,000 - \$29,999 |
| | | | | 07 | \$30,000 - \$34,999 |
| | | | | 08 | \$35,000 - \$39,999 |
| | | | | 09 | \$40,000 - \$44,999 |
| | | | | 10 | \$45,000 - \$49,999 |
| | | | | 11 | \$50,000 - \$54,999 |
| | | | | 12 | \$55,000 - \$59,999 |
| | | | | 13 | \$60,000 - \$64,999 |
| | | | | 14 | \$65,000 - \$69,999 |
| | | | | 15 | \$70,000 - \$74,999 |
| 16 | \$75,000 - \$79,999 | | | | |
| 17 | \$80,000 - \$99,999 | | | | |
| 18 | \$100,000 or More | | | | |
| HHRESP | CHAR 2 | | Household respondent | | PERSONID of HH Respondent |
| HHSTATE | CHAR 2 | D4 | State HH location | AK | |
| | | | | AL | |
| | | | | AR | |
| | | | | AZ | |
| | | | | CA | |
| | | | | CO | |
| | | | | CT | |
| | | | | DC | |
| | | | | DE | |
| | | | | FL | |
| | | | | GA | |
| | | | | HI | |
| | | | | IA | |
| | | | | ID | |
| | | | | IL | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|---------|----------|--|--------|--|
| HHSTATE | CHAR 2 | D4 | State HH location (continued) | IN | |
| | | | | KS | |
| | | | | KY | |
| | | | | LA | |
| | | | | MA | |
| | | | | MD | |
| | | | | ME | |
| | | | | MI | |
| | | | | MN | |
| | | | | MO | |
| | | | | MS | |
| | | | | MT | |
| | | | | NC | |
| | | | | ND | |
| | | | | NE | |
| | | | | NH | |
| | | | | NJ | |
| | | | | NM | |
| | | | | NV | |
| | | | | NY | |
| | | | | OH | |
| | | | | OK | |
| | | | | OR | |
| | | | | PA | |
| | | | | RI | |
| | | | | SC | |
| | | | | SD | |
| TN | | | | | |
| TX | | | | | |
| UT | | | | | |
| VA | | | | | |
| VT | | | | | |
| WA | | | | | |
| WI | | | | | |
| WV | | | | | |
| WY | | | | | |
| HHSTFIPS | CHAR 2 | | State FIPS for HH address | -9 | Not Ascertained |
| HH_HISP | CHAR 2 | C6. | Are you of Hispanic, Latino, or Spanish origin? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| HH_RACE | CHAR 2 | C7. | Please tell me which best describes your race. Are you...] | 01 | White |
| | | | | 02 | African American, Black |
| | | | | 03 | Asian |
| | | | | 04 | American Indian, Alaskan Native |
| | | | | 05 | Native Hawaiian, or other Pacific Islander |
| | | | | 06 | MULTIRACIAL |
| | | | | 07 | HISPANIC/MEXICAN |
| | | | | 97 | OTHER SPECIFY ? |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| HH_RACOS | CHAR 30 | | OTHER SPECIFY | | Enter Text |
| HOUSEID | CHAR 9 | | Assigned Unique House Id | | |
| HTEMPDN | CHAR 2 | | Jobs per square mile, census tract | | |
| HTHRESDN | CHAR 2 | | HU density (units/square mile), census tract | | |
| HTHTNRNT | CHAR 2 | | Percent renter occupied, census tract | | |
| HTHUR | CHAR 2 | | Urban/rural code, census tract | | |
| HTPPOPDN | CHAR 2 | | Population density, census tract | | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION | | | |
|---------------|---------|------------------------------|--|--|---|--|--|--|
| ISSUE | CHAR 2 | | Most important transportation issue | 01 | Highway congestion | | | |
| | | | | 02 | Access to/availability of public transit | | | |
| | | | | 03 | Lack of walkways or sidewalks | | | |
| | | | | 04 | Price of travel | | | |
| | | | | 05 | Aggressive/distracted drivers | | | |
| | | | | -1 | Appropriate Skip | | | |
| | | | | -7 | Refused | | | |
| | | | | -8 | Don't Know | | | |
| | | | | -9 | Not Ascertained | | | |
| | | | | Please tell me which one {your/SUBJECT'S} {primary} job falls under. | | | | |
| JOBCATAZ | CHAR 2 | E7. | For Arizona | 01 | SALES OR MARKETING | | | |
| | | | | 02 | CLERICAL, ADMINISTRATIVE OR RETAIL | | | |
| | | | | 03 | PRODUCTION, CONSTRUCTION, FARMING OR TRANSPORT | | | |
| | | | | 04 | PROFESSIONAL, MANAGERIAL OR TECHNICAL | | | |
| | | | | 05 | PERSONAL CARE AND SERVICE | | | |
| | | | | 97 | SOME OTHER TYPE OF EMPLOYMENT | | | |
| | | | | | | | | |
| JOBCATEG | CHAR 2 | E7. | For Everyone else | 01 | SALES OR SERVICE | | | |
| | | | | 02 | CLERICAL OR ADMINISTRATIVE SUPPORT | | | |
| | | | | 03 | MANUFACTURING, CONSTRUCTION, MAINTENANCE OR FARMING | | | |
| | | | | 04 | PROFESSIONAL, MANAGERIAL OR TECHNICAL | | | |
| | | | | 97 | OTHER SPECIFY | | | |
| JOBCATOS | CHAR 30 | E7. | OTHER SPECIFY | | Enter Text | | | |
| | | | | -7 | REFUSED | | | |
| | | | | -8 | DON'T KNOW | | | |
| JOBCATOZ | CHAR 30 | E7. | OTHER SPECIFY For Arizona | | Enter Text | | | |
| | | | | -7 | REFUSED | | | |
| | | | | -8 | DON'T KNOW | | | |
| LANG | CHAR 2 | | Language interview was conducted in | 01 | English | | | |
| | | | | 02 | Spanish | | | |
| LCA3 | CHAR 2 | LCA3. | Were any of these bike rides {you/SUBJECT} took..... | 01 | YES | | | |
| | | | | 02 | NO | | | |
| | | | | -7 | REFUSED | | | |
| | | | | -8 | DON'T KNOW | | | |
| | | | | LCA3_A | A. | On the way to or from work? | | |
| | | | | | | | | |
| | | | | LCA3_B | B. | On the way to or from public transportation? | | |
| | | | | | | | | |
| | | | | LCA3_C | C. | Escorting children to or from school? | | |
| | | | | | | | | |
| LCA3_D | D. | Running errands or shopping? | | | | | | |
| | | | | | | | | |
| LCA3 E | E. | For exercise? | | | | | | |
| | | | | | | | | |
| LCA3 F | F. | To exercise the dog? | | | | | | |
| | | | | | | | | |
| LCA3 G | G. | For any other reasons? | | | | | | |
| | | | | | | | | |
| LCA3_OTH | CHAR 30 | | OTHER SPECIFY | | Enter Text | | | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--|----------|---|----------------------|--|
| | | LCA5. | You mentioned that you walked outside in the past week. Were any of these walks {you/SUBJECT} took... | 01 02 -7 -8 | YES NO REFUSED DON'T KNOW |
| LCA5_A | CHAR 2 | A. | To walk or exercise the dog? | | |
| LCA5_B | | B. | On the way to or from work? | | |
| LCA5_C | | C. | On the way to or from public transportation? | | |
| LCA5_D | | D. | Escorting children to or from school? | | |
| LCA5_E | | E. | Running errands or shopping? | | |
| LCA5_F | | F. | For exercise? | | |
| LCA5_G | | G. | For any other reasons? | | |
| LCA5_OTH | CHAR 30 | | OTHER SPECIFY | | Enter Text |
| LIF_CYC | CHAR 2 | | Life Cycle for the HH | | derived |
| LSTTRDAY | NUM 8 | G15 | Approximate number of days since last trip | 0-300 | |
| | | | | -1 | Appropriate Skip |
| MAINRSLT | CHAR 2 | | Respondent final result code | C1 | C1 = Completed Interviewer by Subject |
| | | | | C2 | C2 = Completed Interviewer by Proxy |
| | | | | J1 | J1 = Age 0 to 4 years old |
| | | | | LH | LH = Final Language Problem - Hearing/Speech |
| | | | | LM | LM = Max Call Language |
| | | | | LP | LP = Final Language Problem |
| | | | | MC | MC = Max Call |
| | | | | ML | ML = Max Call Lang |
| | | | | MR | MR = Max call Ref |
| | | | | ND | ND = Subject deceased |
| | | | | NG | NG = Military Deployment |
| | | | | NP | NP = Not available in Field Period |
| | | | | NR | NR = Non-Residential |
| | | | | NS | NS = Subject Sick |
| | | | | OE | OE = Enumeration Error |
| OO | OO = Other Out of scope | | | | |
| R3 | R3 = Final refusal for Re-Released RBs | | | | |
| FB | RB = Final refusal | | | | |
| RM | RM = Max Call Refusal | | | | |
| MCA8_OS | CHAR 2 | MC8. | Uses other aid | 01 | YES |
| | | | | 02 | NO |
| | | | | -1 | Appropriate Skip |
| | | | | -8 | Don't Know |
| MCA8_OTH | CHAR 30 | MC8. | Type of other aid used by S | | Enter Text |
| | | | | -1 | Appropriate Skip |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|----------|--|--------|---|
| MCUSED | NUM 8 | LA. | In the past month, about how often {have you/has SUBJECT} driven YOUR motorcycle or moped on public roadways? | | NUMBER OF TIMES |
| | | | | -2 | NOT AVAILABLE |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| MEDCOND | CHAR 2 | M4. | {Do you/Does SUBJECT} have a permanent or temporary medical condition that makes it difficult to travel outside of the home? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| MEDCOND6 | CHAR 2 | M5. | How long {have you/has SUBJECT} had this condition? | 01 | 0 - 5 MONTHS |
| | | | | 02 | 6 - 11 MONTHS |
| | | | | 03 | 1 - 4 YEARS |
| | | | | 04 | 5 - 9 YEARS |
| | | | | 05 | 10 YEARS OR MORE |
| | | | | 06 | ALL HIS/HER LIFE |
| | | | | -7 | REFUSED |
| MOROFTEN | CHAR 2 | GA. | Would you like to get out more often? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| MSACAT | CHAR 2 | | MSA category for the HH home address | -9 | Not Ascertained |
| | | | | 01 | MSA or CMSA of 1 million or more with heavy rail |
| | | | | 02 | MSA or CMSA of 1 million or more without heavy rail |
| | | | | 03 | MSA of less than 1 million |
| MSASIZE | CHAR 2 | | MSA population size for the HH home address | 04 | Not in a MSA |
| | | | | -9 | Not Ascertained |
| | | | | 01 | MSA of less than 250,000 |
| | | | | 02 | MSA of 250,000 to 499,999 |
| | | | | 03 | MSA of 500,000 to 999,999 |
| | | | | 04 | MSA or CMSA of 1,000,000 to 2,999,999 |
| NBIKETRP | NUM 8 | L4. | In the past week, how many times did {you/SUBJECT} ride a bicycle outside including bicycling for exercise? | 05 | MSA or CMSA of 3 million or more |
| | | | | 06 | Not in a MSA |
| | | | | -7 | REFUSED |
| | | | | -8 | DontKnow |
| NWALKTRP | NUM 8 | L3. | In the past week, how many times did {you/SUBJECT} take a walk outside including walking the dog and walks for exercise? | | Number of Walk Trips |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| OUTCNTRY | CHAR 2 | G14. | {Were you/Was SUBJECT} out of the country for the entire travel day? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| OUTOFTWN | CHAR 2 | G9. | {Were you/Was SUBJECT} out of town for the entire travel day? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|-----------------|----------|--|--------|---|
| PAYPROF | CHAR 2 | E4. | Last week, did {you/SUBJECT} do any work for either pay or profit? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| PERSONID | CHAR 2 | | Person ID number | 01-13 | |
| PRMACT | CHAR 2 | E3. | During most of last week, {were you/was SUBJECT}? | 01 | WORKING |
| | | | | 02 | TEMPORARILY ABSENT FROM A JOB OR BUSINESS |
| | | | | 03 | LOOKING FOR WORK |
| | | | | 04 | HOMEMAKER |
| | | | | 05 | GOING TO SCHOOL |
| | | | | 06 | RETIRED |
| | | | | 07 | DOING SOMETHING ELSE |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| PROXY | CHAR 2 | E1. | Trip info from respondent or proxy | 01 | SUBJECT |
| | | | | 02 | PROXY |
| | | | | -1 | Appropriate Skip |
| PTUSED | NUM 8 | L11. | In the past month, about how often {have you/has SUBJECT} used public transportation such as buses, subways, streetcars, or commuter trains? | | NUMBER OF TIMES |
| | | | | 999 | NOT AVAILABLE |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| PURCHASE | NUM 8 | MA. | How many times in the last month did {you/SUBJECT} purchase Something through the Internet instead of traveling to the store? | | NUMBER OF TIMES |
| | | | | -5 | LESS THAN ONCE A MONTH |
| | | | | -6 | NEVER |
| | | | | -7 | REFUSED |
| -8 | DON'T KNOW | | | | |
| RAIL | CHAR 2 | | MSA heavy rail status for HH | | |
| R_AGE | NUM 8 | | | 0-115 | |
| R_RELAT | CHAR 2 | C8. | Respondent relationship to HH respondent | 01 | Self |
| | | | | 02 | Spouse |
| | | | | 03 | Child |
| | | | | 04 | Parent |
| | | | | 05 | Sibling |
| | | | | 06 | Other relative |
| | | | | 07 | Unmarried Partner |
| | | | | 08 | Non-relative |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| -9 | Not Ascertained | | | | |
| R_SEX | CHAR 2 | | | 01 | MALE |
| | | | | 02 | FEMALE |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| SAMEPLC | CHAR 2 | G13. | Does this mean {you/SUBJECT} stayed at {the same place/home} all day? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| SCHCARE | CHAR 2 | F4. | On most days, does (your child/Child #1) to to before or after school care outside the home? | 01 | BEFORE SCHOOL |
| | | | | 02 | AFTER SCHOOL |
| | | | | 03 | BOTH |
| | | | | 04 | NEITHER |
| | | | | -7 | REFUSED |
| -8 | DON'T KNOW | | | | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---|-------------------------------|----------|--|--------------|------------------------------------|
| On a scale of 1 to 5, please tell me how much the following issues affect your decision to allow or not allow your child to walk or bike to or from school. | | | | | |
| | | F11. | On a scale of 1 to 5, how much of an issue is... | 1 to 5 Scale | |
| SCHDIST | CHAR 2 | | a. Distance? | 01 | Not an Issue |
| SCHTRAF | CHAR 2 | | b. Amount of traffic along route? | 02 | A little Bit of an Issue |
| SCHWTHR | CHAR 2 | | c. Weather or climate? | 03 | Somewhat of an Issue |
| SCHSPD | CHAR 2 | | d. Speed of traffic along route? | 04 | Very Much an Issue |
| SCHCRIM | CHAR 2 | | e. Violence or crime? | 05 | A Serious Issue |
| | | | | -7 | REFUSED |
| SCHTRNI | CHAR 2 | F5. | On most days, how does {your child/ Child#1} | 01 | CAR |
| | | | | 02 | VAN |
| | | | | 03 | SUV |
| | | | | 04 | PICKUP TRUCK |
| | | | | 05 | OTHER TRUCK |
| | | | | 06 | RV |
| | | | | 07 | MOTORCYCLE |
| | | | | 08 | LIGHT ELECTRIC VEHICLE (Golf Cart) |
| | | | | 09 | LOCAL PUBLIC TRANSIT |
| | | | | 10 | COMMUTER BUS |
| | | | | 11 | SCHOOL BUS |
| | | | | 12 | CHARTER/TOUR BUS |
| | | | | 13 | CITY TO CITY |
| | | | | 14 | SHUTTLE BUS |
| | | | | 15 | AMTRAK/INTER CITY |
| | | | | 16 | COMMUTER TRAIN |
| | | | | 17 | SUBWAY/ ELEVATED |
| | | | | 18 | STREET CAR/ TROLLEY |
| | | | | 19 | TAXICAB |
| | | | | 20 | FERRY |
| 21 | AIRPLANE | | | | |
| 22 | BICYCLE | | | | |
| 23 | WALK | | | | |
| 24 | SPECIAL TRANSIT (DIAL-A-RIDE) | | | | |
| 97 | OTHER SPECIFY | | | | |
| -7 | REFUSED | | | | |
| -8 | DON'T KNOW | | | | |
| SCHTRN2 | CHAR 2 | F7. | On most days, how does {your child/ Child#1} leave school? | 01 | CAR |
| | | | | 02 | VAN |
| | | | | 03 | SUV |
| | | | | 04 | PICKUP TRUCK |
| | | | | 05 | OTHER TRUCK |
| | | | | 06 | RV |
| | | | | 07 | MOTORCYCLE |
| | | | | 08 | LIGHT ELECTRIC VEHICLE (Golf Cart) |
| | | | | 09 | LOCAL PUBLIC TRANSIT |
| | | | | 10 | COMMUTER BUS |
| | | | | 11 | SCHOOL BUS |
| | | | | 12 | CHARTER/TOUR BUS |
| | | | | 13 | CITY TO CITY |
| | | | | 14 | SHUTTLE BUS |
| | | | | 15 | AMTRAK/INTER CITY |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|------------|----------|--|--------|-------------------------------|
| SCHTRN2 | CHAR 2 | F7. | On most days, how does {your child/ Child#1} leave school? (continued) | 16 | COMMUTER TRAIN |
| | | | | 17 | SUBWAY/ ELEVATED |
| | | | | 18 | STREET CAR/ TROLLEY |
| | | | | 19 | TAXICAB |
| | | | | 20 | FERRY |
| | | | | 21 | AIRPLANE |
| | | | | 22 | BICYCLE |
| | | | | 23 | WALK |
| | | | | 24 | SPECIAL TRANSIT (DIAL-A-RIDE) |
| | | | | 97 | OTHER SPECIFY |
| -7 | REFUSED | | | | |
| -8 | DON'T KNOW | | | | |
| SCHTRN10 | CHAR 30 | | OTHER SPECIFY | | Enter Text |
| SCHTRN20 | CHAR 30 | | OTHER SPECIFY | | Enter Text |
| SCHTYPE | CHAR 2 | F1. | Is this a public or private school? | 01 | PUBLIC |
| | | | | 02 | PRIVATE |
| | | | | 03 | HOME SCHOOLED |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| SELF_EMP | CHAR 2 | Ea. | Are you Self Employed? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| SMPLAREA | CHAR 3 | | Add-On region | AL | |
| | | | | AZ | |
| | | | | CA | |
| | | | | CR | |
| | | | | CT | |
| | | | | FL | |
| | | | | GA | |
| | | | | HI | |
| | | | | IA | |
| | | | | IN | |
| | | | | KY | |
| | | | | MD | |
| | | | | MI | |
| | | | | MO | |
| | | | | NC | |
| | | | | NE | |
| | | | | NH | |
| | | | | NV | |
| | | | | NY | |
| | | | | OM | |
| | | | | PA | |
| | | | | PH | |
| | | | | PI | |
| | | | | SC | |
| | | | | SD | |
| | | | | TN | |
| TU | | | | | |
| TX | | | | | |
| US | | | | | |
| UT | | | | | |
| VA | | | | | |
| VT | | | | | |
| WA | | | | | |
| WI | | | | | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|-----------------|--------|----------|--|-----------|--|
| SMPLSRCE | CHAR 3 | | Sampled region | CA | |
| | | | | CR | |
| | | | | FL | |
| | | | | GA | |
| | | | | IA | |
| | | | | IN | |
| | | | | NC | |
| | | | | NY | |
| | | | | OM | |
| | | | | PI | |
| | | | | SC | |
| | | | | SD | |
| | | | | TN | |
| | | | | TX | |
| | | | | US | |
| VA | | | | | |
| VT | | | | | |
| WI | | | | | |
| STRATUM | CHAR 2 | | Geographic site within SAMPREGN | 01-51 | I |
| TDAYDAT2 | CHAR 8 | | Travel day - date | YYYY MMDD | 20080328-20080831 |
| TIMETOSC | NUM 8 | F9. | How long does it normally take {your child/Child #1} to get to school? | | IN MINUTES |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| TIMETOWK | NUM 8 | E15. | How many minutes did it usually take {you/SUBJECT} to get from home to work last week? | 998 | SUBJECT DID NOT WORK AT USUAL WORK-PLACE LAST WEEK |
| | | | | 999 | SUBJECT DID NOT WORK LAST WEEK |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | | | Number of People |
| TOSCSIZE | NUM 8 | F6. | How many people does {your child/Child #1} walk/bike to school with? | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | | | |
| URBAN | CHAR 2 | | Home address in urbanized area | | |
| URBRUR | CHAR 2 | | Household in urban/rural area | | |
| USEINTST | CHAR 2 | GB. | FOR POV'S ONLY, Was any part of this trip made on the Interstate? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| USEPUBTR | CHAR 2 | G19. | Did {you/SUBJECT} use a bus, subway, train or some other type of public transportation during any part of these trips? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| VERYRMIL | CHAR 2 | L5A. | Verify miles driven | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| For California: | | | | | |
| WALKHELP | CHAR 2 | MCA7. | Do you use anything to help you walk or get around, such as a crane, seeing-eye dog, or wheelchair? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|------------------------------------|--|----------------------|------------------------------------|
| | | LCA6. | Now, I'd like you to think about things that may keep you from doing more walking. Please tell me if any of the following keep you from doing more walking.... | 01 02 -7 -8 | YES NO REFUSED DON'T KNOW |
| WALK_A | CHAR 2 | A. | You're too busy? | | |
| WALK_B | | B. | You have poor health? | | |
| WALK_C | | C. | You have no one to walk with? | | |
| WALK_D | | D. | Dogs? | | |
| WALK_E | | E. | There are no nearby paths or trails? | | |
| WALK_F | | F. | There are no nearby parks? | | |
| WALK_G | | G. | There are no side-walks or the sidewalks are in poor condition? | | |
| WALK_H | | H. | Street crossings are unsafe? | | |
| WALK_I | | I. | There are no shops or other interesting places to go? | | |
| WALK_J | | J. | There are not enough people walking around | | |
| WALK_K | | K. | You fear street crime? | | |
| WALK_L | | L. | There are too many cars? | | |
| WALK_M | | M. | Of fast traffic? | | |
| WALK_N | | N. | Of air pollution? | | |
| WALK_O | | O. | Streets are too wide? | | |
| WALK_P | P. | You have too many things to carry? | | | |
| WALK_Q | Q. | You have small children along? | | | |
| WEBUSE | CHAR 2 | M2. | In the past month, how often {have you/has SUBJECT} used the Internet? Would you say... | 01 | ALMOST EVERY-DAY |
| | | | | 02 | SEVERAL TIMES A WEEK |
| | | | | 03 | ONCE A WEEK |
| | | | | 04 | ONCE A MONTH |
| | | | | 05 | NEVER |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | | | |
| WKCNFIPS | CHAR 2 | | County FIPS for work address | | |
| WKCNTYA | CHAR 2 | | Work county | | |
| WKCTFIPS | CHAR 2 | | City FIPS for work address | | |
| WKFHMXX | NUM 8 | E20. | How many times in the last month did {you/SUBJECT} work only at home for an entire work day instead of traveling to your usual {primary} workplace? | 0-31 | NUMBER OF TIMES |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| WKFTPT | CHAR 2 | E5. | Do you/Does SUBJECT work | 01 | FULLTIME |
| | | | | 02 | PARTTIME |
| | | | | 03 | MULTIPLE JOBS |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| WKRMMH | CHAR 2 | ED. | Do you have the option of working at home instead going into your primary workplace? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|----------|--|----------|------------------------------------|
| WKSTFIPS | CHAR 2 | | State FIPS for S work address | | |
| WORKCT | CHAR 2 | | Work place Census Tract | | |
| WORKER | CHAR 2 | E3 | Subject worker status | 01 | YES |
| | | | | 02 | NO |
| | | | | -1 | Legitimate Skip |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | | -9 | Not Ascertained |
| WORKLOC | CHAR 2 | E10 | R work location | 01 | Workplace |
| | | | | 02 | Works Only at Home |
| | | | | 03 | No Fixed Workplace |
| | | | | 04 | Home and Work |
| | | | | -1 | Legitimate Skip |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | | -9 | Not Ascertained |
| | | | | WORKSTAT | CHAR 2 |
| WRKAMPM | CHAR 2 | EB. | What time do you usually arrive at work? | 01 | AM |
| | | | | 02 | PM |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| WRKCOUNT | NUM 8 | E3. | Number of workers in HH | 0-11 | |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | | | |
| WRKHR | NUM 8 | EB. | What time do you usually arrive at work? | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| WRKMIN | NUM 8 | EB. | What time do you usually arrive at work? | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | | | |
| WRKR | CHAR 2 | CA. | {Do you/Does FNAME/AGE/SEX have/has} a job? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| WRKTIME | CHAR 4 | | Usual arrival time at work | | Military Time |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| WRKTRANS | CHAR 2 | E16. | How did {you/SUBJECT} usually get to work last week? | 01 | CAR |
| | | | | 02 | VAN |
| | | | | 03 | SUV |
| | | | | 04 | PICKUP TRUCK |
| | | | | 05 | OTHER TRUCK |
| | | | | 06 | RV |
| | | | | 07 | MOTORCYCLE |
| | | | | 08 | LIGHT ELECTRIC VEHICLE (Golf Cart) |
| | | | | 09 | LOCAL PUBLIC TRANSIT |
| | | | | 10 | COMMUTER BUS |
| | | | | 11 | SCHOOL BUS |
| | | | | 12 | CHARTER/TOUR BUS |
| | | | | 13 | CITY TO CITY |
| | | | | 14 | SHUTTLE BUS |
| | | | | 15 | AMTRAK/INTER CITY |
| | | | | 16 | COMMUTER TRAIN |
| | | | | 17 | SUBWAY/ELEVATED |
| | | | | 18 | STREET CAR/TROLLEY |
| | | | | 19 | TAXICAB |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---|--------|----------|---|-----------|-------------------------------|
| WRKTRANS | CHAR 2 | E16. | How did {you/SUBJECT} usually get to work last week? (continued) | 20 | FERRY |
| | | | | 21 | AIRPLANE |
| | | | | 22 | BICYCLE |
| | | | | 23 | WALK |
| | | | | 24 | SPECIAL TRANSIT (DIAL-A-RIDE) |
| | | | | 97 | OTHER SPECIFY |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| WTPERFIN | NUM 8 | | Final person weight | | |
| For California: Do you use anything to help you walk or get around, such as a crane, seeing-eye dog, or wheelchair? | | | | | |
| | | MCA8. | Do you use a... | | |
| W_CANE | CHAR 2 | | a. Cane? | 01 | YES |
| W_WLKR | | | b. Walker? | 02 | NO |
| W_WHCANE | | | c. White cane/ | -7 | REFUSED |
| W_DOG | | | d. Seeing eye dog or other K-9 assistance? | -8 | DON'T KNOW |
| W_CRUTCH | | | e. Crutches? | | |
| W_SCOOTR | | | f. Motorized Scooter? | | |
| W_CHAIR | | | g. Manual Wheelchair? | | |
| W_MTRCHR | | | h. Motorized Wheelchair? | | |
| YEARMIL2 | CHAR 2 | L5B. | Would you say it was... | 01 | 5K miles or less |
| | | | | 02 | 5,001 - 10K miles |
| | | | | 03 | 10,001 - 15K miles |
| | | | | 04 | 15,001 - 20K miles |
| | | | | 05 | More than 20K miles |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | | | |
| YEARMILE | NUM 8 | L5. | About how many miles did {you/SUBJECT} personally drive during the past 12 months in all motorized vehicles | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | | | |
| YRMLCAP | CHAR 2 | | Indicates YEARMILE was capped | 01 | YES |
| | | | | 02 | NO |
| | | | | -1 | Legitimate Skip |
| YRTOUS | NUM 8 | M10. | Year entered U.S. | 1910-2008 | |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |

Appendix G. Data Dictionary for Vehicles Table

WCODEVARS.XLS

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|---------------|----------|---|--------|---|
| VEHICLE FILE | | | | | |
| ANNUALZD | NUM 8 | | Odometer-based annual miles estimate | | |
| ANN_FLG | CHAR 2 | | Reasons for missing ANNUALZD value | | |
| ANULZDSE | NUM 8 | | Standard error of ANNUALZD estimate | | |
| BESTMILE | NUM 8 | | Best estimate of annual miles | | |
| BEST_EDT | CHAR 2 | | Flag any edits/adjustments to BESTMILE | | |
| BEST_FLG | CHAR 2 | | How BESTMILE was computed | | |
| BEST_OUT | CHAR 2 | | Flag identifying outlier values | | |
| BTUCOST | NUM 8 | | Fuel cost estimated in cents per gasoline equivalent | | |
| BTUYEAR | NUM 8 | | Amount of gasoline equivalent gallons consumed per year | | |
| CBSACAT | CHAR 2 | | CBSA category for the HH home address | -9 | Not Ascertained |
| | | | | 01 | 1 million or more with heavy rail |
| | | | | 02 | 1 million or more without heavy rail |
| | | | | 03 | Less than 1 million |
| | | | | 04 | Not in a CBSA |
| CBSASIZE | CHAR 2 | | CBSA population size for the HH home address | -9 | Not Ascertained |
| | | | | 01 | Less than 250,000 |
| | | | | 02 | Less than 250,000 |
| | | | | 03 | 250,000 to 499,999 |
| | | | | 04 | 500,000 to 999,999 |
| | | | | 05 | 1,000,000 to 2,999,999 |
| | | | | 06 | 3 million or more |
| 07 | Not in a CBSA | | | | |
| CDIVMSAR | CHAR 2 | | Grouping of HH by combination of CENSUS_D and MSACAT | | |
| CENSUS_D | CHAR 2 | | Census Division | 01 | New England (ME, NH, VT, CT, MA, RI) |
| | | | | 02 | Mid-Atlantic (NY, NJ, PA) |
| | | | | 03 | East North Central (IL, IN, MI, OH, WI) |
| | | | | 04 | West North Central (IA, KS, MO, MN, ND, NE, SD) |
| | | | | 05 | South Atlantic (DE, FL, GA, MD, NC, SC, WV, VA) |
| | | | | 06 | East South Central (AL, KY, MS, TN) |
| | | | | 07 | West South Central (AR, LA, OK, TX) |
| | | | | 08 | Mountain (AZ, CO, ID, MT, NM, NV, UT, WY) |
| | | | | 09 | Pacific (AK, CA, HI, OR, WA) |
| | | | | 00 | Puerto Rico |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|----------|--|---------|------------------------|
| CENSUS_R | CHAR 2 | | Census Region | 01 | Northeast |
| | | | | 02 | Midwest |
| | | | | 03 | South |
| | | | | 04 | West |
| | | | | 00 | Puerto Rico |
| EIADMPG | NUM 8 | | Miles per gallon for this vehicle | | |
| EPATMPG | NUM 8 | | EPA total miles per gallon for this vehicle | | |
| EPATMPGF | CHAR 2 | | EPA total miles per gallon was imputed | | |
| ESTMILE2 | CHAR 2 | | Mileage range for number of miles vehicle driven | 01 | 5,000 miles or less |
| | | | | 02 | 5,001 to 10,000 miles |
| | | | | 03 | 10,001 to 15,000 miles |
| | | | | 04 | 15,001 to 20,000 miles |
| | | | | 05 | More than 20,000 miles |
| | | | | -1 | Appropriate Skip |
| ESTMILES | NUM 8 | L10. | Miles vehicle driven since S purchased | 0-20000 | |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| FUELTYPE | CHAR 2 | | Fuel type | | |
| GSCOST | NUM 8 | | Fuel cost estimated in cents per gallon for this vehicle | | |
| GSTOTCST | NUM 8 | | Total cost of gas per year for this vehicle | | |
| GSYRGAL | NUM 8 | | Gallons of gas per year for this vehicle | | |
| HBHRESDN | CHAR 2 | | HU density (units/square mile), BG | | |
| HBHTNRNT | CHAR 2 | | Percent renter occupied, block group | | |
| HBHUR | CHAR 2 | | Urban/rural code, block group | | |
| HBPPOPDN | CHAR 2 | | Population density, block group | | |
| HHCITYFP | CHAR 5 | | City FIPS for home address | | |
| HHCNTYFP | CHAR 3 | | County FIPS for home address | | |
| HHCT | CHAR 2 | | HH Census Tract | | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|---------------------|----------|-------------------------------|----------|---|
| HHC_MSA | CHAR 4 | | CMSA FIPS code for HH address | -1 | Appropriate Skip |
| | | | | -9 | Not Ascertained |
| | | | | 1122 | Boston-Worcester-Lawrence, MA-NH-ME-CT |
| | | | | 1602 | Chicago-Gary-Kenosha, IL-IN-WI |
| | | | | 1642 | Cincinnati-Hamilton, OH-KY-N |
| | | | | 1692 | Cleveland-Akron, OH |
| | | | | 1922 | Dallas-Fort Worth, TX |
| | | | | 2082 | Denver-Boulder-Greeley, CO |
| | | | | 2162 | Detroit-Ann Arbor-Flint, MI |
| | | | | 3362 | Houston-Galveston-Brazoria, TX |
| | | | | 4472 | Los Angeles-Riverside-Orange County, CA |
| | | | | 4992 | Miami-Fort Lauderdale, FL |
| | | | | 5082 | Milwaukee-Racine, WI |
| | | | | 5602 | New York-Northern New Jersey-Long Island, NY-NJ-CT-PA |
| | | | | 6162 | Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD |
| | | | | 6442 | Portland-Salem, OR-WA |
| | | | | 6922 | Sacramento-Yolo, CA |
| | | | | HHFAMINC | CHAR 2 |
| -8 | Don't Know | | | | |
| -9 | Not Ascertained | | | | |
| 01 | < \$5,000 | | | | |
| 02 | \$5,000 - \$9,999 | | | | |
| 03 | \$10,000 - \$14,999 | | | | |
| 04 | \$15,000 - \$19,999 | | | | |
| 05 | \$20,000 - \$24,999 | | | | |
| 06 | \$25,000 - \$29,999 | | | | |
| 07 | \$30,000 - \$34,999 | | | | |
| 08 | \$35,000 - \$39,999 | | | | |
| 09 | \$40,000 - \$44,999 | | | | |
| 10 | \$45,000 - \$49,999 | | | | |
| 11 | \$50,000 - \$54,999 | | | | |
| 12 | \$55,000 - \$59,999 | | | | |
| 13 | \$60,000 - \$64,999 | | | | |
| 14 | \$65,000 - \$69,999 | | | | |
| 15 | \$70,000 - \$74,999 | | | | |
| 16 | \$75,000 - \$79,999 | | | | |
| 17 | \$80,000 - \$99,999 | | | | |
| 18 | \$100,000 or More | | | | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|----------|--|--------|--|
| HHSTATE | CHAR 2 | D4 | State HH location | AK | |
| | | | | AL | |
| | | | | AR | |
| | | | | AZ | |
| | | | | CA | |
| | | | | CO | |
| | | | | CT | |
| | | | | DC | |
| | | | | DE | |
| | | | | FL | |
| | | | | GA | |
| | | | | HI | |
| | | | | IA | |
| | | | | ID | |
| | | | | IL | |
| | | | | IN | |
| | | | | KS | |
| | | | | KY | |
| | | | | LA | |
| | | | | MA | |
| | | | | MD | |
| | | | | ME | |
| | | | | MI | |
| | | | | MN | |
| | | | | MO | |
| MS | | | | | |
| MT | | | | | |
| NC | | | | | |
| ND | | | | | |
| NE | | | | | |
| NH | | | | | |
| NJ | | | | | |
| NM | | | | | |
| NV | | | | | |
| NY | | | | | |
| OH | | | | | |
| OK | | | | | |
| OR | | | | | |
| PA | | | | | |
| RI | | | | | |
| SC | | | | | |
| SD | | | | | |
| TN | | | | | |
| TX | | | | | |
| UT | | | | | |
| VA | | | | | |
| VT | | | | | |
| WA | | | | | |
| WI | | | | | |
| WV | | | | | |
| WY | | | | | |
| HHSTFIPS | CHAR 2 | | State FIPS for HH address | -9 | Not Ascertained |
| HH_HISP | CHAR 2 | C6. | Are you of Hispanic, Latino, or Spanish origin? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| HH_RACE | CHAR 2 | C7. | Please tell me which best describes your race. Are you...] | 01 | White |
| | | | | 02 | African American, Black |
| | | | | 03 | Asian |
| | | | | 04 | American Indian, Alaskan Native |
| | | | | 05 | Native Hawaiian, or other Pacific Islander |
| | | | | 06 | MULTIRACIAL |
| | | | | 07 | HISPANIC/MEXICAN |
| | | | | 97 | OTHER SPECIFY? |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|---------|----------|---|-----------------|---|
| HH_RACOS | CHAR 30 | | OTHER SPECIFY | | Enter Text |
| HOUSEID | CHAR 9 | | Assigned Unique House Ids | | |
| HTEMPDN | CHAR 2 | | Jobs per square mile, census tract | | |
| HTHRESDN | CHAR 2 | | HU density (units/sq. mile), census tract | | |
| HTHTNRNT | CHAR 2 | | Percent renter occupied, census tract | | |
| HTHUR | CHAR 2 | | Urban/rural code, census tract | | |
| HTPPOPDN | CHAR 2 | | Population density, census tract | | |
| HYBRID | CHAR 2 | | Hybrid vehicle | 01 | YES |
| | | | | 02 | NO |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| LANG | CHAR 2 | | Language interview was conducted in | 01 | English |
| | | | | 02 | Spanish |
| LIF_CYC | CHAR 2 | | Life Cycle for the HH | | (derived) |
| L_MAKE | CHAR 3 | L7. | Vehicle make name | 001-989 | |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| L_MODEL | CHAR 4 | L7. | Vehicle model name | 0001-4813 | |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| L_YEAR | NUM 8 | L7. | Vehicle model year | 1923-2009 | |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| MAKECODE | CHAR 3 | B2. | NASS vehicle make code | 001-989 | |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| MAKENAME | CHAR 30 | B2. | Vehicle make name | | Enter Text |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| MILELMT | CHAR 2 | | ANNMILES capped at 200,000 | 01 YES 02 NO | |
| MODLCODE | CHAR 4 | B2. | NASS vehicle model code | 001-999 | |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| MSACAT | CHAR 2 | | MSA category for the HH home address | -9 | Not Ascertained |
| | | | | 01 | MSA or CMSA of 1 million or more with heavy rail |
| | | | | 02 | MSA or CMSA of 1 million or more without heavy rail |
| | | | | 03 | MSA of less than 1 million |
| | | | | 04 | Not in a MSA |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|----------|---|--------|---------------------------------------|
| MSASIZE | CHAR 2 | | MSA population size for the HH home address | -9 | Not Ascertained |
| | | | | 01 | MSA of less than 250,000 |
| | | | | 02 | MSA of 250,000 to 499,999 |
| | | | | 03 | MSA of 500,000 to 999,999 |
| | | | | 04 | MSA or CMSA of 1,000,000 to 2,999,999 |
| | | | | 05 | MSA or CMSA of 3 million or more |
| OD_READ | NUM 8 | N2. | Odometer reading | 06 | Not in a MSA |
| | | | | | 0-999999 |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| OWNUNIT | CHAR 2 | L8. | How long vehicle owned - unit | -9 | Not Ascertained |
| | | | | 01 | Days |
| | | | | 02 | Weeks |
| | | | | 03 | Month |
| | | | | 04 | Years |
| RAIL | CHAR 2 | | MSA heavy rail status for HH | -1 | Appropriate Skip |
| | | | | -9 | Not Ascertained |
| SMPLAREA | CHAR 3 | | Add-On region | AL | |
| | | | | AZ | |
| | | | | CA | |
| | | | | CR | |
| | | | | CT | |
| | | | | FL | |
| | | | | GA | |
| | | | | HI | |
| | | | | IA | |
| | | | | IN | |
| | | | | KY | |
| | | | | MD | |
| | | | | MI | |
| | | | | MO | |
| | | | | NC | |
| | | | | NE | |
| | | | | NH | |
| | | | | NV | |
| | | | | NY | |
| | | | | OK | |
| | | | | PA | |
| | | | | PH | |
| | | | | PI | |
| | | | | SC | |
| | | | | SD | |
| | | | | TN | |
| TU | | | | | |
| TX | | | | | |
| US | | | | | |
| UT | | | | | |
| VA | | | | | |
| VT | | | | | |
| WA | | | | | |
| WI | | | | | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|---------|----------|--|-----------|----------------------|
| SMPLSRCE | CHAR 3 | | Sampled region | CA | |
| | | | | CR | |
| | | | | FL | |
| | | | | GA | |
| | | | | IA | |
| | | | | IN | |
| | | | | NC | |
| | | | | NY | |
| | | | | OK | |
| | | | | PI | |
| | | | | SC | |
| | | | | SD | |
| | | | | TN | |
| | | | | TX | |
| | | | | US | |
| VA | | | | | |
| VT | | | | | |
| WI | | | | | |
| STRATUM | CHAR 2 | | Geographic site within SAMPREGN | 01-51 | |
| TDAYDAT2 | CHAR 8 | | Travel day - date | YYYY MMDD | 20080328-20080831 |
| URBAN | CHAR 2 | | Home address in urbanized area | | |
| URBRUR | CHAR 2 | | Household in urban/rural area | | |
| VEH12MNT | CHAR 2 | | Vehicle received in the last 12 months | 01 | YES |
| | | | | 02 | NO |
| | | | | -1 | Appropriate Skip |
| | | | | -9 | Not Ascertained |
| VEHCOMM | CHAR 2 | C22B. | Commercial license plate | 01 | YES |
| | | | | 02 | NO |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| VEHID | CHAR 2 | G31. | HH vehicle number used for trip | | Enter Vehicle ID |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| VEHMILE2 | CHAR 2 | L9B. | Annual Vehicle Mileage Range | 01 | 5K miles or less |
| | | | | 02 | 5,001 - 10K miles |
| | | | | 03 | 10,001 - 15K miles |
| | | | | 04 | 15,001 - 20K miles |
| | | | | 05 | More than 20K miles |
| | | | | -7 | REFUSED |
| VEHMILES | NUM 8 | L9. | Miles driven last 12 months | | 0-200000 |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| VEHOWNED | NUM 8 | L8. | How long have you had the {VEHYEAR, MAKECODE, MODLCODE}? | 01-59 | |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| VEHOWNMO | NUM 8 | L8. | How long vehicle owned - Months | | 0-708 |
| | | | | -1 | Appropriate Skip |
| | | | | -9 | Not Ascertained |
| VEHTYPOS | CHAR 30 | L7. | Vehicle type other specify | | Enter Text |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|----------|---|-----------|------------------------------|
| VEHTYPE | CHAR 2 | L7. | Vehicle type | 01 | AUTOMOBILE/CAR/STATION WAGON |
| | | | | 02 | VAN [MINI/CARGO/PASSENGER] |
| | | | | 03 | SPORTS UTILITY VEHICLE |
| | | | | 04 | PICKUP TRUCK |
| | | | | 05 | OTHER TRUCK |
| | | | | 06 | RV [RECREATIONAL VEHICLE] |
| | | | | 07 | MOTORCYCLE/MOTORBIKE |
| | | | | 97 | OTHER SPECIFY |
| | | | | -8 | DON'T KNOW |
| VEHYEAR | NUM 8 | B2. L7. | Vehicle year | 1923-2009 | |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| VERESTML | CHAR 2 | L10A. | Verify number of miles vehicle driven since S purchase | 01 | YES |
| | | | | 02 | NO |
| | | | | -1 | Appropriate Skip |
| | | | | -9 | Not Ascertained |
| VERMILES | CHAR 2 | L9A. | Verify miles vehicle driven last 12 months | 01 | YES |
| | | | | 02 | NO |
| | | | | -1 | Appropriate Skip |
| | | | | -9 | Not Ascertained |
| VTYPFUEL | CHAR 2 | | Type of vehicle by fuel type | | |
| WHOMAIN | CHAR 2 | C12. | Now, about the household vehicle(s) you told me about earlier, who drives the {VEHYEAR, MAKECODE, AND MODLCODE} most of the time? | 01-98 | PERSONID |
| | | | | 99 | NO MAIN DRIVER |
| | | | | -7 | REFUSED |
| WKSTFIPS | CHAR 2 | | State FIPS for S work address | | |
| | | | | | |
| WORKCT | CHAR 2 | | Work place Census Tract | | |
| WRK-COUNT | NUM 8 | E3 | Number of workers in HH | 0-6 | |
| WTHHFIN | NUM 8 | | Final HH weight | | |
| WRKRCNT | NUM 8 | | Total Number of Workers | 1-99 | |

Appendix H. Data Dictionary for Trip Table

TDCODEVARS.XLS

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|-----------------|---------|----------|---|--|--|
| TRAVEL DAY FILE | | | | | |
| AWAYHMSP | CHAR 30 | | Travel day reason S was away from home | -1 | Enter Text Appropriate Skip |
| AWAYHOME | CHAR 2 | G25 A-E. | What was the main reason {you were/SUBJECT was} away from home? | 10 11 12 13 14 20 21 22 23 24 30 40 41 42 43 60 61 62 63 64 65 50 51 52 53 54 55 80 81 82 83 70 71 72 73 | WORK GO TO WORK RETURN TO WORK ATTEND BUSINESS MEETING/TRIP OTHER WORK RELATED SCHOOL/DAYCARE/RELIGIOUS ACTIVITY GO TO SCHOOL AS A STUDENT GO TO RELIGIOUS ACTIVITY GO TO LIBRARY: SCHOOL RELATED DAYCARE BEFORE OR AFTER SCHOOL MEDICAL/DENTAL SERVICES SHOPPING/ERRANDS BUY GOODS: GROCERIES/CLOTHING/HARDWARE STORE BUY SERVICES: VIDEO RENTALS/DRY CLEANERS/POST OFFICE/CAR SEVICE/BANK BUY GAS FAMILY PERSONAL BUSINESS/OBLIGATIONS USE PROFESSIONAL SERVICES: ATTORNEY/ACCOUNTANT ATTEND FUNERAL/WEDDING USE PERSONAL SERVICES: GROOMING/HAIRCUT/NAILS PET CARE: WALK THE DOG/VET VISITS ATTEND MEETING: PTA/HOME OWNERS ASSOCIATION/LOCAL GOVERNMENT SOCIAL/RECREATIONAL GO TO GYM/EXERCISE/PLAY SPORTS REST OR RELAXATION/VACATION VISIT FRIENDS/RELATIVES GO OUT/HANG OUT: ENTERTAINMENT/THEATER/SPORTS EVENT/GO TO BAR VISIT PUBLIC PLACE: HISTORICAL SITE/MUSEUM/PARK/LIBRARY MEALS SOCIAL EVENT GET/EAT MEAL COFFEE/ICE CREAM/SNACKS TRANSPORT SOMEONE PICKUP SOMEONE TAKE AND WAIT DROP SOMEONE OFF |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|----------|--|--|--|
| CBSACAT | CHAR 2 | | CBSA category for the HH home address | -9 01 02 03 04 | Not Ascertained 1 million or more with heavy rail 1 million or more without heavy rail Less than 1 million Not in a CBSA |
| CBSASIZE | CHAR 2 | | CBSA population size for the HH home address | -9 01 02 03 04 05 06 07 | Not Ascertained Less than 250,000 Less than 250,000 250,000 to 499,999 500,000 to 999,999 1,000,000 to 2,999,999 3 million or more Not in a CBSA |
| CDIVMSAR | CHAR 2 | | Grouping of HH by combination of CENSUS_D and MSACAT | | |
| CENSUS_D | CHAR 2 | | Census Division | 01 02 03 04 05 06 07 08 09 00 | New England (ME, NH, VT, CT, MA, RI) Mid-Atlantic (NY, NJ, PA) East North Central (IL, IN, MI, OH, WI) West North Central (IA, KS, MO, MN, ND, NE, SD) South Atlantic (DE, FL, GA, MD, NC, SC, WV, VA) East South Central (AL, KY, MS, TN) West South Central (AR, LA, OK, TX) Mountain (AZ, CO, ID, MT, NM, NV, UT, WY) Pacific (AK, CA, HI, OR, WA) Puerto Rico |
| CENSUS_R | CHAR 2 | | Census Region | 01 02 03 04 00 | Northeast Midwest South West Puerto Rico |
| DRIVER | CHAR 2 | C8. | Driver status of subject. | 01 02 -7 -8 | YES NO REFUSED DON'T KNOW |
| DROP_PRK | CHAR 2 | G35A. | Did you park at the {bus/train/subway/street car/pier/terminal} or were you dropped off? | 01 02 -7 -8 | PARKED DROPPED OFF REFUSED DON'T KNOW |
| DRVR_FLG | CHAR 2 | G49. | Who was the driver? | 01 02 -7 -8 | YES NO REFUSED DON'T KNOW |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|-----------------|----------|--|----------------------|---|
| EDUC | CHAR 2 | M7. | What is the highest grade or year of school {you have/FNAME/AGE/SEX} has completed? | 01 | LESS THAN HIGH SCHOOL GRAD |
| | | | | 02 | HIGH SCHOOL GRADUATE, INCLUDING GED |
| | | | | 03 | SOME COLLEGE, OR ASSOCIATE'S DEGREE (FOR EXAMPLE, AA) |
| | | | | 04 | BACHELOR'S DEGREE (FOR EXAMPLE BA, AB, BS), |
| | | | | 05 | GRADUATE OR PROFESSIONAL SCHOOL DEGREE (FOR EXAMPLE MA, MS, MBA, MD, DDS, PHD, EdD, JD) |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | | ENDAMPM | CHAR 2 |
| -7 | Refused | | | | |
| -8 | Don't Know | | | | |
| -9 | Not Ascertained | | | | |
| 1 | AM | | | | |
| 2 | PM | | | | |
| ENDHOUR | NUM 8 | G17 | Travel day trip end time—hour | -1 | Appropriate Skip |
| | | | | -2 | Not Interviewed |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| | | | | 1-12 | |
| ENDMINTE | NUM 8 | | Travel day trip end time—minute | -1 | Appropriate Skip |
| | | | | -2 | Not Interviewed |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| | | | | 0-59 | |
| ENDTIME | CHAR 2 | G17. | Trip END time in military | -1 | Appropriate Skip |
| | | | | -9 | Not Ascertained |
| | | | | 0000-2359 | 0000-2359 |
| For Virginia: | | | | | |
| VA5 | CHAR 2 | EVA5. | Thinking about your travel on public transit in your area, please tell me if you agree or disagree with the following statements. Randomly select one question | 01 02 -7 -8 | YES NO REFUSED DON'T KNOW |
| VA5A | CHAR 2 | | a. Local public transit provides a good travel experience. | | |
| VA5B | | | b. Local public transit service is reliable. | | |
| VA5C | | | c. Local public transit service is safe from crime. | | |
| VA5D | | | d. Local public transit service is easy to use. | | |
| VA5E | | | e. The cost of local public transit is reasonable. | | |
| VA5F | | | f. Local public transit service is fast enough for my needs. | | |
| HBHRESDN | CHAR 2 | | HU density (units/square mile), BG | | |
| HBHTNRNT | CHAR 2 | | Percent renter occupied, block group | | |
| HBHUR | CHAR 2 | | Urban/rural code, block group | | |
| HBPPDPDN | CHAR 2 | | Population density, block group | | |
| HHCITYFP | CHAR 5 | | City FIPS for home address | | |
| HHCNTYFP | CHAR 3 | | County FIPS for home address | | |
| HHCT | CHAR 2 | | HH Census Tract | | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|-----------------------------------|----------|--|--------|---|
| HHC_MSA | CHAR 4 | | CMSA FIPS code for HH address | -1 | Appropriate Skip |
| | | | | -9 | Not Ascertained |
| | | | | 1122 | Boston-Worcester-Lawrence, MA-NH-ME-CT |
| | | | | 1602 | Chicago-Gary-Kenosha, IL-IN-WI |
| | | | | 1642 | Cincinnati-Hamilton, OH-KY-IN |
| | | | | 1692 | Cleveland-Akron, OH |
| | | | | 1922 | Dallas-Fort Worth, TX |
| | | | | 2082 | Denver-Boulder-Greeley, CO |
| | | | | 2162 | Detroit-Ann Arbor-Flint, MI |
| | | | | 3362 | Houston-Galveston-Brazoria, TX |
| | | | | 4472 | Los Angeles-Riverside-Orange County, CA |
| | | | | 4992 | Miami-Fort Lauderdale, FL |
| | | | | 5082 | Milwaukee-Racine, WI |
| | | | | 5602 | New York-Northern New Jersey-Long Island, NY-NJ-CT-PA |
| | | | | 6162 | Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD |
| | | | | 6442 | Portland-Salem, OR-WA |
| | | | | 6922 | Sacramento-Yolo, CA |
| | | | | 7362 | San Francisco-Oakland-San Jose, CA |
| 7602 | Seattle-Tacoma-Bremerton, WA | | | | |
| 8872 | Washington-Baltimore, DC-MD-VA-WV | | | | |
| HHFAMINC | CHAR 2 | M14 | Derived total HH income | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| | | | | 01 | < \$5,000 |
| | | | | 02 | \$5,000 - \$9,999 |
| | | | | 03 | \$10,000 - \$14,999 |
| | | | | 04 | \$15,000 - \$19,999 |
| | | | | 05 | \$20,000 - \$24,999 |
| | | | | 06 | \$25,000 - \$29,999 |
| | | | | 07 | \$30,000 - \$34,999 |
| | | | | 08 | \$35,000 - \$39,999 |
| | | | | 09 | \$40,000 - \$44,999 |
| | | | | 10 | \$45,000 - \$49,999 |
| | | | | 11 | \$50,000 - \$54,999 |
| | | | | 12 | \$55,000 - \$59,999 |
| | | | | 13 | \$60,000 - \$64,999 |
| | | | | 14 | \$65,000 - \$69,999 |
| | | | | 15 | \$70,000 - \$74,999 |
| 16 | \$75,000 - \$79,999 | | | | |
| 17 | \$80,000 - \$99,999 | | | | |
| 18 | \$100,000 or More | | | | |
| HHMEMDRV | CHAR 2 | G48. | Did {you/SUBJECT/ a member of the household} drive on this trip? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| HHRESP | CHAR 2 | | Household respondent | | PERSONID of HH Respondent |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|----------|---|------------|----------------------|
| HHSTATE | CHAR 2 | D4 | State HH location | AK | |
| | | | | AL | |
| | | | | AR | |
| | | | | AZ | |
| | | | | CA | |
| | | | | CO | |
| | | | | CT | |
| | | | | DC | |
| | | | | DE | |
| | | | | FL | |
| | | | | GA | |
| | | | | HI | |
| | | | | IA | |
| | | | | ID | |
| | | | | IL | |
| | | | | IN | |
| | | | | KS | |
| | | | | KY | |
| | | | | LA | |
| | | | | MA | |
| | | | | MD | |
| | | | | ME | |
| | | | | MI | |
| | | | | MN | |
| | | | | MO | |
| | | | | MS | |
| | | | | MT | |
| | | | | NC | |
| | | | | ND | |
| | | | | NE | |
| | | | | NH | |
| | | | | NJ | |
| | | | | NM | |
| | | | | NV | |
| | | | | NY | |
| | | | | OH | |
| | | | | OK | |
| | | | | OR | |
| | | | | PA | |
| | | | | RI | |
| | | | | SC | |
| | | | | SD | |
| | | | | TN | |
| | | | | TX | |
| | | | | UT | |
| | | | | VA | |
| | | | | VT | |
| | | | | WA | |
| | | | | WI | |
| | | | | WV | |
| WY | | | | | |
| HHSTFIPS | CHAR 2 | | State FIPS for HH address | -9 1-56 | Not Ascertained |
| HH_HISP | CHAR 2 | C6. | Are you of Hispanic, Latino, or Spanish origin? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| HH_ONTD | NUM 8 | G45. | Total number of household members on travel day trip including subject. Derived from the sum of ONTD_P1 through ONTD_P14 (derived). | 0-10 | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|---------|----------|--|--------|--|
| HH_RACE | CHAR 2 | C7. | Please tell me which best describes your race. Are you...] | 01 | White |
| | | | | 02 | African American, Black |
| | | | | 03 | Asian |
| | | | | 04 | American Indian, Alaskan Native |
| | | | | 05 | Native Hawaiian, or other Pacific Islander |
| | | | | 06 | MULTIRACIAL |
| | | | | 07 | HISPANIC/MEXICAN |
| | | | | 97 | OTHER SPECIFY ? |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| HH_RACOS | CHAR 30 | | OTHER SPECIFY | | Enter Text |
| HOUSEID | CHAR 9 | | Assigned Unique House Id | | |
| HOWFRPOS | CHAR 30 | | Mode used from public transit to destination – other. | | Enter Text -1 = Appropriate Skip |
| HOWPUBOS | CHAR 30 | | Mode used to get to public transit – other | | Enter Text -1 = Appropriate Skip |
| HTEEMPDN | CHAR 2 | | Jobs per square mile, census tract | | |
| HTHRESDN | CHAR 2 | | HU density (units/square mile), census tract | | |
| HTHTNRNT | CHAR 2 | | Percent renter occupied, census tract | | |
| HTHUR | CHAR 2 | | Urban/rural code, census tract | | |
| HTPPOPDN | CHAR 2 | | Population density, census tract | | |
| INTSTATE | CHAR 2 | GB. | FOR POV's ONLY, Was any part of this trip made on the Interstate? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| LANG | CHAR 2 | | Language interview was conducted in | 01 | English |
| | | | | 02 | Spanish |
| LIF_CYC | CHAR 2 | | Life Cycle for the HH (derived) | | |
| LONGFRHR | NUM 8 | G39. | How long did it take {you/SUBJECT} to get to {DESTINATION from the {bus/train/pier/subway/street car}? | 0-24 | |
| LONGFRMN | NUM 8 | | | 0-200 | |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| LONGTOHR | NUM 8 | G36. | How long did it take {you/SUBJECT} to get to the {bus/train/pier/subway/street car}? | 0-24 | |
| | | | | | |
| | | | | | |
| LONGTOMN | NUM 8 | | | 0-200 | |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------------|----------|---|--------|---|
| MAINRSLT | CHAR 2 | | Respondent final result code | C1 | C1 = Completed Interviewer by Subject |
| | | | | C2 | C2 = Completed Interviewer by Proxy |
| | | | | J1 | J1 = Age 0 to 4 years old |
| | | | | LH | LH = Final Language Problem - Hearing/Speech |
| | | | | LM | LM = Max Call Language |
| | | | | LP | LP = Final Language Problem |
| | | | | MC | MC = Max Call |
| | | | | ML | ML = Max Call Lang |
| | | | | MR | MR = Max call Ref |
| | | | | ND | ND = Subject deceased |
| | | | | NG | NG = Military Deployment |
| | | | | NP | NP = Not available in Field Period |
| | | | | NR | NR = Non-Residential |
| | | | | NS | NS = Subject Sick |
| | | | | OE | OE = Enumeration Error |
| | | | | OO | OO = Other Out of scope |
| | | | | R3 | R3 = Final refusal for Re-Released RBs |
| | | | | FB | FB = Final refusal |
| | | | | RM | RM = Max Call Refusal |
| MSACAT | CHAR 2 | | MSA categories for the HH home address | -9 | Not Ascertained |
| | | | | 01 | MSA or CMSA of 1 million or more with heavy rail |
| | | | | 02 | MSA or CMSA of 1 million or more without heavy rail |
| | | | | 03 | MSA of less than 1 million |
| | | | | 04 | Not in a MSA |
| MSASIZE | CHAR 2 | | MSA population size for the HH home address | -9 | Not Ascertained |
| | | | | 01 | MSA of less than 250,000 |
| | | | | 02 | MSA of 250,000 to 499,999 |
| | | | | 03 | MSA of 500,000 to 999,999 |
| | | | | 04 | MSA or CMSA of 1,000,000 to 2,999,999 |
| | | | | 05 | MSA or CMSA of 3 million or more |
| 06 | Not in a MSA | | | | |
| NONHHCNT | NUM 8 | G47. | Derived number of non-HHMs on trip | 0-15 | |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| NUMONTRP | NUM 8 | G45. | Count of total people on trip | 0-16 | |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| NY1 | CHAR 2 | | Bus system used for trip | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | 01 | Metro Transit Authority |
| | | | | 02 | NJ Transit |
| NY2 | CHAR 2 | | Rail system used for trip | -1 | Appropriate Skip |
| | | | | -8 | Don't Know |
| | | | | 01 | Long Island Rail Road |
| | | | | 02 | NJ Transit |
| | | | | 03 | Metro North |
| NY3 | CHAR 2 | | Subway system used for trip | -1 | Appropriate Skip |
| | | | | -8 | Don't Know |
| | | | | 01 | Path |
| | | | | 02 | NYCTA Subway |
| | | | | 03 | SI Rapid Transit |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|----------|--|--------|---|
| NY4 | CHAR 2 | | Ferry used for trip | -1 | Appropriate Skip |
| | | | | -9 | Not Ascertained |
| | | | | 02 | Staten Island |
| | | | | 03 | Other |
| NY5 | CHAR 2 | | Airport used for trip | -1 | Appropriate Skip |
| | | | | 01 | JFK |
| | | | | 02 | LaGuardia |
| | | | | 05 | Other |
| | | | | | |
| PAYTOLL | CHAR 2 | GC. | Did you pay a toll while traveling on this Interstate? | 01 | YES |
| | | | | 02 | NO |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | | | |
| PERSONID | CHAR 2 | | Person ID number | 01-13 | |
| PRMACT | CHAR 2 | E3. | During most of last week, {were you/was SUBJECT} | 01 | WORKING |
| | | | | 02 | TEMPORARILY ABSENT FROM A JOB OR BUSINESS |
| | | | | 03 | LOOKING FOR WORK |
| | | | | 04 | HOMEMAKER |
| | | | | 05 | GOING TO SCHOOL |
| | | | | 06 | RETIRED |
| | | | | 07 | DOING SOMETHING ELSE |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | PROXY | CHAR 2 |
| | | | | 02 | PROXY |
| | | | | -1 | Appropriate Skip |
| PSGR_FLG | CHAR 2 | G45. | S was passenger on trip that only used POV | 01 | YES |
| | | | | 02 | NO |
| | | | | -1 | Appropriate Skip |
| | | | | -9 | Not Ascertained |
| | | | | | |
| PUBTYPE | CHAR 2 | G33. | Which one? | 01 | BUS |
| | | | | 02 | SUBWAY/TRAIN |
| | | | | 03 | FERRY BOAT |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| RAIL | CHAR 2 | | MSA heavy rail status for HH | | |
| R_AGE | NUM 8 | | | 0-115 | |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| R_SEX | CHAR 2 | | | 01 | MALE |
| | | | | 02 | FEMALE |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | | | |
| SMPLAREA | CHAR 3 | | Add-On region | AL | |
| | | | | AZ | |
| | | | | CA | |
| | | | | CR | |
| | | | | CT | |
| | | | | FL | |
| | | | | GA | |
| | | | | HI | |
| | | | | IA | |
| | | | | IN | |
| | | | | KY | |
| | | | | MD | |
| | | | | MI | |
| | | | | MO | |
| | | | | NC | |
| | | | | NE | |
| | | | | NH | |
| | | | | NV | |
| | | | | NY | |
| | | | | OM | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|----------|-------------------------------------|-----------|----------------------|
| SMPLAREA | CHAR 3 | | Add-On region (continued) | PA | |
| | | | | PH | |
| | | | | PI | |
| | | | | SC | |
| | | | | SD | |
| | | | | TN | |
| | | | | TU | |
| | | | | TX | |
| | | | | US | |
| | | | | UT | |
| | | | | VA | |
| | | | | VT | |
| | | | | WA | |
| | | | | WI | |
| SMPLSRCE | CHAR 3 | | Sampled region | CA | |
| | | | | CR | |
| | | | | FL | |
| | | | | GA | |
| | | | | IA | |
| | | | | IN | |
| | | | | NC | |
| | | | | NY | |
| | | | | OM | |
| | | | | PI | |
| | | | | SC | |
| | | | | SD | |
| | | | | TN | |
| | | | | TX | |
| US | | | | | |
| VA | | | | | |
| VT | | | | | |
| WI | | | | | |
| STRATUM | CHAR 2 | | Geographic site within SAMPREGN | 01-51 | I |
| STRTAMPM | CHAR 2 | G16. | Travel day trip start time AM/PM | 01 | AM |
| | | | | 02 | PM |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| STRTHR | NUM 8 | G16. | Travel day trip start time - hour | 1-12 | |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| STRTMIN | NUM 8 | G16. | Travel day trip start time - minute | 0-59 | |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| STRTTIME | CHAR 4 | G16. | Trip START time in military | 0000-2359 | |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| | | | | -8 | Don't Know |
| | | | | -9 | Not Ascertained |
| TDAYDAT2 | CHAR 8 | | Travel day - date | YYYY MMDD | 20080328-20080831 |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|----------|---|--------|------------------------------------|
| TRACC1 | CHAR 2 | G35. | 1st mode used to get to public transit | 01 | CAR |
| TRACC2 | CHAR 2 | | | 02 | VAN |
| TRACC3 | CHAR 2 | | | 03 | SUV |
| TRACC4 | CHAR 2 | | | 04 | PICKUP TRUCK |
| TRACC5 | CHAR 2 | | | 05 | OTHER TRUCK |
| | | | | 06 | RV |
| | | | | 07 | MOTORCYCLE |
| | | | | 08 | LIGHT ELECTRIC VEHICLE (Golf Cart) |
| | | | | 09 | LOCAL PUBLIC TRANSIT |
| | | | | 10 | COMMUTER BUS |
| | | | | 11 | SCHOOL BUS |
| | | | | 12 | CHARTER/TOUR BUS |
| | | | | 13 | CITY TO CITY |
| | | | | 14 | SHUTTLE BUS |
| | | | | 15 | AMTRAK/INTER CITY |
| | | | | 16 | COMMUTER TRAIN |
| | | | | 17 | SUBWAY/ELEVATED |
| | | | | 18 | STREET CAR/TROLLEY |
| | | | | 19 | TAXICAB |
| | | | | 20 | FERRY |
| | | | | 21 | AIRPLANE |
| | | | | 22 | BICYCLE |
| | | | | 23 | WALK |
| | | | | 24 | SPECIAL TRANSIT (DIAL-A-RIDE) |
| | | | | 97 | OTHER SPECIFY |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| TRACCTM | NUM 8 | G36. | Derived time to get to public transit - minutes | 0-210 | |
| | | | | -1 | Appropriate Skip |
| | | | | -9 | Not Ascertained |
| TREGRI | CHAR 2 | G38. | How did {you/SUBJECT} get from the {bus/train/pier/subway/street car} to {DESTINATION}? | 01 | CAR |
| TREGR2 | CHAR 2 | | | 02 | VAN |
| TREGR3 | CHAR 2 | | | 03 | SUV |
| TREGR4 | CHAR 2 | | | 04 | PICKUP TRUCK |
| TREGR5 | CHAR 2 | | | 05 | OTHER TRUCK |
| | | | | 06 | RV |
| | | | | 07 | MOTORCYCLE |
| | | | | 08 | LIGHT ELECTRIC VEHICLE (Golf Cart) |
| | | | | 09 | LOCAL PUBLIC TRANSIT |
| | | | | 10 | COMMUTER BUS |
| | | | | 11 | SCHOOL BUS |
| | | | | 12 | CHARTER/TOUR BUS |
| | | | | 13 | CITY TO CITY |
| | | | | 14 | SHUTTLE BUS |
| | | | | 15 | AMTRAK/INTER CITY |
| | | | | 16 | COMMUTER TRAIN |
| | | | | 17 | SUBWAY/ELEVATED |
| | | | | 18 | STREET CAR/TROLLEY |
| | | | | 19 | TAXICAB |
| | | | | 20 | FERRY |
| | | | | 21 | AIRPLANE |
| | | | | 22 | BICYCLE |
| | | | | 23 | WALK |
| | | | | 24 | SPECIAL TRANSIT (DIAL-A-RIDE) |
| | | | | 97 | OTHER SPECIFY |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| TREGRTM | NUM 8 | G39. | Derived time to get to public transit - minutes | 0-780 | |
| | | | | -1 | Appropriate Skip |
| | | | | -9 | Not Ascertained |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--------|----------|--|--|---|
| TRIPDIST | NUM 8 | G40. | How far is it from {LAST DESTINATION} to {CURRENT DESTINATION}? | 0-11050 -1 -7 -8 -9 | Appropriate Skip Refused Don't Know Not Ascertained |
| TRIPTIME | CHAR 2 | G41. | Earlier I recorded this entire trip took you {TIME}. Is that about right? | 01 02 -7 -8 -9 | YES NO REFUSED DON'T KNOW Not Ascertained |
| TRIPUNIT | CHAR 2 | G40. | | 01 02 -7 -8 | BLOCKS MILES REFUSED DON'T KNOW |
| TRPACOMP | NUM 8 | G43. | How many people went with {you/SUBJECT} on this trip? | 0-15 -7 -8 | REFUSED DON'T KNOW |
| TRPHACC | NUM 8 | G44. | How many were household members? | 0-15 -7 -8 | REFUSED DON'T KNOW |
| TRPHVEH | CHAR 2 | G30. | Was a household vehicle used for this trip? | 01 02 -7 -8 | YES NO REFUSED DON'T KNOW |
| TRPMILES | NUM 8 | G40. | Trip distance in miles | 0.11-11050 -1 -7 -8 -9 | Appropriate Skip Refused Don't Know Not Ascertained |
| TRPPUB | CHAR 2 | G32. | Did {you/SUBJECT} take a bus, subway, train, or some other type of public transportation during this trip? | 01 02 -7 -8 | YES NO REFUSED DON'T KNOW |
| TRPTRANS | CHAR 2 | G34. | How did {you/SUBJECT} get to {CURRENT TRIP DESTINATION}? | 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 97 -7 -8 | CAR VAN SUV PICKUP TRUCK OTHER TRUCK RV MOTORCYCLE LIGHT ELECTRIC VEHICLE (Golf Cart) LOCAL PUBLIC TRANSIT COMMUTER BUS SCHOOL BUS CHARTER/TOUR BUS CITY TO CITY SHUTTLE BUS AMTRAK/INTER CITY COMMUTER TRAIN SUBWAY/ELEVATED STREET CAR/TROLLEY TAXICAB FERRY AIRPLANE BICYCLE WALK SPECIAL TRANSIT (DIAL-A-RIDE) OTHER SPECIFY REFUSED DON'T KNOW |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|---------|----------|--|--|---|
| TRPTRNOS | CHAR 30 | | OTHER SPECIFY | | Enter Text |
| TRVL_HR | NUM 8 | G42. | About how long did this trip take?/About how long did the entire trip to {CURRENT TRIP DESTINATION} take you? | 0-24 | |
| TRVL_MN | NUM 8 | G42. | | 0-200 -7 -8 | REFUSED DON'T KNOW |
| TRVL_MIN | NUM 8 | G42. | Derived trip time - minutes | 0-1499 -1 -9 | Appropriate Skip Not Ascertained |
| TRWAITM | NUM 8 | G37. | Derived length of wait for public transit - minute | 0-300 -1 -9 | Appropriate Skip Not Ascertained |
| URBAN | CHAR 2 | | Home address in urbanized area | | |
| URBRUR | CHAR 2 | | Household in urban/rural area | | |
| USEINTST | CHAR 2 | GB. | FOR POV's ONLY, Was any part of this trip made on the Interstate? | 01 02 -7 -8 | YES NO REFUSED DON'T KNOW |
| USEPUBTR | CHAR 2 | G19. | Did {you/SUBJECT} use a bus, subway, train or some other type of public transportation during any part of these trips? | 01 02 -7 -8 | YES NO REFUSED DON'T KNOW |
| VEHID | CHAR 2 | B2 | HH vehicle number used for trip | 01-15 -1 -7 -8 -9 | Appropriate Skip REFUSED DON'T KNOW Not Ascertained |
| VEHSAME | CHAR 2 | G29. | Was the {VEHICLE} used on this trip? | 01 02 -7 -8 | YES NO REFUSED DON'T KNOW |
| WAIT_HR | NUM 8 | G37. | How long did {you/SUBJECT} have to wait for the {bus/train/pier/subway/street car}? | 0-24 | |
| WAIT_MN | NUM 8 | G37. | | 0-200 -7 -8 | REFUSED DON'T KNOW |
| WHERE | CHAR 2 | G12. | Where did {you/SUBJECT} go first/next on {TRIPDATE}? | 01 02 03 04 97 -7 -8 | HOME PRIMARY WORK LOCATION NOWHERE NO MORE TRIPS OTHER REFUSED DON'T KNOW |
| WHEREOS | CHAR 30 | | OTHER SPECIFY | | Enter Text |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|--|----------|--------------------------------|--------|---|
| WHOACC1 | CHAR 2 | G45. | Which household members? | | PERSON ID |
| WHOACC2 | CHAR 2 | | | -1 | Appropriate Skip |
| WHOACC3 | CHAR 2 | | | -7 | REFUSED |
| WHOACC4 | CHAR 2 | | | -8 | DON'T KNOW |
| WHOACC5 | CHAR 2 | | | | |
| WHOACC6 | CHAR 2 | | | | |
| WHOACC7 | CHAR 2 | | | | |
| WHOACC8 | CHAR 2 | | | | |
| WHOACC9 | CHAR 2 | | | | |
| WHOACC10 | CHAR 2 | | | | |
| WHOACC11 | CHAR 2 | | | | |
| WHOACC12 | CHAR 2 | | | | |
| WHOACC13 | CHAR 2 | | | | |
| WHOACC14 | CHAR 2 | | | | |
| WHOACC15 | CHAR 2 | | | | |
| WHODROVE | CHAR 2 | G49. | Person ID of driver on trip | 01-15 | PERSON ID of Driver |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| WHYFROM | CHAR 2 | G26. | Trip purpose for previous trip | 01 | HOME |
| | | | | 10 | WORK |
| | | | | 11 | GO TO WORK |
| | | | | 12 | RETURN TO WORK |
| | | | | 13 | ATTEND BUSINESS MEETING/TRIP |
| | | | | 14 | OTHER WORK RELATED |
| | | | | 20 | SCHOOL/DAYCARE/RELIGIOUS ACTIVITY |
| | | | | 21 | GO TO SCHOOL AS A STUDENT |
| | | | | 22 | GO TO RELIGIOUS ACTIVITY |
| | | | | 23 | GO TO LIBRARY: SCHOOL RELATED |
| | | | | 24 | DAYCARE BEFORE OR AFTER SCHOOL |
| | | | | 30 | MEDICAL/DENTAL SERVICES |
| | | | | 40 | SHOPPING/ERRANDS |
| | | | | 41 | BUY GOODS: GROCERIES/CLOTHING/HARDWARE STORE |
| | | | | 42 | BUY SERVICES: VIDEO RENTALS/DRY CLEANERS/POST OFFICE/CAR SERVICE/BANK |
| | | | | 43 | BUY GAS |
| | | | | 50 | SOCIAL/RECREATIONAL |
| | | | | 51 | GO TO GYM/EXERCISE/PLAY SPORTS |
| | | | | 52 | REST OR RELAXATION/VACATION |
| | | | | 53 | VISIT FRIENDS/RELATIVES |
| | | | | 54 | GO OUT/HANG OUT: ENTERTAINMENT/THEATER/SPORTS EVENT/GO TO BAR |
| 55 | VISIT PUBLIC PLACE: HISTORICAL | | | | |
| | | | SITE/MUSEUM/PARK/LIBRARY | | |
| 60 | FAMILY PERSONAL BUSINESS/OBLIGATIONS | | | | |
| 61 | USE PROFESSIONAL SERVICES: ATTORNEY/ACCOUNTANT | | | | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|---|----------|--|--------|---|
| WHYFROM | CHAR 2 | G26. | Trip purpose for previous trip (continued) | 62 | ATTEND FUNERAL/WEDDING |
| | | | | 63 | USE PERSONAL SERVICES: GROOMING/HAIRCUT/NAILS |
| | | | | 64 | PET CARE: WALK THE DOG/VET VISITS |
| | | | | 65 | ATTEND MEETING: PTA/HOME OWNERS |
| | | | | | ASSOCIATION/LOCAL GOVERNMENT |
| | | | | 70 | TRANSPORT SOMEONE |
| | | | | 71 | PICKUP SOMEONE |
| | | | | 72 | TAKE AND WAIT |
| | | | | 73 | DROP SOMEONE OFF |
| | | | | 80 | MEALS |
| | | | | 81 | SOCIAL EVENT |
| | | | | 82 | GET/EAT MEAL |
| | | | | 83 | COFFEE/ICE CREAM/SNACKS |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| -8 | Don't Know | | | | |
| -9 | Not Ascertained | | | | |
| WHYTO | CHAR 2 | G26. | Trip purpose | 01 | HOME |
| | | | | 10 | WORK |
| | | | | 11 | GO TO WORK |
| | | | | 12 | RETURN TO WORK |
| | | | | 13 | ATTEND BUSINESS MEETING/TRIP |
| | | | | 14 | OTHER WORK RELATED |
| | | | | 20 | SCHOOL/DAYCARE/RELIGIOUS ACTIVITY |
| | | | | 21 | GO TO SCHOOL AS A STUDENT |
| | | | | 22 | GO TO RELIGIOUS ACTIVITY |
| | | | | 23 | GO TO LIBRARY: SCHOOL RELATED |
| | | | | 24 | DAYCARE BEFORE OR AFTER SCHOOL |
| | | | | 30 | MEDICAL/DENTAL SERVICES |
| | | | | 40 | SHOPPING/ERRANDS |
| | | | | 41 | BUY GOODS: GROCERIES/CLOTHING/HARDWARE STORE |
| | | | | 42 | BUY SERVICES: VIDEO RENTALS/DRY CLEANERS/POST OFFICE/CAR SERVICE/BANK |
| 43 | BUY GAS | | | | |
| 50 | SOCIAL/RECREATIONAL | | | | |
| 51 | GO TO GYM/EXERCISE/PLAY SPORTS | | | | |
| 52 | REST OR RELAXATION/VACATION | | | | |
| 53 | VISIT FRIENDS/RELATIVES | | | | |
| 54 | GO OUT/HANG OUT: ENTERTAINMENT/THEATER/SPORTS EVENT/GO TO BAR | | | | |
| 55 | VISIT PUBLIC PLACE: HISTORICAL | | | | |
| | | | SITE/MUSEUM/PARK/LIBRARY | | |
| 60 | FAMILY PERSONAL BUSINESS/OBLIGATIONS | | | | |

| VARIABLE NAME | TYPE | QUESTION | LABEL | VALUES | VARIABLE DESCRIPTION |
|---------------|-----------------|----------|-------------------------------|--------|---|
| WHYTO | CHAR 2 | G26. | Trip purpose (continued) | 61 | USE PROFESSIONAL SERVICES: ATTORNEY/ ACCOUNTANT |
| | | | | 62 | ATTEND FUNERAL/ WEDDING |
| | | | | 63 | USE PERSONAL SERVICES: GROOMING/ HAIRCUT/NAILS |
| | | | | 64 | PET CARE: WALK THE DOG/VET VISITS |
| | | | | 65 | ATTEND MEETING: PTA/ HOME OWNERS ASSOCIATION/LOCAL GOVERNMENT |
| | | | | 70 | TRANSPORT SOMEONE |
| | | | | 71 | PICKUP SOMEONE |
| | | | | 72 | TAKE AND WAIT |
| | | | | 73 | DROP SOMEONE OFF |
| | | | | 80 | MEALS |
| | | | | 81 | SOCIAL EVENT |
| | | | | 82 | GET/EAT MEAL |
| | | | | 83 | COFFEE/ICE CREAM/ SNACKS |
| | | | | -1 | Appropriate Skip |
| | | | | -7 | Refused |
| -8 | Don't Know | | | | |
| -9 | Not Ascertained | | | | |
| WHYTRPSP | CHAR 30 | G26. | Misc reason | | Enter Text |
| | | | | -1 | Appropriate Skip |
| WKSTFIPS | CHAR 2 | | State FIPS for S work address | | |
| WORKCT | CHAR 2 | | Work place Census Tract | | |
| WORKER | CHAR 2 | E3 | Subject worker status | 01 | YES |
| | | | | 02 | NO |
| | | | | -1 | Legitimate Skip |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | | -9 | Not Ascertained |
| WORKLOC | CHAR 2 | E10 | R work location | 01 | Workplace |
| | | | | 02 | Works Only at Home |
| | | | | 03 | No Fixed Workplace |
| | | | | 04 | Home and Work |
| | | | | -1 | Legitimate Skip |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| | | | | -9 | Not Ascertained |
| WRKCOUNT | NUM 8 | E3. | Number of workers in HH | 0-11 | |
| | | | | -7 | REFUSED |
| | | | | -8 | DON'T KNOW |
| WTRDFIN | NUM 8 | | Final trip weight | | |

Appendix I. Data Dictionary for Location Table

Alphabetic List of Variables and Attributes.

| Variable | Type | Length | Label | WESTAT Clarifications |
|----------|------|--------|--|---|
| FRSTHM | Char | 2 | S home at start of travel day | 01=HOME, 02=SOMEPLACE ELSE |
| HOMELAT | Num | 8 | HH latitude | |
| HOMELONG | Num | 8 | HH longitude | |
| HOUSEID | Char | 8 | HH eight-digit ID number | |
| PERSONID | Char | 2 | Person ID number | (depends on the number of people enumerated as household members (HHMs)). |
| PLBG | Char | 2 | Trip Destination, Block Group | |
| PLCITY | Char | 20 | Trip address - city | |
| PLCNTYFP | Char | 3 | County of Trip Destination (FIPS code) | |
| PLCNTYNY | Char | 2 | County of NY | |
| PLCNTYWI | Char | 2 | County of WISCONSIN | |
| PLCP | Char | 5 | Trip Destination, Census Place | |
| PLCT | Char | 6 | Trip Destination, Census Tract | |
| PLCYNYS | Char | 45 | Travel day trip end, NY County | |
| PLCYWIOS | Char | 45 | Travel day trip end, WI County | |
| PLLNMRK1 | Char | 25 | Trip landmark 1 | |
| PLLNMRK2 | Char | 25 | Trip landmark 2 | |
| PLLNMRK3 | Char | 25 | Trip landmark 3 | |
| PLMCD | Char | 5 | Trip Destination, MCD | |
| PLMSA | Char | 4 | Trip Destination, MSA | |
| PLROAD1 | Char | 45 | Trip intersection - first road | |
| PLROAD2 | Char | 45 | Trip intersection - second road | |
| PLSTATE | Char | 2 | Trip address - state | (standard state abbreviations) |
| PLSTATFP | Char | 2 | State of trip destination (FIPS code) | |
| PLSTNAME | Char | 45 | Trip address - street name | |
| PLSTNUM | Char | 10 | Trip address - street number | |
| PLZIP | Char | 5 | Trip address - zip code | |
| TDCASEID | Char | 12 | Trip number | (depends on the number of trips taken by the respondent (R) - number reflects the order in which the trip was reported at time of interview) |
| TDTRPNUM | Char | 2 | Travel day trip number for respondent | (depends on the number of trips taken by the respondent (R) - number reflects the order in which the trip was reported at time of interview). |
| TRPEDGEO | Char | 2 | Level of geocoding trip end location | (separate documentation already sent for this variable). |
| TRPENDLA | Num | 8 | Trip end latitude | |
| TRPENDLO | Num | 8 | Trip end longitude | |
| TRPORDER | Char | 2 | Order in which person took trip | (depends on the number of trips taken by the R - renumbered after trips sorted by start time). |

| Variable | Type | Length | Label | WESTAT Clarifications |
|--|------|--------|--------------------------------------|--|
| WHERE | Char | 2 | Travel day trip destination | (trip destination 01=HOME, 02=WORK, 97=OTHER). |
| WHEREOS | Char | 30 | Travel date trip destination - Other | (when WHERE=97 this is populated with the "where" (e.g., Home Depot)). |
| WORKLAT | Num | 8 | Work latitude | |
| WORKLONG | Num | 8 | Work longitude | |
| Negative variables: -1 legitimate skip -7 refused -8 don't know -9 not ascertained | | | | |

Appendix J. Derived Variables

This appendix contains variables in the codebook that do not exist in the 2008-2009 NHTS questionnaire included as Appendix J to this User's Guide. These variables were derived by:

- Renaming variables in the 2008 questionnaire so that the names correspond to those used in earlier NPTS Surveys,
- Combining one or more questionnaire variables into a single variable, or
- Deriving the variable from external sources other than the survey questionnaire.

We list each “derived” variable and describe how each was calculated. If the derived variable was derived from a variable in the questionnaire, the description provides the name of the variable that was used to derive the new variable followed in parenthesis by the question number in the questionnaire where the variable is located. If the variable is derived from a variable not in the questionnaire, the variable name is followed by the word “derived” in parenthesis.

1. **CDIVMSAR:** This variable is derived from variables CENSUS_D and MSACAT. The values of CENSUS_D range from 0 to 9 and the values for MSACAT range from 01 to 04. Concatenating the value of CENSUS_D with MSACAT results in the value of CDIVMSAR.
2. **CENSUS_D:** The classification is derived from the household's home address. The 2000 Census Division source used was [HTTP://WWW.CENSUS.GOV/GEO/WWW/COB/DV2000.HTML](http://www.census.gov/gov/geowww/COB/DV2000.html). The categories are:
 - 01 = New England (ME, NH, VT, CT, MA, RI)
 - 02 = Mid-Atlantic (NY, NJ, PA)
 - 03 = East North Central (IL, IN, MI, OH, WI)
 - 04 = West North Central (IA, KS, MO, MN, ND, NE, SD)
 - 05 = South Atlantic (DE, FL, GA, MD, NC, SC, WV, VA)
 - 06 = East South Central (AL, KY, MS, TN)
 - 07 = West South Central (AR, LA, OK, TX)

08 = Mountain (AZ, CO, ID, MT, NM, NV, UT, WY)

09 = Pacific (AK, CA, HI, OR, WA)

3. **CENSUS_R:** The classification is derived from the household's home address. The 2000 Census Region source used was [HTTP://WWW.CENSUS.GOV/GEO/WWW/COB/RG2000.HTML](http://www.census.gov/gov/geowww/COB/RG2000.html). The categories are:
 - 01 = Northeast
 - 02 = Midwest
 - 03 = South
 - 04 = West
4. **CNTTDTR:** This variable is the sum of Travel Day person trips, including zero, made by subjects with completed interviews. It includes trips reported by a subject for which trip detail was obtained from another household member.
5. **DIARY:** Indicates whether the travel day diary was completed. Derived by combining categories 02 and 03 in question (G2) into category 02.
6. **DIFFDATE:** Variable calculated by subtracting the date of the travel day from the date the subject completed the person interview.
7. **DIFFDATE_FLG:** Flag to indicate whether or not the interview was conducted within the 7-day period following the travel date. If DIFFDATE > 0 and DIFFDATE less than or equal to 7 then DIFFDATE_FLG = “00”. If DIFFDATE > 7 then DIFFDATE_FLG = “01”. If DIFFDATE less than or equal to 0 then DIFFDATE_FLG = “-1”.
8. **DRIVER:** Driver status of subject. If Age (C5) is less than 15 then DRIVER = -1. If DRVR (C8) is less than zero or missing and C13_DRVR is less than zero or missing and WHODROVE (G49) is less than zero or missing then DRIVER = -9. If DRVR = 01 or C13_DRVR = 01, or if the subject was reported as the driver on any travel day trip by any household member (WHODROVE (G49) on any household member travel day trip has the subject's person number) then the subject is a driver (DRIVER (derived) = 01). Otherwise DRIVER = 02.
9. **DRVR_FLG:** Whether the person self-reported as a driver or was a passenger in a personally owned vehicle. The CATI variable values of “-1” (appropriate skip) and “01” (self-reported as driver)

are modified so that values of “-1” are changed to “02” if the person was a passenger in a personally owned vehicle (POV). For purposes of this derivation, a POV was used if TRPTRANS has a value in the range “01” through “08”.

10. DRVRCNT: The number of drivers in the household. The variable is derived by counting the number of occurrences of DRIVER = 01.
11. ENDTIME: The end time of a travel day trip (ENDHOUR, ENDMINTE, ENDAMPM (G17)) reported in military time (0001 through 2400 hours). If ENDTIME or ENDMIN or ENDAMPM = -1 then ENDTIME = -1. Otherwise ENDTIME = -9.
12. GCDWORK: Great circle distance in miles between home and work. Calculated using the home address (D4/D5/D8/D9/M11/M12) and work address (E10/E11/E12/E13) provided by the household. A -9 indicates that no distance was calculated.
13. HHC_MSA: The CMSA code for the household’s home address. The field is set to “-1” if the household does not fall in a CMSA. The source used for CMSAs was the 1999 Metropolitan Areas: Cartographic Boundary Files (file cm99_99.shp).
14. HHCITYFP: Census Designated Place FIPS code for the household’s geocoded home address. The source used was Matchmaker SDK Professional v8.3 from TeleAtlas.
15. HHCNTYFP: County FIPS code for the household’s geocoded home address. The source used was Matchmaker SDK Professional v8.3 from TeleAtlas.
16. HHFAMINC: Total household family income for the last 12 months derived from HHFAMINC (M13) and HHINC (M14-M21). If HHINC is missing, randomly pick either the lower or upper range from HHFAMINC (M13).
17. HH_MSA: The MSA FIPS code for the household’s home address. The MSA code is provided only for households in areas with a population of one million or more. If the household is in one of the 18 CMSAs (excluding San Juan, PR), then the code is listed under HHCMSA. If the household is in one of the 31 MSAs that have a population of one million or more, and are not part of a CMSA, then the MSA code is presented in this variable. The source used for MSAs was the 1999 Metropolitan Areas: Cartographic Boundary Files (file ma99_99.shp).
18. HHSIZE: Count of eligible household members in the household including 0 – 4 year olds (result code J1) and those with final result code NG. Use the number enumerated in C8, excluding persons with a final result code beginning with ND or O.
 [NOTE: ND refers to a household member who was enumerated but was deceased at the time that the extended interview was attempted. O codes are other out of scope. NG refers to household members deployed overseas.]
19. HHSTATE: This is the geocoded state for the household’s home address (a two letter abbreviation). HHSTATE is derived from the household’s latitude and longitude during geocoding. The source used was Matchmaker SDK Professional v8.3 from TeleAtlas.
20. HHSTFIPS: State FIPS code for the household’s geocoded home address. The source used was Matchmaker SDK Professional v8.3 from TeleAtlas.
21. HHVEHCNT: The number of vehicles in the household on the date of the household recruitment interview plus any vehicles identified as HH vehicles during the HH retrieval interviews. This is the number of vehicles enumerated in B2, added in G31 and verified in L7. Note any vehicle that is sold between the recruitment and retrieval interviews is included in the HH vehicle count.
 [NOTE: Any vehicle added between the recruitment and retrieval interviews, but not used on the travel day is not included in the HH vehicle count.]
22. HH_ONTD: Total number of household members on travel day trip including subject. Derived from TRPHHACC + 1.
23. HOMECEO: The accuracy of the geocoded location. The source used was Matchmaker SDK Professional v8.3 from TeleAtlas. The variable is derived as follows:
 - 01 = Matched to street address
 - 02 = Matched to nearest intersection
 - 03 = Matched to the nearest landmark’s street address or nearest intersection
 - 04 = Matched to geographic ZIP code centroid
 - 05 = Matched to state
 - 06 = Left unmatched

24. LIF_CYC: The life cycle code for the household. The variable is derived as follows:

01 = Household has one adult, no children and no retired persons.

02 = Household has 2 or more adults, no children and no retired persons.

03 = Household has one adult and the youngest child is 0 to 5 years old.

04 = Household has 2 or more adults and the youngest child is 0 to 5 years old.

05 = Household has one adult and the youngest child is 6 to 15 years old.

06 = Household has 2 or more adults and the youngest child is 6 to 15 years old.

07 = Household has one adult and the youngest child is 16 to 21 years old.

08 = Household has 2 or more adults and the youngest child is 16 to 21 years old.

09 = Household has one retired adult and no children.

10 = Household has 2 or more adults; at least one is retired and no children.

Classify each household member as adult or child and determine retirement status for adults. Then, use the adult, child and retired classification of each household member to classify the household into one of the 10 categories above.

An adult is defined as a household member that is 18 and over. A child is a household member 21 years or younger. A household member between the ages of 18 and 21 is classified as an adult or child depending on his/her relationship to the household respondent. If age is missing, use the imputed age. A household member is retired if PRMACT = 06 and is not retired if PRMACT > 0, but PRMACT is not equal to 06.

If retirement status (PRMACT) is missing, use age to determine retirement status. If age is 65 or more, consider the person retired. If less than 65, consider the person not retired. Assign these households to Life Cycle categories 01, 02, 09 or 10.

Use the following rules to determine whether the household member is an adult or child:

1. If household member's age is less than 18 years, classify a household member as a CHILD regardless of value of R_RELAT (CATI variable HH_RELAT) (C8) and classify household member's CHILD AGE in the appropriate group 0-5, 6-15, or 16-21.
2. If household member's age is greater than 21 years, classify a household member as an ADULT regardless of value of R_RELAT.
3. If household member's age is 18-21 and R_RELAT = 03 (CHILD), classify household member as CHILD and classify household member's CHILD AGE in 16-21 group.
4. If household member's age is 18-21 and household member is the household respondent (R_RELAT = 01) and any other household member is coded as PARENT to the household respondent (R_RELAT = 04), classify subject household member as CHILD and classify subject's CHILD AGE in 16-21 group. If no other household member is PARENT, classify subject household member as ADULT.
5. If household member is BROTHER/SISTER to the household respondent (R_RELAT=5) and any other household member is coded as PARENT to the household respondent (R_RELAT = 04), classify subject household member as CHILD and classify subject's CHILD AGE in 16-21 group. If no other household member is PARENT, classify subject household member as ADULT.
6. If household member's age is 18-21 and household member is OTHER RELATIVE (R_RELAT = 06) and any other household member is coded as PARENT to the household respondent (R_RELAT = 04), classify subject household member as CHILD and classify subject's CHILD AGE in 16-21 group. If no other household member is PARENT, classify subject household member as ADULT.
7. If household member's age is 18-21 and household member is a NON-RELATIVE (R_RELAT = 08) to the household respondent, and any other household member is over 21 and is a SPOUSE (R_RELAT = 02) or any other household member is over 21 and is an UNMARRIED PARTNER (R_RELAT = 07), then classify the household member as a CHILD in the 16-21 age group; otherwise classify the household member as an ADULT.

8. If the value of household member's R_RELAT is missing: If age is <18, classify adult status of household member as CHILD and classify CHILD AGE according to age. If age is >21 classify adult status as ADULT. If age is 18-21, and any other household member is coded as PARENT, then classify subject household member as CHILD and CHILD AGE in 16-21 age group. If no other household member is classified as PARENT classify adult status of subject household member as UNKNOWN.
9. Household members with HH_RELAT = 02 (SPOUSE) or 07 (UNMARRIED PARTNER) between the ages of 18 and 21 that are not otherwise classified are classified as ADULTS.

25. LSTTRDAY: Number of days since last trip before travel day. Derived from LASTRPUT (number) and LASTRPNU (unit) (G15):

If .LASTRPNU = 01 (days) then
LSTTRDAY = LASTRPUT

If .LASTRPNU = 02 (weeks) then
LSTTRDAY = 7 x LASTRPUT

If .LASTRPNU = 03 (months) then
LSTTRDAY = 30 x LASTRPUT

If .LASTRPNU = 04 (years) then
LSTTRDAY = 365 x LASTRPUT

26. MAKECODE: NASS vehicle make code. Derived from MAKECODE (B2) and L_MAKE (L7) setting the variable E_MAKE equal to MAKECODE.
27. MODLCODE: NASS vehicle model code. Derived from MODLCODE (B2) and L_MODL (L7) setting the variable E_MODL equal to MODLCODE.
28. MSACAT: MSA category for the household's home address. The source used for MSAs was the 1999 Metropolitan Areas: Cartographic Boundary Files. File ma99_99.shp from <http://www.census.gov/geo/www/cob/ma1999.html>. The MSACAT variable was derived using information on population and the presence of transit. The variable is derived as follows:

01 = MSA or CMSA of 1 million or more with heavy rail.

02 = MSA or CMSA of 1 million or more and not in category 1.

03 = MSA of less than 1 million.

04 = Not in a MSA.

NOTE: FHWA provided the list of MSAs with heavy rail:

- Atlanta (Metro) 1979
- Baltimore (Metro) 1983
- Boston (Red, Blue, Orange Lines) 1901; also CR (MBTA)
- Chicago ("L") 1892, also CR (Metra)
- Cleveland (Red Line) 1955
- Los Angeles (Red line) 1990; also CR (MetroLink)
- Miami (MetroRail) 1984; also CR (TriRail)
- New York City - Newark (NYCTA IRT, IND-BMT, and SIRT Lines) 1867, (PATH Lines) 1908; also CR (LIRR, Metro North, NJT)
- Philadelphia (PATCO Lindenwold Line) 1969, (SEPTA Market-Frankford, Broad Street) 1908; also CR (NJT, SEPTA)
- San Francisco - Oakland (BART) 1972; also CR (CalTrain)
- Washington, DC (Metro) 1976; also CR (MARC, VRE)

The following cities have commuter rail (regional rail, suburban rail), but not heavy rail; and, therefore, are *not* coded as having heavy rail: 2001:

- New Haven (Shore Line East)
- San Diego (Coaster) 1995
- Syracuse 1994

29. MSASIZE: Population size category of the MSA for the household's home address. The source used was the Total Population by MSA from Census 2000 STF1. The variable is derived as follows:

01 = MSA of less than 250,000.

02 = MSA of 250,000 to 499,999.

03 = MSA of 500,000 to 999,999.

04 = MSA or CMSA of 1,000,000 to 2,999,999.

05 = MSA or CMSA of 3 million or more.

06 = Not in a MSA.

30. **NONHHCNT:** Number of non household members on travel day trip. Derived by subtracting TRPHHACC (G44) (household members accompanying respondent on trip) from TRPACCOMP (G43) (total number of people accompanying respondent on trip). If G43 = 0, then set NONHHCNT to 0.
- [NOTE: NONHHCNT was a variable on the DTRP segment in 2001 but the 2001 to 2008 crosswalk indicates this question was dropped in 2008]
31. **NUMADLT:** Count of adults, household members 18 and older in household. Derived by using the age reported in AGE (C8) and AGERANGE (C10) (a value of 01 indicates the age is 18 or older). If both C8 and C10 are missing, use the imputed age. Include persons with final result code NG. Exclude persons with a final result code beginning with ND or O.
- [NOTE: ND refers to a household member who was enumerated but was deceased at the time that the extended interview was attempted. O codes are other out of scope. NG refers to household members deployed overseas.]
32. **NUMONTRP:** Total count of people on travel day trip, including subject. Derived from TRPACCOMP (G43) (total number of people accompanying respondent on trip) using the rules:
- If TRPACCOMP < 0 then NUMONTRP = 1
 - Otherwise, NUMONTRP = TRPACCOMP + 1.
33. **PRMDRVR1:** Household vehicle that subject is primary driver of, derived from WHOMAIN (C12) and VEHINUM.
34. **PRMDRVR2:** A second household vehicle that subject is primary driver of, derived from WHOMAIN (C12) and VEHINUM.
35. **PRMDRVR3:** A third household vehicle that subject is primary driver of, derived from WHOMAIN (C12) and VEHINUM.
36. **PSGR_FLG:**
- If TRPTRANS (G34) has a value of 1-8 and WHODROVE does NOT equal PERSONID then PSGR_FLG = 01.
- If TRPTRANS (G34) has a value of 1-8 and WHODROVE DOES equal PERSONID then PSGR_FLG = 02.
- Otherwise PSGR_FLG = -1.
37. **R_SEX:** Gender of subject. Derived from SEX (C8). If SEX = M then R_SEX = 01, if SEX = F then R_SEX = 02, otherwise R_SEX = SEX.
38. **RAIL:** Indicates whether the household is located in a MSA with heavy rail. Derived from MSACAT (derived). If MSACAT is 01, RAIL is 01 (MSA has heavy rail). Else, RAIL is 02.
39. **RESP_CNT:** Count of total responding persons in the household, all ages. A responding person is one who completed a person-level interview (either by self or proxy). Derived by counting the number of persons with a final result code beginning with a "C." (MAINRSLT = C1 or C2).
40. **TDMSDTRP:** Indicates missed trips.
- The variable is 01 if the missed trip was reported by the subject after all other travel day trips were rostered. If DP_FLAG = 01 then TDMSDTRP = 01.
 - The variable is 02 if the missed trip was not reported by the subject but reported by a subsequent household member who indicated the subject was on the trip too. If DP_FLAG = 02 then TDMSDTRP = 02.
 - Otherwise, TDMSDTRP = -1.
41. **TRACCTM:** Time taken to get to public transportation on travel day trip, converted to minutes. Derived by converting LONGTOHR, LONGTOMN (G36) to minutes. If LONGTOHR or LONGTOMN = -1 then TRACCTM = -1, otherwise TRACCTM = -9.
42. **TREGRTM:** Time take to get from public transportation travel day trip, converted to minutes. Derived from LONGFRHR and LONGFRMN (G39). If LONGFRHR or LONGFRMN = -1 then TREGRTM = -1, otherwise TREGRTM = -9.
43. **TRPMILES:** Travel day trip distance in miles, whether originally reported in miles or blocks. Derived from TRIPDIST and TRIPUNIT (G40). If TRIPDIST = 0 then TRPMILES = 0.5. If TRIPDIST and TRIPUNIT are greater than zero then if TRIPUNIT is in blocks, convert 9 blocks to 1 mile else set TRPMILES equal to TRIPDIST in miles. Otherwise, set TRPMILES equal to TRIPDIST.
- If the trip is reported by more than on HHM and there is a discrepancy, use the data reported by the driver.
- TRIPDIST and TRIPUNIT need to be provided (copied to the trip record) for each HHM with a completed interview.

44. TRPHHACC: Number of household members with respondent on trip. Derived by counting the number of variables WHOACC1 through WHOACC15 (see question G45) that have values greater than or equal to “01”.

NOTE: The CATI variable TRPHHACC (G44), which is the count reported by the respondent, is renamed TRPHHACC_C for delivery.

45. TRVL_MIN: Time to complete entire travel day trip in minutes. Derived from TRVL_HR and TRVL_MN (G42):

- If TRVL_HR and TRVL_MN equal -1 then TRVL_MIN is set to -1.
- If TRVL_HR equals -1 and TRVL_MN is greater than or equal to 0 then TRVL_MIN = TRVL_MN.
- If TRVL_HR is greater than or equal to 0 and TRVL_MN equals -1 then TRVL_MIN = TRVL_HR * 60 rounded to 1 significant figure.
- If TRVL_HR and TRVL_MN are both greater than or equal to 0 then TRVL_MIN = (TRVL_HR * 60) + TRVL_MN (rounded to 1 significant figure)
- Otherwise, TRVL_MIN = -9.

If the trip is reported by more than on HHM and there is a discrepancy, use the data reported by the driver.

TRVL_HR and TRVL_MN need to be provided (copied to the trip record) for each HHM with a completed interview.

46. TRWAITTM: Time spent waiting for public transportation on travel day trip in minutes. Derived from WAIT_MIN (G37) and WAIT_HR (G37). If WAIT_MIN and WAIT_HR are greater than -1 then TRWAITTM = WAIT_HR * 60 + WAIT_MIN. If WAIT_MIN is greater than -1 and WAIT_HR is less than -1 then TRWAITTM = WAIT_MIN. If WAIT_HR is greater than -1 and WAIT_MIN is less than -1 then TRWAITTM = WAIT_HR * 60. If WAIT_HR and WAIT_MIN both equal -1 then TRWAITTM = -1. Otherwise TRWAITTM = -9.

47. URBAN: The household’s home address is in an urbanized area. The source used is Urban Areas: 2000 Urbanized Areas: Cartographic Boundary Files. File ua00_doo.shp from <http://www.census.gov/geo/www/cob/ua2000.html>. The categories are:

- 01 = Urban Area, in Urbanized Area
- 02 = Urban Area, in Urban Cluster
- 03 = Urban Area, surrounded by Urban Areas
- 04 = Not in an Urban Area

48. URBANSIZE. Indication of size of urban area in which household is located.

| Code | Population of Urbanized Area |
|------|--------------------------------------|
| 01 | 50,000 – 199,999 |
| 02 | 200,000 – 499,999 |
| 03 | 500,000 – 999,999 |
| 04 | 1 million or more without heavy rail |
| 05 | 1 million or more with heavy rail |
| 06 | Not in an urbanized area |

Note: The population information is based on data from the 2000 Census.

49. URBRUR: Whether the household is in an urban or rural area. URBRUR is based on the value of URBAN:

If URBAN = 01, 02, or 03, then URBRUR = 01 (Urban)

If URBAN = 04, then URBRUR = 02 (Rural)

50. VEHOWNMO: How long the vehicle has been owned, converted to months. Derived from VEHOWNED and OWNUNIT (L8). VEHOWNED is the number variable and OWNUNIT represents days, weeks, months, or years.

51. VEH12MNT: Flag added to each vehicle record if the vehicle has been owned for less than 12 months. (01 = Vehicle owned for less than 12 months, 02 = Vehicle owned for 12 months or more).

52. WHYFROM: Location from which the trip started. If this is the first trip of the travel day, and the person started from home, then the value of WHYFROM = “01” (“Home”). If this is the first trip of the travel day and the person did not start from home, then the value of WHYFROM is the value of AWAYHOME (G25). If this is the second or subsequent trip of the day, then the value of WHYFROM is the value of WHYTO (G26) for previous trip.

53. WHYTRP1S: Travel day trip purpose summary. The variable is derived from AWAYHOME or WHYTO as appropriate by “rounding down” to the nearest decade. The code for “Home,” however, remains “01”:

- 01 = HOME
- 10 = WORK
- 20 = SCHOOL/DAYCARE/RELIGIOUS
ACTIVITY
- 30 = MEDICAL/DENTAL SERVICES
- 40 = SHOPPING/ERRANDS
- 50 = SOCIAL/RECREATIONAL
- 60 = FAMILY PERSONAL BUSINESS/
OBLIGATIONS
- 70 = TRANSPORT SOMEONE
- 80 = MEALS
- 90 = MISC REASONS

54. WKSTFIPS: State FIPS Code for the subject’s work address. The source used was the United States Census Bureau State and County: 2000 County and County Equivalent Areas: Cartographic Boundary Files. File c099_d00.shp from <http://www.census.gov/geo/www/cob/co2000.htm>. A -9 indicates that we were unable to geocode the state where the workplace is located.

[NOTE: Used the most current files for the 2008/2009 calendar year.]

55. WORKER: Indicates whether the subject is a worker. If AGE is less than 16 then WORKER = -1. If PRMACT is less than zero or missing and PAYPROF is less than zero or missing then WORKER = -9. The subject is a worker (WORKER = 01) if either PRMACT (E3) = 01 or 02, or PAYPROF (E4) = 01. Otherwise WORKER = 02.

56. WORKLOC: The variable indicates whether the subject worked from home, a fixed work place or had some other work arrangement. The variable is derived as follows:

If WKSTNUM (E10) = -1, -7, -8, or -9 then WORKLOC = WKSTNUM.

If WKSTNUM = HOME then WORKLOC = 02

If WKSTNUM = NONE then WORKLOC = 03

If WKSTNUM does not equal missing and WKFM-

HMXX (E20) > 0 then WORKLOC = 04 else WORKLOC = 01

Otherwise WORKLOC = -9.

The meaning of each positive value is:

01 = Workplace

02 = Works Only at Home

03 = No Fixed Workplace

04 = Home and Work

57. WRKCOUNT: The number of household members that are workers. Derived by summing all occurrences of derived variable WORKER = 01 within each HH.

58. WTHHFIN: Final household weight for households where at least 50 percent of household members 18 and over completed a person interview.

59. WTPERFIN: Final person weight for households where at least 50 percent of household members 18 and over completed a person interview.

60. WTTRDFIN: Final travel day trip weight for persons in households where at least 50 percent of household members 18 and over completed a person interview. WTTRDFIN = 365 x WTPERFIN.

61. YRMLCAP: Flag indicates that the variable YEARMILE (L5) was capped at 200,000 miles. If YEARMILE is less than zero then YRMLCAP = -1. If YEARMILE is greater than or equal to 200,000 then YRMLCAP = 01. Otherwise YRMLCAP = 02.

CORE BASED STATISTICAL AREA (CBSA) VARIABLES

The following 6 geocode-related variables were added to the 2008-2009 delivery files to reflect the Core Based Statistical Area (CBSA) definitions based on standards published by the Office of Management and Budget (OMB) in 2000. The defined areas were formally announced by OMB in June 2003.

62. CBSACAT: CBSA category for the household’s home address. The source used for CBSAs was the 2007 TIGER/Line® Shapefiles. File fe_2007_us_cbsa.shp from <http://www.census.gov/cgi-bin/geo/shapefiles/national-files>. The CBSACAT variable was derived using information on population and the presence of transit. The variable is derived as follows:

01 = CBSA of 1 million or more with heavy rail.

02 = CBSA of 1 million or more without heavy rail.

03 = Metropolitan CBSA of less than 1 million.

04 = Micropolitan CBSA or non-CBSA.

NOTE: FHWA provided the list of MSAs with heavy rail.

63. CBSASIZE: Population size category of the CBSA for the household's home address. The source used was the Total Population by CBSA from Census 2007 ACS. The variable is derived as follows:

01 = CBSA of 3 million or more.

02 = CBSA between 1 million and 3 million.

03 = CBSA between 250,000 and 1 million.

04 = CBSA between 50,000 and 250,000.

05 = CBSA less than 50,000 or non-CBSA

64. HH_CBSA: The CBSA code for the household's home address. The field is blank if the household does not fall in a CBSA. The source used was the 2007 TIGER/Line® Shapefiles (file: fe_2007_us_cbsa.shp) and Matchmaker SDK Professional v8.3 from TeleAtlas.
65. HH_CSA: The CSA code for the household's home address. The field is blank if the household does not fall in a CSA. The source used was the 2007 TIGER/Line® Shapefiles (file: fe_2007_us_csa.shp).
66. HHMETDIV: The Metro Division code for the household's home address. The field is blank if the household does not fall in a Metro Division. The source used was the 2007 TIGER/Line® Shapefiles (file: fe_2007_us_metdiv.shp).
67. HHP_MSA: The PMSA code for the household's home address. The field is blank if the household does not fall in a PMSA. The source used for PMSAs was the 1999 Metropolitan Areas: Cartographic Boundary Files (file: pm99_99.shp).

RENAMED VARIABLES, GEOGRAPHY-RELATED VARIABLES, IMPUTATION FLAGS, AND SAMPLING AND WEIGHTING VARIABLES

Table 1 lists CATI variable names and the names of the same variables in the delivery files when they have been renamed for delivery purposes.

Table 2 lists variables associated with geography. Most of these variables are determined by looking up a location collected during the interview in a standard reference source. The table lists the variable name; its descriptive label; the reference source, if any; and the derivation number in this document, if applicable.

Table 3 lists variables that were imputed for weighting and the associated imputation flag which can be used to distinguish between reported and imputed values.

Table 4 lists variables associated with sampling prior to interviewing and key weighting variables that may be useful in analyses.

Table 1. CATI Variables Renamed for Delivery

| CATI Variable Name | Delivery Variable Name |
|--------------------|---|
| AGE | R_AGE (missing values were imputed—see Table 3) |
| BASEID | HOUSEID |
| BIKETRIP | NBIKETRIP |
| DTRPID | TDCASEID |
| E_VMAKE | MAKENAME |
| E_VMODL | MODLNAME |
| ENGLSPAN | LANG |
| HH_RELAT | R_RELAT |
| HHFAMINC | HHFAMINC_C |
| HHINC | HHINC_C |
| HOWFRP1-5 | TREGRI-5 |
| HOWPUB1-5 | TRACC1-5 |
| LAC5_F | LCA5_F |
| MAINDATE | PERINDT2 |
| PERSNUM | PERSONID |
| REFRSPX | HHRESP |
| RESPROXY | PROXY |
| SAMPREGN | SMPLSRCE |
| TELREGN | SMPLAREA |
| TRAVDAT | TDAYDAT2 |
| TRPHHACC | TRPHHACC_C |
| TRVL_HR | TRVLHR |
| TRVL_MN | TRVLMIN |
| WHENTOUS (M10) | YRTOUS |
| WKSTATE (E10) | WORKSTAT |
| WKZIP | WORKZIP |
| ZIP | HHZIP |

Table 2. Geography-Related Variables

| Variable | Derivation Number | Description | Source |
|----------|-------------------|---|--------|
| CBSACAT | 62 | CBSA category for the HH home address | |
| CBSASIZE | 63 | CBSA population size for the HH home address | a |
| CDIVMSAR | 1 | Concatenation of variables CENSUS_D and MSACAT | |
| CENSUS_D | 2 | Census division classification for home address | b |
| CENSUS_R | 3 | Census region classification for home address | c |
| GCDWORK | 12 | Great circle distance between home and work | |
| HH_CBSA | 64 | CBSA FIPS code for HH address | a |
| HH_CSA | 65 | CSA FIPS code for HH address | d |
| HH_MSA | 17 | The MSA FIPS code for the household's location | e |
| HHBG | -- | HH block group | e |
| HHC_MSA | 13 | The CMSA code for the household's home address | e |
| HHCITYFP | 14 | Census Designated Place FIPS code for the household's geocoded home address | e |
| HHCNTYFP | 15 | County FIPS code for the household's geocoded home address | e |
| HHCT | -- | HH Census Tract | e |
| HHMETDIV | 66 | Metro Division FIPS code for HH address | f |
| HHP_MSA | 67 | PMSA FIPS code for HH address | e |
| HHSTATE | 19 | State HH location | e |
| HHSTFIPS | 20 | State FIPS for HH address | e |
| HOMEGEO | 23 | The accuracy of the geocoded location. | e |
| HOMELAT | -- | Home latitude | e |
| HOMELONG | -- | Home longitude | e |
| MSACAT | 28 | MSA category for the household's home address | |
| MSASIZE | 29 | Population size category of the MSA for the household's home address | g |
| RAIL | 38 | MSA heavy rail status for HH | h |
| URBAN | 47 | Home address in urbanized area | i |
| WKCNFIPS | | County FIPS for work address | e |
| WKCNTYA | | Work county | j |
| WKCTFIPS | | City FIPS for work address | e |
| WKSTFIPS | 54 | State FIPS Code for the subject's work address | e |
| WORKCT | -- | Work place Census Tract | e |
| WORKGEO | | Work address geocoded | e |
| WORKLAT | -- | Work latitude | e |
| WORKLONG | -- | Work longitude | e |

Notes:

1. Values of -1 are instances where no valid value is defined; for example, HHCITYFP = -1 for a household that is not located in a city.
2. Values of -9 indicated that insufficient information was ascertained to code the variable.
3. Key to Source Codes:
 - a. 2007 Metropolitan/Micropolitan Statistical Area: 2007 TIGER/LINES. File fe_2007_us_cbsa.shp from <http://www.census.gov/cgi-bin/geo/shapefiles/national-files>
 - b. Census Division: 2000 Census Division: Cartographic Boundary Files. File dv99_d00.shp from <http://www.census.gov/geo/www/cob/dv2000.html>
 - c. Census Region: 2000 Census Region: Cartographic Boundary Files. File rg99_d00.shp from <http://www.census.gov/geo/www/cob/rg2000.html>
 - d. 2007 Combined Statistical Area: 2007 TIGER/LINES. File fe_2007_us_csa.shp from <http://www.census.gov/cgi-bin/geo/shapefiles/national-files>
 - e. TeleAtlas' Matchmaker SDK Professional v8.3
 - f. 2007 Metropolitan Division: 2007 TIGER/LINES. File fe_2007_us_metdiv.shp from <http://www.census.gov/cgi-bin/geo/shapefiles/national-files>
 - g. MSA: 1999 Metropolitan Statistical Area: Cartographic Boundary Files. File ma99_99.shp from <http://www.census.gov/geo/www/cob/ma1999.html>
 - h. Federal Highway Administration
 - i. Urban Areas: 2000 Urbanized Areas: Cartographic Boundary Files. File ua00_d00.shp from <http://www.census.gov/geo/www/cob/ua2000.html>
 - j. United States Census Bureau State and County: 2000 County and County Equivalent Areas: Cartographic Boundary Files. File co99_d00.shp from <http://www.census.gov/geo/www/cob/co2000.htm>

Table 3. Imputation Flag Variables

| Imputed Variable | Imputation Flag Variable | Definition |
|------------------------------------|--------------------------|--|
| R_AGE | IMPTAGE | Whether age was imputed (1 = Yes, 2 = No) |
| HOMEOWN | IMPTHOWN | Whether homeownership was imputed (1 = Yes, 2 = No) |
| R_SEX | IMPTSEX | Whether gender was imputed (1 = Yes, 2 = No) |
| Combination of HH_RACE and HH_HISP | IMPTHB | Whether the household respondent's ethnicity and race category was imputed (1 = Yes, 2 = No) |

Table 4. Sampling and Weighting Variables

| Variable | Description |
|----------|--|
| DOMAIN | Geographic domain for composite weights |
| GSTRATUM | Stratum of HH location based on geocoded address—use in combination with SMPLSRCE and SMPLAREA |
| LANDCELL | Land line or cell phone household |
| SAMPQTR | Quarter in which sample was drawn |
| SMPLAREA | Geographic region in which the HH is located |
| SMPLSRCE | Geographic region from which phone number was sampled |
| STRATUM | Geographic site within SMPLSRCE |
| WTHHFIN | Final HH weight (specification #58) |
| WTPERFIN | Final person weight (specification #59) |
| WTTRDFIN | Final trip weight (specification #60) |



U.S. Department of Transportation

Federal Highway Administration

National Household Travel Survey (NHTS) 2008

The U.S. DOT is pleased to announce the 2008 National Household Travel Survey (NHTS), the primary source of national information on the travel of people in the US. The NHTS is a fundamental *intermodal* program that provides statistical measures of system use and travel behavior of the American public. The 2008 NHTS will provide the Department with 40 years of trend data on the travel choices, preferences, and needs of the public. As such, the NHTS is a critical data source for sound national transportation policy, helping DOT to assess the overall use, capacity, and performance of the transportation system. Previously called the NPTS, the study has been conducted since 1969.

The NHTS provides detailed information on the public's use of the transportation system by all motorized and non-motorized modes and is the only source of national statistics and trend data on household travel in the U.S. Key trends identified through the NHTS data series include:

Congestion –Time behind the wheel increased by just over a minute per year during the last decade, and drivers in the largest metropolitan areas had the great increases in travel time. However, a significant and growing share of peak period travel is not related to work (including trips for taking children to school, going to the doctor, etc.). How growing congestion affects non-work travel, and how these trips effect congestion, will be part of the new data analysis.

Safety –The NHTS shows that the percent of older people who continue to drive is growing, especially older women. The U.S. vehicle fleet is also aging—and older drivers are more likely to be driving older cars than younger age groups. The trend in older drivers is expected to continue, impacting policies related to both safety and mobility. In addition, the 2008 NHTS has an increased emphasis on pedestrian safety, including attitudes about walking and biking across the nation, with a special component on children's travel to school.

Fuel Cost – The average household has seen a doubling in annual gasoline expenditures since 2001 according to the updated version of the NHTS (with fuel costs from May 8th, 2006). How increases in gas prices affect daily travel choices, changes the fleet mix, and impacts the typical American family will be part of the 2008 NHTS analysis.

In addition to understanding trends in travel behavior and developing national policy initiatives, the NHTS is used by State and local planning agencies as a vehicle for collecting robust travel data for local planning. The 2008 NHTS has local participation from 19 areas through the Add-On program. Together with the national sample, the survey will yield travel behavior data on approximately 150,000 households—the largest sample ever.

The survey begins data collection in April and continues for one year. Data from the 2008 NHTS will be available in Summer 2009. New data items collected in the 2008 include information about tolls, work schedule flexibility, hybrid vehicle use, and Internet shopping and deliveries to homes. New data topics for the 2008 NHTS include travel to school, interstate use, tolling, work schedule flexibility, hybrid/alternative fuel vehicles, and additional information on walking and biking.

Notes to Editors

National Household Travel Survey is conducted periodically by the U.S. Department of Transportation to assess changes in personal travel by U.S. residents. The 2008 National Household Travel Survey is the latest in a series of household surveys designed to provide a databank of personal travel information for residents of the U.S. From March 2008 through March 2009 over 125,000 participating households will provide details of their personal travel by filling in travel diaries for an assigned travel day. These details included trip purpose, method of travel, time of day and trip length. The households also provided background information, such as the age, sex, working status, and driver-status of individuals, and details of the cars available for their use.

The U.S. DOT has conducted previous surveys, with sample sizes similar to the current one to track trends in travel. The previous surveys of daily travel were carried out in 1969, 1977, 1983, 1990, 1995 and 2001.

Briefs, documents, and the survey data are available on-line at:
<http://nhts.ornl.gov>

Appendix L. MAG Press Release



NEWS RELEASE

FOR IMMEDIATE RELEASE

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Communications Manager

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Arizonans to Participate in National Household Travel Survey

PHOENIX (August 18, 2008) – Thousands of residents in Maricopa and Pima counties will be among 150,000 people nationwide who will be asked to participate in a telephone travel survey that will help planners learn more about Americans' travel choices and how they might be changing.

The U.S. Department of Transportation is conducting the 2008 National Household Travel Survey (NHTS) to assess changes in personal travel by U.S. residents. The survey provides measures of system use and travel behavior of the American public. It has been conducted periodically since 1969, and is a primary source of national information on the travel of people in the United States. With 40 years of trend data on the travel choices, preferences, and needs of the public, the NHTS is a critical data source for developing sound national transportation policy, helping to ensure a strong factual foundation for transportation infrastructure investment decisions on national, state and local levels.

The Maricopa Association of Governments and Pima Association of Governments are participating in the survey. The purpose of the survey in these two regions is to collect information on the travel choices and preferences of people in central and southern Arizona, so that the regional governments may continue to plan transportation services to meet the area's future needs.

Starting August 22 and through the fall months of 2008, interviewers for the National Household Travel Survey will be calling area households asking questions about socio-demographic characteristics of households and the trips made for just one day. About 4,200 Maricopa County residents will be contacted. Every randomly-selected household will represent thousands of other households in the area, so participation is very important for the overall success of the survey. Participation is voluntary and any personal or identifying information will be kept confidential.

Residents wishing to learn more about the survey may visit U.S. Department of Transportation Web sites at: www.fhwa.dot.gov/policy/index.htm and <http://nhts.ornl.gov>.

Questions about the survey can be directed to the survey manager, Susan Swain, at 1-888-817-2810 or Della Santos at the U.S. Department of Transportation at 202-366-5521. For information about the local portion of the survey contact Kelly Taft at the Maricopa Association of Governments, 602-254-6300 or ADOT Community Relations at 602-712-7355.

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Appendix M. Weighting and Expansion Process (2001 MAG Household Travel Survey and 2001 NHTS)

Procedure Followed by NuStats

NuStats conducted household travel surveys for several agencies within United States, including 2001 MAG Household Travel Survey. As part of weighting and expansion procedure, data imputation was performed for a few variables, followed by calculation of composite weights and data normalization.

Data Imputation and Adjustment Factors

Candidate imputation variables were STRTTIME, END-TIME, TRVL_MIN, AGE, TRIPDIST, OTHRPHON, HHR_RACE, SEX, HOMEOWN and HOMETYPE. In the imputation process, any variable correlating to the candidate variable was examined. Prior to applying weights, the following adjustments are done to ensure that study area is relatively homogenous with respect to telephone ownership. The following adjustments were made to the dataset:

- a. Adjustment to the probability of selecting a household, based upon geography and vehicle availability.
- b. Adjustment to the probability of selecting a household, based upon telephone lines per household.
- c. Adjustment to the probability of selecting a household, based upon number of households per telephone number.
- d. Adjustment to the probability of selecting a household, based upon number of households with episodic phone service. A good source of episodic telephone ownership is the Current Population Survey (CPS). The survey provides data about non-telephone households (including episodic and non-telephone ownership categories). From NuStats surveys, about half of non-telephone households are episodic. The same factor was adapted to estimate episodic telephone ownership.

Calculation of Composite Weights

Composite weights were generated based upon the product of the underlying weights (household size, income, race, ethnicity, vehicle ownership, etc). This composite weight was normalized to ensure the number of weighted cases equaled the number of unweighted cases. Independently, as each weight is applied to data, it affects the distribution of other variables. Using a process called raking, adjustments to estimates were made to agree to each

set of control totals (for each selected field). The process was then repeated until all estimates are simultaneously close to the full set of controls. Weighting is a process of raking to control totals. Following raking to control totals, a process called iterative proportional fitting is undertaken, which adjusts geography, size, income, ethnicity, etc to match census proportions.

Data Normalization

Once weighting process is completed, the distribution of key variables was reviewed against census, followed by data normalization. Normalization is required following weighting, as weighted data would represent a different total than the control total. To maintain the relative place of each household after weighting, all households are uniformly factored. The process ensures that weighted household matched the unweighted count. The weight following data normalization was designated as “finwgt” in the data file.

The expansion factor was calculated after dividing total households based on Census data (Current Population Survey), by the number of households surveyed (designated as “expwgt” in the data file). The final expansion factor is the product of “finwgt” and “expwgt”. It is imperative that weighted data should compare favorably with Current Population Survey at both household level and at person level.

Weighting and Expansion Process from 2001 NHTS Users Guide

From the 2001 NHTS Users Guide, weights are applied for three files: HOUSEHOLD FILE, PERSON FILE AND TRIP FILE in a sequential order. The procedure is highlighted below:

The overall steps in the weighting process were as follows:

1. Construction of base weights—the base weights are the reciprocals of the telephone frame sampling rates within each ‘sample group’ (the sample group was a particular telephone number sample for a particular study at a particular point in time, with five sample groups being taken over the course of the year for most of the studies).
2. Construction of jackknife replicate weights—the replicate weights are designed to allow the user to easily produce valid jackknife variance estimators based on the sample design.

3. Household-level non-response adjustments (done within each sample group and study area separately);
4. Composition of the household nonresponse-adjusted base weights by 'domain' (the domains are defined by quarter of the travel date and by final geography as determined by the geocoding);
5. Household-level raking (using the composite weights);
6. Person-level nonresponse adjustments (for non-responding persons within useable households);
7. Person-level weights (with person-level raking).

Current Population Survey. Raking is discussed in detail in Chapter 3.

Trimming Large Weights

Trimming of data is performed only for the purpose of reducing large weights, not for editing data. Following trimming, raking procedure must be repeated again.

Weights for Persons File

Weights for the persons file is calculated in the same way as weights for household file are calculated. The steps are as follows:

1. Initial Household Weight (as above).
2. Useable household person weight (non-response adjustment).
3. Raking.
4. Trimming large weights.

Weights for Household File

The first step in the weighting process is the development of weights for household file. The various steps followed in the weighting process are listed below.

Initial Household Weight

#1. Base weight is the reciprocal of known probability of selection of a telephone number.

#2. This value gets adjusted for listed, residential connection.

#3. There is a further adjustment for non-response subcategory (categorized into ring-but-no-response; message-on-answering-machine); A categorical search algorithm determined which variables and categories had the largest differences in response rates;

#4. Adjustment for interviewed households having more than one residential, listed telephone line (needed, since these households have a better probability of selection);

Initial Household Weight = (#1) * (#2) * (#3) * (#4)

Useable Household Weight (Non-Response Adjustment)

Useable Household Weight = Initial Household Weight * Non-Response Adjustment.

Raking

Control survey estimates to independent controls for various demographic categories, called Raking. Each target field will be subjected to Raking, meaning weights will be adjusted for each field. The process was continued in an iterative process, until close agreement was reached. The source of Control Totals was the 2000 Census. The control totals were adjusted for growth between 2000 and the analysis year, using estimates from Census Bureau's

Weights for Trip File

Weights to trip file are calculated in two steps:

1. Household Trip Weights for Travel Period. The value is equal to final useable household weight multiplied by 365/28.
2. Person Trip Weights for Travel Period. The value is equal to final useable household person weight multiplied by 365/28.

Notes:



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