

Bureau of Transportation Statistics

**Survey Documentation for the
Bureau of Transportation Statistics
Omnibus Survey Program**

(Public Use)

November 2006

**SURVEY DOCUMENTATION FOR THE
BUREAU OF TRANSPORTATION STATISTICS
OMNIBUS SURVEY PROGRAM**

(PUBLIC USE)

NOVEMBER 2006

March 12, 2007

TABLE OF CONTENTS

List of Tables	iii
1. Introduction and Background	1
2. Sample Design	3
2.1 Target Population	3
2.2 Sampling Frame and Selection	3
2.2.1 RDD Sample	4
2.2.2 ID-PLUS	4
2.2.3 Address Matching	5
2.3 Precision of Estimates	5
3. Sampling Weights and Adjustments	7
3.1 Base Sampling Weights	7
3.2 Adjustment for Unit Non-Response	7
3.3 Adjustment for Households with Multiple Telephone Numbers	8
3.4 Adjustment for Number of Eligible Household Members	9
3.5 Post-Stratification Adjustments	9
3.6 Trimming of Final Analysis Weights	12
4. Variance Estimation	13
4.1 Variance Estimation Methodology	13
4.1.1 Software	13
4.1.2 Methods	13
4.2 Degrees of Freedom and Precision	14
5. Data Collection Plan	15
5.1 Expert Panel	15
5.2 Cognitive Interviews	15
5.3 Data Collection Schedule	15
5.4 Interview Procedures	15
5.4.1 Pre-Testing	15
5.4.2 Interviewer Training	15
5.4.3 Pre-Contact Letter	18
5.4.4 Call Attempts and Callbacks	19
5.4.5 Disposition Codes	21
5.4.6 Household Screening	22
5.4.7 Interviewing Methods	22
5.5 Data Quality Control Procedures	23
5.5.1 Interviewer Performance	23
5.5.2 Other Procedures	23
5.6 Summary of Data Cleaning	24
5.7 Treatment of Missing Values	24

5.8	Response Rates.....	25
5.8.1	Number of Completed Interviews.....	25
5.8.2	Calculation of Response Rates.....	25
5.8.3	Reasons for Non-Response	27
Appendix A: Final Annotated Survey Questionnaire		28
Appendix B: Data Dictionary		47
Appendix C: SAS Formats Library.....		65
References.....		69

LIST OF TABLES

Table 1: Census Bureau Regions and Divisions	3
Table 2: Number of Telephone Lines per Household.....	8
Table 3: Number of Eligible Household Members.....	9
Table 4: Post-Stratification Cells	11
Table 5: Summary of Codes for Missing Values by Data File Format	25
Table 6: Distribution of Household Cases by Disposition.....	26

1. INTRODUCTION AND BACKGROUND

The Bureau of Transportation Statistics (BTS) is conducting a series of monthly surveys to monitor expectations of and satisfaction with the transportation system and to gather event, issue, and mode-specific information. The surveys will serve as an information source for the U.S. Department of Transportation (DOT) modal administrators, who can use them to support congressional requests, and for internal DOT performance indicators. Overall, the surveys will support the collection of information on a wide range of transportation-related topics.

This report presents the results of the November 2006 Household Survey, the twenty-fifth of the monthly household surveys that will be conducted. Each of these monthly surveys will contain a set of core questions that are based on critical information needs within DOT. In addition, supplemental questions will be included each month that correspond to one of DOT's five strategic goals: safety, mobility, economic growth, human and natural environment, and security. Finally, specific questions posed by the various DOT modes will be included in each survey.

The November 2006 survey collected data from November 6th, 2006 through November 30th, 2006. Data were collected from households in the U.S. using a Random-Digit-Dialed telephone methodology. The final completed sample size is 1,095 cases, and the total number of variables in the public-use dataset is 113. The data were collected by MDAC, under contract with the BTS.

This report provides technical documentation for the November 2006 Household Survey. Its primary goal is to document background information, sampling procedures, data collection, data elements and survey variables, response rates, final weights and standard errors estimation.

This report contains the following information:

- Background of the survey initiative;
- A detailed description of how sample respondents were selected for the survey;
- Information regarding the data collection period, the number of completed interviews, and response rates;
- Information on interviewer training, pre-testing, interviewing methods, household screening methods and methods for call attempts and callbacks;
- Information on the number of cases in the file;
- Guidance on the use of weights for analyses;
- Instructions for calculating standard error estimates;
- The final survey questionnaire;

- A data dictionary that provides the names of survey variables, their codes, labels and the associated response categories; and
- A SAS formats library.

2. SAMPLE DESIGN

2.1 Target Population

The target population is the United States non-institutionalized adult population (18 years of age or older).

2.2 Sampling Frame and Selection

To ensure that the monthly Omnibus Survey conducted in November 2006 and thereafter is comparable to past Omnibus Surveys (March, 2001 and earlier) the previous methodology was replicated. The methodology was used to achieve a random sample of non-institutionalized adults 18 years and older in the fifty states of the United States and the District of Columbia. A national probability sample of households using list-assisted random digit dialing (RDD) methodology was employed for the survey. The sample was purchased from GENESYS, a firm that provides sample for numerous government agencies and the private sector. In summary, GENESYS initiated a sample development process by first imposing an implicit stratification on the telephone prefixes using the Census Bureau divisions and metropolitan status (See the Census Bureau regions and divisions below).

Table 1: Census Bureau Regions and Divisions

REGION	DIVISION	STATES
Northeast	New England	CT, ME, MA, NH, RI, VT
	Middle Atlantic	NJ, NY, PA
Midwest	E. North Central	IN, IL, MI, OH, WS
	W. North Central	IA, KS, MN, MO, NE, ND, SD
South	South Atlantic	DE, DC, FL, GA, MD, NC, SC, VA, WV
	E. South Central	AL, KY, MS, TN
	W. South Central	AR, LA, OK, TX
West	Mountain	AZ, CO, ID, NM, MT, UT, NV, WY
	Pacific	AK, CA, HI, OR, WA

Within each Census Bureau division, counties and their associated prefix areas located in Metropolitan Statistical Areas (MSA) were sorted by the size of the MSA. Counties and their associated prefix areas within a Census Bureau division that are located outside of MSAs were first sorted by state. Within each state, the counties and their associated prefix areas were sorted by geographic location. This implicit stratification ensures that the sample of telephone numbers is geographically representative.

The resulting sample of telephone numbers was address-matched for subsequent mailing of a pre-contact letter to each address.

M. Davis and Company purchased 11,992 telephone numbers for the November 2006 survey. A total of 7,326 of these numbers were identified as working residential numbers and were divided into 150 replicates. Each of the 85 fielding replicates released initially contained approximately 50 households. 33 additional replicates were released during Fielding. Eight (8) unused replicates from November's sample were used to conduct a pretest. Each pretest replicate had approximately 50 households. Twenty-four (24) of the 150 November replicates were not utilized in the actual interviewing, resulting in 5,773 numbers being released for use by the telephone interviewers.

2.2.1 RDD Sample

To generate the sample the GENESYS System employs list-assisted random digit dialing methodology. List-assisted refers to the use of commercial lists of directory-listed telephone numbers to increase the likelihood of dialing household residences. This method gives unlisted telephone numbers the same chance to be selected as directory-listed numbers.

The system utilizes a database consisting of all residential telephone exchanges, working bank information, and various geographic service parameters such as state, county, Primary ZIP code, etc. In addition, the database provides working bank information at the two-digit level – each of the 100 banks (i.e., first two digits of the four-digit suffix) in each exchange is defined as "working" if it contains one or more listed telephone households. On a National basis, this definition covers an estimated 96.4% of all residential telephone numbers and 99.96% of listed residential numbers. This database is updated on a quarterly basis.

The sample frame consists of the set of all telephone exchanges that meet the geographic criteria. This geographic definition is made using one or more of the geographic codes included in the database. Following specification of the geographic area, the system selects all exchanges and associated working banks that meet those criteria.

Based on the sample frame defined above, the system computes an interval such that the number of intervals is equivalent to the desired number of sample pieces. The interval is computed by dividing the total possible telephone numbers in the sample frame (i.e., # of working banks X 100) by the number of RDD sample pieces required. Within each interval a single random number is generated between 1 and the interval size; the corresponding phone number within the interval is identified and written to an output file.

The result is that every potential telephone number within the defined sample frame has a known and equal probability of selection.

2.2.2 ID-PLUS

This process is designed to purge about 75% of the non-productive numbers (non-working, businesses and fax/modems). Since this process is completed after the sample is generated, the statistical integrity of the sample is maintained.

The Pre-Dialer Phase – The file of generated numbers is passed against the ID database, comprised of the GENESYS-Plus business database and the listed household database. Business numbers are eliminated while listed household numbers are set aside, to be recombined after the active Dialer Phase.

The Dialer Phase – The remaining numbers are then processed using automated dialing equipment – actually a specially configured PROYTYS Telephony system. In this phase, the dialing is 100% attended and the phone is allowed to ring up to two times. Specially trained agents are available to speak to anyone who might answer the phone and the number is dispositioned accordingly. Given this human intervention in evaluating all call results, virtually all remaining businesses, non-working and non-tritone intercepts, compensate for differences in non-working intercept behavior. The testing takes place during the restricted hours of 9 a.m. – 5 p.m. local time, to further minimize intrusion since fewer people are home during these hours.

The Post-Dialer Phase – The sample is then reconstructed, excluding the non-productive numbers identified in the previous two phases.

2.2.3 Address Matching

The Multi-Source Phone Data Product from Anchor Computer was used for residential reverse matches (name and address). This file contains approximately 325 million records – all with name and address information. This file is based on sources that include white page directories, EDA (Electronic Directory Assistance) Information, Anti-Stalker, and “Little Book” Information. Each month, Anchor has full file refreshments from their data sources. This is a full file replacement process – not A/C/D process update, thereby creating a much cleaner approach. The Anchor file is updated and/or verified monthly. Each new file is incorporated into the total database as it is received. Anchor’s key data sources run NCOA on a quarterly basis prior to submitting the data to Anchor.

The data in Anchor’s Phone Database is subjected to a rigorous and routine data hygiene process to maintain a high level of address completion and deliverability as well as area code correction and currency. To aid in the accuracy of processing, Anchor runs the client files through an area code update and correction process to return better, more complete information. Anchor utilizes vendors that supply clean and current data. Anchor confirms its vendors run the necessary routines: address standardization (which includes the zip assignment/correction piece), area code updating/correction, and NCOA processing. Anchor gets the most current data incorporated into their product upon receipt of file updates.

Anchor Computer, Inc. conducted a residential reverse match (names and addresses) for the sample provided by GENESYS. Anchor provided an additional 43 matches.

2.3 Precision of Estimates

The precision of estimated frequencies can be assessed by evaluating the width of the 95 percent confidence interval around the estimates. For this application, the confidence interval can be *approximated* for design purposes as:

$$p_s \pm Z\sqrt{\text{Var}(p_s)}$$

Where p_s is the estimated (sample) proportion;

Z is the 5 percent critical value of the normal distribution; and

$Var(p_s)$ is the variance of p_s .

The calculation of the end points of the confidence interval can be re-written as:

$$p_s \pm Z \sqrt{\frac{p_s(1-p_s)}{n}}$$

Or

$$p_s - Z \sqrt{\frac{p_s(1-p_s)}{n}} \leq P \leq p_s + Z \sqrt{\frac{p_s(1-p_s)}{n}}$$

Where P is the true population value of the proportion; and
 n is the sample size.

Therefore, with a sample size of 1,095 and $p_s = 50$ percent, the confidence interval range would be $47 \leq P \leq 53$, *approximately*.¹

¹ This method of confidence interval calculation is conservative.

3. SAMPLING WEIGHTS AND ADJUSTMENTS

This section discusses the development of survey weights. Two types of weights were used in the present survey: inverse-probability weights (to correct for unequal selection probabilities) and post-stratification (to correct for known discrepancies between the sample and the population). The final analysis weight reflects both types of adjustments, i.e., adjustment for non-response, multiple telephone lines, and persons-per-household, and post-stratification adjustments. The final analysis weight is the weight that should be used for analyzing the survey data.

The final analysis weight was developed using the following steps:

- Calculation of the base sampling weights;
- Adjustment for unit non-response;
- Adjustment for households with multiple voice telephone numbers;
- Adjustment for selecting an adult within a sampled household; and
- Post-stratification adjustments to the target population.

The product of all the above variables represents the final analysis weight. If needed, extreme values of the final analysis weight can be reduced (or trimmed) using standard weight trimming procedures.

3.1 Base Sampling Weights

The first step in weighting the sample is to calculate the sampling weight for each telephone number in the sample. The sampling rate is the inverse of the telephone number's probability of selection, or:

$$W_s = \frac{N}{n}$$

Where N is the total number of telephone numbers in the population and n is the total number of telephone numbers in the sample. For this survey, the total number of telephone numbers in the sampling frame, N, is 280,348,200. The total number of telephone numbers in the sample (numbers dialed) is 5,688.

3.2 Adjustment for Unit Non-Response

Sampled telephone numbers are classified as responding or non-responding households according to Census division and metropolitan status (inside or outside a Metropolitan Statistical Area). The non-response adjustment factor for all telephone numbers in each Census division (*c*) by metropolitan status (*s*), is calculated as follows:

$$ADJ_{NR} = \frac{1}{CASRO \text{ response rate } (c, s)}$$

Where the denominator is the CASRO response rate for Census division c and metropolitan status s . The non-response adjustment factor for a specific cell (defined by metropolitan status and Census division) is a function of the response rate, which is given by the ratio of the estimated number of telephone households to the number of completed surveys.

The non-response adjusted weight (W_{NR}) is the product of the sampling weight (W_S) and the non-response adjustment factor (ADJ_{NR}) within each Census division / metropolitan status combination.

3.3 Adjustment for Households with Multiple Telephone Numbers

Some households have multiple telephone lines for voice communication. Thus, these households have multiple chances of being selected into the sample and adjustments must be made to their survey weights. The adjustment for multiple telephone lines is:

$$ADJ_{MT} = \frac{1}{\text{Min}(Nb \text{ telephone lines}, 3)}$$

As shown in the formula, the adjustment is limited to a maximum factor of three. In other words, the adjustment factor ADJ_{MT} will be one over two (0.50) if the household has two telephone lines, and one over three (0.33) if it has three *or more*.

The table below provides summary statistics for the number of telephone lines in the monthly sampled households.

Table 2: Number of Telephone Lines per Household

	Value
Mean	1.098
Standard deviation	0.365
Minimum	1
25th percentile	1
Median	1
75th percentile	1
Maximum	4

For respondents that did not provide this information, it is assumed that the household contained only *one* telephone line. The non-response adjusted weight (W_{NR}) is multiplied by the adjustment factor for multiple telephone lines (multiple probabilities of selection) (ADJ_{MT}) to create a weight that is adjusted for non-response and for multiple probabilities of selection (W_{NRMT}).

3.4 Adjustment for Number of Eligible Household Members

The probability of selecting an individual respondent depends upon the number of eligible respondents in the household. Therefore, it is important to account for the total number of eligible household members when constructing the sampling weights. The adjustment for selecting a random adult household member is:

$$ADJ_{RA} = \text{Number of Eligible Household Members}$$

The table below provides summary statistics for the number of eligible members in the monthly sampled households.

Table 3: Number of Eligible Household Members

	Value
Mean	1.626
Standard deviation	0.749
Minimum	1
25th percentile	1
Median	2
75th percentile	2
Maximum	8

For respondents that did not provide this information, a value for ADJ_{RA} is imputed according to the distribution of the number of eligible persons in a household (from responding households) within the age, gender, and race/ethnicity cross-classification cell matching that of the respondent for which the value is being imputed.

The weight adjusted for non-response and for multiple probabilities of selection (W_{NRMT}) is then multiplied by ADJ_{RA} , resulting in W_{NRMTRA} , a weight adjusted for non-response, multiple probabilities of selection, and for selecting a random, household member.

3.5 Post-Stratification Adjustments

Adjusting weighted survey counts so that they agree with population counts provided by the Census Bureau can compensate for different response rates by demographic subgroups, increase the precision of survey estimates, and reduce the bias present in the estimates resulting from the inclusion of only telephone households. The final adjustment to the survey weight is a post-stratification adjustment that allows the weights to sum to the target population (i.e., U.S. non-institutionalized persons 18 years of age or older) by age, gender and race/ethnicity.

The outcome of post-stratification is a factor or multiplier (M) that scales W_{NRMTRA} within each age/gender/race cell, so that the weighted marginal sums for age, gender and race/ethnicity agree with the corresponding Census Bureau distribution for these characteristics. The method used in the post-stratification adjustment is a simple ratio adjustment applied to the sampling weight

using the appropriate national population total for a given cell defined by the intersection of age, gender, and race/ethnicity.² The general method for ratio adjusting is:

- A table of the sum of the weights for each cell denoted by each age, gender, and race/ethnicity combination is created. Each cell is denoted by $S(i,j,k)$, where i is the indicator for age, j is the indicator for gender, and k is the indicator for race/ethnicity;
- A similar table of national population controls is created, where each cell is denoted by $P(i,j,k)$;
- The ratio $R(i,j,k) = P(i,j,k) / S(i,j,k)$ is calculated; the cell ratio $R(i,j,k)$ is denoted as the multiplier M ;
- Each weight, at the record level, is multiplied by the appropriate cell ratio of $R(i,j,k)$ to form the post-stratification adjustment.

Again, cells used in the post-stratification are defined by the combination of age, gender, and race/ethnicity. With two categories for gender, six for age and four for race/ethnicity,³ a total of 48 (2x6x4) cells can be used. In any month, some race/ethnicity or, preferably, age categories may be merged if the number of completed interviews within the corresponding cells falls below thirty.

For this survey, many of the cells had less than thirty observations. After grouping, and to remain consistent with what was done in the previous months, a total of 19 cells were used for post-stratification. The cells, used to construct post-stratification adjustments for November 2006, together with the number of sample observations and the national population estimates from the Census Bureau are shown in the table on the next page.

² The Census Bureau provides a detailed breakdown of population count by age, gender and race/ethnicity.

³ The four race/ethnicity categories used for post-stratification purposes are: Hispanic (any race), Non-Hispanic Black, Non-Hispanic White, and Non-Hispanic Other.

Table 4: Post-Stratification Cells

CELL	DESCRIPTION	SAMPLE SIZE	POPULATION
1	Male - Hispanic (Any Race)	24	14,935,681
2	Male - Non-Hispanic Black	35	11,047,757
3	Male - Age 18 – 24 - Non-Hispanic White	13	8,856,004
4	Male - Age 25 – 34 - Non-Hispanic White	34	11,593,543
5	Male - Age 35 – 44 - Non-Hispanic White	67	13,840,799
6	Male - Age 45 – 54 - Non-Hispanic White	95	15,433,275
7	Male - Age 55 – 64 - Non-Hispanic White	66	11,920,371
8	Male - Age 65 or older - Non-Hispanic White	81	12,475,304
9	Male - Non-Hispanic Other	27	7,210,232
10	Female - Hispanic (Any Race)	43	14,098,890
11	Female - Age 18 – 44 - Non-Hispanic Black	30	7,516,717
12	Female - Age 45 or older - Non-Hispanic Black	28	6,213,422
13	Female - Age 18 – 24 - Non-Hispanic White	14	8,741,927
14	Female - Age 25 – 34 - Non-Hispanic White	49	11,786,502
15	Female - Age 35 – 44 - Non-Hispanic White	69	14,084,845
16	Female - Age 45 – 54 - Non-Hispanic White	108	15,766,751
17	Female - Age 55 – 64 - Non-Hispanic White	96	12,524,156
18	Female - Age 65 or older - Non-Hispanic White	134	16,411,453
19	Female - Non-Hispanic Other	34	7,692,480
N/A	Missing Demographic Information	48	N/A
	TOTAL	1,095	222,150,109

Those respondents who did not supply the demographic information necessary to categorize their age, gender and/or race/ethnicity are excluded from the post-stratification process and assigned a value of 1 for M .

The multiplier M is then applied to W_{NRMTRA} to create $W_{NRMTRAPS}$. However, $W_{NRMTRAPS}$ is overstated because a portion of the sample is not included in the calculation of the post-stratification adjustment. Therefore, a deflation factor is applied to the value of $W_{NRMTRAPS}$. The deflation factor DEF is calculated as follows:

$$DEF = \frac{\sum_{i=1}^6 \sum_{j=1}^2 \sum_{k=1}^4 P(i, j, k)}{TW_{NRMTRA_NA} + \sum_{i=1}^6 \sum_{j=1}^2 \sum_{k=1}^4 P(i, j, k)}$$

Where:

$P(i, j, k)$ is the national population count for cell (i, j, k) ; and

TW_{NRMTRA_NA} is the sum of the W_{NRMTRA} weights for respondents with missing demographic information.

This deflation factor denotes the proportion of the target population represented by respondents with non-missing demographic information. The final analysis weight, W_{FINAL} , is the scaled value of $W_{NRMTRAPS}$, calculated as:

$$W_{FINAL} = DEF \times W_{NRMTRAPS}$$

W_{FINAL} can be viewed as the number of population members that each respondent represents.

3.6 Trimming of Final Analysis Weights

Extreme values of W_{FINAL} are trimmed to avoid over-inflation of the sampling variance. In short, the trimming process limits the relative contribution of the variance associated with the k^{th} unit to the overall variance of the weighted estimate by comparing the square of each weight to a threshold value determined as a multiple of the sum of the squared weights. Letting w_1, w_2, \dots, w_j , denote the final analysis weights for the n completed interviews, the threshold value is calculated using the following formula:

$$Threshold = \left(10 \sum_{j=1}^n w_j^2 / n \right)^{\frac{1}{2}}$$

Each household having a final analysis weight that exceeds the determined threshold value is assigned a trimmed weight equal to the threshold. Next, the age/gender/race cell used in the post-stratification is identified for each household with a trimmed weight. To maintain the overall weighted sum within the cell, the trimmed portions of the original weights are reassigned to the cases whose weights are unchanged in the trimming process.

For cases having trimmed weights but missing age, gender, and/or race/ethnicity information, the trimmed portions of the original weights are assigned to all remaining cases whose weights are unchanged in the trimming process.

The entire trimming procedure is repeated on the new set of weights: a new threshold value is recalculated and the new extreme values are re-adjusted. The process is repeated until no new extreme values are found.

4. VARIANCE ESTIMATION

The data collected in the Omnibus Household Survey was obtained through a complex sample design involving stratification, and the final weights were subject to several adjustments. Any variance estimation methodology must involve some simplifying assumptions about the design and weighting. Some simplified conceptual design structures are provided in this section.

4.1 Variance Estimation Methodology

The software package SUDAAN® (Software for the Statistical Analysis of Correlated Data) Version 9.0.0 was used for computing standard errors.

4.1.1 Software

SUDAAN® is a statistical software package developed by Research Triangle Institute to analyze data from complex sample surveys. SUDAAN® uses advanced statistical techniques to produce robust variance estimates under various survey design options. The software, in particular, can handle stratification and the numerous adjustments associated with weights subject to multiple adjustments.

4.1.2 Methods

Overall, three variables, CENDIV (Census Division), METRO (metropolitan status), and FNLWGT (final analysis weights), are needed for variance estimation in SUDAAN®. The method used in the present survey utilizes the variables CENDIV and METRO to create 18 (9x2) strata, a single stage selection with replacement procedure, and the final analysis weights. This method provides somewhat conservative standard error estimates.

Assuming a simplified sample design structure, the following SUDAAN® statements can be used (note that the data file first must be sorted by the variables CENDIV and METRO before using it in SUDAAN®):

```
PROC ... DESIGN = STRWR;  
NEST CENDIV METRO;  
WEIGHT FNLWGT;
```

More precisely, the following code is used to produce un-weighted and weighted frequency counts, percentages and standard errors (the variable of interest here is "var1", a categorical variable with seven levels):

```
PROC CROSSTAB DATA = datafile DESIGN=STRWR;  
WEIGHT FNLWGT;  
NEST CENDIV METRO;  
SUBGROUP var1;  
LEVELS 7;  
TABLE var1;  
PRINT nsum wsum totper setot / STYLE=nchs;  
RUN;
```

When sampling weights are post-stratified, the variance of an estimate is reduced since the totals are known without sampling variation.⁴ Using SUDAAN® without any modifications produces standard errors of estimates that do not reflect this reduction in variance. The estimates of the standard errors can be improved by using SUDAAN® post-stratification option (POSTVAR and POSTWGT). This option reflects the reduction in variance due to adjustment to control totals in one dimension. However, this approach still does not reflect the full effect of post-stratification, as the other post-stratification dimensions are ignored.⁵

4.2 Degrees of Freedom and Precision

A typically used rule-of-thumb for degrees of freedom associated with a standard error is the quantity: number of un-weighted records in the dataset *minus* number of strata. The rule-of-thumb degrees of freedom for the method above will fluctuate from month to month depending upon the number of records in each monthly dataset. Most monthly dataset will yield degrees of freedom of around 1,000.

For practical purposes, any degrees of freedom exceeding 120 is treated as infinite, i.e., if one uses a normal Z-statistic instead of a t-statistic for testing. Note, that a one-tailed critical t at 120 degrees of freedom is 1.98 while at an infinite degrees of freedom (a 0.025 z-value) is 1.96. If a variable of interest covers most of the sample strata, this limiting value probably will be adequate for analysis.

⁴ For a discussion of the impact of poststratification on the variance of survey estimates see, in particular, "Sampling and Weighting in the National Assessment," Keith F. Rust and Eugene G. Johnson, *Journal of Educational Statistics*, 17(2): 111-129, Summer 1992.

⁵ For a presentation of SUDAAN®'s handling of poststratification adjustments see "1999 Variance Estimation," *National Survey of America's Families Methodology Report*, 1999 Methodology Series, Report No. 4, prepared by J.M. Brick, P. Broene, D. Ferraro, T. Hankins, C. Rauch and T. Strickler, November 2000.

5. DATA COLLECTION PLAN

5.1 Expert Panel

An expert panel was not a task for this survey.

5.2 Cognitive Interviews

Cognitive interviews were not a task for this survey.

5.3 Data Collection Schedule

The survey was conducted over 24 days to enable 1,000 interviews to be completed. The survey period was from November 6 through November 30. Interviews were not conducted on Thanksgiving.

5.4 Interview Procedures

The following outlines the key phases of the interviewing procedures utilized in the survey.

5.4.1 Pre-Testing

A Pre-Test was conducted prior to the initiation of actual calling. The Pre-Test was used to replicate the data collection process and identify any problem areas related to the process, the survey instrument in total, specific questions, answer choices, questionnaire instructions or question format. It was also used to test the interview length.

Telephone supervisors conducted a total of 26 pre-test interviews (RMA - 9 interviews, and MDAC - 17 interviews) of the draft survey instrument. All problematic questions, issues and recommendations resulting from the pre-test were included in the list of problematic issues.

5.4.2 Interviewer Training

All new interviewers initially completed a generic two-day (approximately 12 hours) classroom training on general interviewing skills. Additionally, each month all interviewers will complete approximately four to six hours of classroom training on specific aspects of the Omnibus Household Survey. In response to normal interviewer turnover and/or increased staffing needs, all interviewers new to the project will receive the full complement of training prior to beginning their interviewing for this study.

An outline of the generic two-day training is below. This generic training included these topics as well as Asking questions as worded (Verbatim Reading and Recording), use of bold type on the screen, use of light type on the screen, use of ALL CAPS on the screen (Maneuvering through CfMC: Start Interviewing, Meaning/Significance of font style (e.g., bold) and text effects (e.g., all caps). Also, interviewers were provided with a list of Frequently Asked Questions so they were ready to counter a respondent's potential refuse to participate in the study.

I. ORIENTATION

Introduction to M. Davis and Company, Inc.

Welcome

MDAC Way

Organizational Chart

Your Job Description/Responsibilities

Policies and Procedures

II. TRAINING

***Includes Excerpts from the Market Research Association (MRA) Training Manual

A. Introduction to the Marketing and Opinion Research Industry

What is marketing and opinion research?

Types of interviews

Techniques used in data collection

Survey settings

Overview of the marketing and opinion research process

Key Terms

B. The Interviewer's Role

Appropriate Attitude

Characteristics of a successful interviewer

Recruiting Respondents

The "Art" of Interviewing

Key Terms

C. Respondents

Relating to Respondents

"Training" Respondents

Building and Maintaining Rapport

"Active Listening"

Callback Scenarios and Procedures

Terminations

D. Questions and Answers Plus Other Topics

The One Unbreakable Rule

Types of Questions

The Interviewing Process

Paperwork

Quality Assurance

Dos and Don'ts

Conducting the Interview

Editing the Interview

Monitoring (includes Quotas)
Validation

E. Bias, Probing and Clarifying

Introduction
Good Feedback
Bad Feedback
Avoid Bias
Verbatim Reading and Recording
Open-end Questions and Probing
Additional Section, “Bias, Probing and Clarifying”

F. Objections and Refusal Conversion

Nine Most Common Objections and Reasons for Refusal
Acknowledgement of the Objection
Soft Refusal Conversion

G. Getting Familiar With The Computer

Mouse
Keyboard
Logging On

H. Maneuvering through CfMC

Keyboard Commands
Introduction to CfMC Phone System
Starting the Interviewing
Interviewing with SURVENT
Responding to Different Question Types
SURVENT Commands
More About CfMC
Role Playing

I. Open Discussion

Additional questions

Each survey month, a questionnaire update training is conducted to discuss the questionnaire changes. An updated interviewer training manual specific to the new month is developed and distributed to the interviewers. An outline of the approximately four-to-six hour training includes:

- A review of last month’s results;
- Feedback from interviewers, supervisors;
- Problems and issues emerging from last month’s data collection;

- An Overview of changed sections from last month (Sections B, S and M);
- Question-by-Question Training for New Sections.

In addition to the initial (generic) training and monthly refresher (survey-specific) training, interviewer re-training is conducted on an “as-needed” basis – that is, as interviewers are replaced or the survey instrument changes. Also, interviewers are evaluated and retrained as needed for improvement or changes in work habits as identified by our monitoring and editing control procedures.

On a monthly basis MDAC reviews the new questionnaire for changes, incorporates any changes approved by BTS emanating from the Expert Panel Review, the Cognitive Interviews and the Pretest. MDAC re-issues a new manual to each interviewer with the changes.

5.4.3 Pre-Contact Letter

Eight (8) calendar days prior to the start of data collection a BTS-approved pre-contact letter is sent to sample numbers with an address. The intent is for each household with an address to receive the pre-contact letter several days before they receive a call to conduct the interview.

There were 1,842 advance letters sent out on November 4, 2006. The percentage of addresses available for the sample was 41.2 percent.

An “800” number is listed in each letter with the specific times to call (M-F, 9 a.m. – 11 p.m. EST; Sat and Sun, 1 p.m. to 9 p.m. EST). The letters are categorized by call center and each call center’s “800” number. Should the respondent call outside the times listed above they will receive a phone message asking them to leave their name and number and someone will contact them as soon as possible to conduct the interview.

The toll free number is also mentioned at the first, seventh, fourteenth and every nth attempt in messages left for potential respondents with an answering machine in cases where we are unable to make contact with a member of the household. Additionally, the 1-800 number is left to arrange an appointment for an interview.

A message is not left after each attempt when encountering an answering machine due to concern that people might avoid the call or feel “harassed” if they were away for a few days and find four to six messages on their answering machine upon returning home. Given that a household with an answering machine is called two to three times per day during the Omnibus Household Survey there must be a balance between perceived harassment and encouraging participation, particularly given the limited duration of fielding.

A study of telephone practices published in January 2000 by the Council for Marketing and Opinion Research (CMOR) found no conclusive data showing that leaving a message on an answering machine for a respondent is effective. This study states that only 17% of the telephone centers surveyed left a message on the answering machine. Of the call centers which did leave a message 75% left an 800 number, 71% left a message on the first call and 62% left a message on subsequent calls.

Given the short time frame for data collection, the potential perception of harassment and prior research results, MDAC believes the best approach is to leave the toll free 800 number at the first, seventh, fourteenth and twentieth calls.

5.4.4 Call Attempts and Callbacks

The interviews are conducted using CfMC computer assisted telephone interviewing software. At a minimum, one thousand (1,000) interviews are completed each month. The interviewing is distributed between two call facilities, Robinson Muenster Associates and MDAC.

Robinson Muenster Associates (RMA) has two shifts Monday through Friday (9 a.m. – 5:30 p.m. and 5:30 p.m. – 9:30 p.m.), on Saturdays 10 a.m. – 5 p.m. and Sundays 1 p.m. – 9 p.m. MDAC has two shifts Monday through Friday (9 a.m. – 5p.m. and 5 p.m. – 12 midnight) and two shifts on Saturdays (11 a.m. – 5 p.m. and 5 p.m. – 11 p.m.) and Sundays (11 a.m. – 5 p.m. and 5 p.m. – 11 p.m.). Monday through Friday, 9 a.m. to 2 p.m., only callbacks (scheduled and non-scheduled) are initiated at both RMA and at MDAC due to historically documented significantly lower completion rates during this time period. In addition, calls after 9 p.m. local time are for scheduled callbacks only. No non-scheduled callbacks are conducted after 9 p.m. local time.

In 2001, numbers were sent to each call center to initiate the calling. Each month the amount of numbers released initially by each call center was based on the calling experiences of previous months related to improving the response rate. Additional numbers released during the ten day calling period was based upon past calling history, the quantity of numbers determined to be ineligible, and projection of completes based upon past and current experience, number of callbacks achieved and refusal conversion rates.

In January 2002, the number release protocol was modified. Since that month, all the numbers to be dialed in a month are released on the first day of calling, and no additional numbers are released during the ten-day calling period. This revised protocol facilitates more dials per number released and has in part contributed to the higher response rates experienced since January 2002 compared to previous months of calling.

When a phone number is called initially, the interviewer determines that it is a household. Then the interviewer requests to speak with an adult 18 years of age or older (if the person on the phone is not an adult). Once an adult is on the line, then the interviewer randomly selects the actual survey respondent by asking for the adult in the household who had a birthday most recently. When the adult with the most recent birthday comes onto the phone line the interviewer conducts the survey. Should the interviewer not be able to complete the survey the following dispositions are recorded:

Do-Not-Call dispositions are for households that request their number not be called in the future. This disposition ensures compliance with the respondent's request.

Refusals are defined as when a person refuses to participate in the survey at all. Someone who breaks off the interview or refuses because s/he doesn't have time or says s/he is busy is considered a callback. Refusals are routed to supervisors and selected interviewers capable of converting refusals into completions or other disposition. Interviewers experiencing a refusal

enter the appropriate refusal code. Supervisors review refusals the next day and assign the refusal numbers to the appropriate personnel to initiate callbacks with a refusal script. Refusal households are called twice a day, once during the time period contact was initially made and one other time period. The refusal callback is rotated between the morning and late afternoon time periods from Monday through Friday.

Callbacks are scheduled and prioritized by the CfMC software. The callbacks are prioritized based upon the following criteria: first priority – scheduled callback to qualified household member; second priority – scheduled callback to “qualify” household (includes contact with Spanish language barrier households); third priority – callback to make initial contact with household (includes answering machine, busy, ring no answer); and fourth priority – callbacks that are the seventh or higher attempts to schedule interview.

An interview is considered “complete” only if all questions are answered. A refusal to answer an individual question meets the definition of, and counts as, an “answered” question.

Should the interviewer not be able to complete the interview the following procedures will be followed:

Scheduled callbacks can be dialed at anytime during calling hours and as frequently as requested by the callback household up to seven times. Callback attempts in excess of seven are at the discretion of the interviewer based upon his/her perception of the likelihood of completing the interview. The basis of the interviewer’s perception, in part, is determined by how vigorously the interviewer is being encouraged to call back to complete the interview by the potential respondent or another member of the household. The interviewer then confers with a supervisor and a final determination is made as to if the interviewer continues calling.

Callbacks to Spanish language households are conducted by Spanish-speaking interviewers. Interviewers who identify a household as Spanish speaking alert the supervisor a Spanish-speaking interviewer is needed to handle the phone call. If the Spanish interviewer is not available, the interviewer will inform the respondent someone will call back, then record as CBS (Callback Spanish). If the person is not available within the next hour a callback will be scheduled, if possible.

Those records identified as Spanish will be routed to a Spanish-speaking interviewer. The Spanish Interviewer makes the call and follows the standard protocol for all English calls.

Callbacks for initial contact with potential respondents are distributed across the various calling time periods and weekday/weekend to ensure that a callback is initiated during each time period each day. Two (Saturday and Sunday) to three (Monday through Friday) callbacks per number are initiated per day assuming the number retains a callback status during the calling. There are up to twenty (20) callback attempts. This protocol is designed for ring no answer and answering machines. When an interviewer reaches a household with an answering machine during the seventh, fourteenth or twentieth time calling the interviewer leaves a message with the respective appropriate 800 number.

Callbacks to numbers with a **busy signal** are scheduled every 30 minutes until the household is reached, disposition is modified, maximum callbacks are achieved or the study is completed.

In July 2002, six codes were added to the In-Scope section, and will be kept for future months. These codes are: NAQ - No Answer Qualified, BZQ - Busy Qualified, AMQ - Answering Machine Qualified, LMQ - Left Message Qualified, CCQ - Cannot Complete Call Qualified, and PMQ - Privacy Manager Qualified. These codes were added to ensure that In-Scope Callbacks remain in the In-Scope category even when subsequent calls led to dispositions such as No Answer, Busy, Answering Machine, Left Message, Cannot Complete Call and Privacy Manager.

5.4.5 Disposition Codes

The following are the disposition codes used for each call outcome:

Out-of-Scope Numbers:

- BG – Business (The number dialed is a non-residential phone number. The call is terminated and the number resolved.)
- CF – Computer/Fax (The number dialed has led to a modem, fax, pager, or cell phone.)
- DS – Disconnected number (The number dialed is disconnected. The call is terminated and the number resolved.)
- NC – Number change (The call yielded a recording that the number was changed, with or without a change in the area code.)
- NQ – No one 18 years old or older in household
- UNB – Unavailable before and during study period

Scope Undetermined:

- NA – No answer (The phone is not answered within 5 rings.)
- BZ – Busy (busy signal)
- AM – Answering machine (The call has led to an answering machine or voicemail.)
- LM – Left message (on the 7th, 14th and 20th calls)
- CCC – Cannot complete call (The message “Your call cannot be completed at this time” is received. This is a message provided by the local telephone company when there is a line problem in the local area. These calls are dialed on another day.)
- PM – Privacy manager (Privacy manager is a feature provided by local telephone companies that requires incoming callers to identify themselves, before the household will accept the call.)
- NQL – Eligibility undetermined because of language problems or deafness
- RFI – Refused to speak with interviewer (screening incomplete) If the respondent refuses to speak with interviewer prior to answering F1020 (screening incomplete) and, if asked, F1010 responded “no”
- HRI – Requests their name be removed from calling list or if the respondent refuses to speak with interviewer for second time prior to answering F1020 (screening incomplete) and, if asked, F1010 responded “no”
- OD – The maximum number of call attempts is reached before being able to determine eligibility

- CBU – Callback undetermined
- CSU – Callback spanish undetermined

In-Scope Numbers:

- YES – Yes (Respondent has agreed to be screened and is eligible, 18 years old or older.)
- NAQ – No answer qualified
- BZQ – Busy qualified
- AMQ – Answering machine qualified
- LMQ – Left message qualified
- CCQ – Cannot complete call qualified
- PMQ – Privacy manager qualified
- CB – Callback (The respondent has asked that we call them back at another time.)
- CBS – Callback Spanish
- DL – Deaf/Language (The respondent is eligible but is hard of hearing, or cannot speak English fluently to complete the interview.)
- RFQ – Respondent refusal (Respondent refuses after establishing there is a qualified household member by answering F1050 or a later appearing question, or after answering F1010 “yes”.)
- UN – Unavailable (Was available when study began or unable to determine.)
- DR – Respondent deceased prior to completion of interview
- AC – The area code is changed but not the number
- HRQ – Requests their name be removed from calling list or respondent refusal for second time after establishing there is a qualified household member by answering F1050 or a later appearing question, or after answering F1010 "yes"
- DIP – Reinterview deletion, ineligible person in household interviewed
- DDA – Reinterview deletion, discrepancy in answers during reinterview

5.4.6 Household Screening

Qualified respondents are at least 18 years of age or older and must be the household member with the next birthday. If the household member is not available at the time of the call a callback is scheduled to screen and/or interview the respondent.

5.4.7 Interviewing Methods

Incentives were not offered to potential respondents in exchange for their participation in the survey. Surveys were conducted in both English and Spanish. If the potential respondent refuses to be interviewed the reason for refusal is recorded. The average length of the interview was 10 to 12 minutes and an additional 3 to 5 minutes to screen and recruit potential respondents.

Generally, interviewers introduced themselves, who they worked for, the purpose of the survey, and assured the potential respondent this was not a sales call. Interviewer then determined whether there was an eligible person in the household. Once contact was made with the eligible household member the interviewer they reintroduced themselves when necessary, explained the purpose of the survey, that it is a voluntary study, indicates the survey takes only 10 minutes, indicated all information would remain confidential and they can refuse to answer any question.

If the potential respondent agrees to participate the interviewer provides the respondent an opportunity to ask any questions, addresses their questions and the interview is conducted. However, if it is not a convenient time then a callback is scheduled.

5.5 Data Quality Control Procedures

A key component to successful data quality control procedures is a well-trained and experienced interview staff. All potential interviewers underwent intensive training and orientation regardless of their level of experience prior to being hired for this project. New hires were first screened on their voice quality, diction, and their ability to administer a simple test questionnaire.

Our interviewer training for administering telephone surveys included:

- Orientation on the purpose and importance of marketing research, company policies, and quality standards including viewing Market Research Association (MRA) training videotapes;
- Testing on material developed by the Market Research Association;
- Background and purposes of the survey;
- Procedure for selection of correct respondent for the interview;
- Intensive hands-on training on the "basics" of interviewing itself- the handling of skip patterns, probing and clarify techniques, sample administration, Computer Assisted Telephone Interviewing (CATI), overcoming refusals, etc.;
- Observing and listening to experienced interviewers conducting actual interviews during which each trainee's performance is closely monitored and evaluated under actual interviewing conditions;
- Constant reference on the importance of accuracy, quality and courtesy; and
- Successful completion of a total of approximately eight hours of training during the different sessions.

5.5.1 Interviewer Performance

Ongoing monitoring of every interviewer is undertaken throughout the BTS Omnibus Survey. Fifteen (15%) to twenty (20%) percent of all calls are monitored. An interviewer evaluation form is completed for each monitored contact with a household. Additionally, the evaluation forms includes two to three evaluations of a completed interview per hour. The evaluation forms are paper hard copy forms and are available for review by BTS at the offices of M. Davis and Company, Inc. in Philadelphia.

5.5.2 Other Procedures

The initial two days of interviews by each interviewer are checked to identify any problems administering the survey. The objective is to identify problems, if any, correct the errors and take action so that the problems do not reappear. Before beginning the second day of work all interviewers are alerted to their problems, if any, and the interviewers review how to ensure the problem does not recur. Interviews that were completed during the second day are checked to see that the first day's errors are not repeated. If errors were repeated and dependent upon the

significance of the error, the interviewer is retrained and/or removed from the project for that month of calling.

Newer interviewers are monitored at a higher rate regardless of their level of experience until their first performance evaluation. Additionally, reinterviewing is performed on 10% - 20% of each interviewer's work through actual callbacks to respondents to verify responses to key questions. The reinterviewing is initiated on the second day of interviewing to ensure early detection of problems and to avoid a backlog of calls. Reinterviewing is performed for both new and experienced interviewers.

5.6 Summary of Data Cleaning

On a daily basis, the data file is checked as a standard to maintain quality. The CfMC utility called SCAN, allows for checking the data, to be sure that all questions are being asked in accordance with the skip patterns on the final questionnaire. The file is also checked for missing codes.

This survey contains “other specify” questions. These questions allow the interviewer to record text responses that do not appear on the pre-listed set of responses. “Other specify” responses are edited to determine if responses entered in “other specify” appear on the pre-listed set of responses. Upon review of the “other specify” responses, it may be necessary to “code-back” a response to the pre-list. This occurs when an interviewer recorded a response as “other”, although one of the pre-listed responses matched the “other” response.

5.7 Treatment of Missing Values

As with any survey, the BTS Omnibus Survey, by design, contains questions that are not asked of certain respondents based on their response(s) to other questions. In addition, there will always be some respondents who do not know the answer to or chose not to answer some questions in the survey. Each of these responses can have a different meaning to the data user. While each of these response categories is important in characterizing the results of the survey, they are often removed from certain analyses, particularly those involving percentages. Therefore, the categories were given standard codes for easy identification. The table below presents the response categories and how they are represented in each data file.

Table 5: Summary of Codes for Missing Values by Data File Format

Response Category	Dataset Formats				
	SAS [®] Version 9.1	SAS [®] Transportable	Microsoft Excel	Text Comma Delimited	SPSS
Appropriate skip	.S	.S	-7	-7	-7
Refused	.R	.R	-8	-8	-8
Don't know	.D	.D	-9	-9	-9

5.8 Response Rates

The procedures for response rate calculation are based on the guidelines established by the Council of American Survey Research Organizations (CASRO) in defining a response rate.

5.8.1 Number of Completed Interviews

A total of 1,095 interviews were completed during the survey period.

5.8.2 Calculation of Response Rates

The final response rate for the survey is obtained using the following formula:

$$\text{Response Rate} = \frac{\text{Completed HH Interviews}}{\left\{ \text{HHs In Scope} + \left[\text{Scope Undetermined} * \frac{\text{HHs In Scope}}{\text{HHs In \& Out of Scope}} \right] \right\}}$$

The table below presents the distribution of household telephone numbers by disposition categories. The number of household cases in each category was then used in the above formula to calculate an overall response rate of 48.46 percent.

Table 6: Distribution of Household Cases by Disposition

Disposition Category	Number of Households
Telephone Numbers Available	5,773
Telephone Numbers Released	5,668
Telephone Numbers Not Dialed	0
Telephone Numbers Dialed	5,668
Out-of-Scope Numbers (Ineligible)	2,237
BG - Business	455
CF - Computer/Fax	483
DS - Disconnected number	1,227
NC - Number change	32
NQ - No one 18 years old or older in household	10
UNB - Unavailable before and during study period	30
Scope Undetermined	1,948
NA - No answer	655
BZ - Busy	104
AM - Answering machine	244
LM - Left message	91
CCC - Cannot complete call	3
PM - Privacy manager	4
NQL - Eligibility undetermined because of language problems or deafness	37
RFI - Refused to speak with interviewer (screening incomplete)	308
HRI - Hard refusal *	367
OD - Maximum call attempts reached	0
CBU - Callback Undetermined	130
CSU - Callback Spanish Undetermined	5
In-Scope Numbers	1,483
Complete	1,095
Partial Complete	10
DIP - Reinterview Deletion, Ineligible Person in Household Interviewed	0
DDA - Reinterview Deletion, Discrepancy in Answers during Reinterview	1
CB - Callback	76
CBS - Callback Spanish	29
NAQ - No Answer Qualified	61
BZQ - Busy Qualified	4
AMQ - Answering Machine Qualified	28
LMQ - Left Message Qualified	0
CCQ - Cannot Complete Call Qualified	11
PMQ - Privacy Manager Qualified	0
DL - Deaf/Language	74
RFQ - Respondent refusal	7
UN - Unavailable	35
DR - Respondent deceased prior to completion of interview	2
AC - The area code is changed but not the number	0
HRQ - Hard refusal *	50
CASRO Response Rate	48.46%

* Note: Beginning in March 2002, and for all future months, to more accurately reflect the breadth of cases that fall within the HRI and HRQ categories the words "Hard Refusal" have replaced the words "Requested name be removed from calling list".

For the Omnibus survey the following is undertaken to maximize the response rate:

1. Matching sample telephone numbers against commercial file against residential directory-listed numbers.
2. Advance letter stating clearly the aims, objectives and importance of the survey, with toll free number to callback. MDAC will collaborate with BTS to create a BTS approved advance letter.
3. Coordination of the mailing of advance letters with the interview calling.
4. Develop answers for the questions and objections that may arise during the interview.
5. Leaving message on answering machine with a toll free number.
6. Having multi-lingual interviewers to reduce language barriers.
7. Elimination of non-residential numbers from sample.
8. Callbacks of respondents who initially refused or broke-off interview.
9. Minimizing turnover of key and non-key personnel.

5.8.3 Reasons for Non-Response

As with any survey, the BTS Omnibus Survey, by design, contains questions that ask respondents to supply the demographic information necessary to categorize their age, gender, and/or education. There will always be some respondents who do not choose to answer some questions in the survey. For respondents that did not want to provide this information, the most common reasons for non-responses are: *I don't like giving my age, I would rather not say, I don't like to be labeled, and that is personal information.*

Common reasons for non-responses when asked questions regarding contacts they may have had with any government agencies and/or why they contacted the agencies are: *I don't want to say because I don't trust the government, I don't want to answer because I have an issue pending, and I would rather not say.*

APPENDIX A: FINAL ANNOTATED SURVEY QUESTIONNAIRE

Section F – Introduction and Respondent Selection

[PHONE NUMBER]

USE AUTODIALER	1
BYPASS AUTODIALER	2

F1000. Hello, my name is _____ and I'm calling on behalf of the United States Department of Transportation. We're conducting a survey on transportation issues including security of the transportation system, commuting to work and congestion. Your household has been randomly selected for this study and your opinions will help to strengthen our nation's transportation system. Your participation in this study will only take about 10 minutes. There is no penalty for refusing to answer any question. This study is authorized by law and your answers will only be used for statistical purposes. By law your responses will be kept confidential and will not be disclosed to anyone other than employees and contractors of this study.

READ IF NECESSARY:

Title 49, Section 111c2 of the United States Code requires that no penalty be associated with refusing to answer any question.

Title 49, Section 111 (i) of the United States Code requires that your responses be kept confidential.

Title 18, Section 1905 of the United States Code states that everyone working on this study is subject to a jail term and/or fine if he or she makes public ANY information that could identify you.

F0080. Have I reached you at [telephone number]?

- 1) Yes
- 2) No – I am very sorry, I must have dialed incorrectly. Thank you, goodbye.

F1010. Are you a member of this household and at least 18 years old?

YES	1 (go to F1030)
NO	2
BUSINESS ADDRESS	3 (go to F1140)

F1020. May I speak to a member of this household who is at least 18 years old?

- | | |
|--|----------------------|
| AVAILABLE | 1 (go to F1000) |
| NOT AVAILABLE | 2 (MAKE APPOINTMENT) |
| When would be a good time to call back? | |
| THERE ARE NONE | 3 (go to F1140) |

F1030. Is this phone number used for...

- | | |
|---------------------------|---|
| home use | 1 |
| home and business use, or | 2 |
| business use only | 3 |

(If 3) – I am very sorry; I'm trying to reach a residence. Thank you.

Goodbye.

F1040. Including yourself, how many people aged 18 or older currently live in this household?

[IF NEEDED: "Include people who usually stay in this household, but are temporarily away on business, vacation, or in the hospital. Do not include persons who are away on full-time active military duty with the armed forces, students living away from home in their own apartment, or any other family member who may be in a nursing home or other institution."]

____# OF ADULT HH MEMBERS

Sample Selection

IF THERE ARE NO ADULT HH MEMBERS, GO TO F1140.

IF ONLY 1 ADULT IN HH, GO TO F1080. OTHERWISE, RUN RESPONDENT SELECTION ALGORITHM.

IF 2 ADULTS IN HH, GO TO F1081. OTHERWISE IF RESPONDENT WAS SAMPLED, GO TO F1080.

OTHERWISE, IF MORE THAN 2 ADULTS IN HH AND RESPONDENT WAS NOT SAMPLED, CONTINUE WITH F1050.

F1050. The computer has randomly determined that one of the [F1040 answer minus 1] adults other than yourself should be selected for the rest of the interview. To help us select this person, do you know who has the NEXT birthday among these adults?

- | | |
|-----|-----------------|
| YES | 1 |
| NO | 2 (go to F1070) |

F1060. Other than yourself then, which adult has the NEXT birthday?

(A FIRST NAME IS SUFFICIENT IF IT UNIQUELY IDENTIFIES THE HH MEMBER. IF NEEDED--“We need some way to ask for this person should we need to call back. If you prefer, just give me that person’s gender and age.”)

NAME AND AGE: _____

OR

GENDER: MALE1 AND AGE: |__|__|
FEMALE.....2

(Go to f1110).

SELECTION ALGORITHM:

If N=1, then the screener respondent is selected. End selection process.

If N>1, then, randomly sample the screener respondent with probability equal to 1/N (via CATI programming). If the screener respondent is selected, then end the selection process.

F1070. So that the computer can choose someone to interview, please tell me the first names and ages of the [FILL # FROM F1040 MINUS 1] adults currently living in this household. Please do not include yourself.

[IF NEEDED: "Include people who usually stay in this household, but are temporarily away on business, vacation, or in the hospital. Do not include persons who are away on full-time active military duty with the armed forces, students living away from home in their own apartment, or any other family member who may be in a nursing home or other institution."]

IF NOT OBVIOUS, ASK: "Is {NAME} male or female?"

IF R ANSWERS DK OR RF TO IDENTIFY HH MEMBERS, EXIT INTERVIEW.

FIRST NAME	GENDER	AGE
_____	MALE 1	
	FEMALE..... 2	__ __
_____	MALE 1	
	FEMALE..... 2	__ __
_____	MALE 1	
	FEMALE..... 2	__ __

(Run selection algorithm on HH members listed in f1070 to select extended respondent. Then, go to f1110).

F1080. What is your first name?

NAME: _____

GENDER: MALE1 AND AGE: |__|__|
 FEMALE.....2

(Skip to question F1120)

F1081 This study is designed to select one household adult to answer the questions. The computer has chosen the other adult in the household to participate in the next part of the study. What is the other adult's name? }

PROBE FOR INFORMATION THAT UNIQUELY IDENTIFIES THE HH MEMBER SELECTED.

NAME: _____

GENDER: MALE1 AND AGE: |__|__|
 FEMALE.....2

(If extended respondent = screener respondent, go to F1120. Otherwise, continue.)

F1110. {(HH MEMBER) has been selected to participate in the next part of the study.} May I speak to (HH MEMBER)?

AVAILABLE 1 *(Go to F1130)*
NOT AVAILABLE 2 *(MAKE APPOINTMENT)*

F1120. Your participation in this study will only take about 10 minutes. There is no penalty for refusing to answer any question. This study is authorized by law and your answers will only be used for statistical purposes. By law your responses will be kept confidential and will not be disclosed to anyone other than employees and contractors of this study.

(skip to question M1000)

F1130. Hello, my name is _____ and I'm calling on behalf of the U.S Department of Transportation. We're conducting a survey on transportation issues and would like to include your opinions and experiences. Your participation in this study will only take about 10 minutes. There is no penalty for refusing to answer any question. This study is authorized by law and your answers will only be used for statistical purposes. By law your responses will be kept confidential and will not be disclosed to anyone other than employees and contractors of this study.

READ IF NECESSARY:

Title 49, Section 111c2 of the United States Code requires that there no penalty be associated with refusing to answer any question.

Title 49, Section 111 (i) of the United States Code requires that your responses be kept confidential.

Title 18, Section 1905 of the United States Code states that everyone working on this study is subject to a jail term and/or fine if he or she makes public ANY information that could identify you.

(skip to question M1000)

GO TO NEXT SECTION.

F1140. Those are all of the questions that I have. If you have questions about transportation issues or just want some information, you can call 1-800-605-0270, email questions to answers@bts.gov or visit the www.bts.gov/omnibus web site for additional information. Thank you for your time today.

M=Mode Use Questions

M1000. First I'd like to ask about the types of transportation you use during a **TYPICAL WEEK**. We are defining a typical week beginning on Sunday ending the following Saturday.
HIT "RETURN" TO CONTINUE

Note to Programmer: CATI program should ensure response is less than 8

M1010. During a typical week, on how many **DAYS** do you drive or ride in a car, van, SUV, pickup truck, RV or motorcycle?
ENTER NUMBER
____**DAYS**

M1020. During a typical week, on how many **DAYS** do you travel by taxi or limousine?
ENTER NUMBER
____**DAYS**

M1030. During a typical week, on how many **DAYS** do you use public transportation?
ENTER NUMBER
____**DAYS**

M1040. During a typical week, on how many **DAYS** do you ride a bicycle outdoors for _____ any reason? ENTER NUMBER
____**DAYS**

J=Journey to Work Items

J1000. **The next questions are about traveling to and from work.**
HIT "RETURN" TO CONTINUE

J1010. **LAST WEEK, did you work for pay OUTSIDE YOUR HOME?**
1) Yes (Skip to question J1030)
2) No

J1020. **LAST WEEK, did you perform any volunteer work OUTSIDE YOUR HOME?**
1) Yes (Skip to question J1035)
2) No (Skip to question T1000)

INTERVIEWER READ: **For the next questions, please use your main job. By main job we mean the one at which you usually work the most hours.**

J1030. **LAST WEEK, on how many DAYS did you travel from home to work?**
_____ days ENTER NUMBER
CATI program should ensure that response is less than 8.
(Skip to question J1040)

INTERVIEWER READ: **For the next question, please use your main volunteer work place. By main volunteer work place we mean the one at which you usually work the most hours.**

J1035. **LAST WEEK, on how many DAYS did you travel from home to your volunteer work place?**
_____ days ENTER NUMBER
CATI program should ensure that response is less than 8.
(Skip to question J1045)

J1040. **LAST WEEK**, which of the following types of transportation did you use while traveling from home to work? Did you: READ LIST

	YES	NO
01) drive alone in a company vehicle	1	2
02) drive with others in a company vehicle	1	2
03) drive alone in a non-company vehicle	1	2
04) drive with others in a non-company vehicle	1	2
05) drive or ride in a carpool or vanpool	1	2
06) ride a bus	1	2
07) ride a subway	1	2
08) ride a train	1	2
09) ride a ferry	1	2
10) ride a bicycle	1	2
11) walk	1	2
INTERVIEWER: Do not include short walks, e.g. from the house to the car/parking lot to the office.		
12) Used some other mode (SPECIFY)	1	2

(Skip to question J1050)

J1045. **LAST WEEK**, which of the following types of transportation did you use while traveling from home to your volunteer work place? Did you: READ LIST

	YES	NO
01) drive alone in a company vehicle	1	2
02) drive with others in a company vehicle	1	2
03) drive alone in a non-company vehicle	1	2
04) drive with others in a non-company vehicle	1	2
05) drive or rode in a carpool or vanpool	1	2
06) ride a bus	1	2
07) ride the subway	1	2
08) ride a train	1	2
09) ride a ferry	1	2
10) ride a bicycle	1	2
11) walk	1	2
INTERVIEWER: Do not include short walks, e.g. from the house to the car/parking lot to the office.		
(12) Used some other mode (SPECIFY)	1	2

J1050. (IF J1020=1, INTERVIEWER SHOULD READ: Please consider “work” as your main volunteer work place.)

LAST WEEK, how would you rate the level of traffic congestion on your commute to work? READ LIST

- 1) Very congested
- 2) Moderately congested
- 3) Slightly congested
- 4) Not at all congested

Now I'd like to ask you about your commute to work over the **LAST 12 MONTHS**.

J1060. Thinking about the **LAST 12 MONTHS**, have you done any of the following to improve your commute to work? Have you: READ LIST

	Yes	No
1) Changed your schedule or work hours to improve your commute	1	2
2) Moved to a home closer to work to improve your commute	1	2
3) Moved to a home closer to public transportation to improve your commute	1	2
4) Changed jobs or left a job to improve your commute	1	2
5) Changed office locations to improve your commute	1	2
6) Worked at home instead of your usual work site to improve your commute	1	2
7) Paid to use a toll road or toll lane to improve your commute	1	2
8) Made any other change to improve your commute?	1	2
(SPECIFY: _____)		

J1070. Again, thinking about the **LAST 12 MONTHS**, would you say the traffic congestion on your commute to work has gotten much better, somewhat better, stayed about the same, gotten somewhat worse, or gotten much worse?

- 1) Much better
- 2) Somewhat better
- 3) Stayed about the same
- 4) Somewhat worse
- 5) Much worse

(If J1020=1, skip to T1000)

J1080. **Is at least part of the work that you do in your main job something you could do at home?**

- 1) Yes
- 2) No (Skip to T1000)

J1090. **Does your main employer allow workers to sometimes work at home instead of coming into the work place?**

- 1) Yes
- 2) No (Skip to T1000)

J1100. **LAST WEEK, did you work at home instead of traveling to your usual workplace of your main job? This does not include taking work home at night or over the weekend, working at home while sick, or self-employed persons who work at home.**

- 1) Yes
- 2) No (Skip to T1000)

J1110. **LAST WEEK, on how many days did you work at home instead of going to your usual workplace of your main job?**
(CATI programmed to accept less than 8.)

_____ Days

*CATI programmed to bring up Comment Box if J1040 had any 1 “Yes” responses and J1110 has “7” as a response. The interviewer says: **You stated that you commuted to the workplace of your main job last week, and you worked from home for your main job for 7 days last week. Please tell me why you commuted and worked from home during the same day(s).***

TYPE COMMENT:

J1120. **What is your primary reason for working at home instead of traveling to your usual work place of your main job? DO NOT READ LIST.**

- 01) Convenience (INTERVIEWER PROBE: Why is working at home more convenient?)
- 02) Saves the company money
- 03) Saves me money
- 04) Saves me time
- 05) To avoid congestion
- 06) Allows me to take care of family members/be home when kids come home
- 07) I don't live in the same area as the company I work for
- 08) I work for multiple businesses
- 09) I get more work done at home
- 10) For health reasons—disability reasons
- 11) Lack of transportation
- 12) Any other reason:
(SPECIFY:_____)

T=TSA Items

- T1000. **The next few questions are about commercial air travel.**
HIT "RETURN" TO CONTINUE
- T1010 **During the LAST 12 MONTHS, which is since November of 2005, have you flown on a commercial airline?**
1) Yes
2) No (*Skip to T1160*)
- T1020. **During October 2006 did you fly on a commercial airline?**
1) Yes
2) No (*Skip to T1040*)
- T1030. **How many DAYS in October 2006 did you fly on a commercial airline?**
ENTER NUMBER
____days
- T1040. **In what month and year was your most recent commercial airline flight that departed from a U. S. airport?**
INTERVIEWER: PLEASE PROMPT FOR MONTH AND YEAR
ENTER MONTH AND YEAR
_____MONTH _____YEAR
(*skip to question T1160 if before November 2005*)
- T1050. **Please let me verify your last answer as [insert respondent's last answer].**
1) Yes, correct - CONTINUE
2) No, incorrect

Please think about your MOST RECENT FLIGHT that departed from a U.S. airport.

- T1060. **For your most recent flight, how long did you wait in line to get to the first passenger security screening checkpoint where you walked through a metal detector and your carry-on items were x-rayed. Don't include the time required to get through the checkpoint—ONLY the time you waited in line to get to the checkpoint. How long did you wait?**
____hours and ____minutes
CATI system must ensure entry for both hours and minutes—cannot have zero for both fields.
CATI system to ask for verification if more than 4 hours 59 minutes.
Interviewer probe/comment: You mentioned a wait of more than 4 hours, please consider the question reads: "how long did you wait in line to get to the first passenger security screening checkpoint where you walked through a metal detector and your carry-on items were x-rayed. Don't include the time required to get through the checkpoint—ONLY the time you waited in

line to get to the checkpoint.” *Probe why wait was so long and enter information into open-end box.*

T1070. **For your most recent flight, how satisfied were you overall with your experience at the passenger security screening check point? Were you** READ LIST

- 1) **Very satisfied**
- 2) **Satisfied**
- 3) **Dissatisfied**
- 4) **Very dissatisfied**

T1080. **For your most recent flight, thinking about the amount of time you spent waiting in line to get to the passenger security screening checkpoint, would you say that it was** READ LIST 1-5

- 1) **Much shorter than expected**
- 2) **Shorter than expected**
- 3) **About what you expected**
- 4) **Longer than you expected**
- 5) **Much longer than you expected**
- 6) **You had no expectation** INTERVIEWER: DO NOT READ

T1090. **For your most recent flight, how satisfied were you with the time it took to screen you and your carry-on items? This is the length of time between placing your carry-on items on the x-ray table and exiting the security screening area in the direction of the boarding gates. This does not include the time you spent waiting in line to get to the passenger security screening checkpoint.** READ LIST

- 1) **Very satisfied**
- 2) **Satisfied**
- 3) **Dissatisfied**
- 4) **Very dissatisfied**

T1100. **For your most recent flight, were you selected for additional screening at the passenger security screening checkpoint such as body wand screening and/or a body pat-down?**

INTERVIEWER: READ IF NEEDED: **A body wand search is when a hand held electronic device in the shape of a slender stick is held very close and moved over the front, back and sides of your body. A body pat down is when the front, back and sides of your body are lightly hand patted for the purpose of detecting something concealed under your clothing.**

- 1) **Yes**
- 2) **No**

T1110. **For your most recent flight, would you say the passenger screening you experienced at the security checkpoint was... READ LIST**

- 1) **Excessive**
- 2) **Appropriate**
- 3) **Inadequate**

T1120. **For your most recent flight, how satisfied were you with the courtesy of the screeners at the passenger security screening checkpoint? READ LIST**

- 1) **Very satisfied**
- 2) **Satisfied**
- 3) **Dissatisfied**
- 4) **Very dissatisfied**

T1130. **How informed do you feel you are about passenger security screening procedures? Are you READ LIST**

- 1) **Very well informed**
- 2) **Moderately well informed**
- 3) **Slightly informed**
- 4) **Not at all informed**

T1140. **Where have you received information about the airport passenger security screening process? DO NOT READ LIST--RECORD ALL ANSWERS**

- 1) Transportation Security Administration website
- 2) My own travel experience
- 3) Airline or travel agent website
- 4) Placed a call or email to the airline
- 5) Placed a call or email to a travel agent
- 6) Printed material such as a brochure or pamphlet
- 7) Signs displayed at airport
- 8) Radio, television or newspaper
- 9) Friends, family, word of mouth
- 10) None of the above
- 11) Some other source: SPECIFY: _____

INTERVIEWER: (RECORD ANY COMMENT IN T1150 THAT COULD NOT BE CATEGORIZED AS "Other" IN QUESTION T1140) EXAMPLE : "CHANGES SO OFTEN WHY BOTHER TO CHECK" or "NO ONE CAN EVER GIVE YOU A STRAIGHT ANSWER" or "I TRAVEL SO OFTEN I KNOW THE PROCESS"

T1150. Comment _____
Questions T1160, T1170 and T1180 are asked of all respondents including those that have not flown in the last 12 months.

T1160 **How confident are you in the ability of the flight crew to keep air travel secure and to defend the aircraft and its passengers from individuals with hostile intentions? READ LIST**

- 1) **No confidence**
- 2) **A small amount of confidence**
- 3) **A moderate amount of confidence**
- 4) **A great deal of confidence**
- 5) **Total confidence**

T1170. **How would you describe your level of confidence in the ability of the passenger screeners to keep air travel secure? READ LIST**

- 1) **No confidence**
- 2) **A small amount of confidence**
- 3) **A moderate amount of confidence**
- 4) **A great deal of confidence**
- 5) **Total confidence**

T1180. **If cell phones did not interfere with airplane communications systems, do you think that passengers should be allowed to use their cell phones during a flight? READ LIST**

- 1) **Definitely should**
- 2) **Probably should**
- 3) **Not sure**
- 4) **Probably should not**
- 5) **Definitely should not**

D=Demographic Questions

D1000. **This final section asks for information to help us summarize the study results. No identifying information about you or your household will ever be released or published.**

HIT "RETURN" TO CONTINUE

D1010. **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?**

ENTER NUMBER _____

(INTERVIEWER: IF RESPONDENT ANSWERS 10 OR MORE, RECORD AS 10)

D1020. **Do you have a medical condition that makes it difficult to travel outside the home?**

- 1) Yes
- 2) No

D1040. **Please tell me the month and year you were born.**

_____MONTH _____YEAR

CATI system make sure the respondent is at least 18 years of age

CATI system ask for interviewer to verify if respondent is 100 or greater.

CATI system to match age with F1060 or F1070 if age is entered.

INTERVIEWER: If respondent refuses, use the question below to attempt to get their age. **If I read some age ranges, would you be willing to stop me when I get to the category that includes your age?** INTERVIEWER: READ LIST UNTIL RESPONDENT STOPS YOU.

- 1) 18 to 24
- 2) 25 to 34
- 3) 35 to 44
- 4) 45 to 54
- 5) 55 to 64
- 6) 65 to 74
- 7) 75 or older

CATI system to match age category with F1060 or F1070 if age is entered

D1050. **Are you male or female?**

RECORD GENDER; ASK ONLY IF NECESSARY

- 1) Male
- 2) Female

D1060. **Do you consider yourself to be Hispanic or Latino?**

- 1) Yes
(If “Yes”, INTERVIEWER MUST READ: “**People who identify themselves as Hispanic or Latino origin May be of any race.**”) (INTERVIEWER READ ONLY IF NEEDED: “**Origin can be viewed as the heritage, nationality group, lineage, or country of birth of the person or the person’s parents or ancestors before their arrival in the United States.**”)
- 2) No

D1070. **Is the racial group that best describes you** READ ENTIRE LIST. READ PARENTHETICAL ONLY IF RESPONDENT ASKS FOR CLARIFICATION. RECORD ALL THAT APPLY

- 1) **White**
- 2) **Black**
- 3) **American Indian, Aleut or Eskimo**
- 4) **Asian or Pacific Islander**
- 5) **Other – SPECIFY _____**

D1080. **What is the highest level of education you’ve completed?**
DO NOT READ LIST

- 1) Less than high school graduate
- 2) High school graduate (or GED)
- 3) Some college (or technical vocational school/professional business school)
- 4) Two-year college degree (AA: Associate in Arts)
- 5) Four-year college degree (BA or BS: Bachelor of Arts/Science degree)
- 6) Graduate degree (Master’s, Ph.D., Lawyer, Medical Doctor)

D1090. **Please stop me when I reach the category that includes your household’s total annual income for last calendar year, that is, 2005:** READ LIST UNTIL RESPONDENT STOPS YOU TO SELECT A CATEGORY

- 1) **Under \$15,000**
- 2) **From \$15,000 to less than \$30,000**
- 3) **From \$30,000 to less than \$50,000**
- 4) **From \$50,000 to less than \$75,000**
- 5) **From \$75,000 to less than \$100,000**
- 6) **From \$100,000 to less than \$125,000**
- 7) **\$125,000 or more**

D1160. **How many home telephone numbers do you have in your household? Please do not count numbers for cell phones, or phone lines that are used exclusively for business purposes, computers or fax machines.**

- 1) One
- 2) Two
- 3) Three
- 4) Four or more

D1170 READ AFTER RESPONDENT HAS GIVEN ANSWER: **“So, you have _____ phone numbers that are not used exclusively for business, computers, fax machines or cell phones?”**

D1180. **In order to classify your household for statistical purposes, what is your ZIP code? ENTER NUMBER**

— — — — —

D1190. **Did your household receive an advance notice in the mail concerning this study?**

- 1) Yes
- 2) No
- 3) Not sure

D1200. **This concludes the study questions. On behalf of the United States Department of Transportation, I thank you for your time. Goodbye.
HIT “RETURN” TO CONTINUE**

Interviewer Close Out Questions

THESE QUESTIONS ARE ANSWERED BY THE INTERVIEWER AFTER THE RESPONDENT HANGS UP.

I0050. HOW WELL DID THE RESPONDENT SEEM TO UNDERSTAND THE QUESTIONS?

- 1) Not at all
- 2) Not very well
- 3) Well
- 4) Very well

I0100. HOW COOPERATIVE WAS THE RESPONDENT IN ANSWERING THE QUESTIONS?

- 1) Not at all cooperative
- 2) Not very cooperative
- 3) Cooperative
- 4) Very cooperative

I0150. IN WHAT LANGUAGE WAS THE INTERVIEW CONDUCTED?

- 1) English
- 2) Spanish
- 3) Both English and Spanish
- 8) Other - SPECIFY _____

PLEASE NOTE ANYTHING ELSE YOU FEEL IS HELPFUL OR IMPORTANT ABOUT THIS INTERVIEW. CONTINUE TO ENTER TEXT OF RESPONSE

- 99) No notes to add

APPENDIX B: DATA DICTIONARY

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
	CASEID	Case Identification Number			Char	6	\$TEXTVAR
	METRO	MSA Inside Outside	1	MSA area	Num	8	MSAINOUT
			2	Non-MSA area			
	CREGION	Census Region	1	Northeast	Num	8	CENSREG
			2	Midwest			
			3	South			
			4	West			
	GENDIV	Census Division	1	New England	Num	8	CENSDIV
			2	Middle Atlantic			
			3	East North Central			
			4	West North Central			
			5	South Atlantic			
			6	East South Central			
			7	West South Central			
			8	Mountain			
			9	Pacific			
	DVERSION	Database Version		Year - Quarter	Char	6	\$TEXTVAR
	INLNGTH	Interview Length - Minutes			Num	8	FORNUM
M1010	M1010	Personal Vehicle - Days		_____ days	Num	8	FORNUM
			.D	Don't know			
			.R	Refused			
M1020	M1020	Taxi or Limousine - Days		_____ days	Num	8	FORNUM
			.D	Don't know			
			.R	Refused			
M1030	M1030	Public Transportation - Days		_____ days	Num	8	FORNUM
			.D	Don't know			

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
			.R	Refused			
M1040	M1040	Bicycle - Days		_____ days	Num	8	FORNUM
			.D	Don't know			
			.R	Refused			
J1010	J1010	Working Outside Home	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
J1020	J1020	Volunteering Outside Home	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1030	J1030	Travel to Work - Days		_____ days	Num	8	FORNUM
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1035	J1035	Travel to Volunteer - Days		_____ days	Num	8	FORNUM
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1040	J1040A	Work - Company Vehicle - Alone	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1040	J1040B	Work - Company Vehicle - With Others	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
			.R	Refused			
			.S	Appropriate skip			
J1040	J1040C	Work - Non-company Vehicle - Alone	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1040	J1040D	Work - Non-company Vehicle - With Others	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1040	J1040E	Work - Carpool or Vanpool	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1040	J1040F	Work - Bus	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1040	J1040G	Work - Subway	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1040	J1040H	Work - Train	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
			.R	Refused			
			.S	Appropriate skip			
J1040	J1040I	Work - Ferry	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1040	J1040J	Work - Bicycle	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1040	J1040K	Work - Walk	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1040	J1040L	Work - Other Mode	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1040	J1040M	Work - Specified Other Mode	Text	Verbatim response	Char	250	\$TEXTVAR
J1045	J1045A	Volunteer - Company Vehicle - Alone	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1045	J1045B	Volunteer - Company Vehicle - With Others	1	Yes	Num	8	YESNO

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1045	J1045C	Volunteer - Non-company Vehicle - Alone	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1045	J1045D	Volunteer - Non-company Vehicle - With Others	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1045	J1045E	Volunteer - Carpool or Vanpool	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1045	J1045F	Volunteer - Bus	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1045	J1045G	Volunteer - Subway	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1045	J1045H	Volunteer - Train	1	Yes	Num	8	YESNO

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1045	J1045I	Volunteer - Ferry	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1045	J1045J	Volunteer - Bicycle	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1045	J1045K	Volunteer - Walk	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1045	J1045L	Volunteer - Other Mode	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1045	J1045M	Volunteer - Specified Other Mode	Text	Verbatim response	Char	250	\$TEXTVAR
J1050	J1050	Traffic	1	Very congested	Num	8	TRAFFICA
			2	Moderately congested			
			3	Slightly congested			
			4	Not at all congested			
			.D	Don't know			

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
			.R	Refused			
			.S	Appropriate skip			
J1060	J1060A	Commute Improving - Changed Schedule / Work Hours	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1060	J1060B	Commute Improving - Moved Closer to Work	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1060	J1060C	Commute Improving - Moved Closer to Public Transportation	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1060	J1060D	Commute Improving - Changed / Left a Job	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1060	J1060E	Commute Improving - Changed Office Locations	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1060	J1060F	Commute Improving - Worked at Home	1	Yes	Num	8	YESNO
			2	No			

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1060	J1060G	Commute Improving - Used a Toll Road / Lane	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1060	J1060H	Commute Improving - Made Other Change	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1060	J1060I	Commute Improving - Specified Other Change Made	Text	Verbatim response	Char	250	\$TEXTVAR
J1070	J1070	Traffic - Change Over the Last 12 Months	1	Much better	Num	8	TRAFFICB
			2	Somewhat better			
			3	Stayed about the same			
			4	Somewhat worse			
			5	Much worse			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1080	J1080	Work Home - Possible	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1090	J1090	Work Home - Allowed	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
			.R	Refused			
			.S	Appropriate skip			
J1100	J1100	Work Home - Last Week	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1110	J1110	Work Home - Last Week - Days		_____ days	Num	8	FORNUM
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1120	J1120A	Work Home - Reason	1	Convenience	Num	8	HOMEY
			2	Saves the company money			
			3	Saves me money			
			4	Saves me time			
			5	To avoid congestion			
			6	Take care of family			
			7	Live in the different area as the company			
			8	Work for multiple businesses			
			9	More work done home			
			10	Health / disability reasons			
			11	Lack of transportation			
			12	Other			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
J1120	J1120B	Work Home - Other Reason	Text	Verbatim response	Char	250	\$TEXTVAR
T1010	T1010	Commercial Airline - Last 12 Months	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
T1020	T1020	Commercial Airline - October 2006	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1030	T1030	Commercial Airline - October 2006 - Days		_____ days	Num	8	FORNUM
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1040	T1040A	Most Recent Flight - Month		_____ month	Num	8	FORNUM
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1040	T1040B	Most Recent Flight - Year		_____ year	Num	8	FORNUM
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1040	T1040C	Most Recent Flight - When	1	Enter month and year	Num	8	TRIPTIME
			2	Less than three months ago			
			3	More than three months ago but less than one year ago			
			6	One year ago			
			4	More than one year ago			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1050	T1050	Most Recent Flight - Verification	1	Yes, correct	Num	8	YESNO
			2	No, incorrect			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
T1060	T1060A	Most Recent Flight - Screening Wait - Hours		_____ hours	Num	8	FORNUM
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1060	T1060B	Most Recent Flight - Screening Wait - Minutes		_____ minutes	Num	8	FORNUM
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1060	T1060C	Most Recent Flight - Screening Wait - Decimal Hours		Calculated	Num	8	FORNUM
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1060	T1060D	Most Recent Flight - Screening Wait - 5+ Hours - Why	Text	Verbatim response	Char	250	\$TEXTVAR
T1070	T1070	Most Recent Flight - Screening - Overall - Satisfaction	1	Very satisfied	Num	8	TRASAT
			2	Satisfied			
			3	Dissatisfied			
			4	Very dissatisfied			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1080	T1080	Most Recent Flight - Screening Wait - Satisfaction	1	Much shorter than expected	Num	8	SCRETIME
			2	Shorter than expected			
			3	About what you expected			
			4	Longer than you expected			
			5	Much longer than you expected			
			6	You had no expectation			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
T1090	T1090	Most Recent Flight - Screening - Time - Satisfaction	1	Very satisfied	Num	8	TRASAT
			2	Satisfied			
			3	Dissatisfied			
			4	Very dissatisfied			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1100	T1100	Most Recent Flight - Additional Screening	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1110	T1110	Most Recent Flight - Screening - Intensity	1	Excessive	Num	8	SCREINTE
			2	Appropriate			
			3	Inadequate			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1120	T1120	Most Recent Flight - Screening - Courtesy Satisfaction	1	Very satisfied	Num	8	TRASAT
			2	Satisfied			
			3	Dissatisfied			
			4	Very dissatisfied			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1130	T1130	Security Screening Procedures - Level of Information	1	Very well informed	Num	8	SCREINFO
			2	Moderately well informed			
			3	Slightly informed			
			4	Not at all informed			
			.D	Don't know			

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
			.R	Refused			
			.S	Appropriate skip			
T1140	T1140A	Screening Information - TSA Website	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1140	T1140B	Screening Information - Travel Experience	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1140	T1140C	Screening Information - Airline / Travel Agent Website	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1140	T1140D	Screening Information - Called / Emailed to the Airline	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1140	T1140E	Screening Information - Called / Emailed to the Travel Agent	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1140	T1140F	Screening Information - Printed Material	1	Yes	Num	8	YESNO

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1140	T1140G	Screening Information - Signs Displayed at Airport	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1140	T1140H	Screening Information - Radio, TV, Newspaper	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1140	T1140I	Screening Information - Friends, Family, Word of Mouth	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1140	T1140J	Screening Information - Other	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
T1140	T1140K	Screening Information - Specified Other Source	Text	Verbatim response	Char	250	\$TEXTVAR
T1150	T1150	Screening Information - Comment	Text	Verbatim response	Char	250	\$TEXTVAR
T1160	T1160	Security - Flight Crew - Confidence	1	No confidence	Num	8	SCRECONF
			2	A small amount of confidence			
			3	A moderate amount of confidence			

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
			4	A great deal of confidence			
			5	Total confidence			
			.D	Don't know			
			.R	Refused			
T1170	T1170	Security - Screening - Confidence	1	No confidence	Num	8	SCRECONF
			2	A small amount of confidence			
			3	A moderate amount of confidence			
			4	A great deal of confidence			
			5	Total confidence			
			.D	Don't know			
			.R	Refused			
T1180	T1180	Use of Cell Phones During Flight	1	Definitely should	Num	8	CELLPHON
			2	Probably should			
			3	Not sure			
			4	Probably should not			
			5	Definitely should not			
			.D	Don't know			
			.R	Refused			
D1010	D1010	Nb of Vehicles Used		_____ vehicles	Num	8	FORNUM
			.D	Don't know			
			.R	Refused			
D1020	D1020	Difficulty Traveling	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
D1040	D1040D	Birthday - Age Category - All Respondents	1	18 to 24 years	Num	8	AGE
			2	25 to 34			
			3	35 to 44			
			4	45 to 54			
			5	55 to 64			
			6	65 to 74			

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
			7	75 or older			
			.D	Don't know			
			.R	Refused			
D1050	D1050	Gender	1	Male	Num	8	GENDER
			2	Female			
			.D	Don't know			
			.R	Refused			
D1060	D1060	Hispanic or Latino	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
D1070	D1070A	Race - White	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
D1070	D1070B	Race - Black	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
D1070	D1070C	Race - American-Indian, Aleut or Eskimo	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
D1070	D1070D	Race - Asian or Pacific Islander	1	Yes	Num	8	YESNO
			2	No			
			.D	Don't know			
			.R	Refused			
D1070	D1070E	Race - Other	1	Yes	Num	8	YESNO
			2	No			

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
			.D	Don't know			
			.R	Refused			
D1070	D1070F	Race - Other - Text	Text	Verbatim response	Char	250	\$TEXTVAR
D1080	D1080	Education Level	1	Less than high school graduate	Num	8	EDUC
			2	High school graduate (or GED)			
			3	Some college (or technical vocational school/professional business school)			
			4	Two-year college degree (AA: Associate in Arts)			
			5	Four-year college degree (BA or BS: Bachelor of Arts/Science degree)			
			6	Graduate degree (Master's, Ph.D., Lawyer, Medical Doctor)			
			.D	Don't know			
			.R	Refused			
D1090	D1090	HH Income	1	Under \$15,000	Num	8	INCOME
			2	From \$15,000 to less than \$30,000			
			3	From \$30,000 to less than \$50,000			
			4	From \$50,000 to less than \$75,000			
			5	From \$75,000 to less than \$100,000			
			6	From \$100,000 to less than \$125,000			
			7	\$125,000 or more			
			.D	Don't know			
			.R	Refused			
D1160	D1160	Nb of Home Telephone Numbers	1	One	Num	8	TOTPHON
			2	Two			
			3	Three			
			4	Four or more			
			.D	Don't know			
			.R	Refused			
D1170	D1170	Nb of Home Telephone Numbers - Confirmed	1	Yes	Num	8	YESNO
			2	No			

Question Code	Variable Name	Variable Label	Response Category	Response Category Description	Type	Length	Format
			.D	Don't know			
			.R	Refused			
			.S	Appropriate skip			
D1190	D1190	Advance Notice	1	Yes	Num	8	PRECONT
			2	No			
			3	Not sure			
			.D	Don't know			
			.R	Refused			
	BASEWGT	Base Weight			Num	8	FORNUM
	NR_FACT	Nonresponse Adjustment Factor			Num	8	FORNUM
	PER_FACT	Adjustment for Nb of Eligible HH Members			Num	8	FORNUM
	PHN_FACT	Multiple Phone Lines Adjustment Factor			Num	8	FORNUM
	CEN_FACT	Census Population Adjustment Factor			Num	8	FORNUM
	WD_FACT	Weighted Deflation Adjustment Factor			Num	8	FORNUM
	FNLWGT	Final Weight			Num	8	FORNUM

APPENDIX C: SAS FORMATS LIBRARY

```
PROC FORMAT cntlout=fmtout;

  value msainout
    1='MSA area'
    2='Non-MSA area';

  value censreg
    1='Northeast'
    2='Midwest'
    3='South'
    4='West';

  value censdiv
    1='New England'
    2='Middle Atlantic'
    3='East North Central'
    4='West North Central'
    5='South Atlantic'
    6='East South Central'
    7='West South Central'
    8='Mountain'
    9='Pacific';

  value fornum
    .d='Do not know'
    .r='Refused'
    .s='Skip';

  value yesno
    1='Yes'
    2='No'
    .d='Do not know'
    .r='Refused'
    .s='Skip';

  value gender
    1='Male'
    2='Female'
    .d='Do not know'
    .r='Refused'
    .s='Skip';

  value traffica
    1='Very congested'
    2='Moderately congested'
    3='Slightly congested'
    4='Not at all congested'
    .d='Do not know'
    .r='Refused'
    .s='Skip';

  value trafficb
    1='Much better'
```

```

2='Somewhat better'
3='Stayed about the same'
4='Somewhat worse'
5='Much worse'
.d='Do not know'
.r='Refused'
.s='Skip';

value homey
1='Convenience '
2='Saves the company money'
3='Saves me money'
4='Saves me time'
5='To avoid congestion'
6='Allows me to take care of family members or be home when kids
come home'
7='I do not live in the same area as the company I work for'
8='I work for multiple businesses'
9='I get more work done at home'
10='For health reasons or disability reasons'
11='Lack of transportation'
12='Any other reason'
.d='Do not know'
.r='Refused'
.s='Skip';

value triptime
1='Enter month and year'
2='Less than three months ago'
3='More than three months ago but less than one year ago'
6='One year ago'
4='More than one year ago'
.d='Do not know'
.r='Refused'
.s='Skip';

value trasat
1='Very satisfied'
2='Satisfied'
3='Dissatisfied'
4='Very dissatisfied'
.d='Do not know'
.r='Refused'
.s='Skip';

value scretime
1='Much shorter than expected'
2='Shorter than expected'
3='About what you expected'
4='Longer than you expected'
5='Much longer than you expected'
6='You had no expectation'
.d='Do not know'
.r='Refused'
.s='Skip';

value screinte

```

```

1='Excessive'
2='Appropriate'
3='Inadequate'
.d='Do not know'
.r='Refused'
.s='Skip';

value screinfo
1='Very well informed'
2='Moderately well informed'
3='Slightly informed'
4='Not at all informed'
.d='Do not know'
.r='Refused'
.s='Skip';

value screconf
1='No confidence'
2='A small amount of confidence'
3='A moderate amount of confidence'
4='A great deal of confidence '
5='Total confidence'
.d='Do not know'
.r='Refused';

value cellphon
1='Definitely should'
2='Probably should'
3='Not sure'
4='Probably should not'
5='Definitely should not'
.d='Do not know'
.r='Refused';

value age
1='18 to 24 years'
2='25 to 34'
3='35 to 44'
4='45 to 54'
5='55 to 64'
6='65 to 74'
7='75 or older'
.d='Do not know'
.r='Refused'
.s='Skip';

value educ
1='Less than high school graduate'
2='High school graduate (or GED)'
3='Some college (or technical vocational school/professional
business school)'
4='Two-year college degree (AA: Associate in Arts)'
5='Four-year college degree (BA or BS: Bachelor of Arts/Science
degree)'
6='Graduate degree (Masters, Ph.D., Lawyer, Medical Doctor)'
.d='Do not know'
.r='Refused';

```



```
value income
  1='Under $15,000'
  2='From $15,000 to less than $30,000'
  3='From $30,000 to less than $50,000'
  4='From $50,000 to less than $75,000'
  5='From $75,000 to less than $100,000'
  6='From $100,000 to less than $125,000'
  7='$125,000 or more'
  .d='Do not know'
  .r='Refused';

value totphon
  1='One'
  2='Two'
  3='Three'
  4='Four or more'
  .d='Do not know'
  .r='Refused';

value precont
  1='Yes'
  2='No'
  3='Not sure'
  .d='Do not know'
  .r='Refused';
```

RUN;

REFERENCES

Books:

"Sampling of Populations: Methods and Applications," 3rd Ed., 1999, Paul S. Levy (School of Public Health, University of Illinois at Chicago) and Stanley Lemeshow (School of Public Health, University of Massachusetts)

"Practical Methods for Design and Analysis of Complex Surveys," 1995, Risto Lehtonen (The Social Insurance Institution, Finland) and Erkki J. Pahkinen (University of Jyvaskyla)

"Sampling Techniques," 2nd Ed, 1967, William G. Cochran (Harvard University), Wiley

"SUDAAN Release 7.5, User's Manual Volume I and II," 1997, Babubhai V. Shah, Beth G. Barnwell and Gayle S. Bieler, Research Triangle Institute

Articles:

"1999 Variance Estimation," National Survey of America's Families Methodology Report, 1999 Methodology Series, Report No. 4, prepared by J.M. Brick, P. Broene, D. Ferraro, T. Hankins, C. Rauch and T. Strickler, November 2000

"Pitfalls of Using Standard Statistical Software Packages for Sample Survey Data," Donna J. Brogan, Encyclopedia of Biostatistics, edited by P. Armitage and T. Colton, John Wiley, 1998

"Sampling and Weighting in the National Assessment", K. Rust and E. Johnson, Journal of Educational Statistics, 17(2): 111-129, 1992

"Poststratification and weighting adjustments," Andrew Gelman and John B. Carlin, Department of Statistics, Columbia University Working Paper, February 2000

"Sampling Variances for Surveys With Weighting, Poststratification, and Raking," Hao Lu and Andrew Gelman, Department of Statistics, Columbia University Working Paper, April 2000