

**1996 Dallas-Fort Worth  
Household Travel Survey**

**REPORT ON SURVEY METHODS**

**Prepared for the  
North Central Texas Council of Governments  
Arlington, Texas**

**September 1996**

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Prepared in cooperation with the Texas Department of Transportation and the U.S. Department of Transportation, Federal Highway Administration, and Federal Transit Administration.

The contents of this report reflect the views of the authors who are responsible for the opinions, findings, and conclusions presented herein. The contents do not necessarily reflect the views or policies of the Federal Highway Administration, the Federal Transit Administration, or the Texas Department of Transportation.

September 30, 1996

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Mr. Ken Cervenka, P.E., AICP  
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Dear Mr. Cervenka:

The Applied Management & Planning Group (AMPG) is pleased to submit this final report on the 1996 Dallas-Fort Worth Household Travel Survey. This survey was conducted in accordance with our agreement with the North Central Texas Council of Governments (NCTCOG).

This report documents our survey design, procedures, and methodological analyses. Copies of the survey instruments and other supporting materials are included. CD-ROMs containing the survey data have been provided to NCTCOG.

This survey reflects the hard work and thoughtful contributions of a variety of individuals and organizations. The Peer Review panelists assembled by NCTCOG provided many challenging ideas and suggestions. NCTCOG's survey development consultant, PlanTrans, offered ongoing constructive input during the design phase. Finally, we would like to thank NCTCOG staff for their support and contributions to this rich and exciting study.

Respectfully submitted,



Cheryl Stecher, Ph.D.  
President, AMPG



Leslie Goldenberg  
Principal, AMPG

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# EXECUTIVE SUMMARY

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The North Central Texas Council of Governments (NCTCOG) contracted with the Applied Management & Planning Group (AMPG) to conduct a revealed preference household travel behavior survey. There were two primary objectives for the revealed preference household survey:

1. Update the existing data for NCTCOG's regional travel demand models; and,
2. Provide new data elements to permit the models to be upgraded.

In addition, NCTCOG was interested in advancing the state of the practice in travel survey methodology. NCTCOG, in cooperation with the Federal Highway Administration (FHWA), sponsored a pretest of the revealed preference household travel survey in 1994-95. The pretest compared several methodological options and served to inform the design of the final survey effort. This report addresses the methods used for the final survey.

The Dallas-Fort Worth Household Travel Survey involved the collection of information about household characteristics and travel using a unique "travel as an activity" approach. The instrument used to support this conceptual approach differed from conventional trip or activity diaries. While trip diaries focus on respondent's changes of location, and activity diaries center on events at fixed locations with accompanying questions about how shifts in location were made, the "travel as an activity" approach asked respondents to account for all of their time, including both trips and activities.

Travel and activity information was requested from all persons in sampled households. An incentive of \$2 per person was attached to outgoing survey materials, which included one household/vehicle information form and a diary for each member of the household.

All information to be collected was printed on diary forms to avoid "probing" for unanticipated information. Twenty-seven activity categories were suggested on the forms, including three in-home activity categories (sleep, work, and everything else).

A total of 9,398 households was recruited for the study. Of these, 790 (8.4 percent) ultimately provided at least partial information and 3,996 (42.5 percent) provided materially complete information. **Table A** below summarizes the dispositions of all recruited households.

Recruitment was conducted through both random digit dialing and transit intercept. Of the 9,398 households recruited, 992 originated through the transit intercept effort; 372 of these (37.5 percent) completed the study. The other 8,406 households recruited were derived from randomly generated telephone numbers; 3,624 (43.1 percent) of this group completed the survey.

<b>Table A</b>			
<b>Summary of Household Dispositions</b>			
<b>Disposition</b>		<b>N</b>	<b>Percent</b>
<b>Complete</b>		3,996	42.5%
<b>Partial</b>		789	8.4%
Refused at retrieval:			
Refused at retrieval (promised to mail in materials)	689		
Refused at retrieval (all other)	1,843		
<b>Total refused at retrieval</b>		2,532	26.9%
<b>Retrieval efforts made, but household not resolved</b>		1,161	12.4%
<b>Refused at reminder</b>		445	4.7%
Dropped at reminder:			
No package received - do not send another	51		
Disconnected number	64		
No such person	60		
Terminated by respondent	16		
Business/Non-Spanish language barrier/Other	24		
<b>Total dropped at reminder</b>		215	2.3%
Dropped at retrieval:			
Disconnected number	75		
No such person	24		
Business/Non-Spanish language barrier/Other	24		
<b>Total dropped at retrieval</b>		123	1.3%
<b>Recruited, but not advanced to subsequent stages</b>		154	1.6%
<b>Counted as refused at retrieval (phonefile), but actually converted to complete or partial</b>		(17)	(>0.1%)
<b>Total</b>		9,398	100.0%

The survey was conducted using computer assisted telephone interviewing (CATI) for recruitment, reminder and retrieval of all information.

Special features of the study included:

- **Prenotification letters** introducing the survey were sent to those households where an address could be matched to the randomly generated telephone number in order to promote higher recruitment rates;
- **The method of transit activity collection** called for each segment of a transit trip - getting to the transit stop, waiting/boarding, riding the transit vehicle, alighting, and getting to the final destination - to be reported as a separate activity in order to permit the collection of full temporal and geographic information related to transit usage;

- **The number of recruitment attempts to each number** was increased (from the industry-standard six) to nine in order to minimize the potential non-response bias associated with people who travel more being at home less often to answer the telephone;
- **The attempt to convert initial “soft refusals”** during the recruitment phase was another strategy designed to minimize non-response bias;
- **Stringent proxy rules**, which emphasized adults’ direct reporting of their travel and activities, were established in order to promote more complete and accurate reporting; and,
- **Inclusion of a postage-paid reply envelope in the survey package** allowed survey respondents to send in their completed materials, thus providing a separate, verifiable source of information about the travel behaviors collected through the telephone interviewing process.

In addition to the revealed preference household survey, the project involved the development of a stated preference survey to measure commuters’ responses to various travel time and pricing scenarios.

## KEY CONCLUSIONS

The Dallas-Fort Worth Household Survey succeeded in accomplishing its two primary objectives of updating the existing data for NCTCOG’s regional travel demand models and providing new data to permit the models to be upgraded.

NCTCOG’s additional interest in advancing the state of the practice in travel survey methodology was also accomplished. The Dallas-Fort Worth Household Survey was the most in-depth and exhaustive travel survey ever conducted in the United States, with the possible exception of surveys collecting in-home activities in addition to travel. NCTCOG’s goal in gathering data of this richness was to support not only existing four-step travel demand models, but also to enable the development of new models, such as those based on activities or out-of-home time use.

Conclusions regarding the special features of this study include:

- **Conceptual Approach: Travel as an Activity.** The survey demonstrated that the “travel as an activity” approach does work. It appears, however, to contribute to lower completion rates than more conventional trip or activity diary methods. Additional analysis is needed to determine if the new approach results in the collection of higher-quality data from those households that do provide information.
- **Prenotification Letter.** The prenotification letter improved the survey’s recruitment and completion rates, and proved to be a worthwhile component.

- **Method of Transit Activity Collection.** The method of transit activity collection was a mixed success. In certain cases it did produce the full range of information desired by NCTCOG, but it appears to have been misunderstood by about half of the target respondents.
- **Number of Recruitment Attempts to Each Number.** Among successfully recruited households, more than 98 percent of the households were recruited in six calls or less. Only 154 households (less than two percent) were recruited on the seventh or subsequent call. This suggests that the additional recruitment attempts beyond the industry-standard six calls were only marginally useful.
- **Treatment of "Soft Refusals."** With minimal negative effects on the survey completion rate, the effort to include initial "soft refusals" appears to have reduced a source of potential non-response bias and thereby enhanced the overall quality of the dataset.
- **Proxy Rules.** Over 80 percent of adults reported their own activities directly. The mean activity rates for these persons was higher than those of persons whose activities were reported by a proxy. Taking special steps to minimize proxy reporting was a positive feature of the survey which resulted in better data quality.
- **Inclusion of a Postage-Paid Reply Envelope.** About 7 percent of respondents opted to mail back their materials using the reply envelope *instead* of consenting to telephone retrieval of their information. NCTCOG handled the surveys that were mailed in. From among all households that were not wholly or partially retrieved by telephone, 6 percent returned at least some information by mail. This figure indicates that most households who promised to mail in materials did so. NCTCOG plans to perform additional analysis to determine how data from these households will be incorporated into the retrieval files.

## SUMMARY

The Dallas-Fort Worth Household Survey succeeded in gathering a rich set of data from a large sample of households, and the resulting dataset offers NCTCOG many opportunities both to update its existing travel demand models and to experiment with new ones. The survey effort leaves NCTCOG with many options for the future use of these data, and it should meet the organization's travel data needs into the 21st Century.

- **The number of recruitment attempts to each number** was increased (from the industry-standard six) to nine in order to minimize the potential non-response bias associated with people who travel more being at home less often to answer the telephone;
- **The attempt to convert initial “soft refusals”** during the recruitment phase was another strategy designed to minimize non-response bias;
- **Stringent proxy rules**, which emphasized adults’ direct reporting of their travel and activities, were established in order to promote more complete and accurate reporting; and,
- **Inclusion of a postage-paid reply envelope in the survey package** allowed survey respondents to send in their completed materials, thus providing a separate, verifiable source of information about the travel behaviors collected through the telephone interviewing process.

In addition to the revealed preference household survey, the project involved the development of a stated preference survey to measure commuters’ responses to various travel time and pricing scenarios.

## KEY CONCLUSIONS

The Dallas-Fort Worth Household Survey succeeded in accomplishing its two primary objectives of updating the existing data for NCTCOG’s regional travel demand models and providing new data to permit the models to be upgraded.

NCTCOG’s additional interest in advancing the state of the practice in travel survey methodology was also accomplished. The Dallas-Fort Worth Household Survey was the most in-depth and exhaustive travel survey ever conducted in the United States, with the possible exception of surveys collecting in-home activities in addition to travel. NCTCOG’s goal in gathering data of this richness was to support not only existing four-step travel demand models, but also to enable the development of new models, such as those based on activities or out-of-home time use.

Conclusions regarding the special features of this study include:

- **Conceptual Approach: Travel as an Activity.** The survey demonstrated that the “travel as an activity” approach does work. It appears, however, to contribute to lower completion rates than more conventional trip or activity diary methods. Additional analysis is needed to determine if the new approach results in the collection of higher-quality data from those households that do provide information.
- **Prenotification Letter.** The prenotification letter improved the survey’s recruitment and completion rates, and proved to be a worthwhile component.

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# I. INTRODUCTION

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The North Central Texas Council of Governments (NCTCOG) contracted with the Applied Management & Planning Group (AMPG) to conduct a revealed preference household travel behavior survey. There were two primary objectives for the revealed preference household survey:

1. Update the existing data for NCTCOG's regional travel demand models; and,
2. Provide new data elements to permit the models to be upgraded.

In addition, NCTCOG was interested in advancing the state of the practice in travel survey methodology. NCTCOG, in cooperation with the Federal Highway Administration (FHWA), sponsored a pretest of the revealed preference household travel survey in 1994-95. As discussed in more detail in Chapter II, the pretest compared several methodological options and served to inform the design of the final survey effort.

The survey involved the collection of information about household characteristics and travel using a household/vehicle information form and an activity-focused diary. Travel information was requested from all persons in sampled households. A total of 9,398 households was recruited for the study. Of these, 790 (8.4 percent) ultimately provided at least partial information and 3,996 (42.5 percent) provided materially complete information.

In addition to the revealed preference household survey, the project involved the development of a stated preference survey to measure commuters' responses to various travel time and pricing scenarios. This report also includes a discussion of the stated preference survey component.

The team that conducted this project consisted of the following firms:

- **Applied Management & Planning Group (AMPG)**, Los Angeles, California, with responsibility for overall project management; designing the survey instruments; managing the telephone data collection; packaging and mailing travel diaries to participating households; and data file creation, cleaning, and analyses;
- **Interviewing Service of America (ISA)**, Van Nuys, California, with responsibility for drawing the sample of telephone numbers, and conducting the telephone recruitment and computer-aided telephone interviewing (CATI) retrieval of travel information;
- **Dikita Engineering**, Dallas, Texas, which performed intercept recruitment; and,
- **Mark Bradley Research and Consulting**, Mill Valley, California, which developed the stated preference survey plan and instruments.

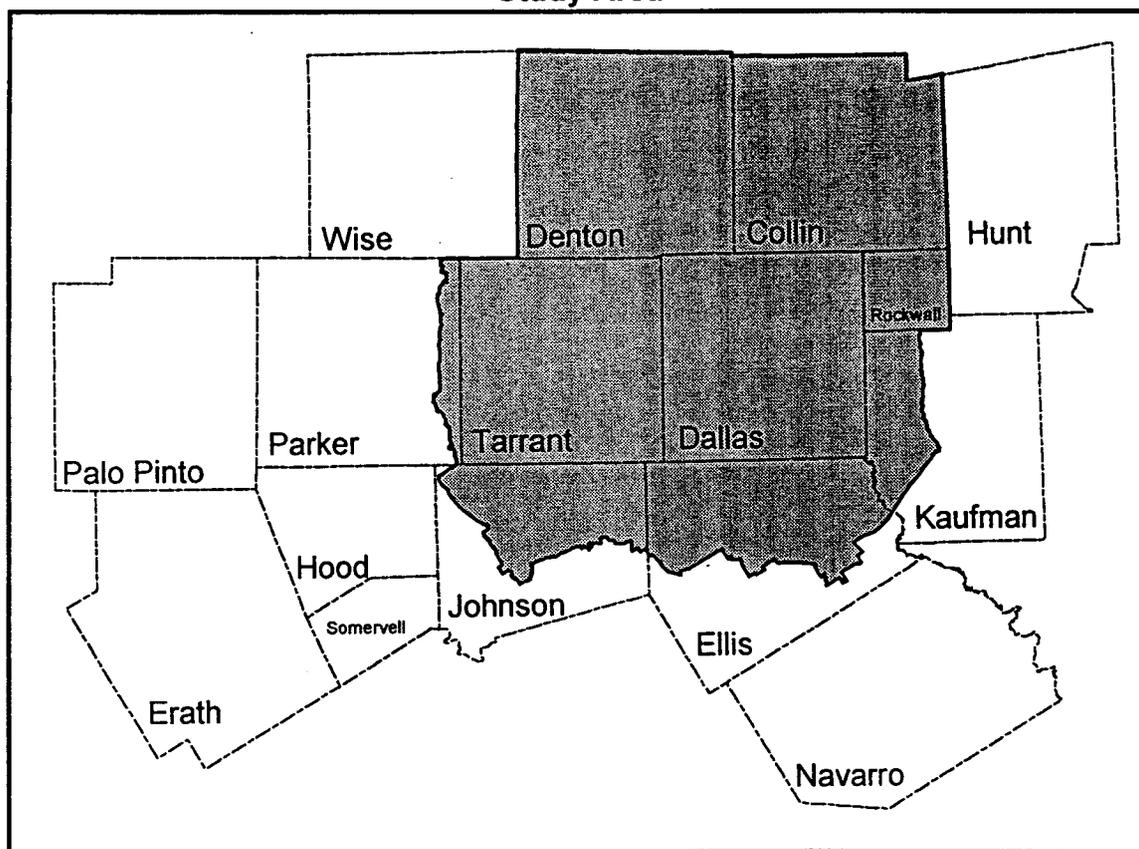
NCTCOG also engaged Peter Stopher of PlanTrans (Baton Rouge, Louisiana) to advise on the design of survey instruments.

## STUDY REGION

The geographical region of study for the household survey consisted of the 5,000 square-mile Dallas-Fort Worth Metropolitan Area, referred to by residents as the "Metroplex." As shown in **Figure 1**, this area includes all or part of the nine counties that make up the Consolidated Metropolitan Statistical Area (CMSA):

- Collin;
- Dallas;
- Denton;
- Ellis;
- Johnson;
- Kaufman;
- Parker;
- Rockwall; and,
- Tarrant.

**Figure 1**  
**Study Area**



# **ORGANIZATION OF THE REPORT**

The remainder of this report is organized as follows.

Chapter II: Overview of survey methods, including the influence of pretest results on the conceptual design of the survey, a discussion of the unique features of this survey, and a review of the survey procedures for recruitment, mailing of materials, reminder contacts, and data cleaning.

Chapter III: Discussion of the survey instruments.

Chapter IV: Presentation of the sampling plan, and discussion of how and why the actual survey deviated from the sampling plan.

Chapter V: Execution of the survey, including the overall schedule, interviewer training, monitoring and reporting, the survey hotline, the time spent in telephone retrieval, and survey response rates.

Chapter VI: Respondent demographic profile and comparisons to 1990 Census data for the Dallas-Fort Worth CMSA.

Chapter VII: Discussion of the stated preference survey.

Chapter VIII: Conclusions and recommendations for subsequent surveys.

The Appendices include survey instruments, training materials, and other supporting documentation.

It should be noted that the survey dataset is very rich, and includes far more information than presented in this report. This report is not intended as a summary of the survey findings, but rather aims to document the survey methods that were employed. The complete dataset has been provided to NCTCOG, who will be responsible for geocoding, final data cleaning, survey expansion, and travel/activity summaries.

## **II. OVERVIEW OF SURVEY METHODS**

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This section of the report provides an overview of survey methods, including:

- A review of the findings from the survey pretest;
- A discussion of the conceptual design of the survey and its unique features; and,
- A review of the survey procedures for recruitment, mailing of materials, reminder contacts, and data cleaning.

### **HOUSEHOLD SURVEY PRETEST**

In late 1994 and early 1995, NCTCOG undertook an extensive pretest in preparation for the household travel survey. NCTCOG was interested in pretesting three survey methodological options, and the interactions between them:

- A 24-hour vs. 48-hour recording period;
- A shorter vs. longer series of questions about each activity recorded; and,
- Three types of incentives -- a pen per person, \$2 per person, or both a pen and \$2 per person.

Shortly following initial work on the pretest, the Federal Highway Administration (FHWA) offered to sponsor additional research on household survey methods, using the NCTCOG pretest as a cost-effective opportunity to leverage research dollars by adding methodological options to the mix. FHWA was specifically interested in:

- A booklet vs. log format for the diaries; and,
- Telephone vs. mailback retrieval of information.

The combined resources of NCTCOG and FHWA enabled the pretest to examine all five of the options noted above. The key findings associated with each of these methodological options are reviewed below.

#### **24-Hour vs. 48-Hour Recording Period**

The use of 24- or 48-hour diaries to collect household activity and/or travel information has been the subject of considerable debate. A 48-hour recording period has been advocated as providing additional information about the variability of household travel behavior. The countering viewpoint has held that 48-hour data collection places too great a burden on respondents, and is likely to result in lower response rates and/or less complete reporting of travel behavior. The possible tendency for respondents to report less trip-making on the

second day of a 48-hour interval has been the subject of particular debate and conflicting research findings.

In terms of response rate, the pretest demonstrated that a recording period of 24 hours was 1.6 times more likely to result in a complete interview than a 48-hour recording period (p-value <0.01). The survey response rates for households assigned to a 48-hour recording period ranged from 35 percent to 47 percent, while those assigned to complete comparable 24-hour diaries were considerably higher, ranging from 42 percent to 50 percent.

The pretest also demonstrated that daily trip rates were higher for individuals who kept 24-hour diaries, ranging from 3.80 to 5.27, as compared to daily (weekday) trip rates of 2.34 to 5.05 for persons with 48-hour recording period. Furthermore, the pretest found a statistically significant trend (p-value <0.01) towards the reporting of fewer trips on the second day of a 48-hour reporting interval.

### **Shorter vs. Longer Series of Questions About Each Activity Recorded**

Travel behavior surveys have traditionally asked for relatively limited information regarding the time, location, and nature of each activity reported. With transportation planners' increased interest in issues such as mode use choices, household members' interdependent travel, trip chaining, and parking costs, there has been increased demand for a longer series of questions about each activity. One issue associated with this demand for new information is how best to ask such questions in the context of a travel diary, from the point of view of question wording, ordering, and graphic design. A separate issue is the extent to which lengthening the number of questions posed each time an activity is reported creates such a burden that response rates are impacted.

The pretest directly compared survey outcomes for longer and shorter series' of questions, with a focus on response rate differentials<sup>1</sup>. **Figures 2 and 3** illustrate the layout of the shorter and longer set of questions. It should be noted that the approach in all versions of the pretest and the full survey was to print all questions on the survey forms, in order to avoid probing respondents for unanticipated information.

#### **Activity Data Elements in Both Versions**

- Type of activity
- Start and end time of activity
- Place name and address of activity location
- Mode used to get to the activity
- Use of household vehicle
- Transit/taxi fare payment method

#### **Activity Data Elements in Longer Versions Only**

- Activity repetition
- Size of traveling party
- Number of household members in traveling party
- Shopping mall-related questions
- Parking cost
- Walk time from vehicle to activity location
- Use of bicycle lanes
- Bicycle storage
- Distance of bicycle travel
- Distance of walk/wheelchair travel

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<sup>1</sup> There were two slightly different formats for the longer set of questions. The first format was pretested in Fall, 1994 using a 24-hour diary, and the second was pretested in Spring, 1995 using a 48-hour diary.

Figure 2  
Shorter Activity Diary

# Activity 3

**1 What was the next thing you did? (check ONE only)**

**At Home Activities**

- Working at home (related to main or second job)
- All other at home (including sleep)

**Pick up or drop off other people**

- At their home
- At their workplace
- At their school/day care/childcare
- At another place (specify): \_\_\_\_\_

**Bus/Trolley**

- Wait for/get on bus/trolley
- Get off bus/trolley

**Regular Carpool/Vanpool**

- Wait for/join carpool/vanpool
- Leave carpool/vanpool

**Work**

- Work
- Work-related
- Volunteer work

**Other activities away from home**

- School/College/University
- Childcare/Day care/After school care
- Buy gas
- Shop
- Eat out
- Banking/Post Office/Other Personal Business
- Medical/Dental/Clinic
- Social/Visiting/Civic/Religious/Church
- Recreation/Gym/Athletic/Entertainment/Vacation
- Accompany another person to their activity
- Other (specify): \_\_\_\_\_

**2 How long did it take to get from your 2nd activity to your 3rd activity?**

minutes  
 less than one minute

**3 What time did you:**

start activity 3 ?

stop activity 3 ?

circle one ↓  
: : a m  
: : p m

**4 Where were you?**

- Same place as 2nd activity (Go to next activity)
- At home       At main job
- At school       At second job
- At another location (complete shaded area) ↓

Business/store/place name

Address or cross streets

City

**5 How did you get to this new location?**

- |  |  |
|--|--|
| Walk/Wheelchair                              | <input type="checkbox"/> Next activity |
| Driver in a car, van, truck or motorcycle    | <input type="checkbox"/> 6             |
| Passenger in a car, van, truck or motorcycle | <input type="checkbox"/> 6             |
| Express bus                                  | <input type="checkbox"/> 7             |
| Local bus                                    | <input type="checkbox"/> 7             |
| School bus                                   | <input type="checkbox"/> Next activity |
| Trolley                                      | <input type="checkbox"/> 7             |
| Taxi   | <input type="checkbox"/> 7             |
| Bicycle                                      | <input type="checkbox"/> Next activity |
| Other (specify) _____                        | <input type="checkbox"/> Next activity |

**6 Car/Van/Truck/Motorcycle**

Did you use one of the vehicles listed on the form for this trip? **If yes, which one?**

- No     Yes

Make

Model

**7 Bus/Trolley/Taxi**

How did you personally pay your fare?

- Cash → \$ . I paid nothing, because the fare was:  Free
- Transfer  Reimbursed (e.g. by your employer)
- Pass
- Other (specify): \_\_\_\_\_  Paid by someone else

The pretest found that the number of questions posed for each activity had no significant effect on the likelihood of obtaining a complete interview. There were, however, certain data elements which appeared to yield less useful information. This group of data elements, and their treatment in the full survey, is summarized below.

<b>Data Element</b>	<b>Action</b>
Presence of domestic help	Dropped
Industry	Collected open-ended
Occupation	Collected open-ended
Activity repetition over past week	Dropped
Bicycle follow-up questions	Most dropped
Transit-related activities	Method of collection changed

## **Incentives**

Household travel surveys depend on respondents' voluntary cooperation for their success. It is widely believed, however, that response rates have been declining and that respondent resistance is increasing<sup>2</sup>. Thus, there has been increasing interest in using monetary or other "gifts" as incentives to encourage participation. Previous household travel surveys which tested incentives (i.e., Puget Sound Transportation Panel) found improved response rates. Some researchers have suggested that higher incentives are useful with harder-to-reach populations, and that the size of the incentive is related to respondent's view of the survey's importance.

Starting with the premise that some type of incentive would be offered to every survey participant, the pretest evaluated three types of incentives -- a pen for each person in the household, \$2 for each person in the household, or both a pen and \$2 for each person.

The pretest found no significant difference in response rates associated with incentive levels. Taking into account the added postage costs for the pens, the \$2 cash incentive was deemed the most cost-effective, and was employed for the full survey.

## **Booklet vs. Log Format for the Diaries**

There are two types of diary forms prevalent in travel surveys: a log-style form, which is often printed double-sided on legal size paper; and a multi-page booklet. The log-style form costs less to print and mail, and is hypothesized to be less intimidating to respondents. There is some speculation that the response rates might be higher to such a form. However, the space available for respondents to actually write location and other open-ended information is usually limited, which could lead respondents to simply omit a response when there is no

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<sup>2</sup> A recent study by the Council for Marketing and Opinion Research (CMOR) found that refusal rates are currently averaging 54 to 62 percent for telephone surveys; two key variables associated with increased cooperation were disclosing the length of the interview during the introductory statement and offering an incentive for participation. (Source: *Opinion: The News Magazine of the Council for Marketing and Opinion Research*, Winter 1996.)

space for them to write it out. This is an important consideration for collecting address information which is to be geocoded.

A multi-page booklet offers considerably more space for respondents to record address and other information, as well as provides room for more detailed instructions. The multi-page booklets may be more intimidating to potential respondents and they do cost more to produce and mail. As the amount of data to be collected has increased, there have been increasing concerns that the multi-page booklets have become so massive and complex that they deter potential respondents and contribute to a lower response rate.

The pretest directly compared these two approaches to instrument design as evidenced by the response rates to an identical set of questions (the shorter set) on a log-style diary and a multi-page booklet. It should be noted that the booklets differed in one other respect from the log-style diaries, in that the booklets included a one-page "memory jogger" on which respondents could briefly note their activities, while the logs did not. **Figure 4** below illustrates the log-style diary.

The pretest found no significant difference in completion rates between the booklet and log-style diaries. Since all of the questions that NCTCOG wanted to pose could be fit on the log-style form, this method was employed for the full survey.

### **Telephone vs. Mailback Retrieval of Information**

The method of retrieving data is one of the key decisions in designing a travel survey. The two main options are retrieving information from participants through a written survey which is then mailed back, or through a separate telephone call made after the travel day(s). The benefits and drawbacks of these two approaches have been the subject of debate on the grounds of data quality, response rates, trip rates and cost. Both methods have been used in household travel surveys.

The pretest directly compared the response rates and trip rates associated with the mailback and telephone retrieval approaches and found that for comparable surveys, telephone retrieval was twice as likely to result in a complete interview than mailback ( $p$ -value < 0.01).

For a more complete discussion on the results of the pretest, please refer to the August, 1995, *Dallas-Fort Worth Household Travel Survey Pretest Report*.

## **CONCEPTUAL DESIGN OF THE FULL SURVEY**

Following completion of the full survey, NCTCOG convened a meeting of a peer review panel to discuss the pretest outcomes and make suggestions for the full revealed and stated preference surveys. (**Appendix A** contains a listing of the members of the peer review panel.) At this meeting, the structure of the conventional activity-focused diary received a great deal of attention.

Figure 4  
Log-Style Diary

1995 Dallas-Fort Worth 24-hour Activity Diary

Activity Codes		Instructions:		How did you get to this activity?	Car, Van, Truck or Motorcycle	Bus, Trolley or Taxi
<p><b>At home activities</b></p> <p>1 Work at home (related to main or second job)</p> <p>2 At other at home activities (including sleep)</p> <p>Pick up/Drop off other people</p> <p>3 At their home</p> <p>4 At their workplace</p> <p>5 At their school/childcare</p> <p>6 At another place</p> <p><b>Bus/Trolley</b></p> <p>7 Wait for/get on bus/trolley</p> <p>8 Get off bus/trolley</p> <p><b>Regular Carpool/Vanpool</b></p> <p>9 Wait for/join carpool/vanpool</p> <p>10 Leave carpool/vanpool</p> <p><b>Work</b></p> <p>11 Work</p> <p>12 Work-related</p>		<p><b>Instructions:</b></p> <p>Use this form to record all of your activities on WEDNESDAY</p> <ul style="list-style-type: none"> <li>Record what you were doing by using the Activity Codes.</li> <li>Record where you were and the address if necessary.</li> <li>Record what time you started and stopped that activity.</li> <li>Record how you got to the activity by using the Code's.</li> <li>If used a personal vehicle, complete the Vehicle section.</li> <li>If you rode a bus, trolley or taxi, complete the Bus/Trolley/Taxi section.</li> </ul>		<p>1 Walk/Wheelchair</p> <p>2 Passenger in a car, van, truck or motorcycle</p> <p>3 Driver in a car, van, truck or motorcycle</p> <p>4 Express bus</p> <p>5 Local bus</p> <p>6 Trolley</p> <p>7 School bus</p> <p>8 Taxi</p> <p>9 Bicycle</p> <p>10 Other</p>	<p>Did you use one of the vehicles listed on the vehicle form for this trip?</p> <p><input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes, which one? Make: <u>Ford</u> Model: <u>Bronco</u></p>	<p>How did you personally pay for your fare?</p> <p>1 Cash</p> <p>2 Transfer</p> <p>3 Pass</p> <p>4 Other</p> <p>1 paid nothing, fare was</p> <p>5 Free</p> <p>6 Reimbursed (e.g. by employer)</p> <p>7 Paid by someone else</p>
Where were you?		Address or Cross Streets		What time did you Start and Stop your Activity?		
<p><input type="checkbox"/> At same place as last activity</p> <p><input type="checkbox"/> At home</p> <p><input type="checkbox"/> At school</p> <p><input checked="" type="checkbox"/> At another place (please provide address or cross streets)</p>		<p><u>Valley View Center</u> Business/office name <u>LB3 Party Preston</u> Address <u>Dallas</u> City</p>		<p>Start: <u>1:42</u> <input type="checkbox"/> am <input type="checkbox"/> pm</p> <p>Stop: <u>2:50</u> <input type="checkbox"/> am <input checked="" type="checkbox"/> pm</p>	<p>Fare Code: _____</p> <p>If code 1 (cash), how much? \$ _____</p>	
<p><input type="checkbox"/> At same place as last activity</p> <p><input type="checkbox"/> At home</p> <p><input type="checkbox"/> At school</p> <p><input type="checkbox"/> At another place (please provide address or cross streets)</p>				<p>Start: <u>3:00</u> <input type="checkbox"/> am <input type="checkbox"/> pm</p> <p>Stop: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p>	<p>Fare Code: _____</p> <p>If code 1 (cash), how much? \$ _____</p>	
<p><input type="checkbox"/> At same place as last activity</p> <p><input type="checkbox"/> At home</p> <p><input type="checkbox"/> At school</p> <p><input type="checkbox"/> At another place (please provide address or cross streets)</p>				<p>Start: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p> <p>Stop: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p>	<p>Fare Code: _____</p> <p>If code 1 (cash), how much? \$ _____</p>	
<p><input type="checkbox"/> At same place as last activity</p> <p><input type="checkbox"/> At home</p> <p><input type="checkbox"/> At school</p> <p><input type="checkbox"/> At another place (please provide address or cross streets)</p>				<p>Start: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p> <p>Stop: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p>	<p>Fare Code: _____</p> <p>If code 1 (cash), how much? \$ _____</p>	
<p><input type="checkbox"/> At same place as last activity</p> <p><input type="checkbox"/> At home</p> <p><input type="checkbox"/> At school</p> <p><input type="checkbox"/> At another place (please provide address or cross streets)</p>				<p>Start: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p> <p>Stop: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p>	<p>Fare Code: _____</p> <p>If code 1 (cash), how much? \$ _____</p>	
<p><input type="checkbox"/> At same place as last activity</p> <p><input type="checkbox"/> At home</p> <p><input type="checkbox"/> At school</p> <p><input type="checkbox"/> At another place (please provide address or cross streets)</p>				<p>Start: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p> <p>Stop: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p>	<p>Fare Code: _____</p> <p>If code 1 (cash), how much? \$ _____</p>	
<p><input type="checkbox"/> At same place as last activity</p> <p><input type="checkbox"/> At home</p> <p><input type="checkbox"/> At school</p> <p><input type="checkbox"/> At another place (please provide address or cross streets)</p>				<p>Start: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p> <p>Stop: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p>	<p>Fare Code: _____</p> <p>If code 1 (cash), how much? \$ _____</p>	
<p><b>Example</b></p> <p>What was your first Activity?</p> <p>Activity Code: <u>17</u></p>				<p>How did you get to this activity?</p> <p>How: <u>3</u></p>	<p>Fare Code: _____</p> <p>If code 1 (cash), how much? \$ _____</p>	
<p><b>1</b> Activity Code: _____</p> <p>If code 24 (other), please specify: _____</p>				<p>How long did it take you to travel from your first activity to your second activity?</p> <p>Start: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p> <p>Stop: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p>	<p>Fare Code: _____</p> <p>If code 1 (cash), how much? \$ _____</p>	
<p><b>2</b> Activity Code: _____</p> <p>If code 24 (other), please specify: _____</p>				<p>How long did it take you to travel from your second activity to your third activity?</p> <p>Start: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p> <p>Stop: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p>	<p>Fare Code: _____</p> <p>If code 1 (cash), how much? \$ _____</p>	
<p><b>3</b> Activity Code: _____</p> <p>If code 24 (other), please specify: _____</p>				<p>How long did it take you to travel from your third activity to your fourth activity?</p> <p>Start: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p> <p>Stop: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p>	<p>Fare Code: _____</p> <p>If code 1 (cash), how much? \$ _____</p>	
<p><b>4</b> Activity Code: _____</p> <p>If code 24 (other), please specify: _____</p>				<p>How long did it take you to travel from your fourth activity to your fifth activity?</p> <p>Start: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p> <p>Stop: _____ <input type="checkbox"/> am <input type="checkbox"/> pm</p>	<p>Fare Code: _____</p> <p>If code 1 (cash), how much? \$ _____</p>	
				<p>Please continue on reverse side.</p>		

When U.S. transportation researchers shifted to activity diaries in the late 1980's, a key intention was to examine trip generation in terms of people's range of behavior, with their travel choices a function of their range of possible activities, the destinations at which these activities could be done, and the availability of transportation options, all constrained by space and time. This way of thinking reflected new directions in transportation modeling, and contrasted with the treatment of trip generation as a trip/no trip choice as a function of socio-economics and the level of service in the transportation system.

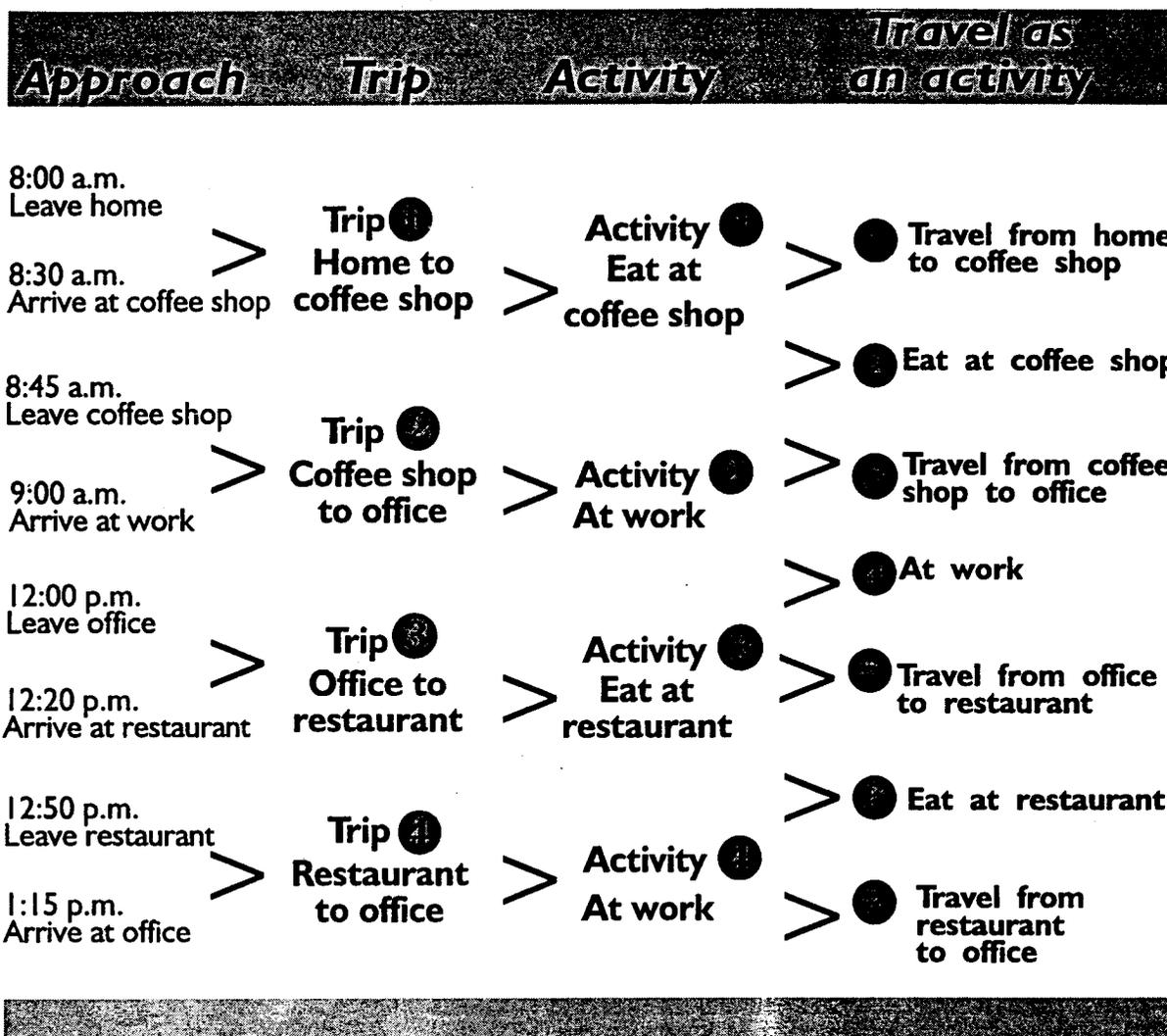
While it was agreed at the peer review panel that innovations in activity diaries had succeeded in capturing more accurate and complete reports of short trips and walk trips, the panelists debated whether conventional activity diaries had truly succeeded in collecting travel as one event in a continuous sequence of human behavior. By asking about each activity as an event at a specific location, and then asking about the mechanism by which people shifted to each new location, the appropriate treatment of many common activities was quite ambiguous.

For instance, talking a walk, jogging, or exercising a dog are all activities that do not take place at a fixed location, and they are not travel for the purpose of changing location. In a conventional travel diary, such activities would most often be lost or subsumed. Similarly, full spatial and temporal detail about all of the incremental steps involved in making a trip using public transit -- getting to the stop, waiting at the stop, riding on the bus, getting off the bus at a stop, and getting to the final destination -- were not collected in conventional activity diaries.

Given the objective of studying travel in the continuum of human behavior, the panelists suggested the development of a time-use diary including travel as an explicit activity. Supporting this idea were anecdotes, based on review of written questionnaires from the survey pretest or monitoring of telephone interviews, about respondents who seemed to want to report their travel explicitly as an activity. The peer panel's suggestion combined with the desire to make the collection of the desired activity information more "natural" for respondents, were the driving forces behind NCTCOG's decision to abandon the diaries that had been pretested and instead pursue the development of a new conceptual approach.

**Figure 5** below illustrates the differences between the "travel as an activity" approach used in this survey, the conventional activity diary method, and the trip record. Using the illustrated hypothetical sequence of morning events, the focus of questioning in each method becomes clear.

Figure 5  
Comparison of Survey Methods



- A trip diary collects information about each *change of location* (When did you start your first trip of the day? How did you travel? What was the purpose of your trip? At what address did you end up?)
- An activity diary is organized around the *activity undertaken at each location* (What did you do next? What time did you start and end the activity? What was the address where you did the activity? How did you get there?)
- The travel as an activity approach asks respondents to account for all of their time, including both trips and activities that take place at a fixed location (When did you start your next activity? What did you do next - travel or anything other than traveling? If traveling, how did you go? If anything other than travel, what was your activity and what was the address where you did the activity?)

Throughout the fall of 1995, AMPG worked closely with NCTCOG and PlanTrans to develop new survey instruments to operationalize the concept of travel as an explicit activity. Using the more cost-effective log-style layout, a two-color design was developed. **Figure 6** below illustrates the layout of the travel diary.

In addition to revising the printed diaries on which respondents would record their travel, considerable change was made to the design of the telephone interviewing scripts and underlying computer assisted telephone interviewing (CATI) program. The wording and sequencing of all printed and verbal survey questions were carefully scrutinized to minimize ambiguity. A number of new automated checks were developed for the CATI program to promote internal consistency and prompt respondents to provide correct information.

## GENERAL PROCEDURES

**Figure 7** is a graphic representation of the procedures used to conduct the survey. Briefly, the survey procedures were:

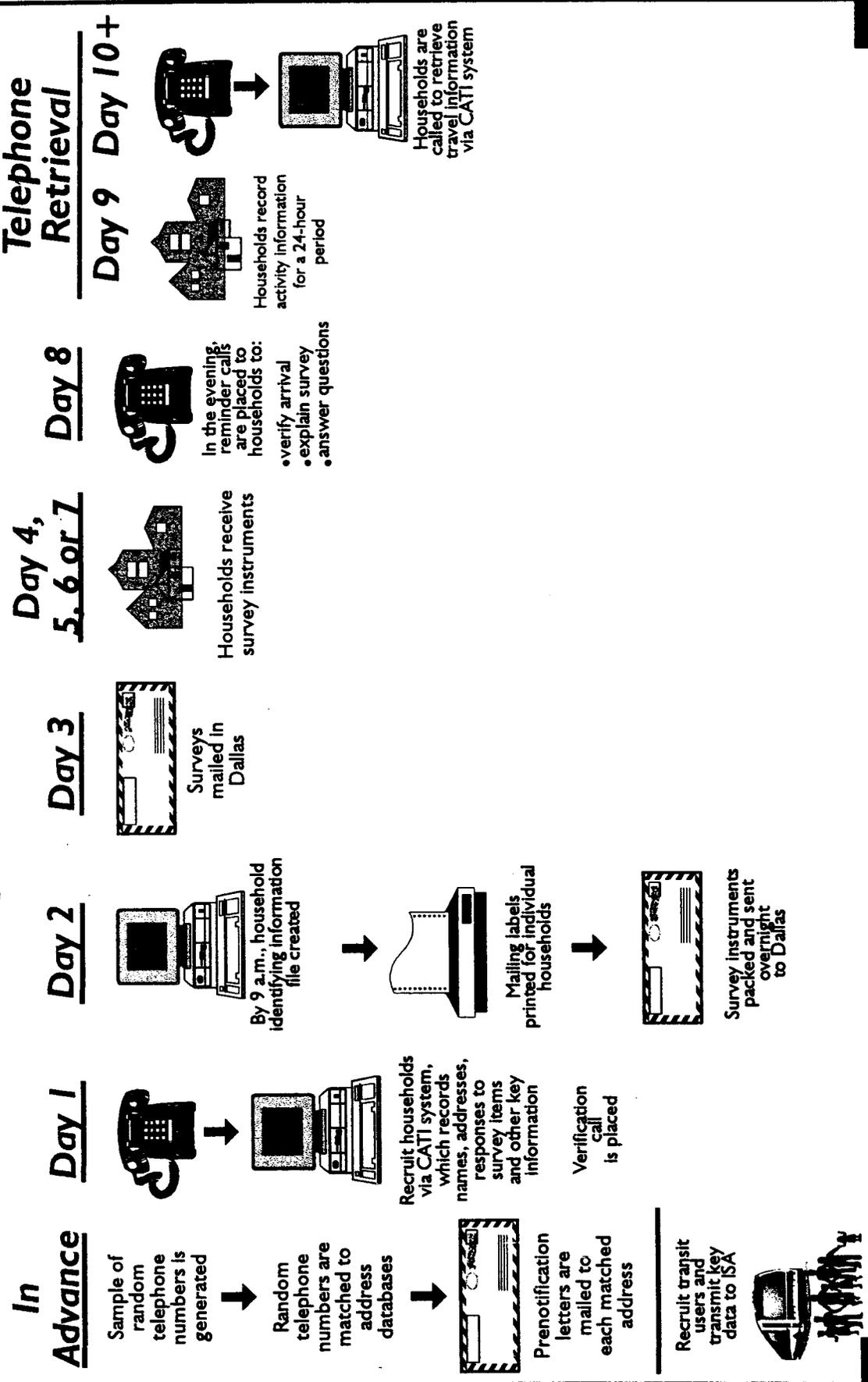
- **Telephone Sample Generation** - Telephone numbers were generated by ISA using the Genysys system. Random numbers were created by appending four random digits to the three-digit telephone prefixes in the area to be surveyed. Databases were used to screen the generated numbers for known commercial listings and for blocks reserved for telephone company use.
- **Prenotification** - Using commercial electronic databases, an attempt was made to obtain an address for each randomly generated telephone number. In those cases where an address was identified (39 percent of the randomly generated telephone numbers), NCTCOG mailed out a letter informing the household of the survey effort. Prenotification letters were timed to arrive one to three weeks before the initial recruitment call to a household.
- **Recruitment** - Two methods were used to recruit households -- telephone and bus-stop intercept. The majority of households were recruited by telephone, and participating households were assigned a diary day that was one day after the day of the week of the initial telephone call (e.g., a Monday recruitment call yielded a Tuesday diary day)<sup>3</sup>. During the recruitment call, the characteristics of the household were obtained, including household size, vehicles available, and geographic location; these variables were used to track the recruitment progress

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<sup>3</sup> Households recruited on Friday or Saturday could be assigned to any weekday travel day. During weekend recruitment, diary day assignments were based on the day of the week for which the fewest number of households had been recruited to date (if Wednesday was the travel day with the fewest households assigned, a newly recruited household would be assigned to a Wednesday travel day).



## Figure 7 Survey Procedures Flow Chart



against the sampling matrix. Immediately following the recruitment call, a verification call was placed to double-check the accuracy of the address.

A total of 10.6 percent (992) of the 9,398 recruited households were initially contacted by face-to-face intercept at bus stops in the Dallas-Fort Worth Metroplex. The names and telephone numbers of the intercepted individuals who agreed to further participation were forwarded to the telephone interviewers and treated the same as all others through the remainder of the survey process.

- **Mailing of Materials** - For those households agreeing to participate, the AMPG team assembled a package containing: a cover letter from NCTCOG introducing the study; a brochure explaining the overall research effort; a household/vehicle information form; a diary for each member of the household; an example diary illustrating how the diary was to be completed; and an incentive for each member of the household. A prepaid reply envelope was included to enable households to mail their materials back following the telephone retrieval process.
- **Reminder Call** - The night before their assigned diary day, attempts were made to telephone the recruited households to verify that they had received their package of materials, to remind them of the survey, and to answer questions.
- **Retrieval Call** - The household/ vehicle form and diary information was collected by telephone for the household. Emphasis was placed on collecting diary information from all household members, but households were not excluded from the retrieval process if some members refused to take part in the survey. Where noted, selected analyses in this report include households for whom partial information was collected. Since the calls were made using computer-aided telephone interviewing (CATI), the data were simultaneously entered into a database.
- **Data Cleaning and Entry** - The electronic files were reviewed to ensure data integrity. Prior to delivery to NCTCOG, basic data cleaning, such as adding in correct diary termination times, was performed and documented. Additional data cleaning, including geocoding, will be performed by NCTCOG prior to survey expansion and summaries.

## Survey Length

The length of the telephone interviews was recorded automatically by the CATI system for each segment of the survey. **Table 1** below summarizes the actual length of time spent by interviewers on completed recruitment, reminder and retrieval calls. It should be noted that these figures do not include hours spent training, between dialings, on breaks, etc<sup>4</sup>.

	<b>Mean</b> (st. dev.)	<b>Median</b>	<b>Mode</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Recruitment</b> (n=9,395* households)	8.07 (3.525)	7	6	3	96
<b>Reminder live</b> (n=6,051 households)	3.61 (2.88)	3	2	<1 min	75
<b>Reminder message</b> (n=1,272 households)	2.63 (1.61)	2	2	<1 min	20
<b>Retrieval (HHs)</b> (n=3,919 households)**	33.36 (22.51)	28	20	2	209
<b>Retrieval (persons)</b> (n=9,528 persons)**	13.23 (10.22)	12	7	<1 min	137

\*A total of 9,398 households was recruited, but three were missing from the recruitment phonefile due to an anomaly associated with numbers that were retained for more than nine recruitment attempts.

\*\* A total of 3,996 households was completely retrieved, but timestamp data was missing for 77 due to anomalies in the phonefiles, and the fact that some data were retrieved using paper and pencil methods when ISA experienced a computer system failure. Similarly, from among the completely retrieved households, data was collected for a total of 9,754 persons. Timestamps were missing for 226 persons due to anomalies in the phonefiles, and the fact that some data were retrieved using paper and pencil methods when ISA experienced a computer system failure.

The data in Table 1 for the recruitment segment represent the households which were successfully recruited. For the reminder segment, the interview lengths are broken out to present the 6,051 households which received a "live" reminder contact from an interviewer, and the 1,272 which received an answering machine message. The data for the retrieval call is based on the time required to collect one person's diary.<sup>5</sup>

## **SPECIAL FEATURES OF THE SURVEY METHOD**

The final methodology of the actual survey included a number of special features that were not included in the pretest, and are unique to the Dallas-Forth Worth household survey. As discussed below, these included:

- Method of transit activity collection;
- Number of recruitment attempts to each number;
- Treatment of "soft refusals;"
- Proxy rules, and,
- Inclusion of a postage-paid return envelope.

<sup>5</sup> With regard to the retrieval call length, it should be noted that the CATI system combined the time required to collect the household and vehicle information data together with the time used to gather the diary data for whichever household member provided his/her information first. In addition, an idiosyncrasy of the automated callback system is that it combines the elapsed time between a first disposition of "busy" and the second attempt to that number into the interview length. As a result of these two circumstances, the retrieval time per diary is slightly overstated.

## **Method of Transit Activity Collection**

In travel behavior surveys, there have traditionally been two primary methods of collecting trips that involve multiple modes, including transit. In one method, a matrix is used in which respondents check which mode was used and in which order. The other method asks the respondent to report any use of transit, and may pose follow-up questions such as the place of boarding and/or alighting, the route used, the fare paid, etc.

NCTCOG was particularly interested in capturing each segment of transit trips in detail (partly because of the decision to postpone an on-board survey). Specifically, NCTCOG desired information regarding:

- Mode of access to transit;
- Length of the trip to access transit;
- Boarding location;
- Wait time at the boarding location;
- Transit route used;
- Fare paid;
- Length of transit trip;
- Transfers, if any (and details on the location and wait time at transfer points);
- Alighting location;
- Mode of access to the final destination; and,
- Length of the trip to the final destination.

In order to capture this volume of data, a unique method of collecting transit activities was developed. In accordance with the conceptual approach of the time-use diary, respondents were asked to report each segment of any transit trip as five separate activities:

1. Traveling to the transit stop;
2. Waiting for and/or boarding the transit vehicle;
3. Traveling on the transit vehicle;
4. Alighting from the transit vehicle; and,
5. Traveling to the final destination.

## **Number of Recruitment Attempts to Each Number**

When using samples of randomly generated telephone numbers, it is standard market research practice to attempt each number up to six times. Based on the results of the pretest, in which more than a quarter (27 percent) of all "good" telephone numbers which were tried during the recruitment effort failed to result in a household contact, an effort was made during the survey to call each number up to nine times. It was hypothesized that households that were not reached were at home less often to receive telephone calls, and it thus followed that they may travel more. By increasing the number of recruitment calls from six to nine, the intent was to reach a greater proportion of households, thus reducing non-response bias against households which are home less often.

## **Treatment of "Soft Refusals"**

While it is standard practice in market research to re-call households which initially refuse to participate in an effort to reduce non-response bias, this has not been the procedure used in many previous household travel surveys. There has been a two-fold rationale for dropping households which initially refuse: (1) With a government-sponsored survey, there is a greater desire to avoid the risk of upsetting survey respondents by failing to abide by their request not to take part; and, (2) with a study that requires as much effort as a household travel survey, there is less interest in "chasing" reluctant households who might be more likely to drop out at a subsequent point in the study. NCTCOG's priority, however, was to limit any avoidable non-response bias. For this survey, NCTCOG thus opted to attempt to convert "soft refusals"<sup>6</sup>. For instance, when a "soft refusal" was recorded as the initial disposition for a household during the recruitment stage, the household's telephone number was retained for a subsequent attempt on a different day. A more highly skilled interviewer then called back to conduct the recruitment call. Households successfully recruited at this point were considered "converted," while those who continued to refuse were retired as non-responsive. Conversion of soft refusals was also attempted during the reminder and retrieval phases.

## **Proxy Rules**

Based on the pretest results, in which the trip rates for individuals who reported their own data were higher than for proxies, special efforts were made to minimize proxy reporting. In devising proxy rules, respondents were divided into three groups:

1. Children (aged 0-14 years);
2. Teenagers (15-18 years); and,
3. Adults.

Proxy reporting for children by their parents was always accepted. Similarly, when teenagers were not available or were unwilling to report their data directly, a proxy report was taken from their parents. For adults, more stringent rules were applied -- two attempts were required to reach each adult before a proxy report could be accepted. **Table 2** below summarizes the proxy procedures. During the period that the survey was in the field, ISA reported that the proxy rules for adults were negatively affecting the survey completion rate. As a result, the proxy rules were relaxed from May 6, 1996 onwards.

## **Inclusion of a Postage-Paid Return Envelope**

One frequently mentioned disadvantage of telephone retrieval is the lack of a separate, objective record to validate the accuracy of the interviewers in recording trip information. Based on NCTCOG's previous experience using written survey materials to better understand unusual reports of trip-making, there was a great deal of interest in finding a way to preserve and collect the instruments used by respondents. As a result, the survey included a postage-paid return envelope in the outgoing package of material to allow

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<sup>6</sup> A hard refusal was defined as a respondent who directly instructed the interviewer not to call back, who made a threat, or who was otherwise very adamant about their refusal. Soft refusals included all other refusals.

households to mail in their diaries directly to NCTCOG once their information had been collected over the telephone.

Table 2 Proxy Procedures Matrix					
Person Type	Activity pages filled out?	Respondent available?	Respondent willing?	Another adult knows activities?	Procedure
Child aged 0-14	Yes	—————→			Adult proxy (or child directly)
	No	—————→		Yes	Adult proxy (or child directly)
	No	—————→		No	Callback until refusal or complete
	No	Yes or No	No	—————→	Record reason for refusal
Teen aged 15-18	Yes	Yes	Yes	—————→	Collect directly from teen
	Yes	Yes	No	—————→	Adult proxy reads diary
	Yes	No	—————→		Adult proxy reads diary
	No	Yes	Yes	—————→	Collect directly from teen
	No	No	n/a	Yes	Adult proxy recounts activities
	No	No	n/a	No	Callback until refusal or complete
	No	Yes or No	No	No	Record reason for refusal
Adult	Yes	Yes	Yes	—————→	Collect directly
	Yes	Yes or No	No	—————→	Adult proxy reads diary
	Yes	No	—————→		Callback 2 times to attempt direct collection. Then accept adult proxy.
	No	Yes	Yes	—————→	Collect directly
	No	No	n/a	Yes	Callback 2 times to attempt direct collection. Then accept adult proxy.
	No	No	n/a	No	Callback until refusal or complete
	No	Yes or no	No	No	Record reason for refusal

It was known in advance that one drawback of this approach would be that some households would mail in their materials before telephone retrieval occurred. In addition to this phenomenon, some households completed their materials and retained them until the interviewer called, but then refused to take part in the telephone retrieval. About 7 percent of respondents opted to mail back their materials using the reply envelope *instead of* consenting to telephone retrieval of their information. NCTCOG handled the surveys that

were mailed in. From among all households that were not wholly or partially retrieved by telephone, 6 percent returned at least some information by mail. This figure indicates that most households who promised to mail in materials did so. NCTCOG plans to perform additional analysis to determine how data from these households will be incorporated into the retrieval files.

### III. SURVEY INSTRUMENTS

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Materials developed for the revealed preference survey included prenotification letters, computer-aided telephone interviewing (CATI) scripts for the four telephone calls (recruitment, verification, reminder, and retrieval), instruments for the transit intercepts, and the content of the survey packages. The following sections detail the development of these instruments.

#### PRENOTIFICATION LETTERS

As noted above, we attempted to obtain an address for each randomly generated telephone number in order to permit the mailing of a prenotification letter. The survey prenotification letters were designed to advise households that they had been selected to take part in the survey. Figure 8 below includes the text of the prenotification letters. The intent of the letters was to improve the response rate to the recruitment calls.

**Figure 8**  
**Text of the Prenotification Letter**

Dear \_\_\_\_\_:

In the next few weeks, an interviewer will telephone you and ask for information about your household's activities on a specific day. Your answers, when combined with data from other households, will be used to predict future travel patterns and develop effective transportation solutions for the Dallas-Fort Worth Metroplex.

The project is sponsored by the North Central Texas Council of Governments (NCTCOG), the Texas Department of Transportation, and the U.S. Department of Transportation. Your telephone number was randomly selected by computer from all possible numbers in the Metroplex. We then obtained your address from the telephone directory in order to mail you this letter.

There is nothing you need to do right now, other than wait for our telephone call. But, if you have questions, you may call Ana Polanco at our toll-free survey hotline at 1-800-496-9616. NCTCOG's travel survey manager is Ken Cervenka, who can be reached at the Metro number 817-695-9240.

The enclosed brochure provides more information about the study. No matter how much or how little you travel, your voluntary participation is very important to us in creating a better transportation future.

Sincerely,

Michael Morris, P.E.  
Director of Transportation

## TELEPHONE SCRIPTS

Scripts were developed for each of the four telephone contacts: the recruitment, the verification, the reminder, and the retrieval calls. Once the scripts were finalized by AMPG and NCTCOG, ISA programmed them into a CATI system. This system allowed interviewers to work on a computer while talking to a respondent, and to input answers to questions directly into a computer file. The system also automatically moved from question to question in the appropriate skip patterns.

The scripts included qualifying questions. For instance, none of the recruitments were to be conducted with a household member under the age of 18, so one of the initial questions was to confirm the age of the respondent. Questions were also asked to verify that the telephone number dialed was a residential line, and that the household was located in a ZIP code within the study area. Copies of all CATI scripts are included in **Appendix B**.

### Built-in Checks and Verifications

ISA used the C-Survent software developed by Computers for Marketing Corporation for its CATI system. The C-Survent software runs on a mainframe computer, with the CATI stations on a "live" network. C-Survent is fully interactive and has the advantage of permitting great flexibility to the interviewers while providing a live database for all responses. For this study, ISA built in the following key logic checks:

- Double verification of key data such as number of household members and vehicle availability;
- Pre-coded lists of city names in the Dallas-Ft. Worth area to minimize misspellings;
- Automatically checking the number of persons in the household reported in the recruitment call against the number of persons reported in the retrieval call;
- Prompting the interviewer to probe for additional activities between home and work;
- Automatically requesting double verification if the amount of time between activities appeared to be too short (i.e., no travel time) or too long (i.e., unreported intermediate activities);
- Excluding impossible multiple response combinations (e.g., an individual coded as "child not in school/infant" and "student.")
- Prompting the interviewer to probe if households without autos reported having people drive, or if persons without a driver's license reported driving;
- Prompting the interviewer to probe if the reported odometer readings indicated a net negative;

- Prompting the interviewer to probe if the personal incomes reported for family members exceeded the income reported for the full household;
- Prompting the interviewer to probe if answers exceeded known valid ranges;
- Prompting the interviewer to confirm when a person had a work or school activity, but had not reported being a worker or student;
- Prompting the interviewer to collect all legs of transit trips;
- Prompting the interviewer to confirm activities taking place at unusual locations (e.g., at-home activities taking place at the workplace);
- Prompting the interviewer to collect the reason that persons were home all day (and had no trips);
- Tailoring questions to be situation-specific (e.g., "Did you do anything else before leaving home?" after an at-home activity, and "Did you do anything else before leaving that place?" for activities at other locations); and,
- Providing space for, and prompting the interviewers to ask for, other address information when the exact street address was not known. This address information included the nearest cross-streets, the name of the business establishment, etc.

These, and other, "checks" in the logic were hard-coded into the CATI program, so that there would be fewer internal inconsistencies in the final dataset. These logic checks also functioned as quality assurance components for the entire database.

## **INTERCEPT INSTRUMENTS**

A brief intercept survey instrument was developed for use in recruiting respondents through bus stop intercept. The survey was designed to be administered quickly, and included nine questions followed by an invitation to take part in the main study. Prior to interviewing, the survey instruments were prenumbered beginning with 1 through 4,999 for intercepts to be conducted in Dallas and 5,000 through 6,000 for those to take place in Fort Worth. The survey instrument was also color-coded by location. The intercept instrument collected the following information:

- In the first item on the survey, interviewers recorded the patron's willingness to participate;
- Question 1a inquired which bus they were catching and 1b asked if they were transferring from another bus;
- Question 2 asked about the county in which the respondent lived;
- Question 3 asked the frequency of their bus patronage;

- Question 4 asked about the number of vehicles in their household;
- Question 5 asked if any of those vehicles were available for the bus trip that was intercepted;
- Question 6 inquired about the number of people in the household;
- Question 7 was the “clincher” question – after a short explanation about the “more in-depth travel survey” and the distribution of the brochure about the survey, the patrons were asked if they were willing to participate in the household survey. At this point, a telephone number and name was collected.

If the participant refused to answer any of the questions, the interview politely ended without further questioning. A copy of the intercept instrument is included in **Appendix C**.

## **SURVEY MATERIALS**

To provide a cohesive appearance and theme for all the survey efforts planned by NCTCOG, all materials were labeled and referred to as “1996 Dallas-Fort Worth Activity Survey.” As noted previously, each household’s survey package contained a cover letter, a brochure, a household/vehicle form, a diary for each member of the household, an example diary, and an incentive for each member of the household. An example of the materials sent to each household are contained in **Appendix D**. These materials are briefly described below.

### **Cover Letter**

A cover letter on NCTCOG stationery explaining the purpose of the study and requesting the respondent’s participation was enclosed with each survey package. The letter was signed by NCTCOG’s Executive Director.

### **Brochure**

A brochure about the overall research effort was prepared by NCTCOG in an easy-to-read question and answer format. The brochure was designed to legitimize the survey and encourage its completion by providing answers to the most commonly asked questions, including the survey’s purpose and sponsorship. In addition to its inclusion in the survey package, the brochure also accompanied the prenotification letters.

### **Household/Vehicle Form**

The household/vehicle form was developed using CorelDRAW. The form was printed double-sided on a colored 8<sup>1</sup>/<sub>2</sub>” x 14” card. One side of the form included questions about household members, and the other side addressed the households’ vehicles. The color of the household/vehicle form was designed to coordinate with the diaries.

## **Diaries**

To assist survey participants in keeping track of their activities, a two-color log-style diary was developed. Respondents were asked to use the diary to record each activity they conducted during their assigned diary period, starting at 3:00 a.m. Up to 30 activities could be recorded on the diary. If more space was needed, respondents were asked to use a separate sheet of paper. The diaries also included a number of questions regarding the respondent's demographics, work and school patterns, and other travel-related lifestyle variables. These questions were placed at the beginning of the diary, preceding the section designated for recording activities, in order to ensure that they would be noticed.

The diaries were developed using PageMaker software. The log portion of the diaries was constructed of 8<sup>1</sup>/<sub>2</sub>" x 14" double-sided pages. The section of each page designated for use in recording travel-related information was shaded in color. The demographic and work/school portion of the diaries was constructed of colored 8<sup>1</sup>/<sub>2</sub>" x 11" double-sided pages, placed on top of longer diary pages, and stapled in the upper left hand corner. The diaries were printed in different colors, corresponding to the day of the assigned travel. Color-coding was used to assist those who packaged the survey envelopes to ensure that the correct day(s)-of-the-week diaries were included.

The cover of the diary was printed with the assigned day of the week assigned as the diary day. In the process of sending out the diaries, a label was attached to each diary indicating the exact date on which the diary should be completed, as well as the household's identification number. The cover of the diary also included instructions, and room for several identifying questions, such as the respondent's name, date of birth, gender, and person number on the household/vehicle form so that the diaries could be matched with the information about each individual given on the household/vehicle form.

Each activity was to be reported separately. On the activity lines of the logs, respondents were asked to enter a code for each activity they performed, choosing from a list of 27 activity codes printed on alternating pages of the diary (including a catch-all "other"). With the time-use structure of the diary, respondents were also asked to fill in the time at which each activity ended and the next one began. For anything other than traveling, room was provided for the respondent to check off an activity location such as home or work, or to fill in the address details of the place. For traveling activities, mode-specific questions were posted regarding the use of household vehicles, the number of people in the traveling party, the number of household members in the traveling party, parking/fare costs, and other mode-related items.

### **Example Diary**

An example diary consisting of just the log portion of the instrument was developed to demonstrate how the form was intended to be filled out. The example diary was identical to the actual survey instrument, but was printed with the word "example" printed diagonally across each page in shaded type. The diary was filled out with 23 hypothetical activities, each of which was printed with red ink to make the entries stand out.

## **Incentives**

An incentive of a \$2 bill was attached to each diary with a paperclip. The use of a \$2 bill necessitated some advance planning, in that the local bank had to special order a sufficient number of this unusual denomination. The incentive was mentioned in the cover letter to ensure that respondents would recognize it as a token of thanks.

## IV. SAMPLING

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This section describes the sampling plan for the revealed preference survey. As noted above in the discussion of the recruitment procedures, two sampling methods were used:

- Random Digit Dialing (RDD); and,
- Intercept (INT).

Each of these efforts is discussed separately.

### RANDOM DIGIT DIAL SAMPLE

Among RDD-sampled households, there were three levels of stratification within the sample:

- Geographical area;
- Vehicle ownership; and,
- Household size.

The geographical region of study, illustrated in Figure 1, includes a 5,000 square-mile portion of the Dallas-Fort Worth Consolidated Metropolitan Statistical Area (CMSA) and is known as the Dallas-Fort Worth Metropolitan Planning Area. The RDD sample was designed to represent households in this area.

The study area was first geographically stratified by county in order to ensure adequate representation in the dataset of urban households (which in the pretest tended to have lower participation rates). The nine counties in the study area were stratified into five groups as follows:

1. Collin;
2. Dallas;
3. Denton;
4. Tarrant; and,
5. All others (Ellis (88.6%)<sup>7</sup>, Johnson (87.5%), Kaufman (23.0%), Parker (14.8%), and Rockwell 100%).

Within each geographical area, the sample of households was stratified on two household characteristic variables:

- Household size - Total number of persons in the household (1, 2, 3, and 4+); and,
- Vehicle availability - Total number of vehicles available to the household (0, 1, 2+).

Applied cell by cell, these two variables define a 4 x 3 (12 cell) sampling matrix. However, given their relative rarity in the population, a single quota for zero-vehicle households, regardless of household size, was established. The resulting 9-celled matrix is presented

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<sup>7</sup> The percentages indicate the percentages of the 1990 county population residing in the study area.

below in Table 2. When applied to each of the five geographic areas, the total sampling frame was 5 x 9 or 45 cells.

Table 3 Sampling Matrix			
Household Size	Vehicle Availability		
	0	1	2+
1	Cell 1	Cell 2	Cell 6
2		Cell 3	Cell 7
3		Cell 4	Cell 8
4+		Cell 5	Cell 9

The sampling plan was designed to indicate a desired minimum number of households in each cell, for each county. The method outlined in the following paragraphs was used to set minimums for the sample sizes within geographic areas<sup>8</sup>. This method follows the reasoning that trip generation cross-classification model data requirements should be the primary consideration in household survey sample design. In order to accurately estimate trip rates for the cells of cross-classification models using a small-scale survey sample, sample size calculations must take into account trip rate coefficients of variation and the distribution of households and trips. The method employed in this sampling plan set an overall error rate and allocated the sample by using the coefficient of variation (CV), which is the standard deviation divided by the mean, for household trips in each stratum. The CV's were based on household trip rates obtained from the NCTCOG pretest, conducted in the fall of 1994 and the spring of 1995.

In addition to the CV's, the sampling used population proportions in each of the nine cells (vehicle ownership by household size). These proportions were taken from 1990 Public Use Microdata Samples for the eleven counties in the Dallas-Fort Worth area.

Tables 4 through 8 show the calculations for each of the five geographic areas. The column indicated as Column C shows the estimated CV's based on the pretest. Column D is the proportion within the Dallas-Fort Worth area which falls in that stratum. Column E, the multiplication of Column C by Column D, is important only for its total (0.48490 in Table 4). This is used, with two other statistical constants, to calculate the minimally sufficient sample size:

$$n = \frac{CV^2 * Z^2}{e^2}$$

<sup>8</sup> The method is based on Michael E. Smith, *Design of Small-Sample Home-Interview Travel Surveys (in Applications and Use of Transportation Data)*, Transportation Research Board Record 701).

**Table 4**  
**Stratified Minimum Sample for Collin County**

County	Autos	HH size	A		B	C	D	E	F	G	H	I	J
			Mean	Std dev									
Collin	0	1-4+	5.37	3.11	0.57914	0.06249	0.03619	0.07463	20	16	1.18844	20	
	1	1	5.17	1.94	0.37524	0.19155	0.07188	0.14823	38	49	0.77615	61	
	1	2	6.00	1.41	0.23500	0.07261	0.01706	0.03519	9	19	0.49819	24	
	1	3	3.00	0.0*	0.50000	0.03906	0.01953	0.04028	11	10	1.02965	13	
	1	4+	11.80	4.92	0.41695	0.04739	0.01976	0.04075	11	13	0.86544	16	
	2+	1	3.00	NA**	0.50000	0.02818	0.01409	0.02906	8	8	1.02912	10	
	2+	2	6.26	3.24	0.51757	0.21942	0.11357	0.23421	60	56	1.06678	69	
	2+	3	4.55	2.69	0.59121	0.13291	0.07858	0.16205	42	34	1.21605	42	
	2+	4+	4.95	2.74	0.55354	0.20639	0.11424	0.23560	61	53	1.14021	65	
						1.00000	0.48490	1.00000	255	260		320	

A = Mean trip rate based on Dallas pretest survey data  
 B = Standard deviation of the trip rate based on Dallas pretest survey data  
 C = A / B, coefficient of variation  
 D = Population frequency generated from 1990 Public Use Microdata Samples for Eleven Counties in the Dallas-Fort Worth Area  
 E = C \* D  
 F = (C\*D)/Σ(C\*D)  
 G = F \* sample size; the sample size was calculated based on the 90% confidence level and 5% of overall error  
 H = D \* sample size  
 I = G / H  
 J = H \* highest value in I  
 \* .5000 was substituted as the CV because the std. dev. was zero.  
 \*\* .5000 was substituted because the standard deviation could not be computed for a single case

**Table 5**  
**Stratified Minimum Sample for Dallas County**

County	Autos	HH size	A		B	C	D	E	F	G	H	I	J
			Mean	Std dev									
Dallas	0	1-4+	4.98	2.72	1.83088	0.06249	0.11441	0.18601	77	26	2.93892	77	
	1	1	5.06	2.77	0.54743	0.19155	0.10486	0.17049	70	79	0.89074	233	
	1	2	4.39	2.28	0.51936	0.07261	0.03771	0.06131	26	30	0.84698	89	
	1	3	5.00	2.99	0.59800	0.03906	0.02336	0.03798	16	17	0.97310	49	
	1	4+	5.06	2.99	0.59091	0.04739	0.02800	0.04553	19	20	0.96172	59	
	2+	1	6.20	1.92	0.30968	0.02818	0.00873	0.01419	6	12	0.52409	36	
	2+	2	5.10	2.66	0.52157	0.21942	0.11444	0.18607	77	90	0.84884	266	
	2+	3	4.69	2.29	0.48827	0.13291	0.06490	0.10552	44	55	0.79574	162	
	2+	4+	4.94	2.84	0.57490	0.20639	0.11865	0.19291	80	85	0.93509	251	
						1.00000	0.61506	1.00000	410	414		1222	

A = Mean trip rate based on Dallas pretest survey data

B = Standard deviation of the trip rate based on Dallas pretest survey data

C = A / B, coefficient of variation

D = Population frequency generated from 1990 Public Use Microdata Samples for Eleven Counties in the Dallas-Fort Worth Area

E = C \* D

F = (C\*D)/Σ(C\*D)

G = F \* sample size; the sample size was calculated based on the 90% confidence level and 5% of overall error

H = D \* sample size

I = G / H

J = H \* highest value in I

\* .5000 was substituted as the CV because the std. dev. was zero.

\*\* .5000 was substituted because the standard deviation could not be computed for a single case

**Table 6**  
**Stratified Minimum Sample for Denton County**

County	Autos	HH size	A		B	C	D	E	F	G	H	I	J
			Mean	Std dev									
Denton	0	1-4+	5.06	2.72	0.53755	0.06249	0.03359	0.05988	21	22	0.95924	30	
	1	1	5.45	4.13	0.75780	0.19155	0.14516	0.25877	89	66	1.34826	89	
	1	2	4.00	2.48	0.62000	0.07261	0.04502	0.08025	28	25	1.10319	35	
	1	3	2.00	1.00	0.50000	0.03906	0.01953	0.03482	12	14	0.89528	19	
	1	4+	NA*	NA*	0.50000	0.04739	0.02369	0.04224	15	17	0.89461	23	
	2+	1	5.00	NA**	0.50000	0.02818	0.01409	0.02512	9	10	0.89672	14	
	2+	2	4.50	2.01	0.44667	0.21942	0.09801	0.17472	60	75	0.79762	102	
	2+	3	4.73	2.25	0.47569	0.13291	0.06323	0.11271	39	46	0.84966	62	
	2+	4+	5.48	3.15	0.57482	0.20639	0.11864	0.21149	73	71	1.02455	96	
						1.00000	0.56095	1.00000	341	346		470	

A = Mean trip rate based on Dallas pretest survey data

B = Standard deviation of the trip rate based on Dallas pretest survey data

C = A / B, coefficient of variation

D = Population frequency generated from 1990 Public Use Microdata Samples for Eleven Counties in the Dallas-Fort Worth Area

E = C \* D

F = (C\*D)/Σ(C\*D)

G = F \* sample size; the sample size was calculated based on the 90% confidence level and 5% of overall error

H = D \* sample size

I = G / H

J = H \* highest value in I

\* .5000 was substituted as the CV because the std. dev. was zero.

\*\* .5000 was substituted because the standard deviation could not be computed for a single case

**Table 7  
Stratified Minimum Sample for Tarrant County**

County	Autos	HH size	A		B	C	D	E	F	G	H	I	J
			Mean	Std dev									
Tarrant	0	1-4+	5.44	2.91	1.86942	0.06249	0.11681	0.19981	75	24	3.15124	75	
	1	1	5.79	2.74	0.47323	0.19155	0.09065	0.15505	58	71	0.81081	226	
	1	2	6.10	2.30	0.37705	0.07261	0.02738	0.04683	18	27	0.65144	87	
	1	3	6.22	3.53	0.56752	0.03906	0.02217	0.03792	15	15	0.97175	48	
	1	4+	8.63	2.72	0.31518	0.04739	0.01494	0.02555	10	18	0.55189	57	
	2+	1	3.67	1.15	0.31335	0.02818	0.00883	0.01510	6	11	0.55721	35	
	2+	2	5.22	2.95	0.56513	0.21942	0.12400	0.21211	79	82	0.96689	258	
	2+	3	5.22	2.83	0.54215	0.13291	0.07206	0.12326	46	50	0.92809	157	
	2+	4+	5.63	2.94	0.52220	0.20639	0.10778	0.18436	69	77	0.89394	243	
						1.00000	0.58461	1.00000	370	375		1186	

A = Mean trip rate based on Dallas pretest survey data

B = Standard deviation of the trip rate based on Dallas pretest survey data

C = A / B, coefficient of variation

D = Population frequency generated from 1990 Public Use Microdata Samples for Eleven Counties in the Dallas-Fort Worth Area

E = C \* D

F = (C\*D)/Σ(C\*D)

G = F \* sample size; the sample size was calculated based on the 90% confidence level and 5% of overall error

H = D \* sample size

I = G / H

J = H \* highest value in I

\* .5000 was substituted as the CV because the std. dev. was zero.

\*\* .5000 was substituted because the standard deviation could not be computed for a single case

**Table 8  
Stratified Minimum Sample for the Other Counties**

County	Autos	HH size	A		B		C		D		E		F		G		H		I		J	
			Mean	Std dev	Estimated CVs	FREQ	FREQ*CV	Weight	Minimal Sample	Random Sample	Shortfall Ratio	Adjusted Sample										
Others	0	1-4+	5.84	3.89	1.50129	0.06249	0.09381	0.16463	58	22	2.59831	59										
	1	1	9.67	2.52	0.26060	0.19155	0.04992	0.08760	31	68	0.46133	177										
	1	2	4.50	3.11	0.69111	0.07261	0.05018	0.08806	31	26	1.20877	68										
	1	3	NA*	NA*	0.50000	0.03906	0.01953	0.03428	13	14	0.88177	38										
	1	4+	NA*	NA*	0.50000	0.04739	0.02369	0.04158	15	17	0.88103	45										
	2+	1	NA*	NA*	0.50000	0.02818	0.01409	0.02473	9	10	0.88335	28										
	2+	2	5.39	2.12	0.39332	0.21942	0.08630	0.15146	54	78	0.69224	202										
	2+	3	6.33	3.42	0.54028	0.13291	0.07181	0.12602	45	47	0.94871	123										
	2+	4+	5.80	4.51	0.77759	0.20639	0.16049	0.28164	100	73	1.36212	191										
						1.00000	1.00000	1.00000	352	356		931										

A = Mean trip rate based on Dallas pretest survey data  
 B = Standard deviation of the trip rate based on Dallas pretest survey data  
 C = A / B, coefficient of variation  
 D = Population frequency generated from 1990 Public Use Microdata Samples for Eleven Counties in the Dallas-Fort Worth Area  
 E = C \* D  
 F = (C\*D)/Σ(C\*D)  
 G = F \* sample size; the sample size was calculated based on the 90% confidence level and 5% of overall error  
 H = D \* sample size  
 I = G / H  
 J = H \* highest value in I  
 \* .5000 was substituted as the CV because the std. dev. was zero.  
 \*\* .5000 was substituted because the standard deviation could not be computed for a single case

where  $n$  is the minimal sample size,  $CV$  is the estimated coefficient of variation,  $e$  is the overall error rate, and  $Z$  is the value of the normal distribution at a given level of confidence. Setting an overall error rate of 0.05 with a 90% level of confidence ( $z=1.645$ ), for Collin County the minimal sample size is therefore

$$n = \frac{.48490^2 * 1.645^2}{0.05^2} = 255.$$

Column G allocates this minimum sample across the strata using the weights in Column F, which were based on the CV's. Column G therefore contains the required sample sizes to obtain the desired overall error rate. Column H ( $255 * \text{Column D}$ ) contains the expected random allocation of the sample of 255, using the population proportions of Column D. Column I, called the shortfall ratio, shows the ratio of the expected sample of Column H to the required minimal sample of Column G. Shortfall ratios larger than 1.0 indicate that the expected random allocation will not reach the minimal sample size. The maximum of these ratios shows the cell with the most deficient sample size. In the table for Collin County, this is the cell for a household of three persons with 2 or more vehicles. In order for the random allocation to meet the required sample size for this cell, the sample must be multiplied by this ratio. This is shown for each cell in Column J (Column H times 1.21605), yielding an adjusted total minimum sample size of 320.

Applying this method across each of the five geographic areas produced a total adjusted minimal sample of 4,129 households, as summarized in **Table 9** below.

County	Minimum Adjusted Sample
Collin	320
Dallas	1,222
Denton	470
Tarrant	1,186
Other Counties	931
<b>TOTAL</b>	<b>4,129</b>

While the sampling approach described above aimed to produce the most efficient sample by allocating the smallest number of households required (given the selected level of error and confidence intervals) among the defined cells, NCTCOG's original goal had been to collect more households than the statistically minimum sample.

The recruitment of households was monitored on a cell-by-cell basis as the survey progressed. The target number of households to be recruited in each cell was set at twice the number specified in the sampling plan, to allow for attrition between recruitment and retrieval. As the survey unfolded, and the target number of recruitments per cell was attained, standard practice would have been to "close" these cells. NCTCOG, however,

Initially, NCTCOG asked that cells be closed when 120 percent of the recruitment target was reached. NCTCOG subsequently revised this upwards to 150 percent of the recruitment target. The purpose of NCTCOG's extending the cell quotas was to permit ISA to recruit more households, with the expectation that more households would thereby be retrieved.

The RPD sample was generated by ISA using the Genysys system by appending four random digits to the three-digit telephone prefixes in the area to be surveyed. The Genysys system subscribes to telephone company databases and has information on the number of residential lines in each prefix. Genysys also has the "Yellow Pages" updated quarterly on disk and generated random numbers are cross-checked to delete commercial numbers. In addition, the databases from the telephone companies indicate the highest and lowest numbers in each prefix that are currently in use and identify blocks of numbers reserved for telephone company use. Numbers outside of the range of the blocks in active use are not generated. The number of random telephone numbers generated for a prefix is proportional to the number of residential numbers in active use. These various steps of cleaning the data for numbers not in service and commercial numbers increase the productivity of lists, which in turn reduces the amount of dialing time.

Sample Generation

Table 10 Achieved Level of Error and Confidence (based on completed RPD households)			
Sample Size per Sampling Plan	Error and Confidence Level per Sampling plan	Achieved Sample (completed Hhs)	Achieved Error and Confidence Level
Collin	320	360	±5% at the 94.9% confidence interval
Dallas	1,222	1,387	±5% at the 99.7% confidence interval
Denton	470	432	±5% at the 93.5% confidence interval
Tarrant	1,186	1,206	±5% at the 99.7% confidence interval
Other	931	239	±5% at the 82.4% confidence interval
TOTAL	4,129	3,624	

directed that recruitment attempts continue until 150 percent<sup>9</sup> of the recruitment target was reached. As a result, far more households than initially anticipated were recruited in some areas (notably Dallas County), and far less were reached in other locations (the "other" counties). As presented in more detail in Chapter V's discussion of household dispositions, these deviations from the sampling plan were mirrored in the completion results, in which the sampling plan minimums for completed households were almost all met in Dallas County, but fell short in other locales. Table 10 below summarizes the confidence levels at an overall error rate of 0.05, given the differences in the achieved sample size as compared to the sampling plan. Table 10 demonstrates that with the exception of the "Other" counties, the achieved confidence levels were at least 90% on a countywide basis.

One key feature of this approach to the generation of the telephone sample is that unlisted numbers are equally likely to appear in the sample. This is a dramatic improvement over samples that are drawn using telephone directories, especially since the reported incidence of unlisted numbers in the Dallas-Fort Worth area is 31 percent<sup>10</sup>.

After screening the randomly generated numbers for known businesses and non-working numbers, ISA matched the remaining numbers against a database maintained by CSS Direct, a vendor specializing in the compilation of mailing and telephone lists for market research purposes. On a quarterly basis, CSS Direct updates its aggregate lists of known households from all over the country using sources such as electronic white pages telephone directories, magazine subscription databases, utility listings, and other vendors of mailing lists. Using this database, an effort was made to locate an address for each randomly generated number. The matched addresses were then electronically forwarded to NCTCOG, where they were used to generate labels for the prenotification letters. From the 64,174 randomly generated numbers submitted for matching<sup>11</sup>, a total of 24,755 (39 percent) resulted in a known address. NCTCOG sent prenotification letters to 18,951 of these addresses, to alert the residents to a future household survey recruitment call. Of these 18,951 letters, 11.5 percent (2,172) were returned by the Post Office due to dispositions such as "attempted not known" or "forwarding order expired."

All RDD households, regardless of address matching status, were pooled together and had an equal chance of being called and included in the sample. The resulting telephone sample randomly covered the entire study area. As with any telephone survey, households without telephones did not appear in the RDD sample.

### **Other Sampling Issues**

Two other variables were also considered in developing the sampling plan: the number of households to be recruited for each day of the week, and the level of recruitment effort to be made during the day versus the evening.

Efforts were made to balance recruitment evenly across the days of the week, with approximately 20 percent of the households allocated to each day. As shown below in **Table 11**, this goal was reached within  $\pm 3$  percent.

1990 U.S. Census data indicated approximately 85 percent of the people in the Dallas-Ft. Worth CMSA started working between midnight and 12 noon. Based on these statistics, ISA scheduled interviewers such that roughly 85 percent of the sample would be recruited during the evening hours and 15 percent during daytime hours.

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<sup>10</sup> Source: Genysys Sampling. Genysys calculated this figure using 1995 information from the Census Bureau on the number of households with unlisted numbers in the Dallas-Ft. Worth CMSA.

<sup>11</sup> It should be noted that not all of the randomly generated numbers were released into the recruitment phonefile.

Day	Recruited		Retrieved	
	N	Percent	N <sup>1</sup>	Percent
<b>Monday</b>	1,665	17.7%	688	17.2%
<b>Tuesday</b>	2,039	21.7%	894	22.4%
<b>Wednesday</b>	1,792	19.1%	737	18.4%
<b>Thursday</b>	1,905	20.3%	893	22.3%
<b>Friday</b>	1,995	21.2%	784	19.6%
	9,398	100.0%	3,996	100.0%

<sup>1</sup>Includes complete retrievals only.

## **INTERCEPT SAMPLE**

Dikita Enterprises developed the sampling procedures and conducted the intercept survey of Dallas Area Rapid Transit (DART) and Fort Worth "T" bus patrons. The purpose of the intercept effort was to obtain names and phone numbers of qualified individuals who would be willing to participate in the telephone-based household travel survey.

The sample of bus riders to be intercepted was chosen from the population of DART and Fort Worth ("The T") patrons present at selected bus stops during specified hours from April 3 to May 7, 1996. Table 12 below lists the bus stop locations in Dallas at which the survey was conducted.

While in Fort Worth, the sample was simply drawn from patrons waiting at the busiest bus stops in the downtown area, in Dallas, the bus stops at which the sample was drawn were carefully selected to represent people who rode the bus frequently, including:

- 1) People who rode local routes;
- 2) People who worked downtown;
- 3) People who rode express routes; and,
- 4) People who rode suburban local routes.

Because most bus routes in the Dallas area ran into the downtown area and transferred riders to other routes, a majority of the people standing at the bus stops during the morning peak were in the midst of transferring. To pinpoint those passengers that made downtown their destination or origination, surveys were conducted in the PM peak at certain downtown bus stops.

Express riders could be found at designated downtown bus stops. Careful selection of bus stops was made in order to capture data specifically from these riders. Express riders were surveyed during the PM peak at downtown locations and at selected transit centers during the morning peak period.

<b>Bus Stop No.</b>	<b>Run Street</b>	<b>Cross Street</b>	<b>Route Service</b>	<b>Peak</b>	<b>Date Surveyed</b>
02	San Jacinto	Harwood	Express	PM	4/3/96
03	Pacific	Olive	Express/Local	AM/PM	4/11/96
04	Elm	Ervay	Local	AM/PM	4/15/96
05	Main - West	Griffin	Local	PM	4/16/96
06	Main - East	Griffin	Local/Express	PM	4/16/96
07	Griffin	Main	Local	PM	4/16/96
08	Main	Field	Express/Local	PM	4/17/96
09	Akard	San Jacinto	Express	PM	4/18/96
10	Elm	St. Paul	Express	PM	4/19/96
11	Field	Pacific	Express	PM	5/1/96
12	Commerce	Harwood	Local	PM	4/23/96
13	Commerce	St. Paul	Local	PM	4/24/96
14	Commerce	Akard	Local	AM	4/25/96
14	Commerce	Akard	Local	PM	4/25/96
15	Commerce	Griffin	Local	PM	4/26/96
16	Elm	Field	Express	PM	4/29/96
17	Elm	Griffin	Local	PM	4/30/96
18	Main	Ervay	Local	PM	5/2/96
19	Main	Akard	Local	PM	5/3/96
20	Red Bird	Transit Center	Express	AM	4/19/96
21	North Irving	Transit Center	Express/Cross	AM	4/22/96
22	South Garland	Transit Center	Express/Cross	AM	4/23/96
23	Richardson	Transit Center	Express/Cross	AM	4/24/96
24	Plano East	Transit Center	Express/Cross	AM	4/25/96

*Note: "Route Service" category indicates the type of riders believed to frequent that bus stop or transit center.*

In order to gather data from suburban local passengers, the surveyors collected data during the AM peak at suburban transit centers. In order to be certain that the riders were indeed local, a question about their transfer activity was included in the survey instrument.

Recognizing that there would be considerable attrition between the intercept survey effort and telephone recruitment, and between telephone recruitment and retrieval, NCTCOG desired a fairly large sample of 3,000 intercept recruitments. It was hoped that approximately 40 percent of the intercepted households (1,200) would be recruited into the main survey, and that 40 to 50 percent of these would ultimately provide complete activity information (480 to 600 households).

Completed intercept recruitments were those where a phone number was given. Of this total, 250 were to come from Fort Worth and 2,550 from Dallas. The Dallas sample was then categorized further by bus type (local, express, suburban local). The bus types were then categorized to the individual bus stop categories, as depicted below in Table 13. There was no specific bus-type framework purposed for Fort Worth.

Bus Route Type	Locations/Times	Minimum	Maximum	Actual <sup>2</sup>
<b>Express</b>	Downtown - PM Peak	306	382	697
	Transit Centers - AM Peak	204	256	284
	Total Express	510	638	981
<b>Suburban Local</b>	Transit Centers - AM Peak	128	179	208
	Total Suburban Local	128	179	208
<b>Local Routes</b>	Downtown PM Peak	1,386	1,530	1,094
	Downtown AM Peak	347	382	353
	Total Local Routes	1,733	1,912	1,447
<b>TOTAL SURVEYS TO BE COLLECTED</b>		<b>2,371</b>	<b>2,729</b>	<b>2,636</b>

<sup>1</sup>There was no comparable allocation for The T since all interviewing in Fort Worth took place in the downtown area.

<sup>2</sup>The actual figures are estimates, based on the bus stop at which the intercept interview was conducted, the time of the interview, and the type of service at the stop.

## V. SURVEY EXECUTION

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In this chapter we describe the process of survey execution, including the schedule and the following steps:

1. Interviewer training;
2. Operation of the survey hotline;
3. Intercept recruitment;
4. Telephone recruitment;
5. Mailing of survey materials;
6. Reminder telephone contact;
7. Retrieval telephone contact; and,
8. Data review and cleaning.

### SCHEDULE

The detailed schedule for the survey is presented in **Table 14**. As noted in Table 14, implementation of the survey began with a "dry run." Since the survey instruments and procedures entailed such drastic changes from the pretest, this step was taken to ensure that all aspects of the survey were working as intended.

It should be noted that recruitments were suspended for two weeks so that no travel days would be assigned during the spring break for schools in the Dallas-Ft. Worth area, from March 11 to March 22, 1996. Similarly, no households were assigned travel days of April 5 or April 8 in order to avoid school holidays. The last assigned travel day was May 23, although retrieval attempts continued until June 30. **Figure 9** graphically illustrates the survey schedule.

	Data Collection Phase		
	Recruitment	Reminder	Retrieval
Dry Run	January 15-17, 1996	January 22-24, 1996	January 24-31, 1996
Data Collection	February 19-May 15, 1996	February 26- May 22, 1996	February 28 - June 30, 1996

### INTERVIEWER TRAINING

The actual telephone interviews were conducted by staff from Interviewing Service of America (ISA). AMPG and ISA staff together trained ISA interviewers in procedures for the survey. Separate training sessions were held for the recruitment, reminder, and retrieval segments of the study. The training sessions were repeated several times in order to brief a sufficient number of interviewers in the methods for the project. The training sessions included a walkthrough of all scripts and CATI programs, role playing, and a test to measure the interviewers' mastery of the most essential material. Appendix E includes the training materials used for the pretest.



## OPERATION OF THE SURVEY HOTLINE

To enhance the participation rate, AMPG provided and staffed a toll-free hotline for households to contact if they had questions about the survey. The hotline was tremendously useful for the study team to monitor problems that occurred in the survey mailing and retrieval. The hotline received a total of 621 calls from survey participants. The majority of calls were made to indicate the household's readiness for a retrieval call. Table 15 summarizes the hotline activity.

Reason for Call to the Hotline	Number	Percent
Ready for retrieval	413	66.51%
Asking not to call back, not participating for various reasons, returning everything*	67	10.79%
Requesting a call back (various reasons)	41	6.60%
Specific questions needed answering	28	4.51%
Package was completed and mailed in*	24	3.86%
Hang-ups	19	3.06%
Requesting help completing surveys	13	2.09%
Never received package	6	0.97%
Requesting documentation (forms, envelopes, etc.)	5	0.81%
Requesting help for other reasons (scheduling, going out of town)	5	0.81%
TOTAL	621	100%

*\*Refusals were not accepted over the hotline. Respondents who called the hotline to indicate that they did not care to participate in the survey were advised that an interviewer would be contacting them, at the very least to formally collect their reason for refusal. Households wishing to mail in their materials rather than go through the retrieval interview were also advised that an interviewer would be calling to formally document their status.*

In addition to the calls fielded by AMPG, NCTCOG received calls to verify the validity of the survey effort and/or to complain about various aspects of the study.

## INTERCEPT RECRUITMENT

The survey procedures included face-to-face intercept recruitment at transit stops. Respondents recruited in this manner were then contacted by telephone, and treated in the same manner as all others through the subsequent stages of the study. This variation on the recruitment method was intended to provide a sufficient number of individuals known to be transit users in order to enrich the level of transit mode usage represented in the survey data. Overall, 4,361 individuals were approached at bus stops during the intercept effort. Of these, 3,085 (70.7%) agreed to provide their telephone number so that they could be included in the other portions of the survey.

**Table 16** summarizes the telephone recruitment outcomes of the intercept sample. While NCTCOG had hoped that 1,200 of the intercepted households could be recruited to take part in the diary portion of the study, only 992 were actually recruited when contacted by ISA's interviewers.

<b>Table 16</b>		
<b>Telephone Recruitment Results - Intercepts Only</b>		
(Source: Recruitment PhoneFile, based on last call attempted)		
DISPOSITION	N	Percent
<b>Eligible Numbers:</b>		
Complete recruitment <sup>1</sup>	992	39.8%
Contacted - Hard refusal	179	7.2%
Contacted - Second refusal (on attempt to convert soft refusal)	19	>1%
Contacted - Refused to participate in diaries	74	3.0%
Contacted - Terminated during recruitment interview	51	2.0%
Contacted - Suspended and never completed, or refused during verification <sup>1</sup>	26	1.0%
Contacted - Over quota cell <sup>2</sup>	267	10.7%
Number still live	882	35.4%
<b>TOTAL ELIGIBLE NUMBERS</b>	<b>2,490</b>	<b>100.0%</b>
<b>Spoiled sample:</b>		
Disconnected number	261	44.2%
Business number	283	48.0%
Out of area (county)	31	5.3%
Out of area (zipcode)	15	2.5%
<b>TOTAL SPOILED SAMPLE</b>	<b>590</b>	<b>100.0%</b>
<b>TOTAL NUMBERS NEVER USED</b>	<b>5</b>	
<b>TOTAL NUMBERS IN SAMPLE</b>	<b>3,085</b>	

<sup>1</sup> It should be noted that a total of 1,018 households appear as "complete" in the recruitment phonefile. However, 26 were either interviews that registered as complete, but were actually suspended mid-way and never concluded, or were households that refused during the verification stage.

<sup>2</sup> These households were erroneously terminated by ISA. Procedures called for all eligible intercept households to be retained, regardless of their cell assignment.

A total of 372 of the intercepted households (38 percent) ultimately completed the survey. This completion rate was lower than the overall completion rate for the study, a trend consistent with the pretest finding that intercept households were less likely to complete the survey.

## TELEPHONE RECRUITMENT

In the recruitment call, respondents were asked several questions about their households' characteristics, including number of telephone numbers, dwelling type, own/rent status, length of tenure at the address, location of previous home, household size, auto ownership, and highest level of education in the household. Following these questions, the respondent

was invited to take part in the diary portion of the study. If the household member agreed to participate, the person's name and address were collected and the recruitment portion of the survey was terminated. For those who declined further participation, the recruitment call provided basic demographic information useful for non-response analysis. **Table 17** summarizes the data elements collected during the recruitment call.

<b>Table 17</b>	
<b>Data Elements Collected at Recruitment</b>	
<ul style="list-style-type: none"> <li>• County</li> <li>• Vehicles available for use by the household</li> <li>• Household size</li> <li>• Workers in the household</li> <li>• Highest level of schooling in the household</li> </ul>	<ul style="list-style-type: none"> <li>• Dwelling type</li> <li>• Own/rent status</li> <li>• Telephone numbers for the household</li> <li>• Telephone numbers reserved for fax or modem</li> <li>• Year household moved into the home</li> <li>• Location of previous home</li> <li>• Length of tenure at the previous home</li> <li>• Home address</li> <li>• Mailing address (if different from the home address)</li> </ul>

At the time of recruitment, each household was assigned a specific period for completion of the diaries. If the household was recruited on Wednesday, the household was asked to complete 24-hour diaries on the following Thursday. Households recruited during the weekend could be assigned to a diary day any day of the week.

Shortly following recruitment, households were called back to verify their address. In this manner, the rate of misspellings and other address errors was minimized, and households had another opportunity to affirm their interest in the study. The verification step did provide an opportunity for households to refuse further participation and, as shown in **Table 18**, a total of 98 households refused at this stage.

During the recruitment phase, each number was attempted up to nine times, with the outcome of each attempt recorded in the CATI system's phone files<sup>12</sup>. The telephone numbers of households that were intercepted at transit stops in the Dallas-Fort Worth Metroplex were treated in a similar manner.

**Table 18** summarizes the outcome of the telephone recruitment effort, based on the final status of each telephone number that was dialed. A total of 64,174 numbers were randomly generated by ISA, and 3,085 were produced through the intercept recruitment effort. All of the intercept numbers and 57,226 of the randomly generated numbers were included in the sample to be dialed for recruitment.

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<sup>12</sup> It should be noted that a busy signal counted as only "half a call."

**Table 18****Telephone Recruitment Results**

(Source: Recruitment PhoneFile, based on last call attempted)

<b>DISPOSITION</b>	<b>N</b>	<b>Percent</b>
<b>Eligible Numbers:</b>		
Complete recruitment <sup>1</sup>	9,398	31.30%
Contacted - Hard refusal	3,291	10.96%
Contacted - Soft refusal	391	1.30%
Contacted - Second refusal (on attempt to convert soft refusal)	1,541	5.13%
Contacted - Refused to participate in diaries	1,427	4.75%
Contacted - Over quota cell	1,604	5.34%
Contacted - Over quota county	1,235	4.11%
Contacted - Call back (specific time)	793	2.64%
Contacted - Call back (no specific time)	747	2.49%
Contacted - Suspended interview, never completed <sup>1</sup>	641	2.14%
Contacted - Refused during verification <sup>1</sup>	98	0.33%
Contacted - Completed, but not sent to AMPG for mailing <sup>1</sup>	26	<.01%
Contacted - Terminated during recruitment interview	812	2.70%
Contacted - Refused to disclose number of vehicles	121	0.40%
Contacted - Refused to disclose household size	75	0.25%
Contacted - Unable to assign acceptable date	52	0.17%
Contacted - Refused to provide address	17	0.06%
Not contacted - Answering machine	2,332	7.77%
Not contacted - No answer	5,332	17.76%
Not contacted - Busy	88	0.29%
<b>TOTAL ELIGIBLE NUMBERS</b>	<b>30,021</b>	
<b>Spoiled sample:</b>		
Disconnected number	8,394	48.62%
Business number	4,033	23.36%
Out of area (county)	808	4.68%
Out of area (zipcode)	329	1.91%
Fax/modem (1st disposition in this category)	230	1.33%
Fax/modem (2nd disposition in this category)	3,007	17.42%
Language barrier (not Spanish) (1st disposition in this category)	41	0.24%
Language barrier (not Spanish) (2nd disposition in this category)	65	0.38%
Language barrier (Spanish)	46	0.27%
All other reasons	313	1.81%
<b>TOTAL SPOILED SAMPLE</b>	<b>17,266</b>	<b>100%</b>
<b>TOTAL NUMBERS NEVER USED</b>	<b>13,024</b>	
<b>TOTAL NUMBERS IN SAMPLE</b>	<b>60,311</b>	

<sup>1</sup> It should be noted that a total of 10,163 households appear as "complete" in the recruitment phonefile. However, 641 were interviews that registered as complete, but were actually suspended mid-way and never concluded, 98 refused during the verification stage, and ISA did not forward 26 to AMPG for mailing due to address problems or other anomalies, leaving a total of 9,398 recruited households.

Of the 60,311 telephone numbers in the sample, 17,266 were not eligible for inclusion in the sample by virtue of being fax numbers, modem lines, businesses, residences out of the study area, etc. An additional 13,024 numbers generated as part of the sample were not used because recruitment was concluded before these numbers were dialed. Of the 30,021 eligible numbers remaining, 31 percent resulted in complete recruitments. Of the 22,269 numbers at which a person was contacted, the recruitment rate was 42 percent.

Approximately one in ten eligible numbers contacted (11 percent) were classified as a "hard refusal." Hard refusals were defined as respondents who directly instructed the interviewer not to call back, or were otherwise adamant about their unwillingness to participate. Less strident noncompliance was categorized as a "soft refusal." One percent of households were categorized as a "soft refusal" as their last call status; all "soft refusals" received a second call on a different day from a more highly skilled interviewer in an effort to convert them. The final status of five percent of households was still a refusal (categorized as a "second refusal"), despite the conversion effort. Another five percent of households provided the household information collected during recruitment, but refused to take part in the diary portion of the study.

In an effort to better understand the effectiveness of the effort to convert "soft refusals," additional analysis of this group was undertaken. A total of 4,852 telephone numbers attempted during recruitment had a disposition of "soft refusal" for one of the recruitment calls. Of this group, 478 (9.9 percent) were subsequently recruited and mailed the survey materials. A total of 2,001 (41 percent) had a final status of "hard refusal" or "second refusal" despite the conversion effort. Among the 478 households who were successfully recruited, 175 (37 percent) ultimately provided complete information. This rate was lower than the overall completion rate for the survey.

In order to recruit 9,938 households, a total of 139,660 dialings were made. The calls were made in a specific rotation controlled by the CATI system's automated callback feature. Each telephone number in the sample was called until a final call disposition was achieved, or a call limit of nine attempts was reached.

The final phone file dispositions which resolved a number prior to the nine-call limit included:

- Recruitment call completed;
- Termination (e.g., refused to provide household size or number of vehicles, or respondent terminated the interview and refused to continue when re-contacted);
- Refusal to participate in diaries;
- Initial hard refusal; or,
- Business number (not a home-based business).

If these dispositions were reached even on the first attempt, the number was retired from future recruitment attempts. Until a final disposition was reached, each number in the sample was attempted up to nine times following a specific protocol and rotation procedure outlined in **Table 19** below.

<b>Table 19 Interim Dispositions</b>	
<b>Disposition</b>	<b>Protocol for Subsequent Dialings</b>
Disconnected number recording	Re-try immediately. If the disconnected number recording is heard again, retire the number.
Call back (at specific time)	Re-try the household at the time requested.
Call back (no specific time)	Re-try in rotation.
Busy	Re-try the household in a minimum of 20 minutes. Two "busys" constituted one attempt out of the nine possible attempts when both "busys" were encountered the same day/night.
Answering machine	Re-try in rotation.
No answer	Re-try in rotation.
New number recording	Type in new number. Run logic check. If the area code was (817) or (214), the interviewer immediately dialed the number and it replaced the original number. Otherwise, the number was retired.
Fax machine	Re-try in rotation. (After two dispositions in this category, the telephone number was retired.)
Language barrier (not Spanish)	Re-try in rotation. (After two dispositions in this category, the telephone number was retired.)
Number reached is different than the randomly generated number	Re-try in rotation. (After two dispositions in this category, the telephone number was retired.)
Language barrier (Spanish)	Re-try in rotation with a Spanish-speaking interviewer.
Initial soft refusal	Re-try in rotation with a more skilled interviewer. After two dispositions in this category, the telephone number was retired.
Suspend	Retry the household to continue the interview (at the time requested, if specified, or else in rotation)

The rotation procedure was based upon the calling slots assigned for this study. For instance, if calling was scheduled to take place from 12 p.m. (noon) to 9 p.m. (Central time) on Saturday and Sunday, ISA might have designated four calling slots (Note: the actual assignment of calling slots varied; this example is for explanatory purposes only):

Slot One	Slot Two	Slot Three	Slot Four
12 p.m. to 3:00 p.m.	3:01 p.m. to 5:00 p.m.	5:01 p.m. to 7:00 p.m.	7:01 p.m. to 9:00 p.m.

The *first attempt* to a number could occur in any of these slots. Except for disposition codes of "no answer," "disconnected" or "busy," the number would not be called again until the next day. Numbers for which there was no answer on the first attempt were available to be tried again after 120 minutes had passed. Numbers which were busy were available to be tried again after 20 minutes. Disconnected numbers were re-dialed immediately. Other numbers again became available for calling the next day, but not until the subsequent calling slot. This means that if the initial attempt were made at 1:00 p.m., the next time the number was eligible for an attempt was after 3:01pm on the following day.

If on the *second (or subsequent) attempt*, the disposition was one which placed the number in the calling rotation, the number would become available again for calling in the next call slot, unless that slot was less than 120 minutes away, in which case the number was rolled

over one additional slot. This means that if the second attempt were made at 12:15 p.m., the next time the number was eligible for an attempt would be after 3:00 p.m. (one call slot later). If the second attempt were made at 1:15 p.m., the next time the number was eligible for an attempt was after 5 p.m. (two call slots later). Interim dispositions recorded in the fourth slot rolled over to slot one. This rotation procedure continued through nine attempts, effectively resulting in recruitment attempts to each number on different days and at different times.

While the recruitment protocol called for each number to be attempted up to nine times, in some cases more attempts were made. In some instances, this was due to ISA's counting a busy signal as "half a call." In other cases, numbers were intentionally redialed more than nine times. For example, some telephone numbers for intercept households which had failed to produce a contact were tried additional times in an effort to increase the number of recruits from this segment. **Table 20** illustrates the distribution of recruitment attempts to each number in both the RDD and INT samples. Ninety-three percent of the numbers were dialed five times or less, and 99 percent were dialed nine times or less. Among successfully recruited households, more than 98 percent of the households were recruited in six calls or less. This suggests that the additional recruitment attempts were only marginally useful.

Number of Attempts	All Recruitment Attempts				Successfully Recruited Households			
	Number of Telephone Numbers	Percent	Cumulative Percent	Total Dialings	Number of Telephone Numbers	Percent	Cumulative Percent	Total Dialings
0	13,024	21.59%	21.59%	0				
1	17,279	28.65%	50.24%	17,279	4,047	43.08%	43.08%	4,047
2	8,261	13.70%	63.94%	16,522	2,153	22.92%	65.99%	4,306
3	5,061	8.39%	72.33%	15,183	1,310	13.94%	79.94%	3,930
4	3,825	6.34%	78.68%	15,300	909	9.68%	89.61%	3,636
5	8,415	13.95%	92.63%	42,075	643	6.84%	96.46%	3,215
6	1,977	3.28%	95.91%	11,862	179	1.91%	98.36%	1,074
7	756	1.25%	97.16%	5,292	87	0.93%	99.29%	609
8	453	0.75%	97.91%	3,624	36	0.38%	99.67%	288
9	863	1.43%	99.34%	7,767	21	0.22%	99.89%	189
10	134	0.22%	99.56%	1,340	2	0.02%	99.91%	20
11	87	0.14%	99.71%	957	3	0.03%	99.95%	33
12	62	0.10%	99.81%	744	2	0.02%	99.97%	24
13	51	0.08%	99.90%	663	1	0.01%	99.98%	13
14 to 26	63	0.10%	100.00%	1,052	2	0.01%	100.0%	14
	60,311	100.00%	100.00%	139,660	9,395*	0.00%	100.0%	21,398

\*Recruitment phone file information was missing for three households.

As illustrated below in **Table 21**, the prenotification letters were very effective in improving both the recruitment and completion rates for the survey. While just 39 percent of the RDD households were sent prenotification letters, 62 percent of the 8,404 successful RDD recruitments (or 56 percent of all recruitments) were prenotified households. The prenotified

households completed the survey at a higher rate than other groups (48 percent compared to 36 percent for other RDD households and 38 percent for intercept households). It should be noted, however, that other exogenous factors, such as tenure at the address or magazine subscriptions, may be associated with a household's likelihood (and ability to) be prenotified.<sup>13</sup>

	<b>Recruited Households</b>	<b>Percent</b>	<b>Completed Households</b>	<b>Completion Rate</b>
RDD - Prenotified	5,222	55.6%	2,485	47.6%
RDD - Not Prenotified	3,182	33.9%	1,139	35.8%
Intercept	992	10.6%	372	37.5%
<b>TOTAL</b>	<b>9,396*</b>	<b>99.8%</b>	<b>3,996</b>	<b>42.5%</b>

\*The recruitment type for two households was missing; Does not total 100% due to rounding.

## **MAILING OF SURVEY MATERIALS**

The morning following each recruitment day, a computer file containing the information about each household recruited, including a unique identification number for each household, was transmitted via modem from ISA to AMPG. The transmitted ASCII file was read into Excel for Windows and then converted into address labels. Each address label included the household's unique identification number, and a code indicating the household size and cell in the pretest matrix. Additional labels were created for each person in the recruited household. These were affixed to each diary which was mailed out, and specified the assigned diary day as well as the household's unique identification number.

The process of preparing the contents of the survey packages involved gathering the correct number of diaries, and placing the diaries, the incentives, the household/vehicle information form, the brochure, the example diary, and the cover letter together. The process of stuffing and sealing the envelopes involved pulling the correct label for the household, placing it on the envelope, stuffing the envelope with the prepared contents and sealing it.

Postage was placed on the envelopes according to a matrix of household size and pretest cell. **Table 22** below illustrates the outgoing postage cost for each household size.

<b>Household Size</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>Outgoing Postage</b>	\$1.24	\$1.70	\$1.93	\$2.39	\$2.62	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00

<sup>13</sup> It should also be noted that not all of the households in the randomly generated telephone sample with a matched address were mailed a prenotification letter. In addition, in 11.5 percent of the cases, the letters were returned by the Post Office as undeliverable. NCTCOG plans to perform additional analysis on the success of the prenotification letters.

On a daily basis, packages were boxed and shipped overnight NCTCOG for local mailing. The postage was metered to be drop-shipped from a Dallas post office. Due to a printing error and subsequent delay to correct it, shipments to NCTCOG for the first few survey days lagged this schedule by one day. For the last several weeks of the project, the U.S. Postal Service's Express Mail drop-shipment service was utilized, allowing the surveys to be sent overnight to Dallas-Ft. Worth for local mail distribution without an intermediate stop at NCTCOG's offices.

Undeliverable packages were tracked by NCTCOG. A total of 343 packages were returned to NCTCOG by the Post Office. This represents less than four percent of all households recruited.

## REMINDER TELEPHONE CONTACT

The evening before the assigned diary day(s), households received a reminder telephone call. The purpose of the call was threefold: first to verify that the package arrived at the household; second to remind the household that the next day was their assigned day to complete the diaries; and, third to briefly review the forms with someone in the household to be sure that they were filled in correctly, and to answer any questions. The Reminder Scripts are included in **Appendix B**.

The interviewer asked to speak with the member of the household who was recruited, but if this person was unavailable, any adult in the household could be a recipient of the reminder call. If the interviewer reached an answering machine, a reminder message was left. In these cases, another attempt was made to reach the household later that evening in an effort to conduct the reminder call as a conversation between the interviewer and the initial respondent, since this method appeared to be more effective. ISA made up to three reminder attempts to each number. **Table 23** below summarizes the reminder call attempts.

<b>Number of Attempts</b>	<b>Number of Telephone Numbers</b>	<b>Percent</b>	<b>Cumulative Percent</b>	<b>Total Dialings</b>
0	427	4.5%	4.5%	0
1	4,892	52.1%	56.6%	4,892
2	2,841	30.2%	86.8%	5,682
3	784	8.3%	95.2%	2,352
4	268	2.9%	98.0%	1,072
5	173	1.8%	99.9%	865
6	8	0.1%	99.9%	48
7	1	>0.1%	100.0%	7
8	4	>0.1%	100.0%	32
	9,398	100.0%	100.0%	14,950

The reminder calls appear to have had a positive effect on survey completion rates. Forty-nine percent of the households which received a reminder call by an interviewer ultimately completed the survey, compared to 35 percent of the households which did not. In addition, the reminder calls conducted as a conversation between an interviewer and a respondent appeared to be more effective than the answering machine messages, with the completion rate for the former at 49 percent compared to 43 percent for the latter. In order to test the statistical significance of this finding, a chi-square test was used to compare the percentage of complete households who received a reminder contact to the percentage which did not. The null hypothesis was that there was no difference in the two percentages, whereas the alternative hypothesis was that there was a difference. It should be noted that the alternative hypothesis did not specify that one percentage should be larger than the other, since we did not have *a priori* knowledge regarding the direction of the difference. The chi-square test yielded a p-value of <0.00001, which is far below the usual 5 percent level of statistical significance. Accordingly, there was enough evidence to conclude that the reminder calls did make a difference in survey completion rates.

During the reminder phase, there were 430 households who refused to participate further in the study. An attempt was made to convince these households to participate, and 20 were successfully converted during the reminder phase. As shown in **Table 25** below, the remaining 410 households refused for a variety of reasons. The most common reason for refusal (22 percent) was that the forms took too much time to complete.

Reason	N	Percent
Forms take too much time	89	21.7%
Forms request too much information/invoke privacy	54	13.2%
Forms too complicated/confusing	36	8.8%
Health or disability related reason	26	6.3%
We just don't want to participate	14	3.4%
Death in the family/other family issue	9	2.2%
Blank forms already mailed back to you	8	2.0%
Travel too little to make a difference	8	2.0%
Cannot get other household members to participate	6	1.5%
We changed our mind about participating	4	1.0%
Language issue	3	0.7%
See no value/relevance to the survey	3	0.7%
Too many calls to our household	3	0.7%
We are moving	3	0.7%
Don't want phone retrieval	3	0.7%
Travel too much to track my activities	1	0.2%
Other*	20	4.9%
Refused to give a reason	92	22.4%
Don't know	28	6.8%
<b>TOTAL</b>	<b>410</b>	<b>100.0%</b>

\* A total of 111 households originally gave a reason of "other" and then specified their reason. The distribution noted above includes 91 cases originally recorded as "other" and subsequently upcoded to categories.

## RETRIEVAL TELEPHONE CONTACT

The purpose of the retrieval telephone call was to collect the diary and household/vehicle form information from each household. The interviewer first collected all the information from the household/vehicle form, which included basic information about each member of the household. The total number of household members and vehicles was verified against the figures provided during the recruitment call, and the reasons for any differences were recorded.

Like the other phases of the study, ISA's CATI system automatically controlled and recorded the retrieval calling efforts. Data about the retrieval calls were stored in the retrieval phonefiles. These phonefiles contained space to record the outcomes of 15 calls to each telephone number. If a number was not resolved after 15 calls, the system was reset to permit more attempts to be made. As an artifact of this mechanism, the data for the first 15 calls was written over when the system was reset, and the count of calls to the number started again at one. It is important to understand the functioning of the phone file system in considering the data on the number of contacts made in the retrieval process.

The survey procedure called for ISA to make the first retrieval attempt to each household one day after the assigned travel day. The PhoneFiles suggest that **at least 70 percent** of households were attempted one day after their assigned travel day. ISA reported that there were relatively few cases when households were not attempted the day after the assigned travel day, and in these cases the household received priority to ensure that it was called the subsequent day. It should be noted that the precise number of households called one day after their assigned travel day -- or at a later point -- can not be determined. This is due to the fact that the phone file reset after 15 calls to the household, and, as a result, the date and outcome of the sixteenth call to the household appears in the retrieval phone file as if it were the first call to that household.

While the majority of households were attempted one day after their assigned diary day, in most cases multiple calls had to be made in order to collect all of the diaries from a household. In the course of making multiple calls to the household to retrieve the diaries, time elapsed. **Table 26** presents the number of days required to collect a completed household, based on the time that elapsed between the assigned travel day<sup>14</sup> and the collection of the final diary for the household. Table 26 illustrates that over half of the households were completed in four days or less, with 80 percent completed in ten days or less.

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<sup>14</sup> It should be noted that "assigned travel day" means either the originally assigned travel day, or in the case of the 341 completed households for whom the travel day was re-assigned, the new day to which they were assigned.

Number of Elapsed Days	Number of Households Completed	Percent	Cumulative Percent
1	967	26.1%	26.1%
2	477	12.9%	38.9%
3	379	10.2%	49.1%
4	337	9.1%	58.2%
5	217	5.8%	64.1%
6	189	5.1%	69.2%
7	125	3.4%	72.5%
8	143	3.9%	76.4%
9	87	2.3%	78.7%
10	69	1.9%	80.6%
11-20	375	10.1%	90.7%
21-30	130	3.5%	94.2%
31-60	178	4.8%	99.0%
61-112	37	1.0%	100.0%
Anomalies	7		
Missing	8		
	3,725	100.0%	

Source: "Datestamp" variable in the person data, providing the date on which each person's diary was retrieved.

### Proxy Status

Detailed diary information was collected from each person in the household using the proxy rules outlined in Chapter II. Diary information was collected one person at a time. As noted in the discussion of proxy rules in Chapter II, initially efforts were made to collect information directly from each adult household member following a strict protocol to minimize proxy reporting. This protocol required multiple calls to the household (and hence a longer elapsed time for completion of the household), if, for instance, a willing adult was unavailable to provide his/her diary information. In May, 1996, the proxy rules were relaxed to promote a higher survey completion rate. An analysis to determine how the proxy rules affected the time required to collect all the diaries for a household produced surprising results. The analysis compared households completed May 5 or earlier with those completed May 6 or later, in terms of the proportion completed within seven days of their assigned diary day. For the group completed May 5 or earlier, 79 percent were collected in seven days or less. In contrast, for the group completed May 6 or later, 53 percent were collected in seven days or less. A chi-square test showed that the two percentages were significantly different ( $p < .001$ ). In conclusion, it appears that despite perceptions, relaxing the proxy rules did not reduce the time required to attain a household completion. Table 27 below illustrates the findings of the analysis.

<b>Table 27</b> <b>Effect of Relaxing the Proxy Rules on May 6 on the</b> <b>Time Required to Attain a Completed Household</b> (completed households who reported travelling on the assigned travel day)	
<b>Date Data Collection was Completed for the Household</b>	<b>Proportion Completed Within Seven Days of the Assigned Diary Day</b>
May 5 or earlier (n=2,793)	78.9%
After May 6 (n=917)	53.2%

Among completed households, the majority of persons over age 18 (81 percent) reported their own information. This finding represents a significant improvement over the pretest, in which 54 percent of persons aged 16 and above provided a direct report. As found in the pretest, proxies reported significantly fewer activities than direct reports (a mean of 11.37 activities for proxies compared to 12.33 for direct reports,  $p < .0001$ ). As expected, respondents under age 18 had a lower rate of direct reporting; forty-three percent of teens and three percent of children 14 and under provided direct reports.

### Completion Rate

**Table 28** summarizes the dispositions of all households following the retrieval phase of the project. The overall completion rate was 42.5 percent. This rate falls somewhat below the completion rate for similar studies previously conducted by AMPG and ISA, and suggests that the “travel as an activity” approach may be less productive than more conventional methods.

<b>Table 28</b> <b>Summary of Household Dispositions</b>		
<b>Disposition</b>	<b>N</b>	<b>Percent</b>
Complete	3,996	42.5%
Partial	789	8.4%
Will mail in completed materials	689	7.3%
Refused (includes those who dropped out at reminder, refused at retrieval, and from whom no data was collected at retrieval)	3,924	41.7%
<b>Total</b>	<b>9,398</b>	<b>100.0%</b>

While the “travel as an activity” approach was intended to be more “natural” and therefore easier for respondents, it does not appear to have produced the positive completion rate effects one would expect if these survey goals had been realized. The “travel as an activity” approach increased the number of activities to be reported and therefore required a longer survey instrument. Irrespective of any other aspect, the perceived workload of such a long questionnaire may have contributed to lower response rates. While every effort was made to promote simplicity, and an example diary was provided to model the correct completion of the forms, the concepts of “travel as an activity” and accounting for all of one’s time were not grasped by a number of survey respondents, judging from NCTCOG’s reports on the contents of completed diaries received in the mail.

Other factors that may have produced a lower than expected completion rate include: (1) the inclusion of a mailback envelope, which allowed some households to decline the retrieval interview in favor of sending back their forms; (2) the acceptance of partial households which may have given the interviewers less incentive to push for household completions than in projects where only completed households are acceptable; and, (3) the inclusion of "soft refusal" converted households in the recruited sample.

A total of 689 households (7.3 percent of the 9,398 recruited) reported that they would mail in their completed survey materials. NCTCOG handled the surveys that were mailed in. From among all households that were not wholly or partially retrieved by telephone, 576 (6.1 percent) returned at least some information by mail. This figure indicates that most households who promised to mail in materials did so. A total of 422 households (4.5 percent) returned diaries for all members of the household (with at least the first activity sheet filled out), and the remaining 154 (1.6 percent) returned partial information. NCTCOG plans to perform additional analysis to determine how data from these households will be incorporated into the retrieval files.

Like the mailback segment, the partial households represent a group who could enrich the survey database considerably. This portion of the database will fully support analyses that require only person-level data. There is also the opportunity for NCTCOG to impute travel information for the missing household member(s), using methods such as those employed by the Metropolitan Transportation Commission in the San Francisco Bay Area.

As shown below in **Table 29**, the completion rates for the survey varied across the sampling cells, with lower completion rates observed among larger households and in the more urban Dallas County. This pattern is consistent with other household travel surveys. Table 27 also illustrates the effect of NCTCOG's decision to defer closing cells due to recruitment quotas being reached, with some cells in Dallas and Collin County producing more households than called for in the sampling plan, while those in the "Other" counties produced fewer.

County	Veh.	HH Size	RDD HHs Recruited	RDD HHs Completed	Percent Completed	Target per Sampling Plan	Difference From Sampling Plan	Confidence Interval ( $\pm 5\%$ error)
Collin	0	1+	5	1	20.0%	20	**(-19)	NA
	1	1	88	60	68.2%	61	**(-1)	89.8%
	1	2	52	28	53.8%	24	4	92.8%
	1	3	18	5	27.8%	13	**(-8)	64.8%
	1	4+	21	9	42.9%	16	**(-7)	75.8%
	2+	1	22	10	45.5%	10	0	90.2%
	2+	2	203	105	51.7%	69	36	95.7%
	2+	3	125	53	42.4%	42	11	93.5%
	2+	4+	212	89	42.0%	65	24	94.6%
<b>TOTAL COLLIN</b>			<b>746</b>	<b>360</b>	<b>48.30%</b>	<b>320</b>	<b>40</b>	<b>94.9%</b>

**Table 29 (continued)**  
**Completion Rates by Cell - RDD Households**

County	Veh.	HH Size	RDD HHs Recruited	RDD HHs Completed	Percent Completed	Target per Sampling Plan	Difference From Sampling Plan	Confidence Interval ( $\pm 5\%$ error)
Dallas	0	1+	176	49	27.8%	77	** (28)	80.6%
	1	1	582	344	59.1%	233	111	95.4%
	1	2	215	91	42.3%	89	2	90.2%
	1	3	113	30	26.5%	49	** (19)	79.5%
	1	4+	178	46	25.8%	59	** (13)	85.1%
	2+	1	112	62	55.4%	36	26	97.1%
	2+	2	803	387	48.2%	266	121	95.2%
	2+	3	457	157	34.4%	162	** (5)	89.4%
	2+	4+	777	221	28.4%	251	** (30)	87.7%
<b>TOTAL DALLAS</b>			<b>3,413</b>	<b>1,387</b>	<b>40.60%</b>	<b>1,222</b>	<b>165</b>	<b>99.7%</b>
Denton	0	1+	15	6	40.0%	30	** (24)	49.7%
	1	1	97	55	56.7%	89	** (34)	80.0%
	1	2	49	27	55.1%	35	** (8)	85.2%
	1	3	25	10	40.0%	19	** (9)	75.1%
	1	4+	30	14	46.7%	23	** (9)	79.3%
	2+	1	31	14	45.2%	14	0	89.8%
	2+	2	238	134	56.3%	102	32	94.0%
	2+	3	164	72	43.9%	62	10	92.3%
	2+	4+	285	100	35.1%	96	4	90.6%
<b>TOTAL DENTON</b>			<b>934</b>	<b>432</b>	<b>46.30%</b>	<b>470</b>	<b>** (38)</b>	<b>93.5%</b>
Tarrant	0	1+	91	25	27.5%	75	** (50)	64.1%
	1	1	412	243	59.0%	226	17	91.2%
	1	2	207	91	44.0%	87	4	90.8%
	1	3	103	45	43.7%	48	** (3)	88.9%
	1	4+	130	37	28.5%	57	** (20)	80.8%
	2+	1	104	56	53.8%	35	21	96.4%
	2+	2	687	346	50.4%	258	88	94.3%
	2+	3	377	147	39.0%	157	** (10)	88.8%
	2+	4+	631	216	34.2%	243	** (27)	87.8%
<b>TOTAL TARRANT</b>			<b>2,742</b>	<b>1,206</b>	<b>44.00%</b>	<b>1,186</b>	<b>20</b>	<b>99.7%</b>
Other	0	1+	10	3	30.0%	59	** (56)	17.7%
	1	1	48	25	52.1%	177	** (152)	45.0%
	1	2	24	6	25.0%	68	** (62)	31.5%
	1	3	15	8	53.3%	38	** (30)	50.5%
	1	4+	16	4	25.0%	45	** (41)	28.6%
	2+	1	17	11	64.7%	28	** (17)	67.4%
	2+	2	150	80	53.3%	202	** (122)	69.4%
	2+	3	103	43	41.7%	123	** (80)	66.0%
	2+	4+	188	59	31.4%	191	** (132)	63.4%
<b>TOTAL OTHER</b>			<b>571</b>	<b>239</b>	<b>41.90%</b>	<b>931</b>	<b>** (692)</b>	<b>82.4%</b>
<b>GRAND TOTAL</b>			<b>8,406</b>	<b>3,624</b>	<b>43.10%</b>	<b>4,129</b>	<b>** (505)</b>	

\*\* Indicates a cell in which the number of completed RDD households fell below the minimum target in the sampling plan.

Consistent with the trend observed in the pretest, the completion rates for intercept households were somewhat below those for households recruited through RDD. As shown below in **Table 30**, the overall completion rate for intercept households was 37.5 percent.

	<b>INT HHs Recruited</b>	<b>INT HHs Completed</b>	<b>Percent Completed</b>
Collin	42	16	38.1%
Dallas	741	275	37.1%
Denton	21	10	47.6%
Tarrant	183	70	38.3%
Other	5	1	20.0%
<b>TOTAL</b>	<b>992</b>	<b>372</b>	<b>37.5%</b>

### **Reasons for Refusal**

ISA's interviewers attempted to collect the reason for refusal both when an entire household refused to participate, and when a particular member of a household would not take part in the retrieval interview. **Table 31** summarizes the reasons for refusal provided at the retrieval stage by households as a whole, and by individual persons (when one or more household members would not participate). Among those households and persons who provided a reason for their decision not to take part in the retrieval call, opting to mail back the completed materials was the most common reason provided.

As presented in more detail in **Figure 10**, the 2,081 households which were dropped or refused prior to retrieval, or which were not resolved through the retrieval process, fell into a number of categories. Although retrieval attempts were made, just over half of these households (1,161) were not resolved. Among the remainder, the largest group (445) refused during the reminder stage. The rest of this group of 2,081 households included those from Day 84 which were not advanced beyond the recruitment stage, those with disconnected numbers, claims of "no such person," non-Spanish language barriers, or other dispositions that eliminated them from the study. (See Table A in the Executive Summary.)

## **DATA REVIEW AND CLEANING**

The final step in the survey process was reviewing the data for internal consistency and conducting initial cleaning. It should be noted that making a household travel survey dataset model-ready involves more than basic data cleaning; it requires careful scrubbing. AMPG's role in reviewing and cleaning the data included the following:

- Case counts, including tracking case counts from phase to phase of the survey;
- Checks that the data appear in the correct locations with the proper codes;
- Inspection of the open-ended items to ensure appropriate field lengths;
- Inspection of the end-of-day sequences and addition of a 3 a.m. end time; and,
- Analysis of the status of the retrieved households as completely retrieved, partially retrieved, or refused.

**Table 31**  
**Household and Individual Person's Reasons for Refusal at Retrieval**

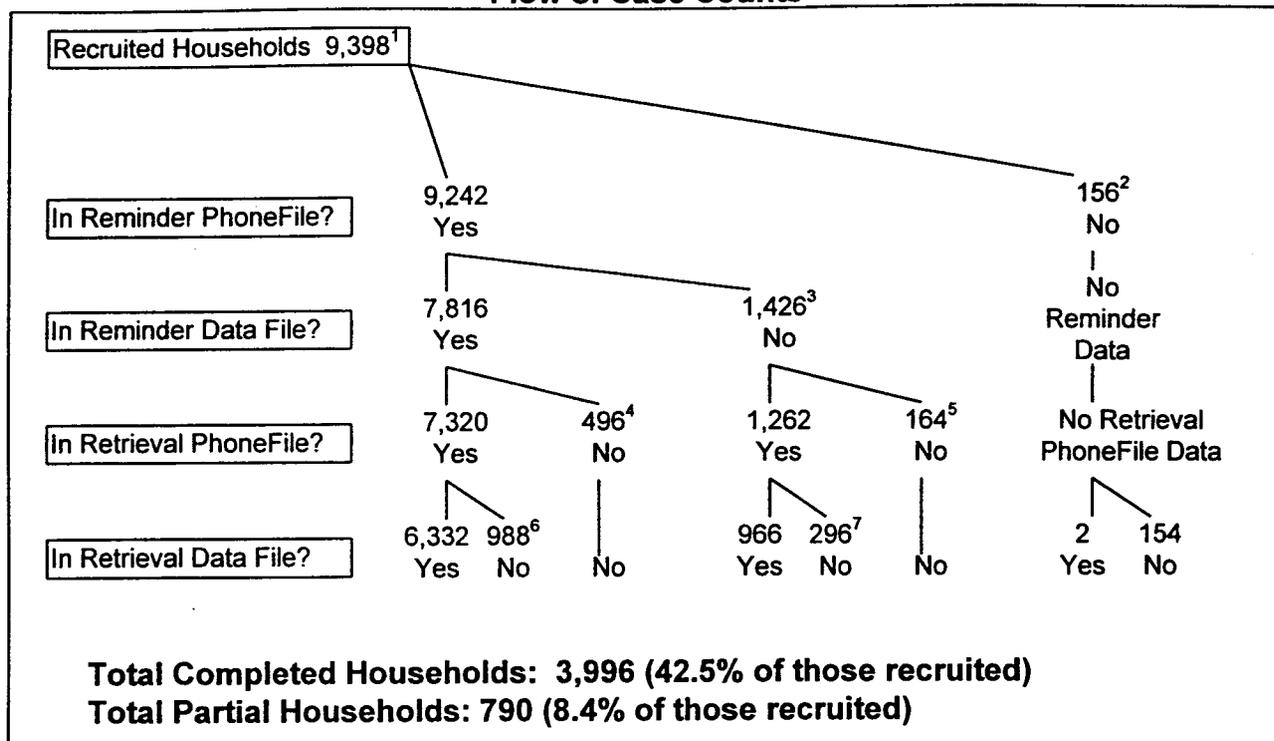
Reason	Household's Reason for Refusal		Individual Person's Reason for Refusal	
	N	Percent	N	Percent
Don't want retrieval call - will mail back completed forms	689	27.1%	83	18.2%
Forms take too much time/too busy to complete forms	418	16.4%	74	16.2%
Refused to give reason/reason unknown/don't know	519	20.6%	95	20.8%
Forms request too much information/invade privacy	176	6.9%	38	8.3%
Forms too complicated	118	4.7%	25	5.5%
Just do not want to participate/can't be bothered	82	3.2%	8	1.8%
Medical problem/disability	57	2.3%	2	0.4%
Threw away/lost materials - don't want new ones	55	2.2%	14	3.1%
Moved/moving	53	2.1%	18	3.9%
Death in the family/other family issue	41	1.6%	--	--
Never got materials - don't want new ones sent	24	1.2%	5	1.1%
Can't get other family members to participate	28	1.1%	44	9.6%
No such person at this number	27	1.1%	--	--
Travel out of town/out of state/travel a lot	25	1.0%	5	1.1%
Mailed back materials - not completed	17	0.7%	--	--
I travel too much to record my information	14	0.5%	--	--
Claims to know nothing about the survey	14	0.5%	5	1.1%
I travel too little to make a difference	13	0.5%	3	0.7%
Refused from the start/never agreed to take part	12	0.5%	--	--
Too many calls	10	0.4%	--	--
Minor in the household was the one recruited	8	0.3%	--	--
Language barrier/can't read forms	7	0.3%	--	--
Changed mind about doing the survey	7	0.3%	--	--
Person does not live there/wrong HH size	--	--	13	2.8%
Don't want to reveal child's activities	--	--	10	2.2%
Other reason*	59	2.3%	15	3.3%
All persons in HH refused - see person reasons	59	2.3%	--	--
SUBTOTAL	2,532	100.0%	--	--
Dropped/ refused prior to retrieval, or not resolved	2,081		--	--
TOTAL	4,613		457	100.0%

\* A total of 706 households and 177 persons originally gave a reason of "other" and then specified their reason. These cases were upcoded into the categories noted above.

### Case Counts

AMPG's analysis of case counts focused of the flow of cases from recruitment to reminder, and from reminder to retrieval, with attention to both the data and phonefiles. **Figure 10** summarizes the flow of cases.

**Figure 10  
Flow of Case Counts**



- <sup>1</sup> A total of 10,163 households appear as "complete" in the recruitment phonefile. However, 641 were interviews that registered as complete, but were actually suspended mid-way and never concluded, 98 refused during the verification stage, and ISA did not forward 26 to AMPG for mailing due to address problems or other anomalies, leaving a total of 9,398 recruited households. It should be noted that ISA did advance these last 26 households in the study; all 26 appear in the reminder phonefile; 24 appear in the reminder datafile; 25 appear in the retrieval phonefile; and 15 appear in the retrieval datafile (14 refusals and 1 partial).
- <sup>2</sup> ISA did not advance these 156 households (all were recruited for travel day number 84). As a result, they received neither a reminder call nor a retrieval attempt initiated by ISA. Two of these households contacted the hotline to request a retrieval and were ultimately completed.
- <sup>3</sup> These households are not in the reminder data file for the following reasons: 1,278 (90%) were not reached during the reminder attempts; 64 (5%) resulted in a disconnected number; 60 (4%) reached respondents who claimed that no such person (the contact) lived at the number; and the remaining 24 (1%) were business numbers, non-Spanish language barriers, or calls terminated by the respondent.
- <sup>4</sup> These households are not in the retrieval phonefile for the following reasons: 445 (90%) refused during the reminder stage to continue with the study; and the remaining 51(10%) claimed never to have received the survey package.
- <sup>5</sup> These households are not in the retrieval phonefile due to the outcome of their reminder call. These households had the following reminder call outcomes: 64 (39%) resulted in a disconnected number; 60 (37%) reached respondents who claimed that no such person (the contact) lived at the number; 16 (10%) were terminated by the respondent; and the remaining 24 (15%) were business numbers, non-Spanish language barriers, or other dispositions.
- <sup>6</sup> These households are not in the retrieval data file for the following reasons: 894 (90%) were not resolved during the retrieval attempts; 54 (5%) were disconnected numbers; 18 (2%) claimed that no such person (the contact) lived at the number; and the remaining 22 (2%) were business numbers, non-Spanish language barriers, or other dispositions.
- <sup>7</sup> These households are not in the retrieval data file for the following reasons: 267 (90%) were not resolved during the retrieval attempts; 21 (7%) were disconnected numbers; 6 (2%) claimed that no such person (the contact) lived at the number; and the remaining 2 (>1%) were other dispositions.

The PhoneFiles contain records of calling attempts to each telephone number. These files are automatically updated by ISA's CATI system each time a number is dialed. The PhoneFiles work interactively with the datafiles, such that in most cases a number must appear in the PhoneFile in order for it to appear in the datafile with which it interacts. For instance, the telephone numbers of all households recruited were supposed to be advanced into the reminder PhoneFile so that these households could receive reminder calls and have reminder data recorded.

In reviewing the flow of case counts, attention was also given to the households who refused to participate. Analysis revealed that the retrieval phonefile understated the number of refusing households. The most complete and accurate source of data on the household's reason for refusal was in the household record. This situation arose due to the fact that once households passed a certain threshold in the retrieval process, a household record was automatically created. In a number of cases, however, the only data recorded was the household's reason for refusal.

In addition to the households recorded as refusals in the household record, an additional 59 were considered *de facto* refusals by virtue of the fact that each member of the household provided his/her own reason for refusal and no data was recorded from the household/vehicle information form or from any diaries.

In addition to reviewing the case counts, AMPG categorized the households into three groups:

- 1. Completed households:** Defined as providing a materially complete household/vehicle information form and materially complete diary data for all members of the household. The household size used in making this determination was based on the number of members identified at retrieval. Households which included one or more members who remained outside the study area during the entire diary period and therefore did not provide diary data were considered complete if all members in the study area provided data.
- 2. Partially completed households:** Defined as providing more data than just a reason for refusal, but less data than a completed household. Usually one or more household members were missing diary information.
- 3. Refused households.**

A flag was added to the dataset to indicate which status applied to each household.

## VI. RESPONDENT PROFILE AND COMPARISON TO THE DALLAS/ FORT WORTH POPULATION

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This section presents analyses for the key demographic questions included on the survey. Data from completed households were compared to the 1990 U.S. Census for the Dallas-Fort Worth Consolidated Metropolitan Statistical Area (CMSA). These comparisons were intended to highlight the extent to which the data represented the population of the study area, but it should be noted that demographic shifts may have occurred since the 1990 Census was taken. Therefore, in considering these findings, it should be noted that changes in the Dallas-Fort Worth population since the time that data for the 1990 Census were collected may account for some of the differences noted.

**Table 32** presents data for selected household variables collected during the retrieval phase, compared to data from the 1990 U.S. Census for the Dallas-Fort Worth CMSA. Differences in the survey dataset of five percentage points or more, as compared to the 1990 U.S. Census, are identified in Table 28 with ovals.

While the distribution of vehicle availability for all respondents generally approximated the 1990 U.S. Census figures, there were considerable differences between RDD and intercept households on this variable. Whereas just three percent of RDD households had no vehicle available to the household, 37 percent of intercept households lacked a vehicle.

**Table 33** summarizes the distribution of owners and renters represented in the survey. Owners were over-represented among both recruited and completed households. Fewer renters in a sample usually equates to fewer households at the lower end of the socio-economic scale.

**Table 34** summarizes the household and personal income variables, and shows that the survey under-represented households at the lower end of the socio-economic scale. This was particularly the case among the RDD households.

It should be noted that both household and personal income were collected once, during the retrieval call. A completion rate of 88 percent was achieved for household income. The retrieval script called for the collection of personal income as an exact figure, and for those who were reluctant to provide an exact figure, as a categorical range. One of these two personal income measures was obtained for 91 percent of persons; a total of 7,940 persons (89 percent of those providing personal income) gave an exact amount, and 952 (the remaining 11 percent) gave their personal income in terms of categories.

**Table 32**  
**Selected Household Demographics**  
 (Source: Recruitment Data File)

Variable	Response	Recruited Households		Completed Households		Dallas-Ft. Worth CMSA
		N	Percent	N	Percent	Percent
County	Collin	776	8.3%	372	9.3%	6.8%
	Dallas	4,078	43.4%	1633	40.9%	49.8%
	Denton	946	10.1%	440	11.0%	7.2%
	Ellis	163	1.7%	64	1.6%	1.8%
	Johnson	279	3.0%	117	2.9%	2.1%
	Kaufman	25	0.3%	13	0.3%	0.3%
	Parker	43	0.5%	20	0.5%	0.2%
	Rockwall	106	1.1%	47	1.2%	0.6%
	Tarrant	2888	30.7%	1264	31.6%	31.1%
	Refused	92	1.0%	26	0.7%	
	Missing	2	0.0%	--		
Household Size	1	1836	19.5%	1028	25.7%	25.1%
	2	2954	31.4%	1424	35.6%	30.3%
	3	1743	18.5%	651	16.3%	17.6%
	4	1724	18.3%	585	14.6%	15.6%
	5	737	7.8%	209	5.2%	7.0%
	6	257	2.7%	67	1.7%	2.4%
	7+	145	1.5%	32	0.8%	1.7%
	Missing	2	0.0%	--		
Vehicles Available	0	641	6.8%	207	5.2%	6.4%
	1	2781	29.6%	1316	32.9%	35.0%
	2	3894	41.4%	1731	43.3%	41.6%
	3	1394	14.8%	521	13.0%	12.8%
	4	448	4.8%	148	3.7%	3.3%
	5+	238	2.5%	73	1.8%	1.0%
	Missing	2	0.0%	--		
Number of Workers in Household	0	1192	12.7%	620	15.5%	7.5%
	1	3384	36.0%	1594	39.9%	27.8%
	2	3740	39.8%	1481	37.1%	51.5%
	3+	1082	11.5%	301	7.5%	13.2%
	Missing	2	0.0%	--		
Highest Level of Education in Household	< 9th Grade	184	2.0%	53	1.3%	3.60%
	9th - 12th	530	5.6%	169	4.2%	9.20%
	HS Diploma	1917	20.4%	683	17.1%	21.20%
	Some Coll.	1925	20.5%	807	20.2%	25.90%
	A.S./A.A	713	7.6%	322	8.1%	7.20%
	B.S./B.A.	2606	27.7%	1209	30.3%	22.20%
	Grad./Prof.	1390	14.8%	719	18.0%	10.80%
	Don't Know/Refused	131	1.4%	26	0.9%	--
Missing	2	0.0%	--			

\*Differences in the survey dataset of five percentage points or more, as compared to the 1990 U.S. Census, are identified with ovals.

	Recruited Households		Completed Households		Dallas-Ft. Worth CMSA
	N	Percent	N	Percent	
Rent	3,287	35.0%	1,283	32.1%	43.1%
Own	6,074	64.6%	2,699	67.5%	56.9%
Other	19	0.2%	10	0.3%	
Don't Know/Refused	16	0.2%	4	0.1%	
Missing	2	0.0%	--	--	
Total	9,398	100.0%	3,996	100.0%	100.0%

	HOUSEHOLD INCOME					PERSONAL INCOME			
	RDD		INT		Dallas-Ft. Worth CMSA	RDD		INT	
	N	Percent	N	Percent		N	Percent	N	Percent
None	--	--	--	--	--	2,942	33.4%	382	40.1%
Under \$10,000	176	4.9%	60	16.1%	11.8%	855	9.7%	148	15.5%
\$10-14,999	148	4.1%	33	8.9%	7.6%	489	5.6%	70	7.3%
\$15-19,999	173	4.8%	31	8.3%	8.4%	457	5.2%	63	6.6%
\$20-24,999	173	4.8%	35	9.4%	8.8%	495	5.6%	53	5.6%
\$25-29,999	238	6.6%	20	5.4%	8.3%	459	5.2%	39	4.1%
\$30-34,999	227	6.3%	19	5.1%	8.0%	472	5.4%	30	3.1%
\$35-39,999	213	5.9%	13	3.5%	7.1%	356	4.0%	11	1.2%
\$40-49,999	388	10.7%	33	8.9%	12.0%	531	6.0%	29	3.0%
\$50-74,999	762	21.0%	41	11.0%	17.0%	627	7.1%	23	2.4%
\$75-99,999	406	11.2%	12	3.2%	6.1%	178	2.0%	4	0.4%
\$100-149,999	211	5.8%	5	1.3%	3.3%	111	1.3%	4	0.4%
\$150,000+	96	2.6%	1	0.3%	2.0%	61	0.7%	3	0.3%
Refused	318	8.8%	36	9.7%		575	6.5%	42	4.4%
Don't Know	95	2.6%	33	8.9%		193	2.2%	52	5.5%
	3,624	100.0%	372	100.0%	100.0%	8,801	100.0%	953	100.0%

# VII. STATED PREFERENCE SURVEY METHODS

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This chapter focuses on the stated preference (SP) portion of the Dallas-Fort Worth Household Survey program, which was led by Mark Bradley Research & Consulting. The discussion which follows first describes the overall principles of the SP methodology, including its history, analysis methods, modeling issues, and applications. The specific approach used in the Dallas-Fort Worth SP exercise then follows.

## PRINCIPLES OF THE SP METHODOLOGY

Stated preference methods are designed to analyze the preference for a particular product or service as a function of the features, or "attributes" which define that product or services. In contrast to simpler "stated intentions" approaches which ask respondents if they would use a new product in a single hypothetical context, the SP approach asks for responses in a variety of carefully defined market contexts so that the overall attractiveness of a product can be analyzed as the attractiveness of its individual features. This is analogous to the classical approach in microeconomics, where the demand for a product or service is a function of its utility, which is in turn a function of price, quantity, quality, and other relevant attributes. They are both "decompositional" approaches. The key distinction is that most research in microeconomics has been based on observed market behavior, or "revealed preferences," while the SP approach is based on preferences or choices in hypothetical market situations. As described below, SP methods have evolved to reflect the econometric methods used to collect and analyze actual market data.

The key assumptions behind the SP approach are:

- Preferences among hypothetical market alternatives will accurately reflect preferences among real alternatives in actual market situations;
- Preferences for the alternatives can be measured in terms of attractiveness or "utility;"
- By using proper experimental design techniques to define the alternatives, the preferences can be explained as a function of the attributes of the alternatives;
- Once the preference function has been estimated, it can be used to determine the attractiveness of any alternatives which are defined using the same set of attributes; and,
- By defining the set of alternatives that will be available in a future market situation and then determining their relative attractiveness, the frequency with which each of those alternatives will be chosen (market shares) can be predicted.

Of course, these assumptions are valid only if the hypothetical market context is realistic and relevant to the respondents, and if the survey is carefully designed and properly executed. Also the resulting predictive model is valid only within the range of product attributes that was included in the survey contexts.

## SP ANALYSIS METHOD AND OPTIONS

The objective of SP analysis is to estimate a preference function which can be used to predict market choices. This function indicates the relative importance of differences in the levels of the relevant choice attributes. Depending on the method used, these relative importances may be referred to as "importance weights", "preference weights", "part-worths", or "utility coefficients". They are indicated by the  $b$ s in equation 1 below:

$$(1) P = b_1X_1 + b_2X_2 + \dots + b_KX_K, \text{ where}$$

$P$  is a measure of preference or attractiveness, and

$X_i$  is a function of the values of the attributes used to describe the alternatives.

Some SP methods such as conjoint analysis have relied upon simplistic approaches for estimating preference functions. Typically, rating scores or rank order scores of the alternatives are interpreted directly as the preference function on a continuous scale ( $P$  above). Then, ordinary least-squares (OLS) regression is used to estimate the coefficients ( $b$ s above). In some more sophisticated approaches, rank order responses are assumed to provide only ordinal information, and estimation approaches such as linear programming or weighted monotonic regression are used. In any of these approaches, a problem arises in applying the resulting preference functions to predict choices in hypothetical scenarios. A common approach is to simulate the choices for each individual, using the rule that the alternative with the highest preference score is chosen. Such a rule, however, is not based on any statistical or economic theory.

In other areas of market research, particularly in transportation and energy demand research, discrete choice methods have been developed to estimate preference functions based on choice data. These methods, such as logit and probit analysis, have a foundation in microeconomic theory, and are consistent with the analysis approaches most commonly used with revealed preference data (Ben-Akiva and Lerman, 1985). As computer hardware and software for applying these approaches have become more widely available, logit analysis has become the most widely-used and best-accepted method for analyzing SP data.

### Logit Model Estimation

Logit analysis is based on the assumption that, although only a discrete "A, B or C" choice is observed in the marketplace, there is an unobserved, or "latent" attractiveness measure which is used to make that choice. In other words, if there are two choice alternatives, A, and B, each has an underlying attractiveness, or "utility value"  $V$ , so that:

$$\begin{aligned} \text{A is chosen if } V_A > V_B, \text{ and} \\ \text{B is chosen if } V_A < V_B. \end{aligned}$$

It is further assumed that the utility function  $V$  is a function of the attributes used to define each alternative:

$$(2) V_A = b_1X_{A1} + b_2X_{A2} + \dots + b_KX_{AK}, \text{ where}$$

the  $b$ s are utility coefficients to be estimated, and  
The  $X$ s are (functions of) the values of the attributes used to describe each alternative.

This definition of the utility function is exactly analogous to the preference function defined in equation (1). Note that the function of the  $X$ s must be strictly additive, termed "linear in the parameters". This is not as restrictive as it may seem, however. Each  $X$  value may actually be a function of a number of variables, such as a multiplicative interaction between two SP attributes or an interaction between an SP attribute and a background characteristic of the respondent (e.g. separate cost variables for different income groups, or cost divided by income). The  $X$ s could also include quadratic or logarithmic functions of the attributes.

To estimate the parameters, it is further assumed that there is an unobserved component of utility, or "random error term" associated with each alternative so that the "true" utility is:

$$(3) U_A = V_A + e_A = b_1X_{A1} + b_2X_{A2} + \dots + b_KX_{AK} + e_A$$

If the assumption is also made that:

1. The random error terms  $e$  have the shape of the Gumbell distribution (very similar to a normal distribution); and,
2. These error terms are identically and independently distributed across alternatives and across respondents;

then we obtain the logit probability function for choosing A over B:

$$(4) p(A) = p [ V_A > V_B ] = \exp(V_A) / [ \exp(V_A) + \exp(V_B) ], \text{ where}$$

$p(A)$  is the probability of choosing alternative A over B, and  
 $\exp(V_i)$  is the exponential of the estimated utility of alternative  $i$ .

When  $V_A = V_B$ , this equation predicts a 50/50 share for each alternative. As one utility becomes greater than the other, the probability changes with the familiar S-shaped logistic curve, first diverging sharply from 50/50, and then flattening out as one alternative becomes much more attractive than the other. Since it is a probabilistic model, the equation always predicts some small market share for every alternative, even when it seems to be logically dominated by the others. (Such "illogical" choices can also be observed in real life, and are usually found in observed choice data.)

The notation and logic above can easily be extended to a choice from among three alternatives or more. A model with three or more alternatives is usually referred to as a "multinomial logit" model.

The primary advantages of the logit model compared to other discrete choice methods is that it is relatively simple to estimate and to apply. Estimation uses the maximum likelihood method. Across a sample of  $N$  respondents, values are found for the coefficients in the utility function  $V$  such as to maximize the predicted probability of all the choices observed in the data:

$$(5) \text{ find } b_1, b_2, \dots, b_K \text{ to maximize } L = \log[ p(C_1) \times p(C_2) \times \dots \times p(C_N) ],$$

where  $p(C_n)$  is the logit probability for the alternative chosen by respondent  $n$ , as given by equations (2), (3) and (4).

The computer software finds the best set of values using an iterative search procedure based on the partial derivatives of the likelihood function (5) with respect to the coefficients. The analysis for this project used the Hague Consulting Group's ALOGIT software, one of the most widely-used logit estimation packages in the world.

### Measures of Model Fit

The overall fit of a logit model can be assessed using the final log-likelihood value ( $L$  in equation (5)), or a proportional measure called rho-squared.

$$(6) \text{ Rho}^2 = 1 - L(B) / L(0), \text{ where}$$

$L(B)$  is the final log-likelihood value with all coefficients at their estimated values; and,  $L(0)$  is the initial log-likelihood value with all coefficients at zero.

This measure is similar to the R-squared statistic used to assess the fit of regression models. There is, however, no standard against which to assess rho-squared values.

The log-likelihood and rho-squared statistics tend to be useful for comparing one model to another similar model, but not for judging the overall validity of a single model. For that purpose, the values and t-statistics of the separate coefficients are examined.

### Coefficient Values and T-Statistics

Just as in regression, the t-statistic is equal to the value of the utility coefficient divided by the standard error of the coefficient in estimation. Based on the assumption that the error in an estimate is normally distributed around its true value, then there is a 95% probability that the true value will lie within plus or minus 1.96 standard errors of the estimated value. In other words, the higher the t-statistic, the higher the precision of the estimates. If the t-statistic is 2.0 or higher, then we have over 95% confidence that the coefficient's true value is different from zero.

Just as important as t-statistics in judging the results are the relative values of the coefficients themselves. Coefficients are generally interpreted relative to each other. For example, the coefficient on a variable which means cost over time, such as interest rate, divided by the

coefficient of an up-front cost, such as transaction fees, gives an indication of the relative importance of immediate costs versus repeated costs, and thus an indication of the time horizon or discount rate used in making the tradeoffs. A similar example in transportation is the tradeoff between the purchase cost of a new vehicle versus the likely annual fuel cost of that vehicle. These types of trade-off ratios are often judged to determine whether the model results are reasonable given what is already known about the market.

### **Options for Market Segmentation**

One of the key considerations in SP analysis is to segment the market in the most meaningful manner in order to identify the groups with the lowest and highest market potential. The more successfully the population can be segmented, the more accurate the resulting forecasts can be.

There are three main approaches for segmentation:

1. ***Estimate a separate model for each individual in the sample.*** While this was done in many early applications of conjoint analysis, it does not appear to be a statistically sound approach, and it is not compatible with discrete choice methods such as logit analysis, which require reasonable sample sizes to give valid results. This approach might become valid with repeated revealed preference data collected over time, but it is not likely to be valid using data from a single SP survey.
2. ***Break the sample down a-priori into separate market segments, and then estimate a separate model for each segment.***
3. ***Simultaneously test several different segmentation variables in a single model.*** In some cases, it is not obvious a-priori which segmentation variables will be most important, or there may not be enough data in each segment to estimate completely separate models. For example, we might find that differences across pre-defined segments are not so large, and that more important differences are found according to other respondent-specific variables, the answers given to various attitudinal questions, etc. In addition, some of these variables may only influence the importance of specific SP attributes. For example, certain segmentation variables may primarily influence how respondents react to cost variables, while other segmentation variables have more influence on the importance of qualitative features of the product.

### **Options for Model Application**

Assuming a single model per segment Approach 2 above, the method for applying the logit models is straightforward:

1. Define the market scenario of interest in terms of the choice options (products) available and the attributes of each choice option. For example, which banks or institutions offer competing mortgage products, and what rates and fees do they offer?

2. Use the estimated utility coefficients for a given segment to calculate utilities for each option, as per equation (2) above, and then calculate the market choice share for each alternative within that segment, as per equation (4).
3. Repeat step (2) to calculate each market segment, and then use the relative sizes of the segments to expand and aggregate the predicted shares to represent the total market.

This type of model application can often be implemented in a spreadsheet format.

If segmentation Approach 3 above is used, with a number of different respondent- and context-specific variables entering into the utility functions, then there could be hundreds or thousands of possible combinations of these variables, and each of these combinations would yield different predictions of market shares. In that case, the easiest and most flexible approach is to calculate choice shares separately for every individual in the sample, and to weight and aggregate these separate predictions to arrive at an overall forecast. This is essentially the same as Approach 2 above, but treating each respondent as if he or she were a separate segment. This approach is somewhat more complex to apply in a spreadsheet format, as it requires repeated operations on each record of a large database. In some cases, the greater amount of information and flexibility offered by such a model warrants the additional complexity in application.

### **Confidence Intervals and Model Sensitivity**

Although the t-statistics provide confidence intervals around each separate utility coefficient, there is no standard or straightforward way to generate confidence intervals around predictions based on discrete choice models. There are many sources of possible error in the forecasting procedure, including:

- Estimation error in the models (e.g. imprecise estimates);
- Specification error in the models (e.g. missing variables); and/or,
- Error in the exogenous scenario inputs (e.g. in estimates of current fare levels, or the size of each segment in the current market).

Each of these errors can affect on the forecasts, and the presence or absence of the second and third types of error is difficult to detect. There are some rather complex techniques to test sensitivity of forecasts to the first type of error by drawing sets of coefficients randomly from the entire variance/covariance structure of the estimates, using these coefficients to generate forecasts, repeating the procedure hundreds of times with new sets of coefficients, and then studying the distribution and variability across all sets of forecasts which have been generated. This type of "bootstrapping" approach is very time-consuming and expensive, and is rarely attempted outside of academic research. Given the other sources of possible error listed above, which may be (and probably are) even larger, such an exercise is probably not worth the considerable effort and may even be misleading.

While it is straightforward to test the sensitivity of the forecasts to the attribute levels, such as changing the interest rates or product definitions in the scenarios, there is no reliable means of determining the margin of error around those forecasts. With longer-range forecasts of

new technologies or products, we often have to be satisfied with knowing that a carefully designed and executed study will provide the best objective prediction that is possible.

## **OBJECTIVES OF THE DALLAS-FORT WORTH SP SURVEY EFFORT**

The SP survey was a subordinate component to the revealed preference household survey effort. The goal of this component was to develop, pretest and finalize a viable SP survey that could be later fielded by NCTCOG.

NCTCOG intended to use the SP survey in order to gain a better understanding of the near-term decision-making of peak period commuters, with a particular interest in:

- The perceived value of time;
- Peak versus off-peak travel time changes;
- The break-point at which a drive alone commuter would switch to carpool/vanpool or transit; and,
- The break-point at which a carpool/vanpool commuter or transit user would switch to drive alone.

Implementing the SP pretest involved the following steps, each of which is described below:

- Development of the survey instrument;
- Sample selection;
- Mailing of SP survey materials; and,
- Analysis of the SP pretest.

### **Development of the Survey Instrument**

The SP survey instrument was designed to be a self-completion mailback questionnaire. The survey was conceived in four parts: (1) A customized cover letter confirming the respondent's work address; (2) A set of background questions meant to help respondents think about their travel options and providing a source of supplementary data for descriptive analyses; (3) A set of eight choice sets; and (4) A page asking respondents to provide comments on the survey. **Appendix F** includes an example of the SP pretest instrument.

In order to promote realism in the choice sets, three different versions were prepared, each one with a different range of travel times. By having three "travel time bands," respondents were faced with travel times comparable to their current ones (e.g., a person who drove alone to work in 20 minutes was not faced with drive alone options of 45 minutes). For each of the shortest and longest travel time bands, a set of eight scenarios were prepared. For the middle band, sixteen scenarios were prepared and divided into two sets, each comprised of eight scenarios. As a result, a total of 32 scenarios were pretested (8 scenarios x 4 sets). **Table 37** below summarizes the set of choices that was incorporated into the SP pretest.

**Table 37**  
**Summary of SP Pretest Choice Set Attributes and Levels**

		Actual travel time is...	15-29 min.	30-44 min.	45-75 min.
<b>DRIVE ALONE OPTIONS</b>	Toll route, off- peak travel time	Level 1 Level 2	15 min. 20 min.	25 min. 30 min.	35 min. 40 min.
	Toll route, peak travel time	Level 1 Level 2 Level 3 Level 4	Off-peak+5 min Off-peak+5 min Off-peak+10 min Off-peak+10 min		
	Alternative free route at any time	Level 1 Level 2 Level 3 Level 4	Peak+5 min Peak+5 min Peak+10 min Peak+10 min		
<b>CARPOOL OPTIONS</b>	Toll route, off- peak travel time	Carpool options same as drive alone, except: (a) 5 minutes added for time to pick up/drop off passengers (b) there may be a carpool lane on the tolled route			
	Toll route, peak travel time	Level 1 Level 2	no carpool lane (no time savings) carpool lane: peak period time same as off-peak		
	Alternative free route at any time				
<b>TOLL LEVELS</b>	Peak period	Level 1	\$0.50		
		Level 2	\$1.00		
		Level 3	\$2.00		
Level 4		\$3.00			
Off-peak discount	Level 1	No discount			
	Level 2	50% discount			
	Level 3	No toll (100% discount)			
Carpool discount	Level 1	No discount			
	Level 2	50% discount			
	Level 3	No toll (100% discount)			
<b>PARKING COST</b>	Always the same as now				
<b>FUEL COST</b>	Always same as now, except \$2.00 and \$3.00 in last 2 choice sets				
<b>TRANSIT FARE</b>	Local bus	Level 1	\$0.50		
		Level 2	\$1.00		
Level 3		\$1.50			
Express bus/light rail	Level 1	Same as local			
	Level 2	Local + 50%			
<b>TRANSIT TRAVEL TIME</b>	Express bus/light rail in vehicle time	Level 1	15 min.	25 min.	35 min.
		Level 2	20 min.	30 min.	40 min.
	Local bus in vehicle time	Level 1	+5 min.from express time		
		Level 2	+10 min.from express time		
	Drive time to express stop/light rail	Level 1	5 min.		
		Level 2	10 min.		
	Walk time to local bus stop	Level 1	5 min.		
		Level 2	10 min.		
Wait time at express stop/light rail	Level 1	5 min.			
	Level 2	10 min.			
Wait time at local bus stop	Level 1	5 min.			
	Level 2	10 min.			
Walk time to destination	Level 1	5 min.			
	Level 2	10 min.			

## Sample Selection

Individuals were identified for participation in the SP pretest through analysis of the household survey database compiled through mid-March. Persons who met the following criteria were considered eligible for the SP pretest:

- Completed their 24-hour diary;
- Said "yes" to the question about further travel survey participation;
- Provided a complete address for the usual workplace of their main job;
- Were at least 18 years old;
- Had a driver's license;
- Traveled for at least 15 minutes from home to their usual workplace; and,
- Arrived between 6 a.m. and 10 a.m.

NCTCOG analyzed the household survey database to select the sample for the SP survey, which resulted in a pool of 144 individuals, allocated as follows to the three travel-time bands:

- |   |                       |
|---|-----------------------|
| • 15 to 29 minutes (band 1) = 57 persons identified | 45 selected           |
| • 30 to 44 minutes (band 2) = 49 persons identified | 45 selected)          |
| • 45 to 75 minutes (band 3) = 38 persons identified | <u>38 selected</u>    |
|   | 128 selected in total |

Of the 144 individuals identified, 128 were selected for participation in the pretest. The remaining 19 were retained for subsequent SP surveys.

In addition to this pool of respondents, NCTCOG also identified 22 staff members to take part in an informal office pretest (all were in travel time band 2, but used a different choice set than was sent to the other participants).

## Mailing of SP Survey Materials

NCTCOG prepared and mailed the SP pretest surveys. First, the customized cover letters to accompany each outgoing SP survey were generated using a mail merge program. These were then stapled to the front of a survey package corresponding to the respondent's travel time band, along with the NCTCOG project manager's business card. One paper clip was used to attach a \$2 bill to the front of the package and a postage-paid reply envelope to the back of the package.

The household's identification number and travel time band was noted on the back of the business reply envelope to permit identification of the respondent in the event that a package was returned without the cover letter. The outgoing mailing label included the same information, so that returned packages could be quickly registered.

## Analysis of the SP Pretest

Analysis of the SP pretest results focused on a quantitative review of the survey outcomes, including both the mailed surveys and those completed by NCTCOG staff. As shown below in **Table 38**, slightly more than half (54 percent) of the individuals sampled for the SP pretest returned their questionnaire to NCTCOG.

<b>Disposition</b>	<b>N</b>	<b>Percent</b>
Package returned, at least partially completed	69	53.9%
No response	57	44.5%
Package returned, not completed	1	<1%
Package undelivered by the Post Office	1	<1%
<b>TOTAL</b>	<b>128</b>	<b>100%</b>

Some fairly simple models were estimated in order to test the quality of the SP design and the pilot data. For these test models, fuel cost was handled as a constant value of \$1.25, without any transformation to take into account the distance traveled. The data were set up as choice allocation data, so that each person-week counted as an observation. If, for example, a person reported that they would drive alone four days per week and carpool 1 day per week, this was treated as a single observation choosing 80 percent drive alone and 20 percent carpool. This approach yielded 654 valid observations, with the distribution across alternatives as shown below in **Table 39**.

<b>SP Choice Distribution</b>	<b>Number</b>	<b>Percent</b>
Drive alone-Toll route-Peak	89.7	13.7%
Drive alone-Toll route- Off-peak	144.8	22.1%
Drive alone-Alternative route	244.7	37.4%
Carpool-Toll route-Peak	43.3	6.6%
Carpool-Toll route-Off-peak	29.7	4.5%
Carpool-Alternative route	25.1	3.8%
Transit-Local bus	18.5	2.8%
Transit-Express bus or rail	53.5	8.2%
Other	4.7	0.7%
<b>TOTAL</b>	<b>654</b>	<b>100.0%</b>

The low percentages choosing carpool and transit seemed reasonable, given that the sample was derived almost entirely from drive alone commuters. The high percentage of off-peak choices, however, was suspect. Given that the actual sample drove almost entirely in the peak, the fact that there were more SP responses for off-peak than for peak seemed

unrealistic. This suggests that the actual SP survey must include more emphasis on the instructions to only choose off-peak options if they are truly realistic.

When estimating the model, the cost coefficient was constrained to 1.0, and a scale factor was estimated on the entire utility function. So, instead of the usual approach of estimating:

$$U = b_c C + b_t T$$

it was 
$$U = b_c (1C + b_t/b_c T)$$

where  $b_t/b_c$  was a direct estimate of the value of time. The advantage of estimating the model in this form is that the t-statistic of the estimate takes into account the correlation between the time and cost coefficients, so the model tests whether the value of time ratios are significant and not just whether the individual coefficients are significant.

Model A in **Table 40** included only the cost scale coefficient, the value of time coefficient and alternative-specific constants. This means that the coefficients were assumed to be the same for all types of cost (toll, fuel and transit fare) and for all types of time (drive alone, carpool, transit in-vehicle, transit wait, etc.). This model provided an overall value of time of \$4.33/hour, statistically significant with a t-statistic of 5.6. The cost scale coefficient was also significant, with a t-statistic of 10.2.

The constants indicated that the presence of a carpool lane had an effect on the choices equivalent to a 72 cent reduction in travel cost. The alternative route was also slightly preferred to the toll route, after accounting for time and cost differences. Driving alone was preferred to all of the other modes, all else equal. The result for carpool suggested an additional disutility of carpool relative to driving alone equal to \$2.07 in travel cost. Local bus had the highest disutility of the three transit constants, and express rail was slightly preferred to express bus. The disutility of switching to off-peak was only equivalent to \$0.70.

In Model B, the different types of cost and time were given separate coefficients. The coefficient for fuel cost was almost exactly the same as the coefficient for toll cost, and the coefficient for transit fare cost was about 25 percent lower, but was not significant. The value of time for driving alone appeared higher than for carpool. Value of time on the alternative route was not consistently higher or lower than on the toll route. Transit in-vehicle time had a lower value of time than the car modes, but transit access and egress times both had values about twice the value of transit in-vehicle time. Transit wait time had a very low value. None of the transit-specific coefficients were significant in Model B. Most were nearly significant, however, with t-statistics above 1.0, and would probably have reached significance with a larger sample. The alternative-specific constants for carpool and transit were quite a bit higher in Model B relative to Model A, compensating for the lower values of time for those modes.

**Table 40**  
**SP Pretest Model Results**

<b>Model</b>	<b>A</b>		<b>B</b>		<b>C</b>	
Respondents	82		82		82	
Observations	654		654		654	
Final log-likelihood	-1084.9		-1080.1		-1082.2	
Rho-squared	0.245		0.248		0.247	
	<b>Coeffic.</b>	<b>T-stat.</b>	<b>Coeffic.</b>	<b>T-stat.</b>	<b>Coeffic.</b>	<b>T-stat.</b>
Cost scale (/ \$)	-0.7977	-10.2	-0.7798	-8.8	-0.8027	-9
<b>Cost results in \$/\$</b>						
cost-generic	1.00	*			1.00	*
cost-toll			1.00	*		
cost-fuel			1.00	3.6		
cost-fare			0.77	1.6		
difference-fuel					-0.04	-0.2
difference-fare					-0.26	-0.6
<b>Time results in \$/hour:</b>						
time-generic	4.33	5.6			4.52	4.1
time-drive, toll route			5.33	4.3		
time-drive, alt.route			4.60	5.2		
time-carpool, toll route			3.59	2.9		
time-carpool, alt route			3.97	3.8		
time-transit in-vehicle			2.47	1.4		
time-transit access			5.46	1.7		
time-transit egress			4.98	1.2		
time-transit wait			0.33	0.1		
difference-alt.route					-0.08	-0.1
difference-carpool					-0.61	-0.8
difference-transit in-vehicle					-2.27	-1.5
difference-transit access					0.75	0.2
difference-transit egress					0.25	0.1
difference-transit wait					-4.24	-1.1
<b>Constant terms in \$**</b>						
Carpool lane (D, E)	-0.72	-2.4	-0.62	-1.8	-0.84	-2.5
Off-peak travel (B, E)	0.70	4.0	0.76	3.9	0.71	3.7
Alternative route (C, F)	-0.25	-1.1	0.02	0.1	-0.21	-0.5
Carpool (D, E, F)	2.07	7.3	2.87	4.2	2.51	4.1
Local bus (G)	3.01	7.4	5.16	4.2	4.81	4.1
Express bus (H)	2.19	6.3	4.14	3.6	3.82	3.5
Express rail (H)	1.70	5.4	3.56	3.2	3.24	3.0
Other option (I)	9.92	10.2	10.51	7.0	9.88	7.1

\* coefficient constrained to 1.0

\*\* these are additive (e.g., the coefficient for carpooling in a carpool lane in Model A is -0.72+2.07, or 1.35)

In Model C, overall generic time and cost variables were used, as in Model A. In addition, difference variables were added for the various types of time and cost in order to test whether they were significantly different from the main generic effects. The results showed that none of the difference coefficients were different. Only transit in-vehicle time and transit wait time had t-statistics above 1.0.

**Table 41** below shows a separate model estimated for each of the four versions of the questionnaire. The first model is the same as Model A in the previous table. Each of the four subsamples had about 20 respondents. The cost scale and value of time estimates were significant in all four models. The values of time varied from \$3.04/hr for time band 3 to \$7.21 for time band 2. With such small sample sizes, such a large variation could very well be due to the “luck of the draw” in terms of the individuals falling in each group.

Time Band	ALL		(1) 15-25 min.		(2) 25-35 min.		(3) 35-45 min.		(4) NCTCOG	
Respondents	82		22		20		19		21	
Observations	654		176		160		151		167	
Final log-likelihood	-1084.9		-271.2		-263.4		-230.6		-289	
Rho-squared(0)	0.245		0.299		0.251		0.305		0.212	
	<b>Coeffic.</b>	<b>T-stat.</b>								
Cost scale (/ \$)	-0.7977	-10.2	-1.003	-4.5	-0.8718	-4.2	-0.9577	-6.8	-0.8121	-5.2
cost-generic (\$/\$)	1.00	*	1.00	*	1.00	*	1.00	*	1.00	*
time-generic (\$/hr)	4.33	5.6	4.76	2.3	7.21	3.2	3.04	3.1	5.48	3.0
<b>Constant terms in \$</b>										
Carpool lane	-0.72	-2.4	-0.25	-0.5	-0.29	-0.5	-2.18	-3.2	-0.38	-0.7
Off-peak travel	0.70	4.0	0.26	1.1	0.79	2.4	0.46	1.3	1.64	4.1
Alternative route	-0.25	-1.1	-0.09	-0.2	-0.61	-1.2	-0.24	-0.6	-0.20	-0.4
Carpool	2.07	7.3	2.07	3.8	1.58	2.6	1.88	4.5	1.21	2.6
Local bus	3.01	7.4	2.66	2.5	4.44	2.0	2.62	4.8	2.05	3.0
Express bus	2.19	6.3	2.23	3.4	0.77	1.0	1.79	3.8	3.00	*
Express rail	1.70	5.4	1.99	2.6	0.94	1.4	1.23	2.0	1.45	2.8
Other option	9.92	10.2	8.11	5.1	9.48	5.2	10.00	*	10.91	4.9

\* coefficient constrained during estimation

### Qualitative Analyses

In addition to the quantitative review summarized above, respondents' comments were qualitatively analyzed to determine if any aspect of the survey required clarification. In addition, the 22 NCTCOG staff who participated in the pretest were interviewed. As a result of these efforts, minor changes in question wording were introduced into the final version of the instrument. Major revisions were made to the instruction page/example scenario in order to emphasize that respondents should only choose off-peak options if they were truly realistic.

## **SP PRETEST CONCLUSIONS**

In summary, the pretest did not indicate any major problems with the experimental design or with the quality of the data. The only result that caused concern was the high fraction of choices for the off-peak alternatives. This will be addressed in the full SP survey through more explicit instructions in the questionnaire.

**Appendix F** includes the final SP questionnaire. A total of 96 scenarios were developed for the final SP survey (3 travel time bands x 4 versions for each band x 8 scenarios for each version), triple the number of scenarios used in the pretest. In addition, the instructions/example page was improved and simplified to promote better respondent understanding.

## **VII. CONCLUSIONS ABOUT THE SURVEY METHODOLOGY**

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The Dallas-Fort Worth Household Survey succeeded in accomplishing its two primary objectives of updating the existing data for NCTCOG's regional travel demand models and providing new data to permit the models to be upgraded.

NCTCOG's additional interest in advancing the state of the practice in travel survey methodology was also accomplished. The Dallas-Fort Worth Household Survey was the most in-depth and exhaustive travel survey ever conducted in the United States, with the possible exception of surveys collecting in-home activities in addition to travel. NCTCOG's goal in gathering data of this richness was to support not only existing four-step travel demand models, but also to enable the development of new models, such as those based on activities or out-of-home time use.

The survey also produced considerable information regarding the viability of the innovative approaches that NCTCOG encouraged. This section summarizes the key conclusions and implications associated with the unique features of the Dallas-Fort Worth Household Survey.

### **CONCEPTUAL APPROACH: TRAVEL AS AN ACTIVITY**

The "travel as an activity" approach utilized in this survey differed from conventional trip or activity diaries. While trip diaries focus on respondent's changes of location, and activity diaries center on events at fixed locations with accompanying questions about how shifts in location were made, the "travel as an activity" approach asks respondents to account for all of their time, including both trips and activities. In this sense, the approach is similar to time-use survey methods used by sociologists; a key difference, however, is the collection of details on the address at which each activity takes place and the methods of transportation used.

While the "travel as an activity" approach was intended to be more "natural" and therefore easier for respondents, it does not appear to have produced the positive completion rate effects one would expect if these survey goals had been realized. The "travel as an activity" approach increased the number of activities to be reported and therefore required a longer survey instrument for each member of the household. Irrespective of any other aspect, the perceived workload of such a long questionnaire may have contributed to lower response rates. While every effort was made to promote simplicity, and an example diary was provided to model the correct completion of the forms, the concepts of "travel as an activity" and accounting for all of one's time were not grasped by a number of survey respondents, judging from NCTCOG's reports on the contents and format of completed diaries received in the mail.

It should also be noted that one consequence of the "travel as an activity" approach was the need for more post-survey processing than is required for traditional trip or activity diaries. Specifically, in order to generate trip files, considerable trip linking will be required. Trip rates from the Dallas-Fort Worth Household Survey therefore will not be known for some time.

Overall, this survey demonstrated that the "travel as an activity" approach does work, but it appears to contribute to lower completion rates than trip or activity diary methods.

## **METHOD OF TRANSIT ACTIVITY COLLECTION**

Capturing information about mode changes, including those associated with the use of transit, is always a challenge in conducting travel surveys. In order to capture the level of detailed data desired by NCTCOG about each transit activity, a unique method of collecting transit activities was developed. In accordance with the conceptual approach of the time-use diary, respondents were asked to report the segments of any transit trip as five separate activities:

1. Traveling to the transit stop;
2. Waiting for and/or boarding the transit vehicle;
3. Traveling on the transit vehicle;
4. Alighting from the transit vehicle; and,
5. Traveling to the final destination.

Despite instructions on the survey forms, training of the interviewers, and a number of checks built into the CATI program, this approach proved to be difficult to implement. In a case-by-case review of a sub-sample of 288 persons who used at least one transit mode (bus, school bus, trolley, or taxi), roughly half the respondents (150) appeared to have reported their transit-related activities as five separate activities.

Among the other half of respondents whose transit activity reporting appeared anomalous, the following common deviations emerged:

- From the sample of 288 transit-using persons, a total of 45 persons had no activities of wait/get on the vehicle or leave/get off the vehicle, despite using a transit mode. In all of these cases, when the interviewer was prompted by the automated CATI check to ask the respondent for the full set of information being sought, the respondent either refused to back up and provide the full recounting, or indicated that he/she did not know the information requested. In the case of these 45 persons, the CATI program worked correctly, but the process did not produce the full range of information being sought due to respondent behavior.
- A total of 55 persons used the school bus and had leave/get off the vehicle activities that took place at school and lasted more than 30 minutes (an interval of 30 minutes was chosen for this analysis since any leave/get off activity longer than 30 minutes was considered suspect). In these cases, the respondent apparently misunderstood the

meaning of the question about the time this activity ended and the next one began, and incorporated his/her school activity into the time recorded for the leave/get off the vehicle activity. This was confirmed by checking that an activity code for "preschool, school, college, university" was missing. The program worked correctly, but the process did not produce the full range of information being sought due to a semantic misunderstanding. In this case, the missing activity can reliably be imputed as "school" and added to the dataset; however, AMPG did not perform this imputation.

- A total of 8 persons had leave/get off the vehicle activities that took place at their main job location and lasted more than 30 minutes. Similar to the school situation, the respondent misunderstood the meaning of the question about the time this activity ended and the next one began, and incorporated his/her work activity into the time recorded for the leave/get off the vehicle activity. This was confirmed by checking that an activity of "work" is missing. Again, the missing activity can reasonably be imputed as "work" and added to the dataset.

Based on these results, the method of transit activity collection can only be called a mixed success. In certain cases it did produce the full range of information desired by NCTCOG, but it appears to have been misunderstood by about half of the target respondents.

## **NUMBER OF RECRUITMENT ATTEMPTS TO EACH NUMBER**

The number of recruitment attempts to each number was increased (from the industry-standard six) to nine in order to minimize the potential non-response bias associated with people who travel more being at home less often to answer the telephone. Among the 9,398 successfully recruited households, more than 98 percent were recruited in six calls or less. Only 154 households (less than two percent) were recruited on the seventh or subsequent call. This suggests that the additional recruitment attempts were only marginally useful.

## **INCLUSION OF A POSTAGE-PAID REPLY ENVELOPE**

Each household was provided with a postage-paid reply envelope to give NCTCOG a separate, verifiable source of information about each household's travel patterns. For those who returned their completed materials, this component of the survey accomplished its intent.

While the postage-paid reply envelopes accomplished their primary objective, they produced the unintended side-effect of contributing to a lower completion rate for the survey. A total of 689 households (7.3 percent of the 9,398 recruited) reported that they would mail in their completed survey materials. It is likely that some of the households who declined the retrieval interview in favor of sending back their forms would have consented to telephone data collection if the return envelope had not been an option. NCTCOG handled the surveys that were mailed in. From among all households that were not wholly or partially retrieved by telephone, 6 percent returned at least some information by mail. This figure indicates that

most households who promised to mail in materials did so. NCTCOG plans to perform additional analysis to determine how data from these households will be incorporated into the retrieval files.

## **TREATMENT OF “SOFT REFUSALS”**

The attempt to convert “soft refusals” during the recruitment stage was intended to reduce response bias. Roughly ten percent of the households initially categorized as a “soft refusal” were subsequently recruited. As might be expected from this group, their completion rate was somewhat lower than the overall completion rate for the survey (37 percent versus 43 percent). While more detailed demographic analysis would be required to confirm that the “soft refusals” differed systematically from other households, it seems likely that the effort to convert this group avoided some degree of non-response bias. With minimal negative effects on the survey completion rate, the effort to include initial “soft refusals” probably enhanced the overall quality of the dataset.

## **PROXY RULES**

The pretest and previous research indicated that direct reporting of activities produces more complete data than activities reported by a proxy. The proxy rules established for this survey were intended to maximize accuracy in reporting. In one respect, the proxy rules were a success, with a large proportion of adults (81 percent) providing a direct recounting of their activities. The adults who reported their activities directly had more activities per person than those reported by a proxy. On the other hand, ISA’s telephone interviewers and managers indicated that the proxy rules irritated some respondents, and may have contributed to a lower and/or slower completion rate for the survey; analysis, however, did not bear out findings to support this perception. Overall, taking special steps to minimize proxy reporting was probably a positive feature of the survey, resulting in better data quality.

## **PRENOTIFICATION LETTER**

The prenotification letters were intended to improve telephone recruitment rates. The prenotified households more often resulted in both a complete recruitment and a completely retrieved household. However, the likelihood of being “prenotifiable” is probably associated with exogenous variables such as being listed in the phone book, having a longer tenure at the address, or subscribing to magazines; there is therefore some risk that the prenotified households might bias the sample. Despite this drawback, it appears that the prenotification procedure produced positive effects and is worthwhile using in future surveys.

## **SUMMARY**

The Dallas-Fort Worth Household Survey succeeded in gathering a rich set of data from a large sample of households, and the resulting dataset offers NCTCOG many opportunities both to update its existing travel demand models and to experiment with new ones. The

survey effort leaves NCTCOG with many options for the future use of these data, and it should meet the organization's travel data needs into the 21st Century.

# APPENDICES

Appendix A: Peer Review Panelists  
Appendix B: Telephone Scripts  
Appendix C: Intercept Instrument  
Appendix D: Written Survey Materials  
Appendix E: Training Materials  
Appendix F: SP Survey Instruments

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## **Appendix A: Peer Review Panelists (April 1995)**

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Tom Golob, University of California, Irvine  
Greig Harvey, Deakin Harvey Skarbardonis  
Keith Lawton, Portland Metro  
Peter Stopher, PlanTrans and the University of Louisiana

Additional Peer Review Panelists (not in attendance at the April 1995 meeting to discuss the pilot test)

Dan Brand, Charles River Associates  
George Dresser, Texas Transportation Institute  
David Hartgen, University of North Carolina, Charlotte  
Firouzeh Nourzad, Urban Analytics  
David Pearson, Texas Transportation Institute

## **Appendix B: Telephone Scripts**

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Appendix B includes the following scripts used to develop the CATI program:

- Recruitment script;
- Verification script;
- Reminder script; and,
- Retrieval script.

## NCTCOG HOUSEHOLD TRAVEL SURVEY PHASE TWO RECRUITMENT SCRIPT

The majority of the households will be recruited by RDD. Households will also be recruited via face-to-face intercept in Dallas/Fort Worth at transit and park-and-ride locations. The name and telephone number of these people will be sent to ISA. Recruitment will proceed for these households on the basis of this information. Households using HOV may be identified at a subsequent time for inclusion in the recruitment effort.

Set up four sets of ID numbers (five digits each):

1. RDD households with a matched address (prenotified households) (1xxxxx)
2. RDD households without a matched address (cold calls) (3xxxxx)
3. Transit intercept households (5xxxxx)
4. HOV households (7xxxxx) [reserve for possible later use]

\* \* \*

Telephone number to be dialed should appear on-screen, along with the opening question and the response codes. Call dispositions should be recorded on this screen.

1. Hello, my name is \_\_\_\_\_ and I'm calling on behalf of the transportation planning agency for the Dallas/Fort Worth area. I need to confirm that you are 18 or older.

- 01 Yes/confirmed (**GO TO Q3**)
- 02 No/not confirmed 18 or older (**GO TO Q2**)
- 03 Household refuses to continue and instructs do not call back (hard refusal)
- 04 Disconnected number
- 05 Fax machine (**PLACE IN BUCKET**)
- 06 Household refuses to continue (soft refusal) (**PLACE IN BUCKET**)
- 07 Call back (at specific time)
- 08 Call back (no specific time)
- 09 Busy
- 10 Answering machine
- 11 No answer
- 12 Business number (**GO TO Q1A**)
- 13 Language barrier (not Spanish) (**PLACE IN BUCKET**)
- 14 Language barrier (Spanish)
- 15 New number recording (note new number)
- 16 All other reasons

- 1A. Is this a home-based business?
- 1 Yes (GO TO Q3)
  - 2 No (TERMINATE)
  - 8 Refused (GO TO Q3)
  - 9 Don't Know (GO TO Q3)
2. May I speak with someone in your household who is 18 or older?
- 1 Adult available (GO TO Q1)
  - 2 Adult not home (RETAIN NUMBER AND ARRANGE CALLBACK)
  - 3 Refused/No such person READ: I'm sorry, I need to speak with an adult. Thank you for your time. (RETAIN NUMBER AND ARRANGE CALLBACK. PUT THIS NUMBER INTO THE SOFT REFUSAL BUCKET.)
3. We are conducting a study of travel patterns and needs in the Metroplex. Have I reached (TELEPHONE NUMBER - READ ALL TEN DIGITS)?
- 1 Yes (GO TO Q5)
  - 2 No READ: I'm sorry to have bothered you. Thank you for your time. (PLACE NUMBER IN BUCKET TO BE TRIED ONCE MORE)
  - 8 Refused (GO TO Q5)
  - 9 Don't Know (GO TO Q5)
4. QUESTION 4 ELIMINATED.
5. I'd like to ask you a few questions about your household that will help us understand travel choices. Is this your HOME?
- 1 Yes (GO TO Q7)
  - 2 No, I don't live here (GO TO Q6)
  - 3 No, this is not a residence READ: I'm sorry, this study is for residents only. Thank you for your time.
  - 8 Refused (DO NOT READ) (GO TO Q7)
  - 9 Don't Know (DO NOT READ) (GO TO Q7)
6. Is there someone who lives there I can speak with?
- 1 Yes (GO BACK TO Q1 WITH NEW RESPONDENT)
  - 2 No (IF SOMEONE WHO LIVES HERE IS NOT CURRENTLY PRESENT, RETAIN NUMBER AND ARRANGE CALLBACK.)

7. In what county do you live?

- 01 Collin
- 02 Dallas
- 03 Denton
- 04 Ellis
- 05 Johnson
- 06 Kaufman
- 07 Parker
- 08 Rockwall
- 09 Tarrant
- 10 None of these [READ: I'm sorry, this study does not cover your area. Thank you for your time.]
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't Know (DO NOT READ) (CONTINUE)

8. To make sure your home is in our study area, please give me the zip code of your home address:

\_\_\_\_\_ (99999=DON'T KNOW/REFUSED - TERMINATE)

(For zipcodes in Ellis, Johnson, Kaufman and Parker counties, and for households which answer 98 or 99 to Q7, run computer check against list. Some of these households will be ineligible. If eligible, continue with Q9. If not, READ: I'm sorry, this study does not cover your area. Thank you for your time.)

9. How many separate telephone numbers are there to your home?  
(DO NOT INCLUDE CELLULAR TELEPHONE NUMBERS)

- 1 One (GO TO Q12)
- 2 Two
- 3 Three
- 4 Four or more
- 8 Refused (DO NOT READ) (GO TO Q12)
- 9 Don't Know (DO NOT READ) (GO TO Q12)

10. I'd like to make sure these are separate NUMBERS.

(Note to Interviewer [DO NOT READ]: We want to ensure that respondents do not confuse phone instruments with phone numbers.)

- 1 Yes/confirmed all numbers are separate
- 2 No/not confirmed (GO BACK TO Q9)
- 8 Refused (DO NOT READ) (GO TO Q12)
- 9 Don't Know (DO NOT READ) (GO TO Q12)

11. How many of these telephone numbers, if any, are used only for a FAX machine or modem?  
(THE MAXIMUM VALUE ALLOWED SHOULD BE THE VALUE IN Q9 MINUS ONE)

- 0 None
- 1 One
- 2 Two
- 3 Three
- 4 Four or more
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

12. Do you live in (READ OPTIONS):

- 01 A one-family house separate from any other house (GO TO Q14)
- 02 A one-family house attached to one or more houses, such as a duplex or townhouse (GO TO Q14)
- 03 An apartment (GO TO Q13)
- 09 A mobile home or trailer (GO TO Q14)
- 11 Other (please specify): \_\_\_\_\_ (GO TO Q14)
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

13. Is your apartment in a building with...

- 1 Four or more stories
- 2 Three or less stories
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

14. Do you own or do you rent your home?

- 1 Rent/lease
- 2 Own/buying (e.g. paying off a mortgage)
- 3 Other (please specify): \_\_\_\_\_
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

15. What year did your household move into this home?

ENTER TWO DIGITS 19 \_\_ \_\_ [VALID RANGE IS 00-96]

- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

**ASK Q16 ONLY IF Q15 IS GREATER THAN 84, BUT LESS THAN 97. OTHERWISE GO TO Q20**

16. Was your previous home in the U.S.?

- 1 Yes
- 2 No (GO TO Q20)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

17. In what city and state was your last home?

- 17a. Enter code from city recode list OR type in city (GO TO Q18 if a city from recode list)
- 17b. Enter state from recode list (GO TO Q20)
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't Know (DO NOT READ) (CONTINUE)

18. What was the zip code of your last home?

\_\_\_\_\_  
99999 = Don't Know/Refused (DO NOT READ) (CONTINUE)

19. How long did you live in your last home?

- ENTER YEARS \_\_ \_\_ [TWO DIGITS]
- 97 Less than one year
  - 98 Refused (DO NOT READ) (CONTINUE)
  - 99 Don't Know (DO NOT READ) (CONTINUE)

20. How many CARS, PICKUPS, TRUCKS, VANS, or MOTORCYCLES are available for use by you and other members of your household?

- |          |                           |
|----------|---------------------------|
| 00 None  | 06 Six                    |
| 01 One   | 07 Seven                  |
| 02 Two   | 08 Eight or more          |
| 03 Three | 98 Refused (TERMINATE)    |
| 04 Four  | 99 Don't Know (TERMINATE) |
| 05 Five  |                           |

21. COUNTING YOURSELF, how many people live in your household?

- Enter two digits [01-97] If 11 or more, TERMINATE.
- 98 Refused (TERMINATE)
  - 99 Don't know (TERMINATE)

11. How many of these telephone numbers, if any, are used only for a FAX machine or modem?  
**(THE MAXIMUM VALUE ALLOWED SHOULD BE THE VALUE IN Q9 MINUS ONE)**

- 0 None
- 1 One
- 2 Two
- 3 Three
- 4 Four or more
- 8 Refused **(DO NOT READ) (CONTINUE)**
- 9 Don't know **(DO NOT READ) (CONTINUE)**

12. Do you live in (READ OPTIONS):

- 01 A one-family house separate from any other house **(GO TO Q14)**
- 02 A one-family house attached to one or more houses, such as a duplex or townhouse **(GO TO Q14)**
- 03 An apartment **(GO TO Q13)**
- 09 A mobile home or trailer **(GO TO Q14)**
- 11 Other (please specify): \_\_\_\_\_ **(GO TO Q14)**
- 98 Refused **(DO NOT READ) (CONTINUE)**
- 99 Don't know **(DO NOT READ) (CONTINUE)**

13. Is your apartment in a building with...

- 1 Four or more stories
- 2 Three or less stories
- 8 Refused **(DO NOT READ) (CONTINUE)**
- 9 Don't know **(DO NOT READ) (CONTINUE)**

14. Do you own or do you rent your home?

- 1 Rent/lease
- 2 Own/buying (e.g. paying off a mortgage)
- 3 Other (please specify): \_\_\_\_\_
- 8 Refused **(DO NOT READ) (CONTINUE)**
- 9 Don't know **(DO NOT READ) (CONTINUE)**

15. What year did your household move into this home?

ENTER TWO DIGITS 19 \_\_ \_\_ [VALID RANGE IS 00-96]

- 98 Refused **(DO NOT READ) (CONTINUE)**
- 99 Don't know **(DO NOT READ) (CONTINUE)**

**ASK Q16 ONLY IF Q15 IS GREATER THAN 84, BUT LESS THAN 97. OTHERWISE GO TO Q20**

16. Was your previous home in the U.S.?

- 1 Yes
- 2 No (GO TO Q20)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

17. In what city and state was your last home?

- 17a. Enter code from city recode list OR type in city (GO TO Q18 if a city from recode list)
- 17b. Enter state from recode list (GO TO Q20)
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't Know (DO NOT READ) (CONTINUE)

18. What was the zip code of your last home?

\_\_\_\_\_  
99999 = Don't Know/Refused (DO NOT READ) (CONTINUE)

19. How long did you live in your last home?

- ENTER YEARS \_\_ \_\_ [TWO DIGITS]
- 97 Less than one year
  - 98 Refused (DO NOT READ) (CONTINUE)
  - 99 Don't Know (DO NOT READ) (CONTINUE)

20. How many CARS, PICKUPS, TRUCKS, VANS, or MOTORCYCLES are available for use by you and other members of your household?

- |          |                           |
|----------|---------------------------|
| 00 None  | 06 Six                    |
| 01 One   | 07 Seven                  |
| 02 Two   | 08 Eight or more          |
| 03 Three | 98 Refused (TERMINATE)    |
| 04 Four  | 99 Don't Know (TERMINATE) |
| 05 Five  |                           |

21. COUNTING YOURSELF, how many people live in your household?

- Enter two digits [01-97] If 11 or more, TERMINATE.
- 98 Refused (TERMINATE)
  - 99 Don't know (TERMINATE)

22. In total, how many members of your household work either full-time or part-time, including yourself?  
(MAXIMUM VALUE SHOULD NOT BE GREATER THAN VALUE GIVEN IN Q21)

- 00 None
- 01 One
- 02 Two
- 03 Three
- 04 Four
- 05 Five
- 06 Six
- 07 Seven
- 08 Eight
- 09 Nine
- 10 Ten or more
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

23. What is the highest level of schooling that anyone in your household has completed? (DO NOT READ RESPONSE OPTIONS - LISTEN AND RECORD)

- 01 No school completed
- 02 Nursery school
- 03 Kindergarten
- 04 1st, 2nd, 3rd or 4th grade
- 05 5th, 6th, 7th or 8th grade
- 06 9th grade
- 07 10th grade
- 08 11th grade
- 09 12th grade NO DIPLOMA
- 10 HIGH SCHOOL GRADUATE -- high school DIPLOMA OR GED
- 11 Some college but no degree
- 13 Associate degree in college -- academic program
- 14 Associate degree in college --occupational program
- 15 Bachelor's degree
- 19 Some graduate school, but no graduate degree
- 16 Master's degree
- 17 Professional school degree
- 18 Doctorate degree
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

For this study, we need you and everyone else in your household to write down for us, in a diary that we send you, what you do and where you go for **24 hours**. Then we will call you again to collect the information. When you get the diaries, please have everyone in your household, including yourself, fill them out (NEXT) (A WEEK FROM NEXT) **MONDAY/TUESDAY/WEDNESDAY/THURSDAY/FRIDAY/ SATURDAY/SUNDAY**, which will be (DIARY DATE - STATE DAY OF WEEK, MONTH AND DATE).

**For the dry run surveys and surveys through March:**

- For households recruited on weekdays, assign the diary day to be one day later in the week, one week away (e.g., Monday recruitments have a Tuesday travel day, Friday recruitments have a Monday travel day, etc.)
- For households recruited on Saturday or Sunday, assign the diary day across the five days of the week, two weeks away, controlling for balance in the total recruited sample across the five days.
- There will not be any weekend travel days during this period.
- The program should record the exact diary date.

**For the surveys after March:**

- During the period in which there are weekend travel days scheduled, assign the diary day for all households to be one day later in the week, one week away (e.g., Monday recruitments have a Tuesday travel day, Friday recruitments have a Saturday travel day, Saturday recruitments have a Sunday travel day, etc.)
- Once the desired number of households with weekend travel days has been obtained, revert to the protocol described above.
- The program should record the exact diary date.

24. To send the diaries, I first need your home address.

- 1 Willing to participate (GO TO Q27)
- 2 Declines/refuses to participate (GO TO Q25)
- 3 Cannot do it on the assigned day (GO TO Q26)

25. FOR PRENOTIFIED HOUSEHOLDS READ: We recently sent you a letter introducing this study.  
FOR INTERCEPT HOUSEHOLDS READ: We recently spoke with a member of your household at a bus stop concerning this study.  
FOR PRENOTIFIED, INTERCEPTED, AND ALL OTHER HOUSEHOLDS, CONTINUE WITH: It is very important for transportation planning efforts that each household we contact take part in the study. We are offering \$2 per person as a thank you for your help. Would you please think again about taking part?

- 1 Willing to participate (GO TO Q27)
- 2 Still declines/refuses to participate (TERMINATE)

26. Could you tell me why [PROPOSED TRAVEL DATE - STATE DAY OF WEEK, MONTH AND DATE] is not good for you?

[COLLECT OPEN-ENDED, ALLOW 40 CHARACTERS]

INTERVIEWER: Attempt to determine the reason. If the respondent is concerned that the assigned day will not be typical, or they indicate that the household will be out of town that day, try to persuade them of the importance of keeping their diary for the assigned date.

If the household can never fill the diaries out on the proposed day of the week, TERMINATE.  
If the household will be away more than two weeks, TERMINATE.

If they insist that the proposed date will not work, reassign the following MONDAY/TUESDAY/WEDNESDAY/THURSDAY/FRIDAY/SATURDAY/SUNDAY as diary day and read:

Please have everyone in your household, including yourself, fill out the diaries (NEXT) (A WEEK FROM NEXT) **MONDAY/TUESDAY/WEDNESDAY/THURSDAY/FRIDAY/SATURDAY/SUNDAY**, which will be (DIARY DATE - STATE DAY OF WEEK, MONTH AND DATE).

27. What is the street name and number for your home address? Please include your apartment number if you have one. **(IF THERE IS ROOM ON THE SCREEN, FOR PRENOTIFIED HOUSEHOLDS, DISPLAY THE MATCHED ADDRESS ON SCREEN TO ASSIST THE INTERVIEWERS IN GETTING THE CORRECT SPELLINGS.)**

Street number  
Street prefix (i.e. North, South, East, West)  
Street name  
Street suffix (from suffix list)  
Apt. number

INTERVIEWER: Please use all capital letters when confirming/correcting the series of questions about name, address, etc. Check all spelling with respondent. You are creating a mailing label so be EXTREMELY CAREFUL! DO NOT USE ANY COMMAS IN ANY LABELS. i.e. SMITH, JOHN.

Be sure you are collecting the HOME ADDRESS. If the respondent is unsure about the street address, ask for the address they would provide to a 911 operator. Collect a P.O. Box only if you cannot get a street address.

WE MUST COLLECT A COMPLETE ADDRESS FOR A HOUSEHOLD TO BE CONSIDERED COMPLETE. IF A HOUSEHOLD WILL NOT PROVIDE A COMPLETE ADDRESS, EXPLAIN THE PURPOSE AND IMPORTANCE OF THE STUDY. IF THEY CONTINUE TO REFUSE, POLITELY TERMINATE.

28. What city is that? (DISK BASED RECODE FROM TABLE OF CITY NAMES)

29. And your zipcode was \_\_\_\_\_ (BRING UP ZIPCODE FROM Q8)

30. Is that the zipcode for your home address? (If not, re-enter) 99999=DON'T KNOW/REFUSED

31. And do you have mail delivered to your home address, or do you have it delivered to a post office or another address?

- 1 Home address (GO TO Q37)
- 2 P.O. Box
- 3 At another address
- 8 Refused (don't read) (GO TO Q37)
- 9 Don't know (don't read) (GO TO Q37)

32. What is your mailing address?

Street number/P.O. Box  
Street prefix (i.e. North, South, East, West)  
Street name  
Street suffix (from suffix list)  
Apt. number

33. And is this still in (city from above)?

- 1 Yes (GO TO Q35)
- 2 No
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

34. In what city is your mailing address? (DISK BASED RECODE) (GO TO Q36)

35. And is this address in the same zipcode as your home address?

- 1 Yes (GO TO Q37)
- 2 No (GO TO Q36)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

36. What is your mailing address zipcode?

\_\_\_\_\_ 99999=DON'T KNOW/REFUSED

37. And for the purpose of mailing, how do I spell your first name?

\_\_\_\_\_

And how do I spell your last name?

\_\_\_\_\_

Now I'd like to verify this information with you.

**VERIFY ADDRESS BY READING INFORMATION BACK TO RESPONDENT AND MAKE CORRECTIONS AS NECESSARY**

We will be sending you a diary for each household member to complete. [PROGRAM FOR MORE THAN ONE MEMBER OF HOUSEHOLD: If there are children in the home, please have an adult help or complete diaries for them.]

38. From what you told me earlier, there are (NUMBER OF PEOPLE FROM Q21) people living in your household, so we should send you (NUMBER OF PEOPLE FROM Q21) diaries. Is that right?

- 1 Yes
- 2 No (IF NO, CORRECT HH SIZE AND DIARIES TO BE SENT)
- 8 Refused (DO NOT READ) (CONTINUE)

39. THANK YOU VERY MUCH for helping us. We will call you again [DIARY DATE MINUS ONE - STATE DAY OF WEEK, MONTH AND DATE], which is the day before your diary day, to make sure you received your diaries and to answer your questions. We also want you to know that by writing down complete answers in the diaries -- including full street addresses for each place you visit during the 24-hour period -- you will help make the transportation system in the Metroplex better. Thanks again and good night (day).

40. (Interviewer--Please indicate how well the individual could speak/understand English)

- 1 Fluent -- good comprehension
- 2 Partial fluency -- difficulty with some questions and responses
- 3 Severely Limited English--Unable to understand/respond to questions

41. Language of Interview

- 1 English
- 2 Spanish

**NCTCOG HOUSEHOLD TRAVEL SURVEY  
VERIFICATION SCRIPT**

A. Hello, may I speak to CONTACT PERSON?

- 1 Yes, CONTACT PERSON is on the phone (Go to 1)
- 2 Yes, when CONTACT PERSON comes to the phone, go to 1.
- 3 No, CONTACT PERSON not available (Go to 2)

1. Hello, my name is \_\_\_\_\_ and I'm calling for the transportation planning agency for the Dallas/Fort Worth area. Earlier you agreed to take part in a very important study of travel patterns in the Metroplex.

- 01 Willing to continue (GO TO 4)
- 02 Refusal (TRY TO PERSUADE. IF REFUSAL IS FIRM, GO TO 1b)
- 03 Disconnected number (REDIAL)
- 04 Fax machine (REDIAL)
- 05 Call back (at specific time) (REDIAL)
- 06 Call back (no specific time) (REDIAL)
- 07 Busy (REDIAL)
- 08 Answering machine (REDIAL)
- 09 No answer (REDIAL)
- 10 Business number (REDIAL)
- 11 Language barrier (not Spanish) (REDIAL)
- 12 Language barrier (Spanish) (REDIAL)
- 13 New number recording (REDIAL)
- 14 All other reasons (REDIAL)

1a. What is the main reason that you won't participate in the survey?

- 1 Information asked in the recruitment call was too personal (Go to 1b.)
- 2 Other household members are not willing to participate (Go to 1b.)
- 3 No knowledge of the survey (Go to 1b)
- 4 Other, (please specify): \_\_\_\_\_ (Go to 1b.) (Allow 40 characters)
- 5 Refused (Thank you for your time. TERMINATE)

1b. It is very important for transportation planning in your area that your household participates in the study. The study will help transportation planners decide how to spend over \$15 billion dollars on the metroplex's highways and transit systems over the next 20 years. Would you please think again about taking part in the study?

- 1 Yes, willing to participate (Go to 4)
- 2 No, still refused. (Thank you for your time.) (Go to 1c.)

- 1c. INTERVIEWER: Is this household...
- 1 A hard refusal (retire the household)
  - 2 A soft refusal (forward the address to AMPG for mailing)
2. Hello, my name is \_\_\_\_\_ and I'm calling for transportation planning agency for the Dallas/Fort Worth area. Earlier a member of your household agreed to take part in a very important study of travel patterns and needs in the Metroplex. I need to confirm that you are 18 or older.
- 1 Yes/confirmed (GO TO 4)
  - 2 No/not 18 or older (GO TO 3)
  - 8 Refused (GO TO 3)
  - 9 Don't know (GO TO 3)
3. May I speak with someone in your household who is 18 or older?
- 1 Adult available -- When adult comes on the line, go to 4.
  - 2 Adult not home (ARRANGE CALLBACK)
    - 3 Refused/no such person -->READ: I'm sorry. I need to speak with an adult. (ARRANGE CALLBACK)
4. I need to check your mailing address please.
- 1 willing to continue - PROCEED TO 6 TO VERIFY ADDRESS
  - 2 refusal (Go to 9)
  - 3 call back (at specific time)
  - 4 call back (no specific time)
  - 5 No verification at this time - all other reasons
5. We will be mailing to:
- \_\_\_\_\_ (Verify street number)  
 \_\_\_\_\_ (Verify street prefix - S=South N=North, etc.)  
 \_\_\_\_\_ (Verify street name only here--or Post Office Box)  
 \_\_\_\_\_ (Verify street suffix - St/Ave/Blvd/Cir/ etc.)  
 \_\_\_\_\_ (Verify apt. number -- return if none)
- (Address as listed above is)
- 1 Correct as is
  - 2 Incorrect -- correct street number
  - 3 Incorrect -- correct street prefix
  - 4 Incorrect -- correct street name
  - 5 Incorrect -- correct street suffix
  - 6 Incorrect -- correct apt. number

**Keep repeating screen until interviewer types "1" --indicating correct address**

6. This is in:  
\_\_\_\_\_ (Verify city name)  
\_\_\_\_\_ (Verify zipcode)

- 1 Correct as is
- 2 Incorrect – correct city name
- 3 Incorrect – correct zipcode name

**Keep repeating screen until interviewer types "1" --indicating correct address**

7. And we will be mailing the package to:  
\_\_\_\_\_ (Verify name)

And you spell that as:  
\_\_\_\_\_ (Verify spelling)

- 1 Correct as is
- 2 Incorrect – correct name

**Keep repeating screen until interviewer types "1" --indicating correct name and spelling**

THANK YOU VERY MUCH for helping with this study. We double check all of our addresses to make sure your diaries arrive in time.

If you have any questions or comments about this study, you can call the Survey Hotline at 1-800-496-9616.

Thank you and have a nice evening (day).

8. Please would you think again about participating in the study? The study is very important and your help is greatly needed. It will guide how transportation planners spend over \$15 billion dollars on the metroplex's highways and transit systems over the next 20 years. We only want to check your address to make sure you receive your diaries on time.

- 1 Yes, reconsiders and will participate (Go to 6)
- 2 No, still refused. (Thanks again for your time.) (Send address to AMPG for mailing)

**NCTCOG HOUSEHOLD TRAVEL SURVEY  
REMINDER CALL SCRIPT**

All data from the reminder call must be saved. The answers given by each household to the questions posed must be recorded. Attempt each household as follows:

- Split the reminder time into three time slots (e.g., 5-7pm, 7-8:30pm, 8:30-10pm);
- Make all first attempts during the first time slot;
- If an answering machine is reached, leave a message - and retain the number in the calling pool;
- If the household is not contacted (e.g., no answer, busy, callback, etc.), retain the number in the calling pool;
- Make second attempts to the numbers remaining in the calling pool during the second time slot;
- If an answering machine is reached, leave an abbreviated message (see text below), retire the number.
- If the household is not contacted (e.g., no answer, busy, callback, etc.), retain the number in the calling pool;
- Make third attempts to the numbers remaining in the calling pool during the third time slot; and,
- Do not attempt numbers at which an answering machine was reached on both the first and second attempt.

Abbreviated message for second answering machine:

*We are calling again about the Dallas-Ft. Worth Household Survey, just to stress the importance of keeping your diaries tomorrow. Thanks and goodnight.*

In some cases, materials may need to be remailed to a household. In no case will a household be mailed materials more than two times. AMPG will track this issue.

1. May I speak to CONTACT PERSON?

- 1 Yes, CONTACT PERSON is on the phone (GO TO Q2)
- 2 Yes, when CONTACT PERSON comes to the phone, GO TO Q2.
- 3 No, CONTACT PERSON not available (GO TO Q3)
- 4 There is no CONTACT PERSON (e.g., Resident) (GO TO Q3)

2. Hello, my name is \_\_\_\_\_ and I'm calling on behalf of the North Central Texas Council of Governments . (THE CODES USED FOR EACH DISPOSITION CATEGORY SHOULD BE CONSISTENT WITH THOSE USED IN RECRUITMENT. SOME OF THE DISPOSITIONS LISTED BELOW (e.g., business number, language barrier not Spanish) WILL COME UP RARELY, IF AT ALL. THE INTENT OF THE IMMEDIATE REDIALS IS TO ENSURE THAT A "GOOD" NUMBER WAS NOT MIS-DIALED. DO NOT RETIRE ANY HOUSEHOLDS, EXCEPT HARD REFUSALS.)

- 01 Willing to continue (GO TO Q6)
- 02 Refusal to go through reminder script (GO TO Q15)
- 03 Refusal to continue with the study (GO TO 7)
- 04 Disconnected number (REDIAL IMMEDIATELY; DO NOT RETIRE)
- 05 Fax machine (REDIAL LATER)
- 07 Call back (at specific time) (REDIAL AS REQUESTED)
- 08 Call back (no specific time) (REDIAL LATER)
- 09 Busy (REDIAL LATER)
- 10 Answering machine (GO TO Q5)
- 11 No answer (REDIAL LATER)
- 12 Business number (DETERMINE IF HOME-BASED BUSINESS. IF YES, CONTINUE. IF NO, REDIAL IMMEDIATELY. DO NOT RETIRE)
- 13 Language barrier (not Spanish) (REDIAL LATER)
- 14 Language barrier (Spanish) (REDIAL LATER)
- 15 New number recording (RECORD NEW NUMBER AND REDIAL IMMEDIATELY)
- 16 All other reasons (REDIAL IMMEDIATELY. DO NOT RETIRE)

3. We called and spoke with \_\_\_\_\_ (CONTACT PERSON) (If no contact person named: SOMEONE IN YOUR HOUSEHOLD) last week about a study we are doing on transportation in Dallas-Fort Worth. I need to confirm that you are 18 or older and that your phone number is \_\_\_\_\_.
- 1 Yes/confirmed (GO TO Q6)
  - 2 No (GO TO Q4)
  - 8 Refusal (GO TO Q4)
  - 9 Don't Know (GO TO Q4)
4. May I speak with someone in your household who is 18 or older?
- 1 Adult available (GO TO Q3)
  - 2 Adult not home (INTERVIEWER: If, in your judgment, the minor will be able to understand the reminder directions proceed to Q6. Otherwise, arrange callback)
    - 3 Refused/No such person READ: I'm sorry, I need to speak with an adult. Thank you for your time. (RETAIN NUMBER AND ARRANGE CALLBACK)
5. **ANSWERING MACHINE MESSAGE:**  
 Good evening. My name is \_\_\_\_\_ and I am calling on behalf of the North Central Texas Council of Governments to check that you have received a package from us. Please don't forget to fill out your diaries TOMORROW. We will be calling to collect the information from you. If you did not get a package from us or if you have any questions, please call the Study Hotline at 1-800-496-9616. Thanks again and goodnight. (TERMINATE)
6. We called last week and asked you and your household to take part in a study of travel patterns and needs by filling out 24 HOUR diaries. Did you get a complete package from us in the mail?
- 1 Yes, received package (CONTINUE WITH Q13)
  - 2 No, did not receive package (GO TO Q19)
  - 3 No, received incomplete package (GO TO Q22)
  - 4 Have received, must reschedule diary day (GO TO Q12)
  - 5 Have it/had it, but refuses to fill out diaries (GO TO Q7)
  - 6 Don't know/not sure if diaries arrived (GO TO Q14)
7. Your taking part in this study is very important and will help agencies in Dallas-Fort Worth improve transportation. The study will help transportation planners decide how to spend over \$15 billion dollars on the metroplex's highways and transit systems over the next 20 years. You can still be counted if you and the rest of your household fill in your diaries tomorrow. Are you willing to do this?
- 1 Yes (Go to Q13)
  - 2 Yes, but threw away materials (Go to Q17)
  - 3 Yes, but must reschedule diary day (Go to Q12)
  - 4 No, HARD refusal (threat/other strong negative reaction - the household will be retired (GO TO Q8)
  - 5 NO, SOFT refusal (GO TO Q7a)
- 7a. I would like to again stress the importance of this survey to transportation in the Dallas-Fort Worth area and ask you to think again about taking part.
1. Yes (GO TO 13)
  2. No (GO TO Q8 - COUNT AS HARD REFUSAL IN ANALYSIS)

8. What is the main reason why you won't participate in the study? **DO NOT READ RESPONSES, ENTER ONE RESPONSE**
- 0 Don't want to have information retrieved over the phone. (GO TO Q8a.)
  - 1 Forms are too complicated/confusing
  - 2 Forms request too much information/invoke privacy
  - 3 Forms take too much time to complete
  - 4 Cannot get other family members to participate (GO TO Q9)
  - 5 Other (specify: \_\_\_\_\_) (ALLOW 40 CHARACTERS)
  - 6 I travel too little to make difference (GO TO 10)
  - 7 I travel too much to track my activities (GO TO 11)
  - 8 Refused (DO NOT READ) (THANK AND TERMINATE)
  - 9 Don't know (DO NOT READ) (THANK AND TERMINATE)

If you change your mind, you can still fill out as much of the materials as you want and mail them back to us in the postage-paid envelope. The household and vehicle information form on the slightly thicker colored card is especially useful to us, and it will only take a few minutes. Thank you for your time and have a nice evening/day. (TERMINATE)

8a. If you would prefer, you can complete the diaries and household/vehicle form on your assigned diary day and mail them back to us in the postage-paid return envelope.

- 1. Yes (RECORD THE DISPOSITION OF THIS CALL AND DO NOT GIVE THE HOUSEHOLD A RETRIEVAL CALL.)
- 2. No (COUNT AS HARD REFUSAL IN ANALYSIS)

Thank you for your time and have a nice evening/day. (TERMINATE)

9. We are interested in learning about the travel patterns of as many people as we can. If some of your household members will take part in the study, you can still be counted.

- 1 Yes, will take part in the study (GO TO Q13)
- 2 No, will not take part (CODE AS REFUSED)

Thank you for your time and have a nice evening/day. (TERMINATE)

10. We are interested in the travel patterns of all kinds of people. Even if you travel only a little, the information you provide is important in understanding how people get around. The study will help transportation planners decide how to spend over \$15 billion dollars on the metroplex's highways and transit systems over the next 20 years. Please would you think again about taking part in this study?

- 1 Yes, will take part in the study (GO TO Q13)
- 2 No, will not take part (CODE AS REFUSED)

Thank you for your time and have a nice evening. (TERMINATE)

11. If your work involves constant travel, all we ask is that you tell us where and when you start work, where and when you ended work, and if you did any personal chores during the day between work stops. The study will help transportation planners decide how to spend over \$15 billion dollars on the metroplex's highways and transit systems over the next 20 years. Please would you think again about taking part in this study?

- 1 Yes, will take part in the study (GO TO Q13)
- 2 No, will not take part (CODE AS REFUSED)

Thank you for your time and have a nice evening. (TERMINATE)

12. Could you tell me why tomorrow is not good for you?

[COLLECT OPEN-ENDED, ALLOW 40 CHARACTERS]

INTERVIEWER: Attempt to determine the reason. If the respondent is concerned that the assigned day will not be typical, or they indicate that the household will be out of town that day, try to persuade them of the importance of keeping their diary for the assigned date.

If the household can never fill the diaries out on the proposed day of the week, TERMINATE.  
If the household will be away more than two weeks, TERMINATE.

If they insist that the assigned date will not work, reassign the following MONDAY/TUESDAY/  
WEDNESDAY/THURSDAY/FRIDAY/SATURDAY/SUNDAY as diary day and read:

Please have everyone in your household, including yourself, fill out the diaries (NEXT) (A WEEK FROM NEXT) MONDAY/TUESDAY/WEDNESDAY/THURSDAY/FRIDAY/SATURDAY/SUNDAY, which will be (DIARY DATE - STATE DAY OF WEEK, MONTH AND DATE). Also, please write your household's new diary date on the front of each household member's diary. Thank you for your help in this study. Have a pleasant evening/day.

(RETAIN DATA ON THE ORIGINAL TRAVEL DATE, AND ADD A DATABASE FLAG TO INDICATE THE HOUSEHOLD'S TRAVEL DAY WAS RE-ASSIGNED.)

13. Could you please find the package and bring it to the phone, so that I can explain what to do? This will only take a few minutes.

- 1 Respondent returned with the package (GO TO Q16)
- 2 Know they have it but can't find the package (CONTINUE WITH Q14)
- 3 Had it, but thrown away, wants to do it (GO TO Q17)
- 5 Already completed diaries (GO TO Q18)
- 6 Has package, but doesn't want explanation (GO TO Q15)

14. Please try and find the package because TOMORROW is your diary day.

Everyone in your household should fill out the diaries tomorrow.

When you fill out the diaries, please remember that COMPLETE ADDRESS INFORMATION FOR EACH PLACE YOU GO, INCLUDING CITY NAME IS VERY IMPORTANT. Also, be sure to record when you started each activity.

For each activity, fill out EITHER the right side of the block if you traveled, OR the left side if you did anything else. You should only fill out one side of the block for each activity.

There is an example diary in your package which is filled out in red. It will show you how we would like you to fill out the activity blocks.

Each diary also has sections to fill out for individual, worker and student information.

On the Household and Vehicle Information Form, record the number of miles on each vehicle at the beginning and again at the end of the diary day.

Once you find the package, you can call the Study Hotline at 1-800-496-9616 if you have any questions. Thank you for your help in this study. Have a pleasant evening/day. TERMINATE.

15. I'd just like to confirm that your package was complete and offer a brief explanation. The package should include \_\_\_\_\_ (NUMBER OF HOUSEHOLD MEMBERS FROM RECRUITMENT FIGURE) diaries, one for each person in your household. (IF NOT CORRECT, GO TO Q22)

(Do not read)...Already completed diaries (GO TO Q18)

Everyone in your household should fill out the diaries tomorrow.

When you fill out the diaries, please remember that COMPLETE ADDRESS INFORMATION FOR EACH PLACE YOU GO, INCLUDING CITY NAME IS VERY IMPORTANT. Also, be sure to record when you started each activity.

For each activity, fill out EITHER the right side of the block if you traveled, OR the left side if you did anything else. You should only fill out one side of the block for each activity.

There is an example diary in your package which is filled out in red. It will show you how we would like you to fill out the activity blocks.

On the Household and Vehicle Information Form, record the number of miles on each vehicle at the beginning and again at the end of the diary day.

A toll-free number you can call with questions is printed on the forms. Thank you for your help in this study. Have a pleasant evening/day. TERMINATE.

16. WHEN THEY RETURN WITH THE PACKAGE:

The package should have \_\_\_\_\_ (NUMBER OF HOUSEHOLD MEMBERS FROM RECRUITMENT FIGURE) diaries, one for each person in your household. (IF NOT CORRECT, GO TO Q22)

(Do not read)...Already completed diaries (GO TO Q18)

If you look on the back of the envelope we sent you and on front of one of the diaries, you will see instructions. The key things we need to know are:

- what you did and where you did all of your activities during the diary day,
- how you got from one place to the next, and
- the time you started each activity.

We need this information for any work you do at home related to your job and for all activities outside of your home.

Everyone in your household should fill out the diaries tomorrow.

When you fill out the diaries, please remember that COMPLETE ADDRESS INFORMATION FOR EACH PLACE YOU GO, INCLUDING CITY NAME IS VERY IMPORTANT. Also, be sure to record when you started each activity.

For each activity, fill out EITHER the right side of the block if you traveled, OR the left side if you did anything else. You should only fill out one side of the block for each activity.

There is an example diary in your package which is filled out in red. It will show you how we would like you to fill out the activity blocks.

Each diary also has sections to fill out for individual, worker and student information.

Now please look at the Household and Vehicle Information Form which is on a slightly thicker colored card. Be sure to record the number of miles on each vehicle at the beginning and again at the end of the diary day.

When you are finished, keep the household and vehicle information form and the completed diaries near the telephone. We will call you back to get the information. If you have any questions, please call the Study Hotline at 1-800-496-9616. Have a nice evening. (TERMINATE)

17. Since you are still interested in participating, we will send another package to you. You should get it in the next few days. Please hold on to it until next (MONDAY/TUESDAY/WEDNESDAY/THURSDAY/FRIDAY/SATURDAY/SUNDAY) and fill out the diaries then. We will call you again next (MONDAY/ TUESDAY WEDNESDAY/THURSDAY/FRIDAY/ SATURDAY/SUNDAY) to make sure you got the package and to answer any questions you have. Thank you for helping with the study. (TERMINATE)

**(RETAIN DATA ON THE ORIGINAL TRAVEL DATE, AND ADD A DATABASE FLAG TO INDICATE THE HOUSEHOLD'S TRAVEL DAY WAS RE-ASSIGNED. NOTIFY AMPG DAILY OF ANY HOUSEHOLDS WHICH NEED NEW MATERIALS SENT. ALSO NOTE THAT TWO PACKAGES HAVE BEEN MAILED TO THIS HOUSEHOLD AND NO MORE WILL BE SENT.)**

18. For what date did you and the other members of your household fill out the diaries?

Day of week \_\_\_\_\_ Month \_\_\_\_\_ Date \_\_\_\_\_

We will be calling back in a few days to collect your information. Please leave the diaries and household and vehicle information form near the telephone so they will be handy when we call back. We look forward to talking with you again soon. Have a nice evening (day).

19. Since you haven't got the package we sent, I would like to check to make sure we have the correct mailing address.

(Display Name) \_\_\_\_\_

(Display Address) \_\_\_\_\_

(Display City) \_\_\_\_\_

(Display Zip code) \_\_\_\_\_

- 1 Name is incorrect
- 2 Address is incorrect
- 3 City is incorrect
- 4 Zip code is incorrect
- 5 Information is correct

**(THIS IS A CONTINUAL LOOP UNTIL 5 IS PUNCHED FOR EVERY FIELD.)**

20. IF ADDRESS OR CITY WERE INCORRECT (CODES 2 OR 3):

We will send you another package which you should receive during the next few days. Please keep it until (NEW DIARY DATE - READ DAY OF WEEK, MONTH AND DATE)) and fill out the diaries then. We will call you again next (SUNDAY, MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY) to make sure you got them and to answer any questions you have. You should get the package very soon -- thank you for helping with the study.

**(RETAIN DATA ON THE ORIGINAL TRAVEL DATE, AND ADD A DATABASE FLAG TO INDICATE THE HOUSEHOLD'S TRAVEL DAY WAS RE-ASSIGNED. INCLUDE THIS HOUSEHOLD'S CORRECTED INFORMATION IN THE DAILY FILE TRANSFER OF RECRUITMENT ADDRESSES. ALSO NOT THAT TWO PACKAGES HAVE BEEN MAILED TO THIS HOUSE AND NO MORE WILL BE SENT)**

**21. IF ANYTHING ELSE FROM Q19 (CODES 1 OR 4) WAS INCORRECT, OR EVERYTHING WAS CORRECT:**

You should receive the package during the next few days. Please keep it until (NEW DIARY DATE - READ DAY OF WEEK, MONTH AND DATE) and fill out the diaries then. We will call you again next (SUNDAY, MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY) to make sure you got them and to answer any questions you have. You should get the package very soon – thank you for helping with the study.

**(RETAIN DATA ON THE ORIGINAL TRAVEL DATE, AND ADD A DATABASE FLAG TO INDICATE THE HOUSEHOLD'S TRAVEL DAY WAS RE-ASSIGNED.)**

**22. I would like to find out what was missing from the envelope.**

- 0 Nothing missing
- 1 Letter of Introduction
- 2 Fact Sheet
- 3 A Household and Vehicle Information Form
- 4 24-hour diary for each person in your household. (DISPLAY NUMBER OF BOOKLETS TO BE SENT.) How many were missing? \_\_\_\_\_
- 5 \$2 incentive for each member of your household (DISPLAY NUMBER TO BE SENT) (DO NOT PROMPT) How many were missing? \_\_\_\_\_
- 6 Postage-paid return envelope
- 7 Example Diary

**23. IF THE MISSING ITEMS WERE CODE 3 OR CODE 4**

We will send the items you are missing. When you get the envelope in the next few days, please keep it until (NEW DIARY DATE – READ DAY OF WEEK, MONTH AND DATE) and fill out the diaries then. We'll call you again next (SUNDAY, MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY) to make sure you got them and to answer any questions you have. You should get the package very soon – thank you for helping with the study.

**(RETAIN DATA ON THE ORIGINAL TRAVEL DATE, AND ADD A DATABASE FLAG TO INDICATE THE HOUSEHOLD'S TRAVEL DAY WAS RE-ASSIGNED. NOTIFY AMPG DAILY OF ANY HOUSEHOLDS WHICH NEED NEW MATERIALS SENT.)**

**24. IF THE MISSING ITEMS WERE CODES 1, 2, 5 OR 6 OR 7**

We will send you the items you are missing, and you should get the package very soon. Since you have your household and vehicle information form and your diaries, tomorrow can still be your diary day. Will you and your household keep the diaries tomorrow?

- 1 Willing to keep diaries tomorrow (GO TO Q16) (NOTIFY AMPG DAILY OF ANY HOUSEHOLDS WHICH NEED NEW MATERIALS SENT.)
- 2 Wants to wait until the missing items arrive (GO TO Q20)

## NCTCOG RETRIEVAL SCRIPT

A. Hello, may I speak to CONTACT PERSON?

- 1 Yes, CONTACT PERSON is on the phone (Go to B)
- 2 Yes, when CONTACT PERSON comes to the phone, go to B.
- 3 No, CONTACT PERSON not available (Go to C)
- 4 There is no CONTACT PERSON (e.g., Resident) (GO TO C)

B. Hello, my name is \_\_\_\_\_ and I'm calling on behalf of the transportation planning agency for the Dallas-Fort Worth area. We asked you and your household to take part in a study of travel patterns and needs in the Metroplex by filling out 24-hour diaries.

- 01 Willing to continue (GO TO Q2)
- 02 Refusal (TRY TO PERSUADE/OFFER ASSISTANCE. IF REFUSAL IS FIRM, GO TO Q1)
- 03 Disconnected number
- 04 Fax machine
- 05 Call back (at specific time)
- 06 Call back (no specific time)
- 07 Busy
- 08 Answering machine (GO TO ANSWERING MACHINE SCRIPT)
- 09 No answer
- 10 Business number (GO TO E)
- 11 Language barrier (not Spanish)
- 12 Language barrier (Spanish)
- 13 New number recording (note new number)
- 14 All other reasons

C. We called and spoke with \_\_\_\_\_ (CONTACT PERSON) (If no contact person named: SOMEONE IN YOUR HOUSEHOLD) last week about a study we are doing on transportation in Dallas-Fort Worth. I need to confirm that you are 18 or older.

- 1 Yes/confirmed (GO TO Q2)
- 2 No/not confirmed 18 or older (GO TO D)
- 8 Refused (GO TO D)
- 9 Don't know (GO TO D)

D. May I speak with someone in your household who is 18 or older?

- 1 Adult available – When adult comes on the line, go to C.
- 2 Adult not home (ARRANGE CALLBACK)
  - 3 Refused/no such person -->READ: I'm sorry. I need to speak with an adult.

(ARRANGE CALLBACK)

- E. Is this a home-based business?
- 1 Yes (GO TO Q2)
  - 2 No (Confirm telephone number; if confirmed, thank and terminate. If not confirmed, re-dial)
  - 8 Refused (GO TO Q2)
  - 9 Don't Know (GO TO Q2)

**ANSWERING MACHINE SCRIPT:** Hello, my name is \_\_\_\_\_ and I am calling on behalf of the transportation planning agency for the Dallas-Fort Worth area to collect the information from your activity diaries. We will try calling another time, or if you would, please leave a message on our toll-free hotline letting us know a convenient time to reach you, and we will call you back promptly. The hotline number is 1-800-496-9616. Please place the diaries near the telephone so they will be handy when we call. Thank you and have a pleasant day/evening. (HANG-UP)

1. What is the main reason why your household won't participate in the study?  
DO NOT READ RESPONSES, ENTER ONE RESPONSE

**IF RESPONDENT GIVES ANSWER 1-5: TRY TO PERSUADE PARTICIPATION AGAIN. BEFORE YOU COUNT AN ENTIRE HOUSEHOLD AS A REFUSAL, MAKE SURE THAT NONE OF THE HOUSEHOLD MEMBERS WILL TAKE PART - WE WILL ACCEPT PARTIAL HOUSEHOLDS. IF RESPONDENT CONTINUES TO REFUSE ON BEHALF OF THE HOUSEHOLD, THANK THEM AND ASK THEM TO RETURN ANY FORMS THEY MAY HAVE PARTIALLY COMPLETED IN THE POSTAGE-PAID ENVELOPE, THEN TERMINATE. IF YOU PERSUADE THE RESPONDENT TO PARTICIPATE, GO TO Q2.**

- 0 Don't want to have information retrieved over the phone. (GO TO Q1c.)
- 1 Forms are too complicated/confusing
- 2 Forms request too much information/invade privacy
- 3 Forms take too much time to complete
- 4 Cannot get other family members to participate
- 5 Other (specify: \_\_\_\_\_) (ALLOW 40 CHARACTERS)
- 6 I travel too little to make difference (GO TO 1a)
- 7 I travel too much to track my activities (GO TO 1b)
- 8 Refused (DO NOT READ) (THANK AND TERMINATE)
- 9 Don't know (DO NOT READ) (THANK AND TERMINATE)

- 1a. We are interested in the travel patterns of all kinds of people. Even if you travel only a little, the information you provide is important in understanding how people get around. The study will help transportation planners decide how to spend over \$15 billion dollars on the metroplex's highways and transit systems over the next 20 years. Please would you think again about taking part in the study?

- 1 Yes (GO TO Q2)
- 2 No (CODE AS REFUSED. THANK AND TERMINATE)

1b. Does your work involve constant travel, for instance, as a traveling sales person, truck driver, or mail carrier?

1 Yes—> If your work involves constant travel, all we ask is that you tell us where and when you started work, where and when you ended work, and if you did any personal chores during the day between work stops. The study will help transportation planners decide how to spend over \$15 billion dollars on the metroplex's highways and transit systems over the next 20 years. Please would you think again about taking part in the study?

2 No—> We are interested in the travel patterns of all kinds of people. We know that recording your activities in the diary will take some time, but finding out more about how people get around is very important. The study will help transportation planners decide how to spend over \$15 billion dollars on the metroplex's highways and transit systems over the next 20 years. Please would you think again about taking part in the study?

1 Yes (GO TO Q2)

2 No (CODE AS REFUSED, THANK AND TERMINATE)

1c. If you would prefer, you can complete the diaries and household/vehicle form on your assigned diary day and mail them back to us in the postage-paid return envelope.

1. Yes (RECORD THE DISPOSITION OF THIS CALL AND DO NOT GIVE THE HOUSEHOLD ANY FURTHER CALLS.)

2. No (COUNT AS HARD REFUSAL IN ANALYSIS)

Thank you for your time and have a nice evening/day. (TERMINATE)

2. Have you and your household members completed the Household and Vehicle Information Form and diaries?

1 Yes (SKIP TO 10 AND CONTINUE NOW)

2 Yes, have diaries but call back later; (ARRANGE CALLBACK)

3 No, never received package (SKIP TO 3)

4 No, received incomplete package (SKIP TO 6)

5 No, did not or refused to fill out diaries (SKIP TO 9)

3. Since you haven't got the package we sent, I would like to check to make sure we have the correct mailing address.

(Display Name) \_\_\_\_\_

(Display Address) \_\_\_\_\_

(Display City) \_\_\_\_\_

(Display Zip code) \_\_\_\_\_

1 Name is incorrect

2 Address is incorrect

3 City is incorrect

4 Zip code is incorrect

5 Information is correct

(THIS IS A CONTINUAL LOOP UNTIL 5 IS PUNCHED FOR EVERY FIELD.)

**4. IF ADDRESS OR CITY WERE INCORRECT (CODES 2 OR 3):**

We will send you another package which you should receive during the next few days. Please keep it until (NEW DIARY DATE - READ DAY OF WEEK, MONTH AND DATE) and fill out the diaries then. We will call you again next (SUNDAY, MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY) to make sure you got them and to answer any questions you have. You should get the package very soon -- thank you for helping with the study.

**(RETAIN DATA ON THE ORIGINAL TRAVEL DATE, AND ADD A DATABASE FLAG TO INDICATE THE HOUSEHOLD'S TRAVEL DAY WAS RE-ASSIGNED. INCLUDE THIS HOUSEHOLD'S CORRECTED INFORMATION IN THE DAILY FILE TRANSFER OF RECRUITMENT ADDRESSES.)**

**5. IF ANYTHING ELSE FROM Q3 (CODES 1 OR 4) WAS INCORRECT:**

You should receive the package during the next few days. Please keep it until (NEW DIARY DATE - READ DAY OF WEEK, MONTH AND DATE) and fill out the diaries then. We will call you again next (SUNDAY, MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY) to make sure you got them and to answer any questions you have. You should get the package very soon -- thank you for helping with the study.

**(RETAIN DATA ON THE ORIGINAL TRAVEL DATE, AND ADD A DATABASE FLAG TO INDICATE THE HOUSEHOLD'S TRAVEL DAY WAS RE-ASSIGNED.)**

**6. I would like to find out what was missing from the envelope.**

- 1 Letter of Introduction
- 2 Fact Sheet
- 3 A Household and Vehicle Information Form
- 4 24-hour diary for each person in your household.  
How many were missing? \_\_\_\_\_
- 5 \$2 incentive for each member of your household (DO NOT PROMPT)  
How many were missing? \_\_\_\_\_
- 6 Postage-paid return envelope

**7. IF THE MISSING ITEMS WERE CODE 3 OR CODE 4**

We will send the items you are missing. When you get the envelope in the next few days, please keep it until (NEW DIARY DATE -- READ DAY OF WEEK, MONTH AND DATE) and fill out the diaries then. We'll call you again next (SUNDAY, MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY) to make sure you got them and to answer any questions you have. You should get the package very soon -- thank you for helping with the study.

**(RETAIN DATA ON THE ORIGINAL TRAVEL DATE, AND ADD A DATABASE FLAG TO INDICATE THE HOUSEHOLD'S TRAVEL DAY WAS RE-ASSIGNED. NOTIFY AMPG DAILY OF ANY HOUSEHOLDS WHICH NEED NEW MATERIALS SENT.)**

**8. IF THE MISSING ITEMS WERE CODES 1, 2, 5 OR 6**

We will send you the items you are missing, and you should get the package very soon. If you have your household and vehicle information form and your diaries completed we can continue with those now.

- 1 Willing to continue now (GO TO Q10) (NOTIFY AMPG DAILY OF ANY HOUSEHOLDS WHICH NEED NEW MATERIALS SENT.)
- 2 Wants to wait until the missing items arrive (GO TO Q7)

9. Your taking part in this study is very important and will help agencies in the Dallas-Fort Worth area improve transportation. The study will help transportation planners decide how to spend over \$15 billion dollars on the metroplex's highways and transit systems over the next 20 years. You can still be counted if you and the rest of your household fill in your diaries (NEW DIARY DATE - READ DAY OF WEEK, MONTH AND DATE). Are you willing to do this?

- 1 Yes
- 2 No (GO TO Q1)

Please keep your materials until (NEW DIARY DATE - READ DAY OF WEEK, MONTH AND DATE) and fill out the diaries then. Please write the (NEW DIARY DATE) on the front cover of each person's packet. We will call you again next (SUNDAY, MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY) to answer any questions you have. Thank you for helping with the study.

**(RETAIN DATA ON THE ORIGINAL TRAVEL DATE, AND ADD A DATABASE FLAG TO INDICATE THE HOUSEHOLD'S TRAVEL DAY WAS RE-ASSIGNED.)**

**HOUSEHOLD AND VEHICLE INFORMATION FORM**

10. Do you have the Household and Vehicle Information Form and your diaries by the phone?

- 1 Yes
- 2 No ASK RESPONDENT TO GET THE MATERIALS. WHEN RESPONDENT RETURNS, CONTINUE
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

I'd like to begin by collecting the information from the Household and Vehicle Information Form, printed on the colored card. Let's start with the vehicle section of the form.

11. How many vehicles do you have listed on this form?

ENTER NUMBER - ZERO IS A VALID ENTRY [VALID RANGE IS 0-9]

**VERIFY NUMBER OF VEHICLES AVAILABLE FOR USE BY HOUSEHOLD MEMBERS WITH RECRUITMENT FIGURE. IF THERE IS A DISCREPANCY FROM THE NUMBER REPORTED DURING RECRUITMENT, GO TO Q12. OTHERWISE GO TO Q13.**

12. During our previous call to your home, we were told that there were \_\_\_\_\_ vehicles available for use by members of your household. Can you tell us about the difference?

- 1 During recruitment, did not count vehicles owned by employer but kept at home
- 2 During recruitment, did not count vehicles used by other household members
- 3 During recruitment, did not count motorcycles or RV's
- 4 Purchased a vehicle between recruitment and the present
- 5 Sold a vehicle between recruitment and the present
- 6 During recruitment, included vehicles not kept at home (e.g. vehicles used by a child away at college, vehicles kept at work, etc.)
- 7 Other (specify): \_\_\_\_\_ (ALLOW 40 CHARACTERS)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

13. Tell me about the first (second, third, etc.) vehicle.

What is the make of the vehicle?

- |                    |                  |                                       |
|--------------------|------------------|---------------------------------------|
| 01 Acura           | 16 Isuzu         | 31 Porsche                            |
| 02 Audi            | 17 Jaguar        | 32 Range Rover                        |
| 03 BMW             | 18 Jeep          | 33 SAAB                               |
| 04 Buick           | 19 Kawasaki      | 34 Saturn                             |
| 05 Cadillac        | 20 Kia           | 35 Subaru                             |
| 06 Chevrolet       | 21 Lexus         | 36 Suzuki                             |
| 07 Chrysler        | 22 Lincoln       | 37 Toyota                             |
| 08 Dodge           | 23 Mazda         | 38 Volkswagen                         |
| 09 Ford            | 24 Mercedes Benz | 39 Volvo                              |
| 10 Geo             | 25 Mercury       | 40 Winnebago                          |
| 11 GMC             | 26 Mitsubishi    | 41 Other (specify)_____               |
| 12 Harley-Davidson | 27 Nissan        | (ALLOW 20 CHARACTERS)                 |
| 13 Honda           | 28 Oldsmobile    | 98 Refused (DO NOT READ)              |
| 14 Hyundai         | 29 Plymouth      | (CONTINUE)                            |
| 15 Infiniti        | 30 Pontiac       | 99 Don't Know (DO NOT READ)(CONTINUE) |

14. What is the model of vehicle number (one, two, three, etc.)? (OPEN ENDED, ALLOW 20 CHARACTERS; REPEAT MODEL NAME/NUMBER BACK TO VERIFY)

- 8 Refused (DO NOT READ) (CONTINUE)  
9 Don't Know (DO NOT READ) (CONTINUE)

[READ] That's a \_\_\_\_\_ (make) \_\_\_\_\_ (model), is that correct?

15. What is the body type of vehicle number (one, two, three, etc.)?

- 0 Auto  
1 Van  
2 RV  
3 Utility Vehicle  
4 Pick-up Truck  
5 Other Truck  
6 Motorcycle  
7 Other (specify) : \_\_\_\_\_ (ALLOW 20 CHARACTERS)  
8 Refused (DO NOT READ) (CONTINUE)  
9 Don't Know (DO NOT READ) (CONTINUE)

16. What is the model year of vehicle number (one, two, three, etc.)? (The year the vehicle was made.)

ENTER TWO DIGITS 19 \_\_ \_\_

- 98 Refused (DO NOT READ) (CONTINUE)  
99 Don't know (DO NOT READ) (CONTINUE)

17. In what year did you get vehicle number (one, two, three, etc.)? (COLLECT FOR ALL VEHICLES, INCLUDING EMPLOYER VEHICLES)

ENTER TWO DIGITS 19 \_\_ \_\_

98 Refused (DO NOT READ) (CONTINUE)

99 Don't know (DO NOT READ) (CONTINUE)

18. When you got vehicle number (one, two, three, etc.), was it...

1 A replacement vehicle (you sold or traded-in another vehicle and got this one)

2 An additional vehicle (this one increased the total number of vehicles you owned)

3 A first vehicle (this was the first vehicle purchased by your household)

8 Refused (DO NOT READ) (CONTINUE)

9 Don't know (DO NOT READ) (CONTINUE)

19. What type of fuel does vehicle number (one, two, three, etc.) use?

1 Gas

2 Diesel

3 Other (specify: \_\_\_\_\_) (ALLOW 20 CHARACTERS)

8 Refused (DO NOT READ) (CONTINUE)

9 Don't know (DO NOT READ) (CONTINUE)

20. Who owns or leases vehicle number (one, two, three, etc.)?

1 Household member

2 Employer

3 Other (specify: \_\_\_\_\_) (ALLOW 20 CHARACTERS)

8 Refused (DO NOT READ) (CONTINUE)

9 Don't know (DO NOT READ) (CONTINUE)

21. Was vehicle number (one, two, three, etc.) used on the diary day?

1 Yes (GO TO Q23)

2 No (GO TO Q22)

3 Refused (DO NOT READ) (GO TO Q23)

4 Don't know (DO NOT READ) (GO TO Q23)

22. Why not?

1 It was being repaired (but it usually works)

2 It does not run (and it never gets used)

3 It was out of fuel/no money for fuel

4 Other, (specify): \_\_\_\_\_ (ALLOW 40 CHARACTERS)

8 Refused (DO NOT READ) (CONTINUE)

9 Don't know (DO NOT READ) (CONTINUE)

23. In whole miles, what was the odometer reading of vehicle number (one, two, three, etc.) at the beginning of your assigned diary day?

\_\_\_\_\_ [ENTER SIX DIGITS. VALID RANGE IS 000,000 TO 999,999]

\_\_\_ REF Refused (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)  
\_\_\_ DK (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)

24. In whole miles, what was the odometer reading of vehicle number (one, two, three, etc.) at the end of your assigned diary day? (Q24 MUST BE GREATER THAN OR EQUAL TO Q23. IF Q24 MINUS Q23 EXCEEDS 500, ASK: So the vehicle was driven \_\_\_\_\_ miles on the diary day? CORRECT MILEAGE ENTRIES, IF NECESSARY. IF Q21=2, AND THERE WAS A NUMERIC ANSWER TO Q23, THEN SKIP Q24. IF Q21=2, AND THE ANSWER TO Q23 WAS REF/DK, THEN Q24 SHOULD BE ASKED.)

\_\_\_\_\_ [ENTER SIX DIGITS. VALID RANGE IS 000,000 TO 999,999]

\_\_\_ REF Refused (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)  
\_\_\_ DK (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)

IF THE RESPONDENT ANSWERS Q23 BUT Q24 IS REF OR DK -- OR -- IF THE RESPONDENT ANSWERS Q24 BUT Q23 IS REF OR DK -- OR -- IF BOTH Q23 AND Q24 ARE REF/DK, THEN ASK Q25. IF Q21=2, SKIP Q25.

25. Approximately how many miles was the vehicle driven on the diary day?

\_\_\_\_\_

IF BOTH Q23 AND Q24 ARE REF/DK, THEN ALSO ASK Q26.

26. Could you provide an estimate of the odometer reading of vehicle number (one, two, three, etc.) at the end of your assigned diary day? (PROBE FOR ESTIMATE TO THE NEAREST 1,000 MILES)

\_\_\_\_\_

\_\_\_ REF Refused (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)  
\_\_\_ DK (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)

Now let's move on to the second (third, fourth, fifth, sixth, etc...) vehicle.

REPEAT QUESTIONS 13 THROUGH 26 FOR ALL VEHICLES

27. Now turn to the other side of the form.  
How many people live in your household, including infants and live-in domestic help?

ENTER NUMBER \_\_\_

VERIFY NUMBER OF HOUSEHOLD MEMBERS WITH RECRUITMENT FIGURE. IF THERE IS A DISCREPANCY FROM THE NUMBER REPORTED DURING RECRUITMENT, GO TO Q28; OTHERWISE, CONTINUE TO Q 29.

28. During our previous call to your home we were told that there were \_\_\_\_\_ members in your household. Can you tell us about the difference? **MUST ALLOW MULTIPLE RESPONSE**

- 01 Household member(s) died
- 02 Household member(s) no longer living at this address
- 03 Household size given at recruitment was mistakenly too large
- 04 Other permanent reduction in household size
- 05 New household member born
- 06 New household member moved in
- 07 Household size given at recruitment was mistakenly too small
- 08 Other permanent addition to household size
- 09 Household member absent during diary period (e.g. household member was out of town on a trip)
- 10 Other (specify) \_\_\_\_\_ (ALLOW 40 CHARACTERS)
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

**IF ANSWER IS 01, 02, 03, 04, 98 or 99:**

READ: Okay, then we will just be collecting information for those who are currently living in your household.  
**ADJUST CATI PROGRAM FOR NEW, SMALLER HH SIZE.**

**IF ANSWER IS 05, 06, 07 or 08**

READ: Okay, we will try to collect information from everyone in your household. Later on, I will need to speak directly with those who don't have a diary.

**ADJUST CATI PROGRAM FOR NEW, LARGER HH SIZE.**

**IF ANSWER IS 09**

READ: We still want to collect information about each person, even if they were gone during the diary period.

**IF ANSWER IS 10**

PROBE FOR AND RECORD THE REASON WHY. **INTERVIEWER - CALL THE SUPERVISOR TO THE PHONE NOW TO DETERMINE IF THE HOUSEHOLD SIZE NEEDS TO BE ALTERED IN THE PROGRAM.**

29. I would like to collect the information about each person in order. For person number \_\_\_\_ (1,2,3,4,5,6,7,8,9,10) on the form, what is the month and year of his/her birth? (ALLOW FOR 10 PERSONS)

Month: (Enter two digit number, 01 through 12)

- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (PROBE FOR ESTIMATE)

Year: 19 \_\_ \_\_ (Enter two digit number for year, 19 (00) to 19 (96)  
(Valid range is 00 to 97 ; probe for confirmation if out of range -- enter 97 if respondent was born before 1900)

- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (PROBE FOR ESTIMATE)

30. And what is person number (one's, two's, three's, ...) gender?

- 1 Male
- 2 Female
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

31. Does person number (one, two, three,...) have a valid driver's license? (ONLY ASK IF Q29 IS 1982 OR EARLIER - BE SURE TO ASK Q31 EVEN IF Q29 IS REF/DK) (INTERVIEWER: This includes motorcycle licenses.)

- 1 Yes
- 2 No
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

32. How is the question about person number (one's, two's, three's, ...) relationship to whoever filled out the form answered?

- 1 Self
- 2 Spouse
- 3 Son/Daughter
- 4 Father/Mother
- 5 Other related
- 6 Live-in help
- 7 Not related
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

33. What was person number (one's, two's, three's, ...) total annual income last year before taxes?

\$ \_\_\_\_\_

If the respondent is reluctant to provide the person's personal income, ask: Could you tell me which of the ranges printed at the bottom of the form include person number (one's, two's, three's, ...) total annual income last year?

- |                           |                              |
|---------------------------|------------------------------|
| 0 Nothing                 | 8 40 thousand to \$49,999    |
| 1 Less than 10 thousand   | 9 50 thousand to \$74,999    |
| 2 10 thousand to \$14,999 | 10 75 thousand to \$99,999   |
| 3 15 thousand to \$19,999 | 11 100 thousand to \$149,999 |
| 4 20 thousand to \$24,999 | 12 150 thousand or more      |
| 5 25 thousand to \$29,999 | 98 Refused (DO NOT READ)     |
| 6 30 thousand to \$34,999 | 99 Don't know (DO NOT READ)  |
| 7 35 thousand to \$39,999 |                              |

**REPEAT QUESTIONS 29 THROUGH 33 FOR ALL PERSONS LISTED**

34. Looking at the bottom of the form, please read me the income range that is closest to your household's total annual income last year, before taxes. [ IF THERE IS ANY HESITATION ON THE PART OF THE RESPONDENT, READ: I understand your hesitation to provide this information, but it is very important to the study. Again, your answers will remain strictly confidential and will be used for study purposes only.]

- |                           |                              |
|---------------------------|------------------------------|
| 1 Less than 10 thousand   | 8 40 thousand to \$49,999    |
| 2 10 thousand to \$14,999 | 9 50 thousand to \$74,999    |
| 3 15 thousand to \$19,999 | 10 75 thousand to \$99,999   |
| 4 20 thousand to \$24,999 | 11 100 thousand to \$149,999 |
| 5 25 thousand to \$29,999 | 12 150 thousand or more      |
| 6 30 thousand to \$34,999 | 98 Refused (DO NOT READ)     |
| 7 35 thousand to \$39,999 | 99 Don't know (DO NOT READ)  |

ASK Q35 only if any household member's Q32=6 or 7.

35. I'd like to confirm that this amount includes all members of your household, even those who are unrelated to you.

- 1 Yes
- 2 No -----> CORRECT ANSWER TO Q34 TO REFLECT TOTAL INCOME OF ALL HOUSEHOLD MEMBERS
- 8 Refused (DO NOT READ)
- 9 Don't know (DO NOT READ)

IF ACTUAL PERSONAL INCOME VALUES WERE PROVIDED IN Q33, SUM THESE AMOUNTS. IF THE SUM EXCEEDS THE TOP OF THE RANGE GIVEN IN Q34, PROBE AS FOLLOWS:

Adding up the annual incomes per person comes to \_\_\_\_\_. Would the \_\_\_\_\_ income range be more appropriate for your household?

(NOTE: DO NOT PROBE IF THE SUM OF THE PERSONAL INCOMES IS LESS THAN THE BOTTOM OF THE RANGE GIVEN IN Q34. DO NOT PROBE IF ANY HOUSEHOLD MEMBER PROVIDED A RANGE IN Q33 INSTEAD OF AN ACTUAL VALUE)

36. I have two questions about events at your household during the diary day. How many commercial vehicles arrived at your home to deliver, to repair, or to provide other services during your assigned diary day? This includes delivery trucks, U.P.S., Federal Express, repair trucks, etc. This does not include garbage trucks and mail trucks.

[ENTER 00 THROUGH 97]

- 98 Refused (DO NOT READ) (CONTINUE)
  - 99 Don't know (DO NOT READ) (CONTINUE)
37. Did you have any guests in your home during the diary day? (INTERVIEWER: THE ANSWER SHOULD BE YES IF THERE WERE ANY VISITORS IN THE HOME ON THE DIARY DAY, EVEN FOR JUST A BRIEF VISIT)

- 1 Yes
- 2 No
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

#### INDIVIDUAL INFORMATION

Thank you for completing the Household and Vehicle Information Form. Now I'd like to collect your (this person's) Individual Information.

38. Looking at the front cover of your (this person's) diary, please tell me your (this person's) month and year of birth.

Month: (Enter two digit number, 01 through 12)

- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

Year: 19 \_\_\_\_ (Enter two digit number for year, 19 (00) to (19)96)  
(Valid range is 00 to 97 ; probe for confirmation if out of range -- enter 97 if respondent was born before 1900)

- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

39. And your (this person's) gender?

- 1 Male (DO NOT READ) (GO TO Q39a.)
- 2 Female (DO NOT READ) (GO TO Q39a.)
- 8 Refused (DO NOT READ) (GO TO Q39a.)
- 9 Don't Know (DO NOT READ) (GO TO Q39a.)

39a. Was this diary filled out for (DIARY DATE)?

- 1 Yes
- 2 No (RECORD THE NEW DIARY DATE AND CONTINUE)
- 8 Refused
- 9 Don't know

40. Is this person number \_\_\_\_\_ from the Household Information Form?

Enter person number: \_\_\_\_

**[CHECK FOR MATCH BETWEEN GENDER AND MONTH/YEAR OF BIRTH WITH PERSON NUMBER FROM HOUSEHOLD FORM. IF THERE IS A DISCREPANCY, PROBE FOR CLARIFICATION. IF NECESSARY, RECORD CORRECT PERSON NUMBER.]**

41. Now turn to the first question. Let's go through your (his/her) individual information first.  
Do you (does he/she) have any physical limitation that affects the type of transportation you (he/she) can use? **[ALLOW MULTIPLE RESPONSE]**

- 0 None
- 1 Difficulty standing
- 2 Difficulty climbing stairs
- 3 Visual/blind
- 4 Hearing impaired/deaf
- 5 Wheelchair
- 6 Cane/Walker
- 7 Other (specify): \_\_\_\_\_ (INPUT VERBATIM, ALLOW 40 CHARACTERS)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

42. (Question 2) Are you (is he/she) of Spanish/Hispanic origin?

- 1 Yes
- 2 No
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

43. (Question 3) Which of the following best describes your (his/her) race?

- 1 Asian/Pacific Islander
- 2 Black/African American
- 3 Indian (American), Eskimo, Aleut
- 4 White
- 5 Mixed race
- 6 Other (specify): \_\_\_\_\_ (INPUT VERBATIM, ALLOW 20 CHARACTERS)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

44. (Question 4) What is the highest level of schooling you have (he/she has) COMPLETED?

- |  |  |
|--|--|
| 01 No school completed                     | 09 Bachelor's degree                   |
| 02 Preschool/nursery school                | 10 Some graduate school, but no degree |
| 03 Kindergarten-4th grade                  | 11 Master's degree                     |
| 04 5th-8th grade                           | 12 Professional school degree          |
| 05 9th-12th grade (no high school diploma) | 13 Doctorate degree                    |
| 06 High school graduate                    | 98 Refused (DO NOT READ) (CONTINUE)    |
| 07 Some college, but no degree             | 99 Don't Know (DO NOT READ) (CONTINUE) |
| 08 Associate degree in college             |  |

45. (Question 5) Which of the following best describes you (him/her)? (ALLOW MULTIPLE RESPONSE, ANY COMBINATION OF RESPONSES EXCEPT [7+2], [7+3], [0+1]):

- 1 Student in preschool, nursery school, school, college, university or votech (CONTINUE WITH Q46)
- 2 Employed (GO TO Q57)
- 3 Self-employed (GO TO Q57)
- 4 Regular volunteer worker (GO TO Q57)
- 5 Retired (GO TO Q97)
- 6 Full-time homemaker (GO TO Q97)
- 7 Not currently working for pay (GO TO Q97)
- 0 Child not in school/infant (GO TO Q97)
- 8 Refused (DO NOT READ) (GO TO Q97)
- 9 Don't Know (DO NOT READ) (GO TO Q97)

**SCHOOL INFORMATION (ASK ONLY IF Q45=1)**

46. (Question 6) What is the name of your (his/her) school? Can you please spell that?

ENTER NAME, ALLOW 40 CHARACTERS

- 98 Refused (DO NOT READ) (CONTINUE)  
99 Don't know (DO NOT READ) (CONTINUE)

47. (Question 7) What is the address where you attend (he/she attends) class?

- 0 At home (e.g., home school, correspondence courses) (GO TO Q57 IF Q45=2, 3, OR 4. OTHERWISE GO TO Q97)
- 1 Complete street address known/given
- 2 Cross streets known/given
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

Please program in the following for all Address Fields:

Number of fields for complete addresses: 8

Number	E/W/N/S	Street Name	Ave./Dr./Blvd./St.	No./Apt./Suite	City	Zipcode	State
--------	---------	-------------	--------------------	----------------	------	---------	-------

Number of fields for cross-streets: 2 fields with 5 subfields each

For Street 1: E/W/N/S	Street Name	Ave./Dr./Place/Blvd./St.	City	State
-----------------------	-------------	--------------------------	------	-------

For Street 2: E/W/N/S	Street Name	Ave./Place/Dr./Blvd./St.	City	State
-----------------------	-------------	--------------------------	------	-------

48. (Question 8) Were you (was he/she) in class on the diary day?

- 1 Yes (GO TO Q50)
- 2 No
- 8 Refused (DO NOT READ) (GO TO Q52)
- 9 Don't Know (DO NOT READ) (GO TO Q52)

49. Why not? (AFTER COLLECTING Q49, GO TO Q52)

- 1 I (she/he) did not have any classes scheduled
- 2 School did not hold classes
- 3 Family emergency
- 4 Sick
- 5 Other (specify): \_\_\_\_\_ [INPUT VERBATIM] [ALLOW 40 CHARACTERS]
- 8 Refused (DO NOT READ) (GO TO Q52)
- 9 Don't Know (DO NOT READ) (GO TO Q52)

50. Please take a moment to look through the diary to make sure that there is at least one school activity recorded. That's activity code 9. Did you find one?

- 1 Yes (GO TO Q52)
- 2 No
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

51. When we get to the activity diary we will work together to make sure we collect your (his/her) school activity.  
[INTERVIEWER: IT IS YOUR RESPONSIBILITY TO PROBE FOR A SCHOOL ACTIVITY WHEN YOU GET TO THIS PERSON'S DIARY.]

52. (Question 9) Including today, how many days in the past 7 days did you (he/she) travel to class?  
[INTERVIEWER: "TODAY" REFERS TO THE DIARY DAY]

- 0 Zero (Did not travel to class in the past 7 days)
- 1 One day
- 2 Two days
- 3 Three days
- 4 Four days
- 5 Five days
- 6 Six days
- 7 Seven days
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

IF Q48=1 AND Q52=ZERO, READ: You reported that you were (he/she was) in school on the diary day, which means that you (he/she) traveled to class at least once, correct? (CORRECT ANSWER TO Q52 AND/OR Q48)

**SKIP Q53 IF Q52=ZERO.**

53. On how many of these days did you (he/she) use each of the transportation options listed on the form?  
(INTERVIEWER: If more than one form of transportation was used, the respondent should count the one used for the greatest amount of time for each trip to class. Each day should be counted only one time, even if the respondent made multiple trips to school on any given day)

Number of days by walk/wheelchair  
ENTER DAYS - RANGE IS 0-7

Number of days by bicycle  
ENTER DAYS - RANGE IS 0-7

Number of days by drive alone in a car, van truck or motorcycle  
ENTER DAYS - RANGE IS 0-7

Number of days by trolley  
ENTER DAYS - RANGE IS 0-7

Number of days drive or ride with others in a car, van, truck or motorcycle  
ENTER DAYS - RANGE IS 0-7

Number of days by taxi  
ENTER DAYS - RANGE IS 0-7

Number of days by bus  
ENTER DAYS - RANGE IS 0-7

Number of days by other (specify): \_\_\_\_\_  
[ALLOW 40 CHARACTERS]  
ENTER DAYS - RANGE IS 0-7

Number of days by school bus  
ENTER DAYS - RANGE IS 0-7

00 None (Did not go to class)  
98 Refused (DO NOT READ) (PROBE FOR A RESPONSE)  
99 Don't know (DO NOT READ) (PROBE FOR A RESPONSE)

[CHECK THAT THE SUM OF DAYS IN Q53 EQUALS THE NUMBER GIVEN IN Q52. IF NOT, PROBE FOR CLARIFICATION: You told me that you (he/she) traveled to class \_\_\_\_\_ days in the past 7 days, but I have \_\_\_\_\_ days of travel. IF Q52 OR Q53=DK/REF, DO NOT PERFORM THIS CHECK. INSTEAD ENSURE THAT THE SUM OF ANSWERS TO Q53 IS NOT GREATER THAN 7.]

ASK Q54 ONLY IF Q31=1. OTHERWISE CHECK IF Q45= 2, 3, OR 4. IF SO, GO TO Q57. IF NOT, GO TO Q97.

54. (Question 10) Do you (does he/she) ever drive to class?

- 1 Yes (GO TO Q55)
- 2 No (GO TO Q56)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

IF Q54=2 AND THE NUMBER OF DAYS FOR DRIVE ALONE GIVEN IN Q53 IS GREATER THAN ZERO, PROBE FOR CLARIFICATION: You said that you (he/she) drove to school \_\_\_\_\_ (NUMBER OF DAYS DROVE ALONE FROM Q53) day(s) in the past seven days, so would it be more appropriate to say that you (he/she) sometimes drives to class? (CORRECT ANSWER TO Q54, OR IF NECESSARY, CORRECT ANSWER TO Q53)

55. How much do you (does he/she) personally pay to park?

\$ \_\_\_\_\_ [FIVE DIGITS, FIXED DECIMAL]

- 0 Free/nothing
- 1 Per day
- 2 Per week
- 3 Per month
- 4 Per quarter
- 5 Per semester
- 6 Per school year
- 7 Per other (specify) \_\_\_\_\_ (ALLOW 20 CHARACTERS)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

**\*\*IF Q45=2, 3 OR 4, GO TO Q57. OTHERWISE GO TO Q97\*\***

56. How much do you (does he/she) think you (he/she) would personally pay to park?

\$ \_\_\_\_\_ [FIVE DIGITS, FIXED DECIMAL]

- 00 Free/nothing
- 01 Per day
- 02 Per week
- 03 Per month
- 04 Per quarter
- 05 Per semester
- 06 Per school year
- 07 Could not drive
- 08 Per other (specify) \_\_\_\_\_ (ALLOW 20 CHARACTERS)
- 98 Refused (DO NOT READ) (PROBE FOR A RESPONSE)
- 99 Don't know (DO NOT READ) (PROBE FOR A RESPONSE)

**\*\*IF Q45=2, 3 OR 4, CONTINUE. OTHERWISE GO TO Q97.\*\***

**WORKER/EMPLOYER QUESTIONS (ASK ONLY IF Q45=2, 3 OR 4)**

57. Please turn to the Worker Information Section on page 3 to tell us about your (his/her) main job. (Question 12) Who do you (does he/she) work for? Can you spell that?

[ENTER NAME OF MAIN EMPLOYER - ALLOW 40 CHARACTERS]

- 1 I work for myself (He/she works for him/herself)
- 8 Don't Know (DO NOT READ) (CONTINUE)
- 9 Refused (DO NOT READ) (CONTINUE)

58. (Question 13) What kind of business or industry is your (his/her) main employer in? (e.g., hospital, publishing, construction, retail, education)

IF Q 57=1, ASK: What kind of business or industry are you (is he/she) in?

[COLLECT OPEN-ENDED - ALLOW 40 CHARACTERS]

- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

59. (Question 14) What do you (does he/she) do for your (his/her) main job? (e.g., nurse, personnel manager, plumber, sales person, teacher)

[COLLECT OPEN-ENDED - ALLOW 40 CHARACTERS]

- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

60. (Question 15) How many hours did you (he/she) work last week at your (his/her) main job?

[ENTER HOURS - VALID RANGE IS 00-168] FOR NONE ENTER 00.

- \_\_\_ REF Refused (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)
- \_\_\_ DK Don't Know (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)

61. (Question 15) How many of these hours were on Saturday or Sunday?

[ENTER HOURS - VALID RANGE IS 00-48] FOR NONE ENTER 00.  
(Q61 CANNOT EXCEED Q60)

- \_\_\_ REF Refused (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)
- \_\_\_ DK Don't Know (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)

62. (Question 16) Where do you (does he/she) usually work for your (his/her) main job?  
(INTERVIEWER: This should be the actual location where the respondent works)

- 1 There is no address (e.g., traveling salesman, repairman, etc.) (GO TO Q82)
- 2 In my home (GO TO Q82)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

Please program in the following for all Address Fields:  
Number of fields for complete addresses: 8

Number East/West/No./So. Street Name Ave./Dr./Blvd./St. No./Apt./Suite

City Zip Code State

Number of fields for cross-streets: 2 fields with 5 subfields each

For Street 1: East/West/No./So. Street Name Ave./Dr./Place/Blvd./St. City State

For Street 2: East/West/No./So. Street Name Ave./Place/Dr./Blvd./St. City State

IF COMPLETE ADDRESS IS UNKNOWN AND CROSS STREETS ARE UNKNOWN, ASK RESPONDENT FOR THE NAME OF THE CITY.

And what city was that in? \_\_\_\_\_ Can you please spell that?

63. (Question 17) What month and year did you (he/she) start working at this address?

[ENTER MONTH - 01 THROUGH 12]

- \_\_\_ REF Refused (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)
- \_\_\_ DK Don't Know (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)

[ENTER YEAR - 00 THROUGH 96]

- \_\_\_ REF Refused (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)
- \_\_\_ DK Don't Know (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)

64. (Question 18) Did you (he/she) work at this address on the diary day?

- 1 Yes
- 2 No (GO TO Q67)
- 8 Refused(GO TO Q68)
- 9 Don't Know(GO TO Q68)

65. Please take a moment to look through the diary to make sure that there is at least one work or work-related activity at this address recorded. That's activity code 7 or 8. Did you find one?

- 1 Yes (GO TO Q68)
- 2 No
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

66. When we get to the activity diary we will work together to make sure we collect your (his/her) work activity. (INTERVIEWER: IT IS YOUR RESPONSIBILITY TO PROBE FOR A WORK ACTIVITY WHEN YOU GET TO THIS PERSON'S DIARY.) (GO TO Q68)

67. Why not?

- 01 Sick/Medical
- 02 Vacation/Holiday
- 03 Weekend
- 04 Family emergency
- 05 Went to school
- 06 Worked second job
- 07 Worked at home
- 08 No work today
- 09 Day off
- 10 Compressed work week day off
- 11 Went to a different location for business reasons
- 12 Other (specify): \_\_\_\_\_ [INPUT VERBATIM] [ALLOW 40 CHARACTERS]
- 98 Refused (DO NOT READ) (CONTINUE)
- 98 Don't Know (DO NOT READ) (CONTINUE)

68. (Question 19) Including today, how many days in the past 7 days did you (he/she) travel to your (his/her) main job address?  
[INTERVIEWER: "TODAY" REFERS TO THE DIARY DAY.]

- 0 Zero (Did not travel to main job address in the past 7 days)
- 1 One day
- 2 Two days
- 3 Three days
- 4 Four days
- 5 Five days
- 6 Six days
- 7 Seven days
- 8 Refused (DO NOT READ)
- 9 Don't know (DO NOT READ)

IF Q64=1 AND Q68=ZERO, READ: You reported that you were (he/she was) at work on the diary day, which means that you (he/she) traveled to work at least once, correct? (CORRECT ANSWER TO Q68 AND/OR Q64)

SKIP Q69 IF Q68=ZERO

69. On how many of these days did you (he/she) use each of the transportation options listed on the form?  
(INTERVIEWER: If more than one form of transportation was used, the respondent should count the one used for the greatest amount of time for each trip to the main job address. Each day should be counted only one time, even if the respondent made multiple trips to the main job on any given day.)

Number of days by walk/wheelchair  
ENTER DAYS - RANGE IS 0-7

Number of days by bicycle  
ENTER DAYS - RANGE IS 0-7

Number of days by drive alone in a car, van truck or motorcycle  
ENTER DAYS - RANGE IS 0-7

Number of days by trolley  
ENTER DAYS - RANGE IS 0-7

Number of days drive or ride with others in a car, van, truck or motorcycle  
ENTER DAYS - RANGE IS 0-7

Number of days by taxi  
ENTER DAYS - RANGE IS 0-7

Number of days by bus  
ENTER DAYS - RANGE IS 0-7

Number of days by other (specify): \_\_\_\_\_ [ALLOW 40 CHARACTERS]

ENTER DAYS - RANGE IS 0-7

Number of days by school bus  
ENTER DAYS - RANGE IS 0-7

00 None (Did not go to main job address)

98 Refused (DO NOT READ)(PROBE FOR A RESPONSE)

99 Don't know (DO NOT READ)(PROBE FOR A RESPONSE)

[CHECK THAT THE SUM OF DAYS IN Q69 EQUALS THE NUMBER GIVEN IN Q68. IF NOT, PROBE FOR CLARIFICATION: You told me that you (he/she) traveled to your main job address \_\_\_\_ days in the past 7 days, but I have \_\_\_\_ days of travel. IF Q68=DK/REF, DO NOT PERFORM THIS CHECK. INSTEAD ENSURE THAT THE SUM OF ANSWERS TO Q69 IS NOT GREATER THAN 7.]

SKIP Q70 IF Q11=ZERO. SKIP Q70 IF Q31=2 FOR THIS PERSON.

70. (Question 20) At your (his/her) main job, do you (does he/she) usually need a vehicle listed on the vehicle information form for business purposes?

- 1 Yes
- 2 No
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

71. (Question 21) Is parking at your (his/her) main job place free to all employees?

- 1 Yes (GO TO Q78)
- 2 No
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

72. (Question 22) Does your(his/her) employer offer to pay for all or part of the cost of your(his/her) parking?

- 1 Yes, and I use (he/she uses) it
- 2 Yes, but I don't (he/she doesn't) use it
- 3 No
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

**ASK Q73 ONLY IF Q31=1. OTHERWISE, GO TO Q78.**

73. (Question 23) Do you (does he/she) ever drive to your main job place?

- 1 Yes (ASK Q74 AND Q75, THEN GO TO Q78)
- 2 No (GO TO Q76)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

**IF Q73=2 AND THE NUMBER OF DAYS FOR DRIVE ALONE GIVEN IN Q69 IS GREATER THAN ZERO, PROBE FOR CLARIFICATION:** You said that you (he/she) drove to your (his/her) main job (NUMBER OF DAYS DROVE ALONE FROM Q69) day(s) in the past seven days, so would it be more appropriate to say that you (he/she) sometimes drives to your (his/her) main job? (CORRECT ANSWER TO Q73, OR IF NECESSARY, CORRECT ANSWER TO Q69.)

74. How much do you (does he/she) personally pay to park at your main job place?

\$ \_\_\_\_\_ [FIVE DIGITS, FIXED DECIMAL]

- 0 Free/nothing
- 1 Per day
- 2 Per week
- 3 Per month
- 4 Per quarter
- 5 Per year
- 6 Other (specify): \_\_\_\_\_ (ALLOW 20 CHARACTERS)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

75. How long does it take you (him/her) to walk from the place you park (he/she parks) to your (his/her) main job place?  
(AFTER COLLECTING Q74 AND Q75, GO TO Q78)

[ENTER NUMBER - VALID RANGE IS 00-60]

- 97 Less than one minute
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't Know (DO NOT READ) (CONTINUE)

76. How much do you (does he/she) think you (he/she) would personally pay to park at your main job place?

\$ \_\_\_\_\_.\_\_\_\_ [FIVE DIGITS, FIXED DECIMAL]

- 0 Free/nothing
- 1 Per day
- 2 Per week
- 3 Per month
- 4 Per quarter
- 5 Per year
- 6 Could not drive
- 7 Per other (specify): \_\_\_\_\_ (ALLOW 20 CHARACTERS)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

77. How long do you (does he/she) think it would take you (him/her) to walk from the place you (he/she) would park to your (his/her) main job place?

[ENTER NUMBER - VALID RANGE IS 00-60]

- 97 Less than one minute
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't Know (DO NOT READ) (CONTINUE)

78. (Question 24) Does your (his/her) main employer/business offer to pay for all or part of the cost of bus passes?

- 1 Yes - and I use (he/she uses) it (GO TO Q79, THEN TO Q81)
- 2 Yes - but I don't (he/she doesn't) use it (GO TO Q80)
- 3 No (GO TO Q81)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

79. How much do you (does he/she) personally pay for a monthly bus pass?

\$ \_\_\_\_\_.\_\_\_\_ [FOUR DIGITS, FIXED DECIMAL.]

- 0 Free/nothing
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

80. How much do you (does he/she) think you (he/she) would personally pay for a monthly bus pass?

\$ \_\_\_\_\_.\_\_\_\_ [FIVE DIGITS, FIXED DECIMAL]

- 0 Free/nothing
- 1 No bus available/could not use the bus
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

81. (Question 25) Including today, how many days in the past 7 days did you (he/she) work at home for your (his/her) main job INSTEAD of going to your (his/her) main job place? [INTERVIEWER: "TODAY" REFERS TO THE DIARY DAY.]

- |   |            |   |                                     |
|---|------------|---|-------------------------------------|
| 0 | None       |   |                                     |
| 1 | One day    | 6 | Six days                            |
| 2 | Two days   | 7 | Seven days                          |
| 3 | Three days | 8 | Refused (DO NOT READ) (CONTINUE)    |
| 4 | Four days  | 9 | Don't Know (DO NOT READ) (CONTINUE) |
| 5 | Five days  |   |                                     |

**THE SUM OF Q68 PLUS Q81 SHOULD BE LESS THAN OR EQUAL TO SEVEN. IF IT IS GREATER THAN SEVEN, PROBE FOR CLARIFICATION:** You said that you (he/she) worked at your (his/her) main job address \_\_\_\_ days, and worked at home INSTEAD of going to work \_\_\_\_ days, but this adds up to more than seven days in total. Can you help me understand this? (INTERVIEWER: THE NUMBER OF DAYS IN Q81 SHOULD ONLY REFLECT DAYS THE RESPONDENT WORKED AT HOME INSTEAD OF THE WORKPLACE. IF Q81 IS IN ERROR, CORRECT IT. IF Q68 IS IN ERROR, CONTINUE.)

82. (Question 26) Are your (his/her) hours at your (his/her) main job...

- 0 Variable at your (his/her) choice (you have complete freedom in setting work hours)
- 1 Variable depending on the work (your work hours may start early or late, or end early or late, depending on the volume of work)
- 2 Allowed to vary within fixed limits (your work hours start and end within specified windows)
- 3 Fixed starting time, variable ending time depending on the work (your work starts at a set hour, but may end early or run late depending on the volume of work)
- 4 Fixed, but different hours, different days of the week (your work starts and ends at set hours each day you have to work, but the start time and end time varies by the day of the week)
- 5 Fixed and the same for several days or weeks (your work starts and ends at set hours, but the start time and end time changes every few days or weeks)
- 6 Fixed and the same every day (your work starts and ends at the same set hours every day)
- 7 Other (specify): \_\_\_\_\_ [INPUT VERBATIM. ALLOW 40 CHARACTERS]
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

83. (Question 27) Do you (does he/she) have a second job?

- 1 Yes
- 2 No (GO TO Q97)
- 8 Refused (DO NOT READ) (GO TO Q97)
- 9 Don't know (DO NOT READ) (GO TO Q97)

**SECOND JOB**

Tell us about your (his/her) second job.

84. (Question 28) Who do you (does he/she) work for? Can you spell that?

[ENTER NAME OF SECOND EMPLOYER - ALLOW 40 CHARACTERS]

- 1 I work for myself (He/she works for him/herself)
- 8 Refused(DO NOT READ) (CONTINUE)
- 9 Don't Know(DO NOT READ) (CONTINUE)

85. (Question 29) What kind of business or industry is your (his/her) second employer in? (e.g., hospital, publishing, construction, retail, education)  
 IF Q 82=1, ASK: What kind of business or industry are you (is he/she) in?

[COLLECT OPEN-ENDED - ALLOW 40 CHARACTERS]

- 8 Refused(DO NOT READ) (CONTINUE)  
 9 Don't Know(DO NOT READ) (CONTINUE)

86. (Question 30) What do you (does he/she) do for your (his/her) second job? (e.g., nurse, personnel manager, plumber, sales person, teacher)

[COLLECT OPEN-ENDED - ALLOW 40 CHARACTERS]

- 8 Refused(DO NOT READ) (CONTINUE)  
 9 Don't Know(DO NOT READ) (CONTINUE)

87. (Question 31) How many hours did you (he/she) work last week at your (his/her) second job?

[ENTER HOURS - VALID RANGE IS 00-168] FOR NONE ENTER 00.

- \_\_\_ REF Refused(DO NOT READ) (CONTINUE) (MUST BE ALPHA CODE)  
 \_\_\_ DK Don't Know(DO NOT READ) (CONTINUE) (MUST BE ALPHA CODE)

88. (Question 32) Where do you (does he/she) usually work for your (his/her) second job?  
 (INTERVIEWER: This should be the actual location where the respondent works)

- 1 There is no address (e.g., traveling salesman, repairman, etc.) (GO TO Q96)  
 2 In my home (GO TO Q96)  
 8 Refused (DO NOT READ)  
 9 Don't Know (DO NOT READ)

Please program in the following for all Address Fields:  
 Number of fields for complete addresses: 8

Number East/West/No./So. Street Name Ave./Dr./Blvd./St. No./Apt./Suite

City Zip Code State

Number of fields for cross-streets: 2 fields with 5 subfields each

For Street 1: East/West/No./So. Street Name Ave./Dr./Place/Blvd./St. City State

For Street 2: East/West/No./So. Street Name Ave./Place/Dr./Blvd./St. City State

IF COMPLETE ADDRESS IS UNKNOWN AND CROSS STREETS ARE UNKNOWN, ASK RESPONDENT FOR THE NAME OF THE CITY.

And what city was that in? \_\_\_\_\_ ENTER FROM RECODE TABLE OR ASK: Can you please spell that?

89. (Question 33) What month and year did you (he/she) start working at this address?

[ENTER MONTH - 01 THROUGH 12]

\_\_\_ REF Refused (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)  
\_\_\_ DK Don't Know (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)

[ENTER YEAR - 00 THROUGH 96]

\_\_\_ REF Refused (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)  
\_\_\_ DK Don't Know (DO NOT READ) (CONTINUE) (MUST HAVE ALPHA CODE)

90. (Question 34) Did you (he/she) work at this address on the diary day?

- 1 Yes
- 2 No (GO TO Q93)
- 8 Refused (DO NOT READ) (GO TO Q93)
- 9 Don't Know (DO NOT READ) (GO TO Q93)

91. Please take a moment to look through the diary to make sure that there is at least one work or work-related activity at this address recorded. That's activity code 7 or 8. Did you find one?

- 1 Yes (GO TO Q93)
- 2 No
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

92. When we get to the activity diary we will work together to make sure we collect your (his/her) work activity. (INTERVIEWER: IT IS YOUR RESPONSIBILITY TO PROBE FOR A WORK ACTIVITY WHEN YOU GET TO THIS PERSON'S DIARY.)

93. (Question 35) Including today, how many days in the past 7 days did you (he/she) travel to your (his/her) second job address?

- 0 Zero (Did not travel to second job address in the past 7 days)
- 1 One day
- 2 Two days
- 3 Three days
- 4 Four days
- 5 Five days
- 6 Six days
- 7 Seven days
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

IF Q90=1 AND Q93=ZERO, READ: You reported that you were (he/she was) at your second job address on the diary day, which means that you (he/she) traveled to work at least once, correct? (CORRECT ANSWER TO Q93 AND/OR Q90)

**Start of Activities**

101. Now please turn to Activity 1 on the larger sheets.

At 3:00 a.m. on \_\_\_\_\_ (DIARY DATE), were you (was he/she) traveling or doing something else?

- 1 Traveling (GO TO Q105)
- 2 Doing anything other than traveling

**STRAND FOR ACTIVITIES AT ONE PLACE - ACTIVITY ONE**

102. What was your (was his/her) activity code?

ACTIVITY CODE AND ASSOCIATED DESCRIPTION WILL APPEAR IN THE UPPER LEFT CORNER OF THE SCREEN WHILE THIS ENTIRE ACTIVITY IS COLLECTED.

**Activities at home**

FOR RESPONSES OF CODE 01, RUN AN ON-LINE CHECK TO CONFIRM Q45 = 2, 3 OR 4. IF CONFIRMED, GO TO Q105. OTHERWISE, GO TO Q103.

- 00 Sleep at home (PROGRAM SHOULD RECORD Q106=1 AND GO TO Q111)
- 01 Work at home (related to main or second job) (GO TO Q105 - IF Q105=1, PROGRAM SHOULD RECORD Q106=1 AND GO TO Q111)
- 02 All other at-home activities (PROGRAM SHOULD RECORD Q106=1 AND GO TO Q111)

**Activities Related to Bus, Trolley, or Taxi**

ACTIVITY 1: FOR ACTIVITY CODE 03, PROGRAM MUST ONLY ALLOW NEXT ACTIVITY CODE TO BE TRAVEL BY BUS, SCHOOL BUS, TROLLEY OR TAXI.

ACTIVITY 1: FOR ACTIVITY CODE 04, IF NEXT ACTIVITY AS REPORTED IN Q135/Q136 IS ANYTHING OTHER THAN TRAVEL (ANY MODE) OR ACTIVITY CODE 03 OR 05, PROBE AS FOLLOWS: I want to confirm that you did this activity at the same place you got off the vehicle. (IF CONFIRMED, CONTINUE. IF NOT CONFIRMED, RETURN TO Q135)

- 03 Wait for/get on vehicle (GO TO Q105)
- 04 Leave/get off vehicle (GO TO Q105)

**Pick-up or Drop-off Other People/Get Picked up or Dropped-off**

- 05 Pick-up someone or get picked-up (GO TO Q105)
- 06 Drop-off someone or get dropped off (GO TO Q105)

**Work**

FOR RESPONSES OF 07 OR 08, RUN AN ON-LINE CHECK TO CONFIRM Q45=2, 3, OR 4. IF CONFIRMED, GO TO Q105. OTHERWISE, GO TO Q103.

- 07 Work (includes regularly scheduled volunteer work)
- 08 Work-related (sales calls, meeting, errands, etc.)

**SKIP Q94 IF Q93=ZERO**

94. On how many of these days did you (he/she) use each of the transportation options listed on the form?  
(INTERVIEWER: If more than one form of transportation was used, they should count the one used for the greatest amount of time for each trip to the second job address. Each day should be counted only one time, even if the respondent made multiple trips to the main job on any given day.)

Number of days by walk/wheelchair  
ENTER DAYS - RANGE IS 0-7

Number of days by bicycle  
ENTER DAYS - RANGE IS 0-7

Number of days by drive alone in a car, van truck or  
motorcycle  
ENTER DAYS - RANGE IS 0-7

Number of days by trolley  
ENTER DAYS - RANGE IS 0-7

Number of days drive or ride with others in a car, van,  
truck or motorcycle  
ENTER DAYS - RANGE IS 0-7

Number of days by taxi  
ENTER DAYS - RANGE IS 0-7

Number of days by bus  
ENTER DAYS - RANGE IS 0-7

Number of days by other (specify): \_\_\_\_\_ [ALLOW 40 CHARACTERS]  
ENTER DAYS - RANGE IS 0-7

Number of days by school bus  
ENTER DAYS - RANGE IS 0-7

00 None (Did not go to second job address)

98 Refused (DO NOT READ) (PROBE FOR A RESPONSE)

99 Don't know (DO NOT READ) (PROBE FOR A RESPONSE)

[CHECK THAT THE SUM OF DAYS IN Q94 EQUALS THE NUMBER GIVEN IN Q93. IF NOT, PROBE FOR CLARIFICATION: You told me that you (he/she) traveled to your (his/her) second job address \_\_\_\_ days in the past 7 days, but I have \_\_\_\_ days of travel. IF Q93=DK/REF, DO NOT PERFORM THIS CHECK. INSTEAD ENSURE THAT THE SUM OF RESPONSES TO Q94 IS NOT GREATER THAN 7.]

95. (Question 36) Including today, how many days in the past 7 days did you (he/she) work at home for your (his/her) second job INSTEAD of going to your (his/her) second job place? [INTERVIEWER: "TODAY" REFERS TO THE DIARY DAY.]

- 0 None
- 1 One day
- 2 Two days
- 3 Three days
- 4 Four days
- 5 Five days
- 6 Six days
- 7 Seven days
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

THE SUM OF Q93 PLUS Q95 SHOULD BE LESS THAN OR EQUAL TO SEVEN. IF IT IS GREATER THAN SEVEN, PROBE FOR CLARIFICATION: You said that you (he/she) worked at your (his/her) second job address \_\_\_\_ days, and worked at home INSTEAD of going to work \_\_\_\_ days, but this adds up to more than seven days in total. Can you help me understand this? (INTERVIEWER: THE NUMBER OF DAYS IN Q93 SHOULD ONLY REFLECT DAYS THE RESPONDENT WORKED AT HOME INSTEAD OF THE SECOND JOB PLACE. IF Q95 IS IN ERROR, CORRECT IT. IF Q93 IS IN ERROR, CONTINUE.)

96. (Question 37) Are your (his/her) hours at your (his/her) second job...

- 0 Variable at your (his/her) choice
- 1 Variable depending on the work
- 2 Allowed to vary within fixed limits
- 3 Fixed starting time, variable ending time depending on the work
- 4 Fixed, but different hours, different days of the week
- 5 Fixed and the same for several days or weeks
- 6 Fixed and the same every day
- 7 Other (specify): \_\_\_\_\_ [INPUT VERBATIM. ALLOW 40 CHARACTERS]
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

**Check for Out of Region Activities**

97. Before turning to the activity diary, could you tell me if you were (he/she was) away from the Metroplex during any part of the diary day?

- 1 Yes/respondent was away some part of the diary day
- 2 No/respondent was in the Metroplex the whole diary day (GO TO Q101)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

98. At 3 a.m. on (DIARY DATE - READ DAY OF WEEK, MONTH AND DATE) were you (was he/she) inside the Metroplex?

- 1 Yes
- 2 No
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

99. At 3 a.m. on (DATE AFTER DIARY DATE - READ DAY OF WEEK, MONTH AND DATE) were you (was he/she) inside the Metroplex?

- 1 Yes
- 2 No
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

GO TO Q101 IF Q98≠ 2 & Q99≠2

IF Q98=2 AND Q99=2, ASK Q100.

100. Were you (was he/she) outside the Metroplex during the entire 24-hour diary period?

- 1 Yes -- > READ: Then that's all the information we need from you (him/her). (GO TO Q171)
- 2 No
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

**Education/Childcare**

**FOR ACTIVITY CODE 09, RUN AN ON-LINE CHECK TO CONFIRM Q45-1. IF CONFIRMED, GO TO Q105. OTHERWISE, GO TO Q104.**

**FOR ACTIVITY CODE 10, RUN AN ON-LINE CHECK TO CONFIRM THAT THE PERSON WAS BORN AFTER 1978. IF NOT READ: My computer is reminding me that you are (he/she is) \_\_\_\_\_ years old, and I want to make sure that you were (he/she was) attending childcare, day care or after school care.**

- 09 Preschool, school, college, university (GO TO Q105)
- 10 Childcare, day care, after school care (GO TO Q105)

**Eat Out**

- 11 Eat out (restaurant, drive-thru, etc.) (GO TO Q105)

**Medical**

- 12 Visit doctor, dentist, health center, hospital (GO TO Q105)

**Recreation/Entertainment**

- 13 Gym/health club (GO TO Q105)
- 14 Exercise/recreation (golf, tennis, sports, jogging, walking the dog, biking etc.) (GO TO Q105)
- 15 Entertainment (movies, spectator sports, museum, etc.) (GO TO Q105)

**Social/Civic/Religious**

- 16 Visit friends or relatives (including sleeping over) (GO TO Q105)
- 17 Community meetings, political or civic event, public hearing, etc. (GO TO Q105)
- 18 Occasional volunteer work (GO TO Q105)
- 19 Church, temple, religious meeting (GO TO Q105)

**Personal or Household Business**

- 20 Buy gas (GO TO Q105)
- 21 Shop for groceries, houseware, medicine, etc. (GO TO Q105)
- 22 Shop for furniture, clothes, autos, appliances, etc. (GO TO Q105)
- 23 ATM, banking, post office, utilities (GO TO Q105)
- 24 Other personal or household business (laundry, dry cleaning, shoe repair, video rental, barber, beauty shop, lawyer, accountant, broker, etc.) (GO TO Q105)

**Other Activities Away from Home**

- 25 Be with another person at their activity (GO TO Q105)
- 26 Other, specify: \_\_\_\_\_ (PROBE AND CODE APPROPRIATELY IF POSSIBLE, OR RECORD VERBATIM. CANNOT BE TRAVEL.) (ALLOW 30 CHARACTERS) (GO TO Q105)

**Stealth Categories (INTERVIEWER: RESPONDENT DOES NOT SEE THESE)**

- 27 Boarding activities for airplane, rail, intercity bus (GO TO Q105)
- 28 Disembarking activities for airplane, rail, intercity bus (GO TO Q105)

103. I would like to confirm that you are (he/she is) employed, self-employed, or a regular volunteer worker.

- 1 Yes/confirmed. (GO TO Q105)
- 2 No/not employed.

(IF NO, GO BACK TO Q102 AND RECORD CORRECT ACTIVITY CODE. ONLY EMPLOYED PERSONS CAN HAVE WORK ACTIVITIES.)

104. I would like to confirm that you are (he/she is) enrolled in school.

- 1 Yes/confirmed. (GO TO Q105)
- 2 No/not enrolled in school.

(IF NO, GO BACK TO Q102 AND RECORD CORRECT ACTIVITY CODE. ONLY PERSONS ENROLLED IN SCHOOL CAN HAVE SCHOOL ACTIVITIES.)

105. FOR ALL ACTIVITY ONE (3 A.M.) ACTIVITIES OTHER THAN CODE 00 or 02, PROBE:

That means that at 3 o'clock in the morning you were \_\_\_\_\_.

*activity or "traveling" should appear*

- 1 Yes (IF Q101=1, GO TO Q115. IF Q101=2 AND Q102≠01, GO TO Q106. IF Q102=01, Q106=1 AND GO TO Q111)
- 2 No (GO BACK TO Q101 OR Q102 AND RECORD CORRECT ACTIVITY CODE.)

106. Where were you (was he/she)?

- 1 At my (his/her) home (GO TO Q111)

IF THE ACTIVITY CODE = 07-08, OR 10-26, READ: I need to confirm your (his/her) activity code, because \_\_\_\_\_ is not an at-home activity. (GO TO Q102.)

IF THE ACTIVITY CODE=03, 04, 05, 06, READ: I want to confirm that you (he/she) had a very short walk between your home and the vehicle. IF CONFIRMED, CONTINUE. IF NOT CONFIRMED, Q106 SHOULD BE CODE 6, AND GO TO Q109 TO ENTER DETAILS

- 2 At my (his/her) school (GO TO Q107 TO CONFIRM LOCATION)

IF THE ACTIVITY CODE = 00, 01, 02, OR 20, READ: I need to confirm your (his/her) activity code, because \_\_\_\_\_ cannot be done at school. (GO TO Q102)

- 3 At my (his/her) main workplace (GO TO Q108 TO CONFIRM LOCATION)

IF ACTIVITY CODE = 00, 02, READ: I need to confirm your (his/her) activity code, because at-home activities cannot occur at the workplace. (GO TO Q102)

- 4 At my (his/her) second workplace (GO TO Q108 TO CONFIRM LOCATION)

IF ACTIVITY CODE = 00, 02, READ: I need to confirm your (his/her) activity code, because at-home activities cannot occur at the workplace. (GO TO Q102)

- 5 At a bus stop (GO TO Q109 and ENTER DETAILS)

IF ACTIVITY CODE = 00-02 OR 07-26, READ: I need to confirm your (his/her) activity code, because \_\_\_\_\_ is not usually done at a bus stop. (GO TO Q102) (DO NOT BLOCK OUT ACTIVITY CODES 07-26 - IF CONFIRMED WE WILL ACCEPT THEM)

- 6 At another place (GO TO Q109 and ENTER DETAILS)

IF ACTIVITY CODE = 00-02, READ: I need to confirm your (his/her) activity code, because you (he/she) reported activities in the home. (GO TO Q102)

- 8 Refused (DO NOT READ) (GO TO Q111)

- 9 Don't Know (DO NOT READ) (GO TO Q111)

107. Was that at your (his/her) school address: \_\_\_\_\_?

*school address should appear*

**SCHOOL ADDRESS SHOULD COME UP ON SCREEN. INTERVIEWER SHOULD CONFIRM ADDRESS WITH RESPONDENT. IF NO ADDRESS INFORMATION, COLLECT IT.**

- 1 Yes/confirmed (GO TO Q111)
- 2 No/another location (GO TO Q109 TO COLLECT DETAILS)
- 8 Refused (DO NOT READ) (GO TO Q111)
- 9 Don't know (DO NOT READ) (GO TO Q111)

108. Was that at your (his/her) main/second job address: \_\_\_\_\_?

*main or second job address should appear*

**MAIN OR SECOND JOB ADDRESS SHOULD COME UP ON SCREEN. INTERVIEWER SHOULD CONFIRM ADDRESS WITH RESPONDENT. IF NO ADDRESS INFORMATION, COLLECT IT.**

- 1 Yes/confirmed (GO TO Q111)
- 2 No/another location (GO TO Q109 TO COLLECT DETAILS)
- 3 Refused (DO NOT READ) (GO TO Q111)
- 4 Don't know (DO NOT READ) GO TO Q111

109. What was the name of the business, store, bus stop, place name, or residence: \_\_\_\_\_? Can you please spell that?

- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

110. What was the exact address?

- 1 Exact address given
- 2 Cross streets given
- 3 Refused (DO NOT READ) (CONTINUE)
- 4 Don't know (DO NOT READ) (CONTINUE)

Please program in the following for all Address Fields:

**Number of fields for complete addresses: 7**

Number	East/West/No./So.	Street Name	Ave./Dr./Blvd./St.	No./Apt./Ste.	City	State
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**Number of fields for cross-streets: 2 fields with 5 subfields each**

For Street 1:	East/West/No./So.	Street Name	Ave./Dr./Place/Blvd./St.	City	State
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For Street 2:	East/West/No./So.	Street Name	Ave./Place/Dr./Blvd./St.	City	State
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**IF Q102=00 (SLEEPING), SKIP Q111.**

111. IF Q102=01-02 OR Q106=1: Did you (he/she) do anything else before leaving home?

FOR ALL OTHERS: Did you (he/she) do anything else before leaving this place?

- 1 Yes - did something else at home/this place (INTERVIEWER: The next activity will be something other than travel.)
- 2 No - nothing else at home/this place (INTERVIEWER: The next activity will be travel) (COLLECT Q112. AS LONG AS Q112≠1, PROGRAM SHOULD THEN RECORD Q135=1 AND GO TO Q148)
- 3 No - did not leave this place/no more activities (IF Q102=00-02, GO TO Q113, OTHERWISE GO TO Q168)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

112. IF Q102=00: When did you (he/she) wake up, which is the same time you (he/she) started your (his/her) next activity?  
 IF Q111=2 AND Q102=01-02 OR Q106=1, ASK: When did you (he/she) leave home, which is the same time you (he/she) started your (his/her) next activity?  
 IF Q111=2 AND Q102=03, ASK: When did you (he/she) stop waiting and get on the vehicle?  
 IF Q111=2, AND Q102≠00, 01, 02 OR 03, ASK: When did you (he/she) leave this place, which is the same time you (he/she) started your (his/her) next activity?  
 FOR ALL OTHERS: When did you (he/she) start the second activity, which is the same time you (he/she) stopped the first one?

1 Did not stop activity one (i.e., activity one continued until 3 a.m. the next day) (IF Q102=00-02, GO TO Q113, OTHERWISE GO TO Q168)

:

Record Time

Was that a.m. or p.m.?

- 1 a.m.
- 7 p.m.
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

UNLESS GOING TO Q113/14, Q148 OR Q168, GO TO Q135

113. I want to confirm that you (he/she) stayed at home during the whole diary day, until 3 a.m. on \_\_\_\_\_?  
*end date should appear*

- 1 Yes, stayed home (GO TO Q114)
- 2 No or don't know →GO BACK TO Q112

114. Why were you (was he/she) at home during the whole diary day?

- 01 Temporary illness
- 02 Child/other household member was ill/needed care at home
- 03 Homebound (does not leave the house - includes newborns/infants)
- 04 Fulltime homemaker
- 05 Employed and worked at home

**CHECK THAT RESPONDENT IS EMPLOYED OR A REGULAR VOLUNTEER WORKER (USE SAME SCRIPT AND PROTOCOL AS Q103)**

06 Home school

**CHECK THAT RESPONDENT IS ENROLLED IN SCHOOL (USE SAME SCRIPT AND PROTOCOL AS Q104)**

- 07 Day off
- 08 Vacation day
- 09 Other (specify): \_\_\_\_\_ (INPUT VERBATIM) (ALLOW 30 CHARACTERS)
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't Know (DO NOT READ) (CONTINUE)

**NOTE: IF Q113=1, THE DIARY HAS ZERO TRIPS AND MUST BE PROGRAMMED FOR REVIEW BY A SUPERVISOR ON A DAILY BASIS. DIARIES WITH ZERO TRIPS - GO TO Q171. ALL OTHERS GO TO Q135.**

**STRAND FOR TRAVELLING - ACTIVITY ONE**

115. How did you (he/she) travel?

- 01 Car, van, truck or motorcycle (Go to Q116)
- 02 Bus (Go to Q127)
- 03 School bus (Go to Q132)
- 04 Trolley (Go to Q127)
- 05 Taxi (Go to Q127)
- 06 Walk (Go to Q131)
- 07 Bike (Go to Q131)
- 08 Wheelchair (Go to Q131)
- 09 Other, specify: \_\_\_\_\_ (Go to Q131)
- 98 Refused (DO NOT READ) (Go to Q131)
- 99 Don't know (DO NOT READ) (Go to Q131)

IF Q115 = 02, 03, 04, 05, PROGRAM MUST ONLY ALLOW NEXT ACTIVITY TO BE CODE 04 (LEAVE/GET OFF VEHICLE)

**CAR, VAN, TRUCK, OR MOTORCYCLE BRANCH**

116. Were you (was he/she) the driver or a passenger?

- 1 Driver (IF Q117-119 DO NOT APPLY, GO TO Q120)
- 2 Passenger (IF Q117-119 DO NOT APPLY, GO TO Q120)
- 8 Refused (DO NOT READ) (GO TO Q120)
- 9 Don't know (DO NOT READ) (GO TO Q120)

ONLY ASK Q117 IF Q116=1 AND Q31=2.

117. Earlier you told me that you (he/she) lacked a drivers' license, so I would like to make sure that you were (he/she was) driving.  
(INTERVIEWER: RECORD RESPONSE, OR RETURN TO CORRECT Q116)

- 1 Confirmed - respondent lacks a driver's license but was driving
- 2 Respondent does have a driver's license (and Q31 was therefore incorrectly recorded)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

ONLY ASK Q118 IF Q11=ZERO AND Q116 = 1.

118. Was this a borrowed, rented or company vehicle?

- 1 Yes (GO TO Q122)
- 2 No
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

119. Previously it was reported that there are no vehicles kept at home for use by your household, and yet you have (he/she has) reported driving. Could you please explain the situation?

- 1 There is a household vehicle which was previously unreported
- 2 Other (specify) \_\_\_\_\_ (RECORD VERBATIM) (ALLOW 40 CHARACTERS)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

120. Did you (he/she) use one of the vehicles listed on the vehicle form?

- 1 Yes
- 2 No (Go to Q122)
- 8 Refused (DO NOT READ) (GO TO Q122)
- 9 Don't know (DO NOT READ) (GO TO Q122)

121. Which one did you (he/she) use?

HAVE A LISTING OF HOUSEHOLD VEHICLES AS REPORTED PREVIOUSLY BY RESPONDENTS COME UP ON SCREEN. EACH VEHICLE SHOULD ALSO COME UP ACCORDING TO THE VEHICLE NUMBER ON THE VEHICLE FORM SO WE KNOW WHICH VEHICLE WAS USED, THE TOYOTA CAMRY OR THE TOYOTA FOUR-RUNNER, FOR EXAMPLE. VEHICLE YEAR SHOULD ALSO BE DISPLAYED. INTERVIEWER SHOULD ENTER THE VEHICLE NUMBER.

122. How many OTHER people were in the vehicle with you (him/her), not counting yourself (himself/herself)?

- ENTER TWO DIGITS \_\_ \_\_
- 00 None (GO TO Q124)
  - 98 Refused (DO NOT READ) (CONTINUE)
  - 99 Don't know (DO NOT READ) (CONTINUE)

ONLY ASK Q123 IF Q27 IS GREATER THAN ONE.

123. How many of these were members of your household?

- ENTER TWO DIGITS \_\_ \_\_
- 00 None
  - 98 Refused (DO NOT READ) (CONTINUE)
  - 99 Don't know (DO NOT READ) (CONTINUE)

Q123 MAXIMUM = Q27 MINUS ONE. Q123 MUST BE LESS THAN OR EQUAL TO Q122. IF THESE CONDITIONS ARE NOT MET, PROBE FOR CLARIFICATION.

124. At the next place the vehicle was stopped, was it parked?

- 1 Yes
- 2 No (GO TO Q132)
- 8 Refused (DO NOT READ) (GO TO Q132)
- 9 Don't Know (DO NOT READ) (GO TO Q132)

125. How much did you (he/she) personally pay for parking? (ENTER EITHER AMOUNT OR CODE 0-9)

- 0 Nothing
- \$\_\_ \_\_ \_\_ \_\_ \_\_ (5 digits, fixed decimal)
- 1 Paid by permit/tag
  - 2 Did not park (GO TO Q132)
  - 8 Refused (DO NOT READ) (CONTINUE)
  - 9 Don't know (DO NOT READ) (CONTINUE)

126. How long did it take you (him/her) to walk from the place the vehicle was parked to the next activity?

ENTER TWO DIGITS FOR NUMBER OF MINUTES

- 00 Less than one minute
- 95 Stayed in vehicle/did not walk
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

\*\*\* GO TO Q132 \*\*\*

**BUS, SCHOOL BUS, TROLLEY OR TAXI BRANCH**

127. How many friends, relatives, or colleagues were in the vehicle with you (this person), not counting yourself (himself/herself)?

ENTER TWO DIGITS \_\_\_

- 00 None (GO TO Q129)
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

ONLY ASK Q128 IF Q27 IS GREATER THAN ONE

128. How many of these were members of your household?

ENTER TWO DIGITS \_\_\_

- 00 None
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

Q128 MAXIMUM = Q27 MINUS ONE. Q128 MUST BE LESS THAN OR EQUAL TO Q127. IF THESE CONDITIONS ARE NOT MET, PROBE FOR CLARIFICATION.

129. How much fare did you (he/she) personally pay? (ENTER EITHER THE AMOUNT, OR CODE 0-9)

\$\_\_\_\_\_ (5 digits, fixed decimal)

- 0 Nothing
- 1 Paid by pass
- 2 Paid by transfer
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

**ONLY ASK Q130 IF Q115 WAS 02**

130. Did you (he/she) ride DART or The T?

- 1 DART
- 2 The T
- 8 Refused (DO NOT READ) (GO TO Q132)
- 9 Don't Know (DO NOT READ) (GO TO Q132)

130a. What was the route number?

- [ENTER ALPHANUMERIC ROUTE NUMBER] (GO TO Q132)
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

130b. What was the name of the route?

- [USE ALPHABETICAL LOOKUP TABLE AND ENTER ROUTE NUMBER]
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

**\*\*\* GO TO Q132 \*\*\***

**WALK, BIKE, WHEELCHAIR BRANCH**

131. How far did you (he/she) travel/walk?

**If distance is known AND is under 100 miles:**

\_\_\_\_.\_\_\_\_ (4 digits, fixed decimal point)

- 01 Feet
- 02 Blocks
- 03 Miles

**If distance is unknown OR more than 100 miles, probe for an estimate:**

- 04 Less than one quarter mile (< 0.25)
- 05 One quarter mile to less than 1 mile (0.25-0.99)
- 06 One mile to less than 5 miles (1.0 - 4.99)
- 07 Five miles to less than 10 miles (5.0-9.99)
- 08 Ten miles to less than 25 miles (10.0 - 24.99)
- 09 25 miles to less than 50 miles (25.0-49.99)
- 10 50 to less than 100 miles (50.0 - 99.99)
- 11 100 miles or more
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't Know (DO NOT READ) (CONTINUE)

**TRAVEL ACTIVITY CLOSURE**

132. IF Q115=02, 03, 04 OR 05, ASK: When did you (he/she) get off the vehicle?  
IF Q115=01 AND (IF ASKED) Q126= A NUMERIC ANSWER FOR THE NUMBER OF MINUTES, ASK: When did you (he/she) stop walking, which is the same time you (he/she) started your (his/her) next activity?  
IF Q115=06, ASK: When did you stop walking, which is the same time you (he/she) started your (his/her) next activity?  
FOR ALL OTHERS, ASK: When did you (he/she) stop traveling, which is the same time you (he/she) started your (his/her) next activity?

- 2 Did not stop activity (i.e., activity continued until 3 a.m. the next day) (GO TO Q168)

:  Record Time

Was that a.m. or p.m.?

- 1 a.m.  
7 p.m.  
8 Refused (DO NOT READ) (CONTINUE)  
9 Don't know (DO NOT READ) (CONTINUE)

**THE PROGRAM SHOULD CALCULATE THE TRAVEL TIME USING 3 A.M. AS A START. ANY TIME LONGER THAN 60 MINUTES SHOULD BE CONVERTED INTO HOURS AND MINUTES.**

133. So you (he/she) traveled for \_\_\_\_\_ minutes/hours? (SUBSTITUTE "walked" for traveled if Q115=06)

- 1 Yes/confirmed  
2 No/incorrect

**IF NO, RETURN TO Q132 TO RECORD THE CORRECT TIME**

**ASK Q134 ONLY IF TRAVEL TIME EXCEEDS 90 MINUTES; OTHERWISE GO TO Q135**

134. I want to confirm that you did not make any stops to do activities along the way.

- 1 Yes/confirmed  
2 No/there were stops or activities

**IF NO, RETURN TO Q124-126 AND Q132 TO CONFIRM THAT THE PARKING QUESTIONS RELATE TO THE INTERMEDIATE STOP AND TO RECORD THE CORRECT TIME OF THE TRAVEL**

## TRANSITION BETWEEN ACTIVITIES

135. IF PREVIOUS ACTIVITY IS GET ON VEHICLE (Q102=03 OR Q136=03), ASK: So at \_\_\_\_\_ [INSERT TIME FROM Q112, Q132, Q146, OR Q165, AS APPROPRIATE] you were traveling on the vehicle?  
IF PREVIOUS ACTIVITY IS TRAVEL BY TRANSIT (Q115=02,03,04,05 OR Q148=02,03,04,05), ASK: So at \_\_\_\_\_ [INSERT TIME FROM Q112, Q132, Q146, OR Q165, AS APPROPRIATE] you got off the vehicle?  
FOR ALL OTHERS: And what were you doing at \_\_\_\_\_ [INSERT TIME FROM Q112, Q132, Q146, OR Q165, AS APPROPRIATE] REPEAT UP TO TWENTY-EIGHT TIMES.

[INTERVIEWER: ENTER THE RESPONSE THAT CORRESPONDS TO THE ACTIVITY, AND PROCEED TO THE NEXT SCREEN TO RECORD THE ACTIVITY CODE OR TRAVEL MODE CODE]

- 1 Traveling (GO TO Q148)
- 2 Anything other than traveling (e.g., activity code 1-28) (GO TO Q136)
- 3 No more activities (GO TO Q168)

### STRAND FOR ACTIVITIES AT ONE PLACE - ACTIVITIES TWO THROUGH TWENTY-EIGHT

136. [INTERVIEWER: ENTER THE ACTIVITY CODE. IF NECESSARY, PROBE THE RESPONDENT TO DETERMINE THE CORRECT ACTIVITY CODE.]

#### **Activities at home**

① IF THE PRECEDING ACTIVITY WAS TRAVEL, ASK: Did you do anything else on the way home? IF YES, RETURN TO [Q124-Q126 (ACTIVITY ONE) OR Q157-159 (ACTIVITY 2+)] AND [Q132 (ACTIVITY ONE) OR Q165 (ACTIVITY 2+)] TO CONFIRM THAT THE PARKING QUESTIONS RELATE TO THE INTERMEDIATE STOP AND TO RECORD THE CORRECT TIME OF THE TRAVEL, THEN TO Q136 TO RECORD THE CORRECT ACTIVITY CODE.

② FOR RESPONSES OF CODE 01, RUN AN ON-LINE CHECK TO CONFIRM (Q45= 2, 3, OR 4) OR (Q103=1) OR (Q137=1). IF CONFIRMED, Q140=1 AND GO TO Q145. OTHERWISE, GO TO Q137.

- 00 Sleep at home (PROGRAM SHOULD RECORD Q140=1 AND GO TO Q 145)
- 01 Work at home (related to main or second job) (PROGRAM SHOULD RECORD Q140=1 AND GO TO Q 145)
- 02 All other at home activities (PROGRAM SHOULD RECORD Q140=1 AND GO TO Q145)

#### **Activities Related to Bus, Trolley, or Taxi**

① FOR ACTIVITY CODE 03, RUN AN ON-LINE CHECK TO CONFIRM THAT THE IMMEDIATELY PRECEDING ACTIVITY WAS TRAVEL (ANY MODE), AN AT-HOME ACTIVITY (CODE 00, 01, 02), ACTIVITY CODE 04 OR ACTIVITY CODE 06. IF NOT READ: I need to collect your (his/her) full set of activities, and when you use a bus, trolley or taxi, that means finding out how you got to the bus, trolley or taxi, how long and where you waited, how long you traveled, and where you got off. We are missing how you got to the vehicle, so I am going to back up and go over this step with you. GO BACK TO Q135 TO BEGIN COLLECTION OF THIS ACTIVITY AGAIN.

② FOR ACTIVITY CODE 03, PROGRAM MUST ONLY ALLOW NEXT ACTIVITY CODE TO BE TRAVEL BY BUS, SCHOOL BUS, TROLLEY OR TAXI.

③ FOR ACTIVITY CODE 04, RUN AN ON-LINE CHECK TO CONFIRM THAT THE IMMEDIATELY PRECEDING ACTIVITY WAS TRAVEL BY BUS, SCHOOL BUS, TROLLEY, OR TAXI. (Note that if the programming specified for Q102, Q115, Q136, and Q148 is implemented, the need for this check should be rare.)

IF NOT, READ: I need to collect your (his/her) full set of activities, and when you use a bus, trolley or taxi, that means finding out how you got to the bus, trolley or taxi, how long and where you waited, how long you traveled, and where you got off. We are missing your ride on the bus, trolley or taxi, so I am going to back up and go over this step with you. GO BACK TO Q135 TO BEGIN COLLECTION OF THIS ACTIVITY AGAIN.

④ FOR ACTIVITY CODE 04, IF NEXT ACTIVITY AS REPORTED IN Q135/Q136 IS ANYTHING OTHER THAN TRAVEL (ANY MODE) OR ACTIVITY CODE 03 OR 05, PROBE AS FOLLOWS: I want to confirm that you did this activity at the same place you got off the vehicle. (IF CONFIRMED, CONTINUE. IF NOT CONFIRMED, RETURN TO Q135)

- 03 Wait for/get on vehicle (GO TO Q140)
- 04 Leave/get off vehicle (GO TO Q140)

**Pick-up or Drop-off Other People/Get Picked up or Dropped-off**

**IF CODE 06 IS REPORTED AND Q140=1, RUN AN ON-LINE CHECK TO CONFIRM THAT THE PREVIOUS Q122 OR Q155 VEHICLE OCCUPANCY WAS ONE OR MORE. IF NOT, GO TO Q139.**

- 05 Pick-up someone or get picked-up (GO TO Q140)
- 06 Drop-off someone or get dropped off (GO TO Q140)

**Work**

**① WHEN A RESPONDENT REPORTS ACTIVITY CODE 07, PROBE FOR ADDITIONAL TRIPS MADE EN ROUTE TO WORK: Did you (he/she) stop to do anything else on the way to work? (IF YES, RETURN TO [Q124-Q126 (ACTIVITY ONE) OR Q157-159 (ACTIVITY 2+)] AND [Q132 (ACTIVITY ONE) OR Q165 (ACTIVITY 2+)] TO CONFIRM THAT THE PARKING QUESTIONS RELATE TO THE INTERMEDIATE STOP AND TO RECORD THE CORRECT TIME OF THE TRAVEL, THEN TO Q136 TO RECORD THE CORRECT ACTIVITY CODE.)**

**② IF 07 OR 08, RUN AN ON-LINE CHECK TO CONFIRM (Q45=2, 3 OR 4) OR (Q103=1) OR (Q137=1). IF CONFIRMED, GO TO Q140. OTHERWISE, GO TO Q137.**

- 07 Work (includes regularly scheduled volunteer work) (GO TO Q140)
- 08 Work-related (sales calls, meeting, errands, etc.) (GO TO Q140)

**Education/Childcare**

**① FOR ACTIVITY CODE 09, RUN AN ON-LINE CHECK TO Q45=1 OR Q104=1 OR Q138=1. IF CONFIRMED, GO TO Q140. OTHERWISE, GO TO Q138.**

**② FOR ACTIVITY CODE 10, RUN AN ON-LINE CHECK TO CONFIRM THAT THE PERSON WAS BORN AFTER 1978. IF NOT, READ: My computer is reminding me that you are (he/she is) \_\_\_\_\_ years old, and I want to make sure that you were (he/she was) attending day care.**

- 09 Preschool, school, college, university (GO TO Q140)
- 10 Childcare, day care, after school care (GO TO Q140)

**Eat Out**

- 11 Eat out (restaurant, drive-thru, etc.) (GO TO Q140)

**Medical**

- 12 Visit doctor, dentist, health center, hospital (GO TO Q140)

**Recreation/Entertainment**

- 13 Gym/health club (GO TO Q140)
- 14 Exercise/recreation (golf, tennis, sports, jogging, biking, walking the dog, etc.) (GO TO Q140)
- 15 Entertainment (movies, spectator sports, museum, etc.) (GO TO Q140)

**Social/Civic/Religious**

- 16 Visit friends or relatives (including sleeping over) (GO TO Q140)
- 17 Community meetings, political or civic event, public hearing, etc. (GO TO Q140)
- 18 Occasional volunteer work (GO TO Q140)
- 19 Church, temple, religious meeting (GO TO Q140)

**Personal or Household Business**

- 20 Buy gas (GO TO Q140)
- 21 Shop for groceries, houseware, medicine, etc. (GO TO Q140)
- 22 Shop for furniture, clothes, autos, appliances, etc. (GO TO Q140)
- 23 ATM, banking, post office, utilities (GO TO Q140)
- 24 Other personal or household business (laundry, dry cleaning, shoe repair, video rental, barber, beauty shop, lawyer, accountant, broker, etc.) (GO TO Q140)

**Other Activities Away from Home**

- 25 Be with another person at their activity (GO TO Q140)
- 26 Other, specify: \_\_\_\_\_ (PROBE AND CODE APPROPRIATELY IF POSSIBLE, OR RECORD VERBATIM) (ALLOW 30 CHARACTERS) (GO TO Q140)

**Stealth Categories (INTERVIEWER: RESPONDENT DOES NOT SEE THESE)**

- 27 Boarding activities for airplane, rail, intercity bus (GO TO Q140)
- 28 Disembarking activities for airplane, rail, intercity bus (GO TO Q140)

137. I would like to make sure that you are (he/she is) employed, self-employed, or a regular volunteer worker.

- 1 Yes/confirmed. (CONTINUE WITH Q140)
- 2 No/not employed.

(IF NO, GO BACK TO Q136 AND RECORD CORRECT ACTIVITY CODE. ONLY EMPLOYED PERSONS CAN HAVE WORK ACTIVITIES.) IF Q137 EVER = 1, DO NOT ASK AGAIN. IF Q136=02, Q140=1 AND GO TO Q145.

138. I would like to make sure that you are (he/she is) enrolled in school.

- 1 Yes/confirmed. (CONTINUE WITH Q140)
- 2 No/not enrolled in school.

(IF NO, GO BACK TO Q136 AND RECORD CORRECT ACTIVITY CODE. ONLY PERSONS ENROLLED IN SCHOOL CAN HAVE SCHOOL ACTIVITIES.) IF Q138 EVER =1, DO NOT ASK AGAIN.

139. I would like to make sure of the number of people who were in the vehicle with you (him/her). My computer shows that you were (he/she was) alone, and if you were alone, a drop-off is not possible.

\_\_\_ [ENTER CORRECT NUMBER OF PEOPLE WHO WERE IN THE VEHICLE WITH THE RESPONDENT]

\_\_\_ [ENTER CORRECT NUMBER OF HOUSEHOLD MEMBERS WHO WERE IN THE VEHICLE WITH THE RESPONDENT.]

[INTERVIEWER: IF YOU FIND THERE WAS AN INTERMEDIATE ACTIVITY, RETURN TO [Q124-Q126 (ACTIVITY ONE) OR Q157-159 (ACTIVITY 2+)] AND [Q132 (ACTIVITY ONE) OR Q165 (ACTIVITY 2+)] TO CONFIRM THAT THE PARKING QUESTIONS RELATE TO THE INTERMEDIATE STOP AND TO RECORD THE CORRECT TIME OF THE TRAVEL, THEN TO Q136 TO COLLECT IT.

140. IF PREVIOUS Q145=1 (RESPONDENT DID SOMETHING ELSE BEFORE LEAVING THE PLACE), AUTOMATICALLY CODE Q140=7 AND GO TO Q145. Where were you?

- 1 At my/their home (GO TO Q145)

① RUN THE FOLLOWING CHECKS IF THE PRECEDING Q135≠1:

(1) IF THE PRECEDING ACTIVITY LOCATION WAS HOME (Q106=1 OR Q140=1), CONTINUE.

(2) IF THE PRECEDING ACTIVITY LOCATION WAS ELSEWHERE, READ: I need to collect your (his/her) full set of activities, including your (his/her) travel between places, so I am going to back up one step to find out how you (he/she) got home. (REPLACE CODE FOR Q135 (SO Q135=1) AND THEN GO TO Q148)

② IF THE ACTIVITY CODE = 07-08, OR 10-26, READ: I need to confirm your (his/her) activity code, because \_\_\_\_\_ is not an at-home activity. (GO TO Q136.)

③ IF THE ACTIVITY CODE = 09, CHECK TO CONFIRM THAT Q47=0. IF NOT READ: I need to confirm your (his/her) activity code. Were you (was he/she) attending class at home?

④ IF THE ACTIVITY CODE=03, 04, 05, 06, READ: I want to confirm that you (he/she) had a very short walk between your (his/her) home and the vehicle. IF CONFIRMED, CONTINUE. IF NOT CONFIRMED, Q140 SHOULD BE CODE 6, AND GO TO Q143 TO ENTER DETAILS

2 At my/their school (GO TO Q141 TO CONFIRM LOCATION)

① RUN THE FOLLOWING CHECKS IF THE PRECEDING 135≠1:

(1) IF THE PRECEDING ACTIVITY LOCATION WAS SCHOOL (Q106=2 OR Q140=2), CONTINUE. (2) IF THE PRECEDING ACTIVITY LOCATION WAS ELSEWHERE, READ: I need to collect your (his/her) full set of activities, including your (his/her) travel between places, so I am going to back up one step to find out how you (he/she) got to school. (REPLACE CODE FOR Q135 (SO Q135=1) AND THEN GO TO Q148)

② IF THE ACTIVITY CODE = 00, 01, 02, OR 20, READ: I need to confirm your (his/her) activity code, because \_\_\_\_\_ cannot be done at school. (GO TO Q136)

3 At my/their main workplace (GO TO Q142 TO CONFIRM LOCATION)

① RUN THE FOLLOWING CHECKS IF THE PRECEDING 135≠1:

(1) IF THE PRECEDING ACTIVITY LOCATION WAS MAIN JOB (Q106=3 OR Q140=3), CONTINUE. (2) IF THE PRECEDING ACTIVITY LOCATION WAS ELSEWHERE, READ: I need to collect your (his/her) full set of activities, including your (his/her) travel between places, so I am going to back up one step to find out how you (he/she) got to work. (REPLACE CODE FOR Q135 (SO Q135=1) AND THEN GO TO Q148)

② IF ACTIVITY CODE = 00, 02, READ: I need to confirm your (his/her) activity code, because you (he/she) cannot have at-home activities at your (his/her) workplace. (GO TO Q136)

4 At my/their second workplace (GO TO Q142 TO CONFIRM LOCATION)

① RUN THE FOLLOWING CHECKS IF THE PRECEDING 135≠1:

(1) IF THE PRECEDING ACTIVITY LOCATION WAS 2<sup>ND</sup> JOB (Q106=4 OR Q140=4), CONTINUE.

(2) IF THE PRECEDING ACTIVITY LOCATION WAS ELSEWHERE, READ: I need to collect your (his/her) full set of activities, including your (his/her) travel between places, so I am going to back up one step to find out how you (he/she) got to work. (REPLACE CODE FOR Q135 (SO Q135=1) AND THEN GO TO Q148)

② IF ACTIVITY CODE = 00, 02, READ: I need to confirm your (his/her) activity code, because you (he/she) cannot have at-home activities at your (his/her) workplace. (GO TO Q136)

5 At a bus stop (GO TO Q143 and ENTER DETAILS)

① RUN THE FOLLOWING CHECKS IF THE PRECEDING 135≠1:

(1) IF THE PRECEDING ACTIVITY LOCATION WAS BUSSTOP (Q106=5 OR Q140=5), CONTINUE. (2) IF THE PRECEDING ACTIVITY LOCATION WAS ELSEWHERE, READ: I need to collect your (his/her) full set of activities, including your (his/her) travel between places, so I am going to back up one step to find out how you (he/she) got to the bus stop. (REPLACE CODE FOR Q135 (SO Q135=1) AND THEN GO TO Q148)

② IF ACTIVITY CODE = 00-02 OR 07-26, READ: I need to confirm your (his/her) activity code, because \_\_\_\_\_ is not usually done at a bus stop. (DO NOT BLOCK OUT ACTIVITY CODES 07-26 - IF CONFIRMED WE WILL ACCEPT THEM)

6 At another place (GO TO Q143 and ENTER DETAILS)

① IF THE PRECEDING 135≠1: I need to collect your (his/her) full set of activities, including your (his/her) travel between places, so I am going to back up one step to find out how you (he/she) got here. (REPLACE CODE FOR Q135 (SO Q135=1) AND THEN GO TO Q148)

② IF ACTIVITY CODE = 00-02, READ: I need to confirm your (his/her) activity code, because you (he/she) reported activities in the home. (GO TO Q136)

7 At the same place as the preceding activity (GO TO Q145) (IF THE PREVIOUS ACTIVITY WAS TRAVELING (Q135=1), HAVE THE MOST RECENT PLACE NAME AND ADDRESS GIVEN APPEAR ON SCREEN AND HAVE THE INTERVIEWER READ: I need to confirm that you were (he/she) was) at \_\_\_\_\_. IF CONFIRMED, GO TO Q145. IF NOT CONFIRMED, THE CODE FOR Q140 SHOULD BE 6, AND GO TO Q143 TO ENTER LOCATION DETAILS.)

8 Refused (GO TO Q145)

9 Don't Know (GO TO Q145)

141. Was that at your (his/her) school address: \_\_\_\_\_

*school address*

*should appear*

**SCHOOL ADDRESS SHOULD COME UP ON SCREEN. INTERVIEWER SHOULD CONFIRM ADDRESS WITH RESPONDENT. IF NO ADDRESS INFORMATION, COLLECT IT.**

- 1 Yes/confirmed (GO TO Q145)
- 2 No/another location (GO TO Q143 TO COLLECT DETAILS)
- 8 Refused (DO NOT READ) (Go to Q145)
- 9 Don't know (DO NOT READ) (Go to Q145)

142. Was that at your (his/her) main/second job address: \_\_\_\_\_

*main or*

*second job address should appear*

**MAIN OR SECOND JOB ADDRESS SHOULD COME UP ON SCREEN. INTERVIEWER SHOULD CONFIRM ADDRESS WITH RESPONDENT. IF NO ADDRESS INFORMATION, COLLECT IT.**

- 1 Yes/confirmed (Go to Q145)
- 2 No/another location (GO TO Q143 TO COLLECT DETAILS)
- 8 Refused (DO NOT READ) (Go to Q145)
- 9 Don't know (DO NOT READ) (Go to Q145)

143. What was the business, store, bus stop, place name, or residence: \_\_\_\_\_?

Can you please spell that?

- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't Know (DO NOT READ) (CONTINUE)

144. What was the exact address?

- 1 Exact address given
- 2 Cross streets given
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

Please program in the following for all Address Fields:

**Number of fields for complete addresses: 7**

Number	East/West/No./So.	Street Name	Ave./Dr./Blvd/St.	No./Apt./Ste.	City	State
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**Number of fields for cross-streets: 2 fields with 5 subfields each**

For Street 1:	East/West/No./So.	Street Name	Ave./Dr./Place/Blvd/St.	City	State
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For Street 2:	East/West/No./So.	Street Name	Ave./Place/Dr./Blvd/St.	City	State
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IF Q136=03, SKIP Q145 (SINCE THE NEXT ACTIVITY IS ALWAYS TRAVEL)

**IF Q136=00 (SLEEPING), SKIP Q145**

145. IF Q136=01-02 OR Q140=1: Did you (he/she) do anything else before leaving home?

FOR ALL OTHERS: Did you (he/she) do anything else before leaving this place?

- 1 Yes - did something else at home/this place (INTERVIEWER: The next activity will be something other than travel.)
- 2 No - nothing else at home/this place (INTERVIEWER: The next activity will be travel) (COLLECT Q146. AS LONG AS Q146≠1, PROGRAM SHOULD THEN RECORD Q135=1 AND GO TO Q148)
- 3 No - did not leave this place/no more activities (GO TO Q168)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

IF THE ANSWER TO Q145=3 CHECK THE TOTAL NUMBER OF ACTIVITIES REPORTED (INCLUDE BOTH TRAVEL ACTIVITIES AND ACTIVITIES AT ONE PLACE). IF THE TOTAL NUMBER OF ACTIVITIES IS THREE OR LESS AND THE ONLY ACTIVITY CODES REPORTED ARE 00 OR 02 (SLEEPING AT HOME/OTHER AT HOME) GO TO Q168.

146. IF Q136=00: When did you (he/she) wake up, which is the same time you (he/she) started your (his/her) next activity?

IF Q145=2 AND Q136=01-02 OR Q140=1, ASK: When did you (he/she) leave home, which is the same time you (he/she) started your (his/her) next activity?

IF Q145=2 AND Q136=03, ASK: When did you (he/she) stop waiting and get on the vehicle?

IF Q145=2, AND Q136≠00, 01, 02 OR 03, ASK: When did you (he/she) leave this place, which is the same time you (he/she) started your (his/her) next activity?

FOR ALL OTHERS: When did you (he/she) start the next activity, which is the same time you (he/she) stopped the previous one?

- 1 Did not stop activity (i.e., activity continued until 3 a.m. the next day (GO TO Q168)

:  Record Time

Was that a.m. or p.m.?

- 1 a.m.
- 7 p.m.
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

The clock time must be a real time, e.g. 11:30.

The hour column should range from 1 to 12.

The minutes column should range from 00 to 59.

The clock may never move backwards from one activity to the next.

CONVERT ALL TIME TO MILITARY TIME

SUBTRACT ACTIVITY STOP TIME FOR THIS ACTIVITY FROM THE STOP TIME FOR THE PREVIOUS ONE (USE Q112, Q132, Q146, Q165, AS APPROPRIATE) AND CHECK FOR TIME ELAPSED AS INDICATED BELOW FOR EACH ACTIVITY TYPE. IF THE ACTIVITY IS REPORTED TO HAVE LASTED LONGER THAN THE ELAPSED TIME INDICATED, INTERVIEWER MUST ASK Q147. OTHERWISE GO TO Q135.

147. I want to confirm that this activity lasted \_\_\_\_\_ hours (PROGRAM SHOULD CONVERT MINUTES INTO HOURS) and you didn't do any other activities during that time?

- 1 Yes/confirmed
- 2 No/there were other activities

IF NO, RETURN TO Q146 TO RECORD THE CORRECT TIME.

	<u>ELAPSED TIME</u>
Activities at home	
00 Sleeping at home	6 HRS
01 Work at home (related to main or second job)	6 HRS
02 All other at home activities (including sleep)	NO CHECK

<b>Activities Related to Bus, Trolley, or Taxi</b>	
03 Wait for/get on vehicle	20 MIN
04 Leave/get off vehicle	5 MIN
<b>Pick-up or Drop-off Other People/Get Picked up or Dropped-off</b>	
05 Pick-up someone or get picked-up	20 MIN
06 Drop-off someone or get dropped off	15 MIN
<b>Work</b>	
07 Work (includes regularly scheduled volunteer work)	6 HRS
08 Work-related (sales calls, meeting, errands, etc.)	6 HRS
<b>Education/Childcare</b>	
09 Preschool, school, college, university	7.33 HRS
10 Childcare, day care, after school care	7.33 HRS
<b>Eat Out</b>	
11 Eat out (restaurant, drive-thru, etc.)	1.5 HRS
<b>Medical</b>	
12 Visit doctor, dentist, health center, hospital	2.5 HRS
<b>Recreation/Entertainment</b>	
13 Gym/health club	2.5 HRS
14 Exercise/recreation (golf, tennis, sports, jogging, etc.)	2.5 HRS
15 Entertainment (movies, spectator sports, museum, etc.)	2.5 HRS
<b>Social/Civic/Religious</b>	
16 Visit friends or relatives (including sleeping over)	3 HRS
17 Community meetings, political or civic event, public hearing, etc.	2.5 HRS
18 Occasional volunteer work	6 HRS
19 Church, temple, religious meeting	2 HRS
<b>Personal or Household Business</b>	
20 Buy gas	15 MIN
21 Shop for groceries, houseware, medicine, etc.	1.25 HRS
22 Shop for furniture, clothes, autos, appliances, etc.	1.25 HRS
23 ATM, banking, post office, utilities	30 MIN
24 Other personal or household business (laundry, dry cleaning, shoe repair, video rental, barber, beauty shop, lawyer, accountant, broker, etc.)	1 HR
<b>Other Activities Away from Home</b>	
25 Be with another person at their activity	45 MIN
26 Other, specify: _____ (PROBE AND CODE APPROPRIATELY IF POSSIBLE, OR RECORD VERBATIM)	1.25 HRS
<b>Stealth Categories (INTERVIEWER: RESPONDENT DOES N'T SEE THESE)</b>	
27 Boarding activities for airplane, rail, intercity bus	1 HR
28 Disembarking activities for airplane, rail, intercity bus	45 MIN

**\*\*\*GO TO Q135\*\*\***

**STRAND FOR TRAVELING - ACTIVITIES TWO THROUGH TWENTY-EIGHT**

148. How did you (he/she) travel?

01 Car, van, truck or motorcycle (Go to Q149)

**① FOR MODE CODES 02-05, RUN AN ON-LINE CHECK TO CONFIRM THAT THE IMMEDIATELY PRECEDING ACTIVITY IS WAIT FOR/GET ON VEHICLE (ACTIVITY CODE 03).**

**IF NOT, READ:** I need to collect your (his/her) full set of activities, and when you use a bus, trolley or taxi, that means finding out how you got to the bus, trolley or taxi, how long and where you waited, how long you traveled, and where you got off. We are missing how long and where you waited, so I am going to back up and go over this step with you. **GO BACK TO Q135 TO BEGIN COLLECTION OF THIS ACTIVITY AGAIN.**

**② FOR MODE CODES 02-05, PROGRAM MUST ONLY ALLOW NEXT ACTIVITY TO BE CODE 04 (LEAVE/GET OFF VEHICLE)**

02 Bus (Go to Q160)

03 School bus (Go to Q165)

04 Trolley (Go to Q160)

05 Taxi (Go to Q160)

06 Walk (Go to Q164)

07 Bike (Go to Q164)

08 Wheelchair (Go to Q164)

09 Other, specify: \_\_\_\_\_ (Go to Q164)

98 Refused (DO NOT READ) (Go to Q164)

99 Don't know (DO NOT READ) (Go to Q164)

**CAR, VAN, TRUCK, OR MOTORCYCLE BRANCH**

149. Were you (Was he/she) the driver or a passenger?

1 Driver (IF Q150-152 DO NOT APPLY, GO TO Q153)

2 Passenger (IF Q150-152 DO NOT APPLY, GO TO Q153)

8 Refused (DO NOT READ) (GO TO Q153)

9 Don't know (DO NOT READ) (GO TO Q153)

**ONLY ASK Q150 IF Q149=1 AND Q31=2.**

150. Earlier you told me that you (he/she) lacked a drivers' license, so I would like to make sure that you were (he/she was) driving. (INTERVIEWER: RECORD RESPONSE, OR RETURN TO CORRECT Q149)

1 Confirmed - respondent lacks a driver's license but was driving

2 Respondent does have a driver's license (and Q31 was therefore incorrectly recorded)

8 Refused (DO NOT READ) (CONTINUE)

9 Don't Know (DO NOT READ) (CONTINUE)

**ONLY ASK Q151 IF Q11=ZERO AND Q149 = 1.**

151. Was this a borrowed, rented or company vehicle?

1 Yes (GO TO Q155)

2 No

8 Refused (DO NOT READ) (CONTINUE)

9 Don't know (DO NOT READ) (CONTINUE)

152. Previously it was reported that there are no vehicles kept at home for use by your household, and yet you have (he/she has) reported driving. Could you please explain the situation?

- 1 There is a household vehicle which was previously unreported
- 2 Other (specify) \_\_\_\_\_ (RECORD VERBATIM) (ALLOW 40 CHARACTERS)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

153. Did you (he/she) use one of the vehicles listed on the vehicle form?

- 1 Yes
- 2 No (Go to Q155)
- 8 Refused (DO NOT READ) (GO TO Q155)
- 9 Don't know (DO NOT READ) (GO TO Q155)

154. Which one did you (he/she) use?

HAVE A LISTING OF HOUSEHOLD VEHICLES AS REPORTED PREVIOUSLY BY RESPONDENTS COME UP ON SCREEN. EACH VEHICLE SHOULD ALSO COME UP ACCORDING TO THE VEHICLE NUMBER ON THE VEHICLE FORM SO WE KNOW WHICH VEHICLE WAS USED, THE TOYOTA CAMRY OR THE TOYOTA FOUR-RUNNER, FOR EXAMPLE. VEHICLE YEAR SHOULD ALSO BE DISPLAYED. INTERVIEWER SHOULD ENTER THE VEHICLE NUMBER.

155. How many OTHER people were in the vehicle with you (him/her), not counting yourself (himself/herself)?

- ENTER TWO DIGITS \_\_\_
- 00 None (GO TO Q157)
  - 98 Refused (DO NOT READ) (CONTINUE)
  - 99 Don't know (DO NOT READ) (CONTINUE)

ONLY ASK Q156 IF Q27 IS GREATER THAN ONE.

156. How many of these were members of your household?

- ENTER TWO DIGITS \_\_\_
- 00 None
  - 98 Refused (DO NOT READ) (CONTINUE)
  - 99 Don't know (DO NOT READ) (CONTINUE)

Q156 MAXIMUM = Q27 MINUS ONE. Q156 MUST BE LESS THAN OR EQUAL TO Q155. IF THESE CONDITIONS ARE NOT MET, PROBE FOR CLARIFICATION.

157. At the next place the vehicle was stopped, was it parked?

- 1 Yes
- 2 No (GO TO Q165)
- 8 Refused (DO NOT READ) (GO TO Q165)
- 9 Don't Know (DO NOT READ) (GO TO Q165)

158. How much did you (he/she) personally pay for parking? (ENTER EITHER AMOUNT OR CODE 0-9)

- 0 Nothing
- \$ \_\_\_\_\_ (5 digits, fixed decimal)
- 1 Paid by permit/tag
- 2 Did not park (GO TO Q165)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

159. How long did it take you (him/her) to walk from the place the vehicle was parked to the next activity?

ENTER TWO DIGITS FOR NUMBER OF MINUTES

- 00 Less than one minute
- 95 Stayed in vehicle/did not walk
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

\*\*\* GO TO Q165 \*\*\*

**BUS, SCHOOL BUS, TROLLEY OR TAXI BRANCH**

160. How many friends, relatives, or colleagues were in the vehicle with you (him/her), not counting yourself (himself/herself).

ENTER TWO DIGITS \_\_\_\_

- 00 None (GO TO Q162)
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

ASK Q 161 ONLY IF Q27 IS GREATER THAN ONE.

161. How many of these were members of your household?

ENTER TWO DIGITS \_\_\_\_

- 00 None
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't know (DO NOT READ) (CONTINUE)

Q161 MAXIMUM = Q27 MINUS ONE. Q161 MUST BE LESS THAN OR EQUAL TO Q160. IF THESE CONDITIONS ARE NOT MET, PROBE FOR CLARIFICATION.

162. How much fare did you (he/she) personally pay? (ENTER EITHER THE AMOUNT OR CODE 0-9)

\$\_\_\_\_\_ (5 digits, fixed decimal)

- 0 Nothing
- 1 Paid by pass
- 2 Paid by transfer
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

ONLY ASK Q163 IF Q148 WAS 02

163. Did you (he/she) ride DART or The T?

- 1 DART
- 2 The T
- 8 Refused (DO NOT READ) (GO TO Q165)
- 9 Don't Know (DO NOT READ) (GO TO Q165)

163a. What was the route number?  
[ENTER ALPHANUMERIC ROUTE NUMBER] (GO TO Q165)  
98 Refused (DO NOT READ) (CONTINUE)  
99 Don't know (DO NOT READ) (CONTINUE)

163b. What was the name of the route?  
[USE ALPHABETHICAL LOOKUP TABLE AND ENTER ROUTE NUMBER]  
98 Refused (DO NOT READ) (CONTINUE)  
99 Don't know (DO NOT READ) (CONTINUE)

\*\*\* GO TO Q165 \*\*\*

**WALK, BIKE, WHEELCHAIR BRANCH**

164. How far did you (he/she) travel/walk?

If distance is known AND is under 100 miles:

\_\_\_\_\_.\_\_\_\_ (4 digits, fixed decimal point)

- 01 Feet
- 02 Blocks
- 03 Miles

If distance is unknown OR more than 100 miles, probe for an estimate:

- 04 Less than one quarter mile (< 0.25)
- 05 One quarter mile to less than 1 mile (0.25-0.99)
- 06 One mile to less than 5 miles (1.0 - 4.99)
- 07 Five miles to less than 10 miles (5.0-9.99)
- 08 Ten miles to less than 25 miles (10.0 - 24.99)
- 09 25 miles to less than 50 miles (25.0-49.99)
- 10 50 to less than 100 miles (50.0 - 99.99)
- 11 100 miles or more
- 98 Refused (DO NOT READ) (CONTINUE)
- 99 Don't Know (DO NOT READ) (CONTINUE)

**TRAVEL ACTIVITY CLOSURE**

165. IF Q148=02, 03, 04 OR 05, ASK: When did you (he/she) get off the vehicle?

IF Q148=01 AND Q126= A NUMERIC ANSWER FOR THE NUMBER OF MINUTES, ASK: When did you (he/she) stop walking, which is the same time you (he/she) started your (his/her) next activity?

IF Q148=06, ASK: When did you (he/she) stop walking, which is the same time you (he/she) started your (his/her) next activity?

FOR ALL OTHERS, ASK: When did you (he/she) stop traveling, which is the same time you (he/she) started your (his/her) next activity?

2 Did not stop activity (i.e., activity continued until 3 a.m. the next day) (GO TO Q168)

:  Record Time

Was that a.m. or p.m.?

- 1 a.m.
- 7 p.m.
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

THE PROGRAM SHOULD CALCULATE THE TRAVEL TIME USING 3 A.M. AS A START. ANY TIME LONGER THAN 60 MINUTES SHOULD BE CONVERTED INTO HOURS AND MINUTES.

166. So you (he/she) traveled/walked for \_\_\_\_\_ minutes/hours?

- 1 Yes/confirmed
- 2 No/incorrect

IF NO, RETURN TO Q165 TO RECORD THE CORRECT TIME.

ASK Q167 ONLY IF TRAVEL TIME EXCEEDS 90 MINUTES. OTHERWISE GO TO Q135.

167. I want to confirm that you did not make any stops to do activities along the way.

- 1 Yes/confirmed
- 2 No/there were stops or activities

IF NO, RETURN TO Q157-159 AND Q165 TO CONFIRM THAT THE PARKING QUESTIONS RELATE TO THE INTERMEDIATE STOP AND TO RECORD THE CORRECT TIME OF THE TRAVEL.

168. Was that the last thing you (he/she) did during your (his/her) diary day?

- 1 Yes
- 2 No (GO TO Q135)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

169. Did you (he/she) continue doing this activity until 3 a.m. \_\_\_\_\_?  
*end date should appear*

- 1 Yes/confirmed
- 2 No/not confirmed (GO TO Q135 AND COLLECT LAST ACTIVITIES)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

CHECK IF THE LAST REPORTED ACTIVITY (Q138) IS CODE 00-02. IF NOT, ASK:

170. I want to confirm that you (he/she) did not go home again before 3 a.m. on \_\_\_\_\_?  
*end date should appear*

- 1 Yes
- 2 No (GO TO Q135 AND COLLECT LAST ACTIVITIES)
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't know (DO NOT READ) (CONTINUE)

171. Thank you for going through the diary with me. Would you (he/she) help us again in future travel surveys?

- 1 Yes
- 2 No (GO TO Q173)
- 8 Refused (DO NOT READ) (GO TO Q173)
- 9 Don't know (DO NOT READ) (GO TO Q173)

172. Then I'll need to get your (his/her) name.

INPUT FIRST AND LAST NAME AND ASK FOR SPELLING. (ALLOW 40 CHARACTERS)

**TRANSITION TO NEXT HOUSEHOLD MEMBER, OR TO END OF INTERVIEW**

IF THERE ARE ADDITIONAL MEMBERS, A SCREEN SHOULD COME UP THAT INDICATES THE GENDER, YEAR OF BIRTH AND PERSON NUMBER FOR EACH HOUSEHOLD MEMBER FOR WHOM INFORMATION WAS PROVIDED ON THE HOUSEHOLD FORM. IF THERE ARE NO ADDITIONAL HOUSEHOLD MEMBERS, GO TO FINAL THANK YOU (Q177).

**173. FOLLOW THE FOLLOWING SEQUENCE IN COLLECTING EACH HOUSEHOLD MEMBER'S DIARY: (the table attached to the end of the script summarizes these rules)**

**①** Work with the first respondent from the household (the contact person) to collect diaries for any children aged 0-14 years (born in 1982 or later).

- If the adult prefers to have the children work with you directly, you may do so.
- If the activity pages have not been filled out for a child, but the adult knows the child's activities, proceed to collect the information.
- If the activity pages have not been filled out for a child, the adult does not know the child's activities, and it is not possible to speak with the child directly, schedule a callback.
- If the adult refuses to reveal the child's activities, proceed to Q176 to record the reason for refusal.

**②** Ask to speak directly with other members of the household aged 15 or older (born in 1981 or earlier). WE STRONGLY PREFER TO COLLECT INFORMATION DIRECTLY FROM EACH HOUSEHOLD MEMBER, EVEN IF DOING SO REQUIRES SEVERAL CALLBACKS. OUR OBJECTIVE IS TO MINIMIZE PROXY REPORTING.

**③** For teenagers (aged 15-18, born 1978-1981) proceed as follows.

- First try to collect the information directly.
- If the teen's activity pages are filled out but he/she is unavailable or unwilling to go over them with you, you may collect the information from an adult in the household.
- If the teen's activity pages are not filled out, but he/she is available and willing to go over them with you, do so.
- If the teen's activity pages are not filled out, but an adult knows the teen's activities, proceed to collect the information from the adult.
- If the teen's activity pages are not filled out, the adult does not know the teen's activities, and it is not possible to speak with the teen directly, schedule a callback.
- If the adult refuses to reveal the teen's activities or the teen refuses to participate, proceed to Q176 to record the reason for refusal.

**④** For adults proceed as follows.

- First try to collect the information directly.
- If the adult's activity pages are filled out but he/she is unwilling to go over them with you, you may collect the information from another adult in the household.
- If the adult's activity pages are filled out but he/she is unavailable to go over them with you, schedule a callback. Attempt 2 callbacks to each adult to collect the activity pages directly; after 2 callbacks (a total of 3 attempts, including the initial attempt), you may accept the information from another adult in the household.
- If the adult's activity pages are not filled out, but he/she is available and willing to go over them with you, do so.
- If the adult's activity pages are not filled out, and he/she is unavailable to go over them with you, schedule a callback. Attempt 2 callbacks to each adult to collect the activity pages directly; after 2 callbacks (a total of 3 attempts, including the initial attempt), determine if another adult knows this person's activities. If so, you may accept this person's information from another adult in the household. If no one else in the household can provide the information, continue to call back.
- If the adult refuses to participate, proceed to Q176 to record the reason for refusal.

**174. Are your (his/her) activity pages filled out? (DEPENDING ON THE ANSWER TO THIS QUESTION, AND THE STATUS OF THE HOUSEHOLD WITH REGARD TO THE PROXY RULES, IT MAY BE NECESSARY TO SUSPEND THE HOUSEHOLD AND ARRANGE A CALLBACK.)**

- 1 Yes, all filled out
- 2 Yes, partially filled out
- 3 No
- 8 Refused (DO NOT READ) (CONTINUE)
- 9 Don't Know (DO NOT READ) (CONTINUE)

175. INTERVIEWER: RECORD PROXY STATUS AND READ NEW INTRODUCTION IF NEEDED: Hello, my name is \_\_\_\_\_ and I'm collecting your household's information on behalf of the transportation planning agency for the Dallas-Fort Worth area. I'd like to get your diary information from you now.

INTERVIEWER: INDICATE WHETHER THE DIARY YOU ARE ABOUT TO COLLECT BELONGS TO THE CURRENT RESPONDENT YOU ARE SPEAKING WITH, OR IF IT BELONGS TO ANOTHER HOUSEHOLD MEMBER AND IS BEING REPORTED BY THE CURRENT RESPONDENT.

- 1 Diary belongs to current respondent
- 2 Diary belongs to someone else - MALE
- 3 Diary belongs to someone else - FEMALE

\*\*\*GO TO Q38 (START OF DIARY)\*\*\*

176. What is the main reason why you (he/she) won't participate in the study?  
DO NOT READ RESPONSES, ENTER ONE RESPONSE

IF RESPONDENT GIVES ANSWER 0-5 OR 8-9: TRY TO PERSUADE PARTICIPATION AGAIN. IF RESPONDENT CONTINUES TO REFUSE, THANK THEM AND TERMINATE THIS INDIVIDUAL, THEN GO BACK TO Q173.

- 1 Forms are too complicated/confusing
- 2 Forms request too much information/invade privacy
- 3 Forms take too much time to complete
- 4 Cannot get other family members to participate
- 5 Other (specify: \_\_\_\_\_) (ALLOW 40 CHARACTERS)
- 6 I travel too little to make difference (GO TO 176a)
- 7 I travel too much to track my activities (GO TO 176b)
- 0 Do not want to reveal child's activities
- 8 Refused (DO NOT READ)
- 9 Don't know (DO NOT READ)

176a. We are interested in the travel patterns of all kinds of people. Even if you travel (he/she travels) only a little, the information you provide (he/she provides) is important in understanding how people get around. The study will help transportation planners decide how to spend over \$15 billion dollars on the metroplex's highways and transit systems over the next 20 years. Please would you (he/she) think again about taking part in the study?

- 1 Yes (CONTINUE)
- 2 No (CODE AS REFUSED) (GO TO Q173)

176b. Does your (his/her) work involve constant travel, for instance, as a traveling sales person, truck driver, or mail carrier?

1 Yes--> If your (his/her) work involves constant travel, all we ask is that you tell (he/she tells) us where and when you (he/she) started work, where and when you (he/she) ended work, and if you (he/she) did any personal chores during the day between work stops. The study will help transportation planners decide how to spend over \$15 billion dollars on the metroplex's highways and transit systems over the next 20 years. Please would you (he/she) think again about taking part in the study?

- 1 Yes (CONTINUE)
- 2 No (CODE AS REFUSED) (GO TO Q173)

2 No--> We are interested in the travel patterns of all kinds of people. We know that recording activities in the diary will take some time, but finding out more about how people get around is very important. The study will help transportation planners decide how to spend over \$15 billion dollars on the metroplex's highways and transit systems over the next 20 years. Please would you (he/she) think again about taking part in the study?

- 1 Yes (CONTINUE)
- 2 No (CODE AS REFUSED) (GO TO Q173)

177. INTERVIEWER, READ FINAL THANK YOU

Thank you VERY MUCH for helping with this study. Please send your household and vehicle information form and your full diaries back to us in the pre-paid envelope. Thanks again and good night/good bye.

178. INTERVIEWER, RECORD LANGUAGE OF INTERVIEW

- 1 English
- 2 Spanish

## **Appendix C: Intercept Instrument**

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Appendix C includes the intercept questionnaire.

# Dallas-Fort Worth Travel Survey - \_\_\_\_\_

## Location

1) Hello, my name is \_\_\_\_\_ and we are doing a study for the North Central Texas Council of Governments about people's travel in the Dallas-Fort Worth area. This study will provide information to improve all kinds of transportation, and not just buses. I would like to ask you a few questions. This will take just a few minutes, and your answers will be completely confidential.

- 1 Willing to continue
- 2 Refuses (end)
- 3 Language barrier (end)
- 4 Other (end) \_\_\_\_\_

4) How many CARS, PICKUPS, TRUCKS, VANS, or MOTORCYCLES are available for use by members of your household, including your own vehicle?

- 0 None (Go to 6)
- 1 One
- 2 Two
- 3 Three
- 4 Four
- 5 Five
- 6 Six
- 7 Seven
- 8 Eight or More
- 98 Refused (end)
- 99 Don't Know (end)

5) Was one of your household vehicles available for your trip today?

- 1 Yes
- 2 No
- 98 Refused
- 99 Don't Know

1a) What bus are you waiting for?

\_\_\_\_\_

6) COUNTING YOURSELF, how many people live in your household?

- 98 Refused (end)
- 99 Don't Know (end)

1b) Did you just get off another bus?

- 1 Yes
- 2 No
- 98 Refused
- 99 Don't Know

7) We are conducting a more in-depth study of 6,000 households in the area, to help ensure that 15 billion dollars are spent wisely on all kinds of transportation over the next 20 years. This folder explains the study.

*(Give respondent a copy of the folder.)*

To include you in this study, we need to call you to collect some more information, so I need your home telephone number.

- 1 Willing to participate
- 2 Declines/refuses to participate (end)
- 3 Has no home telephone number (end)

( ) \_\_\_\_\_ - \_\_\_\_\_

**(Verify number with respondent.)**

THANK YOU VERY MUCH for helping with this important study. A member of the survey team will be calling you next week to collect the additional information. If you have any questions, you can call the hotline number that is printed on your folder. THANKS AGAIN.

2) In what county do you live?

- 1 Collin
- 2 Dallas
- 3 Denton
- 4 Ellis
- 5 Johnson
- 6 Kaufman
- 7 Parker
- 8 Rockwall
- 9 Tarrant
- 10 None of These (end)
- 98 Refused (end)
- 99 Don't Know (end)

3) How many days per week do you usually ride the bus?

- 0 None (end)
- 1 One
- 2 Two
- 3 Three
- 4 Four
- 5 Five
- 6 Six
- 7 Seven
- 98 Refused (end)
- 99 Don't Know (end)

**Early Ending: Thank you very much for your time.**

## **Appendix D: Written Survey Materials**

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Appendix D includes an example of each of the written survey elements:

- Prenotification letter;
- Cover letter;
- Brochure;
- Household/vehicle information form;
- Diary;
- Example diary;
- Outgoing envelope; and,
- Postage-paid reply envelope.

## **Appendix E: Training Materials**

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Appendix E includes the training materials that were used to prepare interviewers to conduct the survey, including:

- Recruitment Tips;
- Recruitment Review;
- Reminder Tips;
- Reminder Review;
- Retrieval Tips;
- Top Ten Things To Remember on Retrieval;
- Transit Activity Diagrams; and,
- Retrieval Review.

## **Dallas Transportation Behavior Survey Recruitment Segment Tips**

You are about to work on a very important survey for the North Central Texas Council of Governments located in the Dallas-Fort Worth area.

### **Purpose of the Survey**

Transportation planners in the Dallas-Fort Worth area expect to spend about \$15 billion over the next 20 years on transportation improvements. In order to make sure that they spend that money wisely, this survey is taking place. The information collected through the survey process will help transportation planners decide what types of new facilities to build or services to introduce, and where to place them. This survey will be the only source of information that provides a complete and up-to-date picture of all travel done by the household population of the Dallas-Fort Worth area.

This project is unlike others you may have worked on in three main respects:

1. The client is a government agency. When you call people for this survey, you are representing a public client. It is therefore essential to be extra courteous.
2. The survey is not about people's market preferences. Instead, it is a survey about their transportation habits. Transportation planners are going to use the information from this survey to plan new streets, transit, and other transportation services.
3. Unlike other surveys, you will be expected to help respondents find the "right" answers to questions. The CATI program is designed to find inconsistencies in respondents' answers because it is especially important to collect accurate information. Once a problem in a respondent's interview becomes apparent, it will be up to you to help correct the problem.

You were selected to be an interviewer for this project because of your outstanding record. You will be trained in all aspects of the survey to ensure that you are equipped to do the best job possible. You are also expected to observe the fundamental principles of good interviewing, including:

- Projecting a positive attitude;
- Maintaining an objective and neutral approach to each respondent and to the subject matter to avoid biasing any findings; and,
- Keeping control of the interview.

### **Accuracy**

As noted above, accuracy is extremely important. As you move through the survey, you will find that features have been built-in to help ensure accuracy and enhance data quality. Some of these may seem awkward to you at first. For instance, the survey asks respondents to repeat information they have already provided, and it instructs you to question responses when they contradict information provided to you earlier in the interview process. We recognize that this is a departure from the usual procedures in your work in which you accept respondents' words at face value. This arrangement also makes it vitally important that you enter the correct information during the interview. For instance, entering the wrong response to a question can trigger a confirming question when there is no need for one.

### **Addresses**

Accuracy is especially important in recording addresses. There are several components to an address: 1) The street prefix, such as North, South, East, West, Northwest, etc. -- this field is two spaces long because we expect you to abbreviate your entries; 2) The street number; 3) The street name; 4) The street suffix, such as street, avenue, drive, lane, road, etc.; 5) An

apartment number or unit number (if any); 5) The city; 6) The state; and, 7) The zipcode. When you get to the next phase of the project in which we ask people about where they travel, you will collect an additional element, the names of the places that people go. You will always enter each address component separately. Be sure that you ask the respondents to spell out the names of streets and places for you. There is a program to help you with the names of the cities in the Dallas-Fort Worth area, but if people travel out of the region you will have to ask for city spellings, as well. During the recruitment phase, you are creating a mailing label when you enter the respondent's address. Getting the address accurately is essential, because we will use the information to send out a package of survey materials.

### Sample

The sample will come from two sources:

- Random-digit-dialed telephone numbers in the Dallas-Fort Worth area; and,
- Individuals recruited at bus-stops and park-n-ride lots in the Dallas-Fort Worth area.

Whenever an address could be matched to a random-digit number, the households were sent an introductory letter. You will know if the household received an introductory letter, because the address to which we sent the letter will appear on your screen. Even if you see the address on the screen, it is extremely important that you ask the respondent to provide/confirm their address.

### Overview of the Survey

You will be calling people tonight in order to recruit them to take part in the survey starting eight days from today. **It is extremely important to read the script verbatim to ensure that you communicate the proper information.** After you recruit the respondent, he/she will be sent a package with travel diaries to fill out. A call will be placed to remind them to fill out the survey the night before their assigned travel period. Starting the day after their travel day, another call will be placed to collect all the travel information for the household. The table below illustrates the process.

	Day 1	Day 2	Day 3, 4, 5,6,7	Day 8	Day 9	Day 10	Day 11
24-hours	Recruit	Mail Materials Out	Materials En Route	Remind	Travel Day	Begin Retrieval	

### Obtaining Cooperation

The interviews you will conduct tonight have three parts.

**Introduction.** The first part is the introduction. The introduction is very important, because if you can keep the respondent on the line through this part of the survey, you will be much more likely to get through the recruitment call. It is essential to complete this call with as many respondents as possible, even those who are reluctant.

You should read the introduction exactly as it is written at a comfortable, conversational speed. Practice it out loud until you can do it smoothly and confidently. Going through the script too rapidly makes it difficult for the respondent to understand you and may convey a lack of confidence.

The disposition codes and procedures for this project are different than those you encounter on other studies. For instance, if you reach a disconnected number, the screen will instruct you to immediately re-dial the number. In the case of refusals, be sure to enter the proper code for a "soft refusal" or a "hard refusal." The **only** numbers that you should code as "hard refusals" are those where the respondent:

- Threatens you, ISA, or the North Central Texas Council of Governments;
- Directly instructs you not to call back; or,
- Communicates a very strong negative reaction to your call.

Respondents who say things like "No thank you," or "I don't do surveys" should be coded as "soft refusal." These respondents will be called back later.

Unlike previous surveys, we are interested in collecting data for partial households. If a respondent is hesitant to take part because he suspects that someone in the household will not cooperate, reassure him that we welcome the assistance of whichever household members are willing.

There are several other dispositions that differ from other surveys:

If you get a business, you need to confirm that it is not a home-based business. The reason for this is that we **DO WANT TO INCLUDE HOME-BASED BUSINESSES**. You may use your judgment in some cases. For instance, someone who answers "Domino's Pizza" is clearly not a home-based business. A respondent who answers "Smith Consulting" may be in an office, or may be working at home. You must confirm.

If you get a disconnected number, you will be asked to try the number again immediately. This is to ensure that you did not accidentally mis-dial a good number.

If you get a message that the number was changed, you will be asked to enter the new number.

If a respondent breaks off the interview and terminates the call at Q7 or later, **DO NOT** back up to the disposition screen. The system will record the termination status.

The introduction section includes several screening questions. It is important that you speak to a person 18 years or older who lives at the telephone number on your screen. The respondent must also live in our study area, as defined by their county and zipcode.

**Household Questions.** After the introduction, we ask the respondent a series of questions that provide background information about his/her household. It is extremely important that as many households as possible answer these questions, because we use them to determine if any particular group has been left out of the survey.

**Diary Recruitment and Address Collection.** After collecting background information, you will describe the full survey to the respondent and ask for his/her mailing address. **DO NOT ASK IF THEY ARE WILLING TO TAKE PART**, as this simply invites a refusal. Proceed to ask for the address elements as if the respondent is willing. If the respondent is hesitant, you must try to convert him/her using scripts provided in the CATI program. If you can not convert the respondent, the interview will end.

### **Answering Questions**

You may also be called upon to answer general questions about the survey. The "SPECIAL" screen contains useful information, including a telephone number that you can give out if a respondent wishes to complain about the survey. You may type "SPECIAL" at any point during an interview to access this information.

Answers to general questions that you may be asked appear below, followed by guidelines for questions that you will encounter tonight during the recruitment call.

#### **Why do you need my address?**

We are going to send you materials that you can use to record your travel, so I need your address for mailing purposes. (Note: If they just want to give you a P.O. Box or other mailing address, explain that since this is a travel study, we need to know where people's travel is based, which is often their home. If they do not know their home address, ask for the address they would give a "911" operator. Reassure the respondent that their information will remain confidential.)

#### **How did you get my telephone number?**

For RDD sample: Your telephone number was generated randomly by our computer. We did not know it was your number.

**For intercepts:** You or a member of your household took part in an interview at a bus stop within the last few weeks and agreed to consider taking part in the survey.

**How did you get my address? (RDD households who were sent an introductory letter may ask this.)**

Your telephone number was generated randomly by our computer, and then matched to a database to find your address. We did not know it was your number or address.

**Why interview me?**

Scientific procedures enable us to contact a sample of people who represent the area. Your number, selected by random chance, came up through that process. It is important that you help us with the study because we can not replace your number with someone else's.

**Why do you need to know all these things about me and my household for a transportation survey?**

Transportation planners have used scientific methods to learn how different facts about a household relate to travel decisions. Facts about households in your area help the planners to predict the need for more transportation facilities and services in the future.

**Why are you doing this study?**

This study is being done by the North Central Texas Council of Governments to learn more about transportation needs in the Dallas-Fort Worth area. The Council of Governments expects that \$15 billion will be spent on transportation improvements over the next 20 years, and information from this study will help ensure that it is spent wisely.

**What is the North Central Texas Council of Governments?**

The North Central Texas Council of Governments is an organization of 219 local governments which directs transportation planning for the Dallas-Fort Worth area.

**How do I know the study is legitimate?**

If you would like to check on the legitimacy of the survey, please call our toll-free number at 1-800-496-9616 during business hours to verify the legitimacy of the study.

**I don't want to buy anything.**

I am not trying to sell anything. This is an important study sponsored by the North Central Texas Council of Governments.

**I don't have time for this survey.**

I will move through the survey as quickly as I can to save you time. Let me begin and you tell me if I am going too fast. (Immediately ask the next question and continue at a brisk pace.)

**I am not going to answer a lot of questions over the phone.**

Most people find the questions interesting and you do not have to answer anything you don't approve of. Let me start and you can see what the questions are like. (immediately ask the next question).

**I think this is a bad use of tax dollars (or other similar remarks)**

Hear out respondents who want to tell you their opinion, but do not argue. Let them know you are listening. Some of these respondents will continue once they have finished sharing. When they are done, you can thank them for sharing their opinion and assure them that their answers will be very important for the study. Then launch into the next question. Other argumentative respondents may ask how they can lodge a complaint. Type "SPECIAL" and give them the client's telephone number.

**questions 9-11 ask about the household's telephone access**

If you are asked why we need this information, you can offer the following explanation:

- If you have more than one telephone number, then you have more than one chance of being called for this study and that information is important for getting a scientifically accurate sample.

If you are asked why we need to know about any telephone lines that are shared, you can explain:

- We need to know the number of households so that we can be sure that our sample is accurate. We won't ask you for any information about the other households.

**Question 12 asks about the kind of building in which the respondent lives:**

Do you live in (READ OPTIONS):

- 01 A one-family house separate from any other house
- 02 A one-family house attached to one or more houses, such as a duplex or townhouse
- 03 An apartment
- 09 A mobile home or trailer
- 11 Other (please specify): \_\_\_\_\_

**Please keep the following definitions in mind:**

A one-family house DOES NOT MEAN that only one family lives there. Sometimes a house that was designed to be occupied by just one family can have more people living in it. If more than one family lives in the house, and the structure is separate from any other house, this is still the correct category.

Separate means that there is open space on all sides of the house, or the house is joined only to a shed or garage.

Attached means that the house is joined to another house or building by at least one wall that goes from ground to roof. An example of a one-family house attached to one or more houses is a house in a row of houses attached to one another (i.e. a row house).

Apartments means the same thing as units. Apartments may either be rented out or owned (like a condominium).

**Question 14 asks about whether the respondent owns or rents the dwelling**

**Please keep the following in mind:**

Use the category "own/buying" if the respondent lives in the home and his/her wife, parents, children own the home. For instance, if the respondent tells you that his mother owns the home and he lives there, use the "own/buying" category.

**Question 15 asks about the year the household moved into the home.**

**Please keep the following in mind:**

If the respondent can not remember the year, as for an approximation.

**Question 19 asks about how long the household lived in their previous home.**

**Please keep the following in mind:**

You should enter the number of years (e.g. 10, for ten years) -- NOT 85 (for 1985).

**Question 20 asks about the number of CARS, PICKUPS, VANS, or MOTORCYCLES available for use by the household:**

**Please keep the following in mind:**

Recreational vehicles, such as Winnebagos, should be counted.

Available for use means that members of the household have access to the vehicle, regardless of who owns it. A vehicle could be available for use if it is owned by an employer, a relative, or someone else.

Vehicles which the household could own but which would not be considered available for use include those which are permanently out of order or kept far away (e.g., with a child away at college).

**Question 21 asks about the size of the household:**

COUNTING YOURSELF, how many people live in your household.

Enter two digits [01-97] If 11 or more, TERMINATE.

98 Refused (TERMINATE)

99 Don't Know (TERMINATE)

**DO COUNT AS HOUSEHOLD MEMBERS:**

- Everyone who usually lives in the household, including family members, roommates and housemates, foster children, roomers, boarders, and live-in employees. "Usually" means at least four days out of the week.
- People who are temporarily away on a business trip, on vacation, or in a general hospital.
- College students who live in the household while attending college.
- Persons in the armed forces who live in the household.
- Newborn babies still in the hospital.
- Children in boarding school below the college level.
- Persons who stay in the household most of the week while working, even if they have a home someplace else.
- Persons who have no other home.

**DO NOT COUNT AS HOUSEHOLD MEMBERS:**

- Persons who usually live somewhere else.
- Persons who are away in an institution such as a prison, mental hospital, or a nursing home.
- College students who live somewhere else while attending college.
- Persons in the armed forces who live somewhere else.
- Persons who stay somewhere else most of the week while working.

**Please keep the following in mind:**

- Mark the category for the highest level COMPLETED.
- Schooling in foreign countries should be reported as the equivalent level of schooling in the regular American school system; ask the respondent to estimate this.
- Some examples of professional school degrees include medicine, dentistry, chiropractic, optometry, osteopathic medicine, pharmacy, podiatry, veterinary medicine, law and theology. DO NOT include barber school, cosmetology, or other training for a specific trade.
- Do not include honorary degrees. Count only earned degrees.

**Question 26 will come up if the respondent tells you that the assigned diary date is not a good one.**

If the respondent tells you the assigned date is not a good one, you will be expected to record the reason why, and then to evaluate it.

- If the household is concerned that the assigned day is not "typical," your job is to persuade them of the importance of keeping the assigned day. We want our sample of households to include people doing a whole variety of activities - even leaving town!
- If the household can never fill out the diaries on the proposed day of the week (e.g., Tuesdays are always impossible), the interview will end.
- If the household will be away for more than two weeks (and will thus be unable to receive our diary package or to provide the information back to us), the interview will end.
- If the household insists on having the day re-assigned, the CATI program will prompt you with a new date.

In general, we want households to complete their diaries on the date originally assigned.

## Recruitment Interviewer Review

**1. This study is being done for:**

- Dallas-Fort Worth Council of Governments
- North Central Texas Transportation Planning Commission
- American Airlines
- North Central Texas Council of Governments
- Dallas-Fort Worth Transportation Planning Commission

**2. The reason for this study is:**

- To learn more about transportation needs in the Dallas-Fort Worth area.
- \$15 billion will be spent on transportation improvements in Dallas-Fort Worth, and information from this study is needed for planning.
- This survey will provide a complete and up-to-date picture of all travel done by the households in Dallas-Fort Worth.
- All of the above

**3. If a household says, "No thanks, I don't do surveys.", you should record the household as a:**

- Hard Refusal
- Callback (no specific time)
- Soft Refusal
- Top 10 Hit

**4. The client for this survey is:**

- A private transportation firm.
- A marketing firm.
- A government agency.

**5. If a household cannot complete their diaries on the assigned diary day, you will:**

- Ask if they have a friend or neighbor who can participate in the study instead.
- Find out the reason why the respondent thinks the assigned date is bad, and if appropriate, assign them for the same day of the week, the following week.
- Thank them for their time and terminate the call.
- Send the diary materials and hope the household completes them.

**6. If a household's mailing address is different from their home address, why do we need the household's home address?**

- We will send the survey material to their home address.
- We want to stop by and say hello.
- We need to know where people's travel is based, which is often their home.

**7. If the respondent lives in group quarters(dormitory, fraternity house, etc.), we want to:**

- Recruit the respondent and his/her immediate room/spacemate(s).
- Recruit every person who lives in the group quarters.
- Thank the person for their time and terminate.

**8. While you are interviewing respondents, you should:**

- Project a positive attitude.
- Maintain an objective and neutral approach to each respondent and to the subject matter to avoid biasing any findings.
- Keep control of the interview.
- All of the above.

**9. The assigned diary day for a household recruited on a Monday will be:**

- The following Monday.
- The following Tuesday.
- The following Wednesday.
- Whenever it is most convenient for the household.

**10. Respondents who tell you they travel very little should be excluded from the study.**

- True
- False

**11. Respondents who tell you they travel too much to record their information should be excluded from the study.**

- True
- False

**12. Respondents who tell you that someone in the household will be away on the assigned diary day should have their diary day re-assigned.**

- True
- False

**13. If a respondent has questions about the survey that you cannot answer, you should:**

- Type "special"
- Look through your "tips" sheet for an answer
- Have your supervisor come to the telephone
- Any of the above

## **Dallas Transportation Behavior Survey Reminder Segment Tips**

You are about to work on a very important survey for the North Central Texas Council of Governments located in the Dallas-Fort Worth area.

### **Purpose of the Survey**

Transportation planners in the Dallas-Fort Worth area expect to spend about \$15 billion over the next 20 years on transportation improvements. In order to make sure that they spend that money wisely, this survey is taking place. The information collected through the survey process will help transportation planners decide what types of new facilities to build or services to introduce, and where to place them. This survey will be the only source of information that provides a complete and up-to-date picture of all travel done by the household population of the Dallas-Fort Worth area.

This project is unlike others you may have worked on in three main respects:

1. The client is a government agency. When you call people for this survey, you are representing a public client. It is therefore essential to be extra courteous.
2. The survey is not about people's market preferences. Instead, it is a survey about their transportation habits. Transportation planners are going to use the information from this survey to plan new streets, transit, and other transportation services.
3. Unlike other surveys, you will be expected to help respondents find the "right" answers to questions. The CATI program is designed to find inconsistencies in respondents' answers because it is especially important to collect accurate information. Once a problem in a respondent's interview becomes apparent, it will be up to you to help correct the problem.

You were selected to be an interviewer for this project because of your outstanding record. You will be trained in all aspects of the survey to ensure that you are equipped to do the best job possible. You are also expected to observe the fundamental principles of good interviewing, including:

- Projecting a positive attitude;
- Maintaining an objective and neutral approach to each respondent and to the subject matter to avoid biasing any findings; and,
- Keeping control of the interview.

### **Overview of the Survey**

You will be calling people tonight in order to remind them to fill out survey instruments that were mailed to them last week. One week ago, each of the households you will be calling was recruited to take part in the survey. (The table below illustrates the process. We are on Day 8.) They were sent a package including the following items:

- A cover letter;
- A brochure about the study;
- A household and vehicle information form;
- A diary for each person in the household, with a \$2 incentive attached to each diary;
- An example diary; and,
- A postage-paid return envelope for them to send the diaries back to us after the retrieval call.

Your call will remind them to complete the diaries, and will provide an opportunity for the respondents to ask questions. **You are therefore serving as both an interviewer and a resource person. It is thus very important that you understand the survey so you can help the respondents appropriately.**

Day 1	Day 2	Day 3, Day 4, Day 5, Day 6, Day 7	Day 8	Day 9	Day 10
Recruit	Mail Materials Out	Materials En Route	Remind	Travel Day	Send Materials Back

### **Purpose of the Reminder Call**

The purpose of the reminder call is three-fold:

- To confirm that the package of survey materials has been received;
- To confirm that the package is complete; and,
- To answer any questions that the respondents may have about the survey in general or how to fill it out.

By the time we make the reminder call, we have invested a lot in the respondent. They have been recruited and we have verified their address. Also, we have sent them a packet of materials. We want the reminder call to be a pleasant experience that encourages them to complete the survey. This call is also an opportunity for you to convince people who are unsure about participating about the importance of this study. The tips below are designed to help you do the best job possible on the reminder call.

### **Window of Opportunity**

There is only one night on which a household can receive its reminder call -- the night before the diary day. We therefore try very hard to reach as many households as possible. Each household may be attempted up to three times.

Unlike other projects, DO leave a message if you reach an ANSWERING MACHINE. There is a script programmed into the system that you should read if you reach an answering machine. It is designed to be short enough to fit on most answering machine tapes if read at a normal speed. When leaving an answering machine message, your voice should be just as animated as it would be if you were talking to a respondent. Even if you leave an answering machine message the first time you reach the household, a second call will be placed. If you reach an answering machine a second time, there is a very short message that you will leave.

### **Contacting the Household**

There are several responses that you may get upon reaching a household and asking the contact person or another adult to bring the survey materials to the telephone. The program is designed for the appropriate script to come up depending on what you enter. Each of the possible scenarios is reviewed below.

#### **The household is "too busy to talk"**

As noted above, there is only one night on which the household can receive its reminder call. If you find someone who is "too busy to talk," deliver a quick reminder, stressing the importance of filling out the diaries the next day.

#### **The contact person is not available.**

If the contact person is not available, you should proceed with the reminder call with any adult in the household. If there are no adults at home, you can conduct the reminder call with a minor if, in your judgment, the minor will be able to understand the reminder directions and share them with the rest of the household. If the survey package has not been opened, whoever you talk to during the reminder call should be encouraged to open it.

#### **The respondent wants to send the materials in rather than discuss them over the telephone.**

The survey design calls for the household's information to be retrieved by telephone, and then mailed in; for this reason, a postage-paid reply envelope was included with each survey package. Some households may indicate that they want to send their completed materials in, rather than going over them on the telephone. WE STRONGLY PREFER TO COLLECT THE INFORMATION BY TELEPHONE, but getting completed forms by mail is better than losing the household altogether. If you encounter a respondent who wants to mail in the materials, communicate the following:

We prefer to collect your information over the telephone, because there are some questions that we could not print on the forms that we'd like to ask you. The database that we collect over the telephone is our main way of compiling the information, and we ask you to mail the completed forms in as a backup system. (IF THE RESPONDENT IS RELUCTANT, AND YOU THINK WE MAY LOSE THE HOUSEHOLD: You can use the postage-paid reply envelope to mail in your materials. You may still be contacted by our interviewers, since your household is already in line to be called. Just tell them that you mailed your materials in.)

- DO NOT OFFER THE MAIL-IN ALTERNATIVE UNLESS THE RESPONDENT RAISES IT FIRST!
- IF YOU HAVE A HOUSEHOLD THAT INDICATES THEY ARE GOING TO MAIL THEIR MATERIALS IN, MAKE SURE THAT YOU ENTER CODE "0" FOR QUESTION 8, AND CODE "01" FOR QUESTION 8A.

**The respondent wants to continue with the survey and has the package we sent:**

First, you will confirm that they have the correct number of diaries, based on the information that was provided during the recruitment call.

Second, you will have the respondent look at the diary instructions and you will emphasize the information that we need:

- What they did and where they did their activities;
- How they got from one place to another; and,
- The time they started each activity.

We need the information about all the activities outside of the home. For activities done at home, we need to know about sleeping and working. All other at-home activities should be grouped together.

The diary forms are broken down into separate sections for each activity. Each activity is further broken down into two blocks -- the colored block is to be filled out if the activity is traveling. The white block is to be filled out if the activity is anything other than traveling. Only one block should be filled out for each activity row.

Each household received an example diary to show them how we want the activity diary filled out. As an interviewer, you should become familiar with the example diary. The example diary has red printing on it in the areas where a respondent would need to write something down. If you study the example diary, you can see that there is actually *very little* that needs to be recorded. If you find yourself on the phone with a respondent who is confused about how to fill out the forms, you are encouraged to walk them through the example diary, stressing the following points:

- We want the respondent to account for all of their time and all of their activities on the diary day; and,
- They should fill in just one activity per activity row - EITHER traveling (the colored area) OR any other type of activity (the white area).

Have the respondent look at the household/vehicle form, and remind them to record the mileage reading for each of their vehicles at the start and end of the diary period.

Finally, tell the respondent to keep the household and vehicle information form and the completed diaries near the phone, and remind them about the 1-800 number they can call if they have questions.

**The respondent wants to continue with the survey, but can not find the package:**

Remind the respondent that it is important to find the package because tomorrow is their diary day. Then read a condensed set of directions about how to use the diary and the household/vehicle form, and how to mail their materials back to us.

**The respondent had the materials, but threw them away, and still wants to continue with the survey:** Tell the respondent that we will re-send the materials to them.

**The respondent's package was incomplete.** Find out what was missing. Depending on what was left out, you may encourage the household to proceed, or have them wait for the missing items. DO NOT MENTION THE \$2 INCENTIVES, but if the household reports that these were missing, use the appropriate code to make note of this.

**The respondent wants to reschedule their diary day.** If the respondent tells you the assigned date is not a good one, you will be expected to record the reason why, and then to evaluate it.

- If the household is concerned that the assigned day is not "typical," your job is to persuade them of the importance of keeping the assigned day. We want our sample of households to include people doing a whole variety of activities - even leaving town!
- If the household can never fill out the diaries on the proposed day of the week (e.g., Tuesdays are always impossible), the interview will end.
- If the household will be away for more than two weeks (and will thus be unable to receive our diary package or to provide the information back to us), the interview will end.
- If the household insists on having the day re-assigned, the CATI program will prompt you with a new date.

In general, we want households to complete their diaries on the date originally assigned.

**The respondent received the package, but refuses to participate:**

At this point in the project, we have made a considerable investment in the respondent, and we want to minimize refusals. There are thus several steps that you need to follow. First, you need to remind the household of the survey's importance and attempt to convert them. If the respondent continues to refuse despite your best pleading, determine if the household is a "hard" or a "soft" refusal. The **only** households that you should code as "hard refusals" are those where the respondent:

- Threatens you, ISA, or the North Central Texas Council of Governments;
- Directly instructs you not to call back; or,
- Communicates a very strong negative reaction to your call.

For "soft" refusals, try again to change their mind. For "hard" refusals (or households that become "hard" refusals), you must collect the reason why they refuse. **IT IS ESSENTIAL** that we collect the reason why they won't participate. **It is thus very important that you keep the respondent on the telephone long enough to ask why they will not participate. To keep them on the line, you can say that in order to constantly improve our survey process, we are interested in finding out why people decline to take part, and then launch into the question.** There is an additional script for you to read if people report that they travel too much or too little to take part in the study. Remember, we want to find out about the travel of all kinds of people. There is also an additional script to read if people are reluctant to take part in the telephone retrieval -- they can mail their materials back to us in the prepaid envelope. **DO NOT OFFER THIS ALTERNATIVE UNLESS THE RESPONDENT RAISES IT FIRST!**

If you are successful in getting the respondent to take part in the study, you will proceed with the directions about how to use the survey materials.

If you are not successful in getting the respondent to take part in the study, you will reading a closing statement that offers them the possibility of mailing in their completed information, with an emphasis on the household/vehicle information form.

**The respondent already completed the diaries:**

You will record the days for which they completed the diaries and ask them to place the household and vehicle information forms and the completed diaries near the phone so that they will be handy when we call back.

**The respondent wants to continue with the survey, but does not want an explanation:**

You will tell the respondent that you just want to confirm that the package was complete and offer a brief explanation. You will then proceed to verify the number of diaries they received, and explain how to use them.

**Incentives**

The reminder script does **not** mention the fact that a small gift was included for each member of the household. **UNLESS ASKED BY THE RESPONDENT, DO NOT MENTION THE GIFT.** We want you to be aware of this feature of the survey, however, because you may be asked about it by the respondent. For this phase of the project, each person in the household received \$2 cash. If asked, simply confirm that the cash is a gift to thank them for taking part in the survey. The

\$2 bill is legal tender. If they want to complain about the gift, type "SPECIAL" and give them the name and telephone number of the client in Dallas, and/or the 1-800 number for the project.

### **Answering Questions**

Part of the purpose of the reminder call is to answer respondents' questions. The "SPECIAL" screen contains useful information, including a telephone number that you can give out if a respondent wishes to complain about the survey. You may type "SPECIAL" at any point during an interview to access this information.

Answers to general questions that you may be asked about the diary during the reminder call appear below.

#### **Why do you need me to record the addresses of all the places I go?**

Complete and accurate address information is needed because we are studying travel patterns, including how many people travel to locations throughout the region. Cross-streets and the name of the places you visit are acceptable if a specific street address is unknown.

#### **How should I record my activities?**

- Every time someone stops to do something at a different location, that's an activity. Dropping someone off or picking someone up counts as an activity, and so does waiting at a bus stop or carpool meeting place. Traveling between places also counts as an activity, even if it's only a short trip.
- Three kinds of activities that happen at home should be counted. Sleeping at home, and working at home related to their main or second job should be recorded separately from all other at home activities. (Note: Sleeping away from home might be a social activity, or some other type of activity).

#### **If this is a travel survey, why do you want to know so much about my activities?**

We have found that asking about people's activities produces a more complete record of your travel. We want to know about all the little stops you make during the day, which are easier for many people to remember if we ask about your activities over the day instead of just your travel. Also, if we discover that there is a trend for people to do certain kinds of activities more than we realized, it may be necessary to find better means of transportation to the places those activities happen.

#### **Why do you need to know all these things about my job/school/household for a transportation survey?**

Transportation planners use scientific methods to learn how different facts about a household relate to travel decisions. Facts about households in your area help the planners to predict the need for more transportation facilities and services in the future.

#### **Do I need to keep a diary for my small children?**

The answer is yes. We need a diary for everyone in the household, even infants. There is an activity called "be with another person at their activity" that may be the appropriate one to use for most of a small child's travel. Activities are also listed for school and childcare.

#### **How should I record using the bus?**

We are very interested in how people use the bus system in the Metroplex, so we have made getting on and off the bus separate activities. If you ride the bus, we want you to record getting to the bus, waiting for and getting on the bus, traveling on the bus, getting off the bus, and traveling to your destination as five separate activities. You will tell us where the bus stops at each end were located, just like you would for any other activity.

#### **What should I do if I run out of room?**

Respondents should use a separate sheet of paper to keep track of any activities that will not fit on the diary form. When we call to retrieve their data, we will capture that information.

**The household and vehicle form may also raise some questions.**

**Who should I include on the household form?**

On the household information side, a row should be filled out for every member of the household. In helping the respondent to determine who is a household member, keep the following in mind:

**DO COUNT AS HOUSEHOLD MEMBERS:**

- Everyone who usually lives in the household, including family members, roommates and housemates, foster children, roomers, boarders, and live-in employees. "Usually" means at least four days out of the week.
- People who are temporarily away on a business trip, on vacation, or in a general hospital.
- College students who live in the household while attending college.
- Persons in the armed forces who live in the household.
- Newborn babies still in the hospital.
- Children in boarding school below the college level.
- Persons who stay in the household most of the week while working, even if they have a home someplace else.
- Persons who have no other home.

**DO NOT COUNT AS HOUSEHOLD MEMBERS:**

- Persons who usually live somewhere else.
- Persons who are away in an institution such as a prison, mental hospital, or a nursing home.
- College students who live somewhere else while attending college.
- Persons in the armed forces who live somewhere else.
- Persons who stay somewhere else most of the week while working.

The question about vehicles arriving at the home refers to commercial vehicles only. This does not include friends coming over to visit.

**What should I include on the vehicle information side of the form?**

On the vehicle information side, people may ask about which cars they should count. They should include all vehicles normally available for use by the household and kept at home. This might include company cars (including police cars and taxicabs) and company trucks kept at home and used by household members for nonbusiness purposes. They should not count cars or trucks that are *permanently* out of working order.

**What do you mean about a "replacement vehicle?"**

For each vehicle in the household, we want to know if it was the first vehicle acquired, an additional vehicle, or a replacement for a previous one.

**Responses to other commonly asked questions:**

**What is the North Central Texas Council of Governments?**

The North Central Texas Council of Governments is an organization of 219 local governments which directs transportation planning for the Dallas-Fort Worth area.

**How do I know the study is legitimate?**

If you would like to check on the legitimacy of the survey, please call our toll-free number at 1-800-496-9616 during business hours to verify the legitimacy of the study.

**I don't have time for this survey.**

Most of the diary simply requires you to check boxes. Once you get started, you can complete it quickly.

**I think this is a bad use of tax dollars (or other similar remarks)**

Hear out respondents who want to tell you their opinion, but do not argue. Let them know you are listening. Some of these respondents will continue once they have finished sharing. When they are done, you can thank them for sharing their opinion and assure them that their answers will be very important for the study. Then launch into the next question. Other argumentative respondents may ask how they can lodge a complaint. Type "SPECIAL" and give them the client's telephone number.

## Dallas Reminder Interviewer Review

**1. This study is being done for:**

- Dallas-Fort Worth Council of Governments
- North Central Texas Transportation Planning Commission
- Southwest Airlines
- North Central Texas Council of Governments
- Dallas-Fort Worth Transportation Planning Commission

**2. The reason for this study is:**

- To learn more about transportation needs in the Dallas-Fort Worth area.
- \$15 billion will be spent on transportation improvements in Dallas-Fort Worth, and information from this study is needed for planning.
- This survey will provide a complete and up-to-date picture of all travel done by the households in Dallas-Fort Worth.
- All of the above

**3. If a household says, "I got your package, but I'm not interested, " you should:**

- Thank the household and say good-bye.
- Schedule a callback.
- Immediately code the household as a hard refusal.
- Try to convince the household to stay in the study.

**4. The client for this survey is:**

- A private transportation firm.
- A marketing firm.
- A government agency.
- An airline.

**5. If a household cannot complete their diaries on the assigned diary day, you will:**

- Ask the household to send back their diary materials so we can re-use them.
- First try to convince them of the importance of sticking with the assigned date, and then, if necessary, re-assign their diary date.
- Automatically assign them for the same day of the week, the following week.
- Make sure they know about the incentive.

**6. If you reach an answering machine on the first attempt, you should:**

- Leave your name and ISA's telephone number.
- Read the scripted reminder message.
- Hang-up.
- Hum a tune.

**7. The household form should be filled out for:**

- Everyone who usually lives in the household.
- Only people over five years of age who live in the household.
- Only the adults in the household.
- Only members of the family - people who are not related to the respondent do not have to be included on the form.

**8. While you are interviewing respondents, you should:**

- Project a positive attitude.
- Maintain an objective and neutral approach to each respondent and to the subject matter to avoid biasing any findings.
- Keep control of the interview.
- All of the above.

**9. In order to answer questions about the diaries, it is important to:**

- Mention the incentive.
- Be very familiar with the diary forms, and knowledgeable about how they are supposed to be filled out.
- Tell the respondent what they want to hear.
- Remember that there are trolleys in Dallas.

**10. Respondents who tell you they travel very little should be excluded from the study.**

- True
- False

**11. Respondents who tell you they travel too much to record their information should be excluded from the study.**

- True
- False

**12. Respondents who tell you that someone in the household will be away on the assigned diary day should automatically have their diary day re-assigned.**

- True
- False

**13. If a respondent has questions about the survey that you cannot answer, you should:**

- Type "special"
- Look through your "tips" sheet for an answer
- Have your supervisor come to the telephone
- Recommend the 1-800 hotline number
- Any of the above

## **Dallas Transportation Behavior Survey Retrieval Segment Tips**

You are about to work on a very important survey for the North Central Texas Council of Governments located in the Dallas-Fort Worth area.

### **Purpose of the Survey**

Transportation planners in the Dallas-Fort Worth area expect to spend about \$15 billion over the next 20 years on transportation improvements. In order to make sure that they spend that money wisely, this survey is taking place. The information collected through the survey process will help transportation planners decide what types of new facilities to build or services to introduce, and where to place them. This survey will be the only source of information that provides a complete and up-to-date picture of all travel done by the household population of the Dallas-Fort Worth area.

This project is unlike others you may have worked on in three main respects:

1. The client is a government agency. When you call people for this survey, you are representing a public client. It is therefore essential to be extra courteous.
2. The survey is not about people's market preferences. Instead, it is a survey about their transportation habits. Transportation planners are going to use the information from this survey to plan new streets, transit, and other transportation services.
3. Unlike other surveys, you will be expected to help respondents find the "right" answers to questions. The CATI program is designed to find inconsistencies in respondents' answers because it is especially important to collect accurate information. Once a problem in a respondent's interview becomes apparent, it will be up to you to help correct the problem.

You were selected to be an interviewer for this project because of your outstanding record. You will be trained in all aspects of the survey to ensure that you are equipped to do the best job possible. You are also expected to observe the fundamental principles of good interviewing, including:

- Projecting a positive attitude;
- Maintaining an objective and neutral approach to each respondent and to the subject matter to avoid biasing any findings; and,
- Keeping control of the interview.

### **Overview of the Survey**

You will be calling people tonight in order to retrieve information from survey instruments that were mailed to them last week. A little over one week ago, each of the households you will be calling was recruited to take part in the survey. Two nights ago they were reminded to fill out their diaries. (The table below illustrates the process. We are on Day 10.) They were sent a package including the following items:

- A cover letter;
- A brochure about the study;
- A household and vehicle information form;
- A diary for each person in the household, with a \$2 incentive attached to each diary;
- An example diary; and,
- A postage-paid return envelope for them to send the diaries back to us after the retrieval call.

Your call will collect information from the diaries. You are therefore serving as both an interviewer and a resource person. It is thus very important that you understand the survey so you can help the respondents appropriately.

Day 1	Day 2	Day 3, Day 4, Day 5, Day 6, Day 7	Day 8	Day 9	Day 10
Recruit	Mail Materials Out	Materials En Route	Remind	Travel Day	Send Materials Back

During the retrieval call, you will be asking the respondents to tell you:

- About their household and stock of vehicles;
- About their employment and school status;
- What they were doing at 3 am on their diary day;
- When they stopped doing each activity and started their next activity;
- Whether they were traveling or doing anything other than traveling for each activity;
- If the respondent was traveling, you will ask him/her questions about how he/she traveled;
- If the respondent was not traveling, you will ask him/her what activity he/she was doing, where he/she was, and the name and address of that location.

### What is an Activity?

Everything a person does during the day is an activity. This includes travel, waiting for the bus and working at home. For every activity a respondent will either be traveling or doing something other than traveling.

If respondents were traveling for an activity, we ask them when they started traveling and how they traveled. There are three separate sections for different modes of travel.

For the first section (car, van, truck, or taxi), you will first ask respondents if they were the driver or a passenger. Second, you will ask them what vehicle they used and how many other people were in the vehicle with them. You will also ask them how many of those people were member of their household. Third, you will ask them how much they paid for parking and finally, you will ask them how long it took them to walk from the vehicle to the next activity.

For the second section (bus, school bus, trolley, or taxi), you will first ask respondents which mode they used. (If they rode in a school bus, they will skip to the next activity.) Second, you will ask them how many friends, relatives, or colleges were in the vehicle, not counting themselves. You will also ask them how many of those people were members of their household. Third, you will ask them what fare they personally paid. Finally, if they traveled by bus you will ask them what was their route number.

For the third section (walking, biking, using a wheelchair, or other means) you will ask them what mode they used and how far they traveled in feet, blocks, or miles.

Once you have finished with the travel questions you will go to the next activity.

On the top front of every diary sheet you will see that we have classified a large number of activity types (turn to diary for reference) plus "other." These activities fall into eleven categories:

- Activities at home;
- Activities Related to Bus, Trolley, or Taxi;
- Pick-up or drop-off other people/Get picked-up or dropped off;
- Work;
- Education/Childcare;
- Eat Out;
- Medical;
- Recreation/Entertainment

- Social/Civic/Religious
- Personal or Household Business
- Other activities away from home.

We are very interested in the small activities people do on the way to other events. For example: stopping to buy gas on the way to work, picking up dry cleaning on the way home, picking up a friend on the way to school, dropping off children at school. You will be prompted to probe for these sometimes forgotten activities, and to then record them.

During the survey, you will be asking respondents to remember activities that they may have neglected to write in their diaries. It is important that we collect complete and accurate information on as many activities as the respondent can remember.

### **Accuracy**

Accuracy is **extremely important**. As you move through the survey, you will find that features have been built-in to help ensure accuracy and enhance data quality. Some of these may seem awkward to you at first. For instance, the survey asks respondents to repeat information they have already provided, and it instructs you to question responses when they contradict information provided to you earlier in the interview process. We recognize that this is a departure from the usual procedures in your work in which you accept respondents' words at face value. This arrangement also makes it vitally important that you enter the correct information during the interview.

For instance, entering the wrong response to a question can trigger a confirming question when there is no need for one.

### **The Survey Script**

The interviews you will conduct tonight have five parts.

1. The first part is the **introduction**. You should read it exactly as it is written at a comfortable, conversational speed. Practice it out loud until you can do it smoothly and confidently. If it is inconvenient for the respondent, you will arrange for scheduled or random (unscheduled) callbacks.
2. Next, you will ascertain **whether or not the household has completed the Household and Vehicle Form and the Diaries**. If the diaries and Household and Vehicle Form are not ready, the CATI program will allow you to: 1) ask the respondents to remember what they did; or 2) reschedule the diary day for the next week (Note: for the dry run, we will not be able to reschedule households). **We want to collect information for how ever many household members were able and willing to fill out the diaries, and/or are able and willing to report their activities to us.** This is a different rule than some of the other travel surveys you may have worked on.

It is possible that the package of survey materials was not received by the households, or that the package was incomplete. If this occurs, the script will walk you through a process of verifying the mailing address and rescheduling the diary day to the following week.

3. If the respondents have their completed materials, you will proceed to the next section, which asks the respondents to tell us what they wrote on their **Household and Vehicle Forms**. We start by asking information about the number of vehicles available to the household. You will note that the number of vehicles that they tell you about in the retrieval call must match the number of vehicles they told us they had in the recruitment call. It is important to get the odometer readings of each vehicle listed on the form for the beginning and ending of the diary period. If the respondent does not know the odometer readings, enter the code for DK. A substitute question regarding the number of miles driven on the diary day will appear.

After all the information is collected on the vehicles, we ask about the individual household members. Again, you will note that the number of household members that they tell you about in the retrieval call must match the number of people they told you lived at the residence during the recruitment call. If the household size has changed, you will be requested to verify what changed. If the change resulted in a permanent reduction in the size of the household (for

instance, someone died or moved out) the household will be considered complete when all diaries for the remaining members have been collected.

When you collect Household information you will ask the total annual income for each household member. If there is any hesitation, assure the respondent that the information will remain strictly confidential and is used for study and demographic purposes only. There are also checks to assure that the total household income matches the sum of the members individual incomes.

4. Next, you will start collecting the **diary information** from the person to whom you are speaking. In addition to inquiring about activities, the diaries ask for a fair amount of personal information, focusing on work and school status, location, and travel to work and school. It is very important to minimize refusal to the initial question in these series regarding their status as a worker, student, homemaker, etc.
5. Finally, you will collect information about the activities. This is the most important part of the study; all the work we have done up until this point has been designed to help collect the activity information. You will collect information about activities for every member of the household. These calls will be long; some may last up to an hour. Be very patient with the respondents, encourage them, and be accurate in your data entry.

### **Answering Questions**

You may be called upon to answer general questions about the survey. A toll free hotline has been established if respondents have questions about the survey (is it legitimate) or about how to answer the questions in the survey forms. The hotline number is:

**1-800-496-9616**

Answers to general questions that you may be asked appear below, followed by guidelines for questions that you will encounter tonight during the recruitment call. You can also refer the household to the EXAMPLE DIARY for questions about filling out the forms. At any time during the call, if the respondent starts to feel uneasy about providing information to you and begins to ask questions about the study, type the word "SPECIAL." This will put you into a new screen with the following scripts that answer common questions:

#### **Why are you doing this study?**

Some people may not have been contacted during the reminder phase of the study, and may be hesitant about providing their information. If they ask why the study is being conducted, respond as follows: This study is being done by the North Central Texas Council of Governments to learn more about transportation needs in the Dallas-Fort Worth area. Travel Count will help make sure that residents and businesses in the Dallas-Fort Worth area receive maximum benefit from the funds available for transportation improvements over the next 20 years. A good understanding of travel patterns will help transportation planners identify the most important improvements that need to be made.

#### **What is the North Central Texas Council of Governments?**

The North Central Texas Council of Governments is an organization of 219 local governments within a 16-county region which directs transportation planning for the area.

#### **How do I know the study is legitimate?**

If you would like to check on the legitimacy of the survey, please call our toll-free number at 1-800-496-9616 during business hours to verify the legitimacy of the study.

#### **Why do you need me to record the addresses of all the places I go?**

Complete and accurate address information is needed because we are studying travel patterns, including how many people travel to locations throughout the region. Cross-streets and the name of the places you visit are acceptable if a specific street address is unknown.

**If this is a travel survey, why do you want to know so much about my activities?**

We have found that asking about people's activities produces a more complete record of your travel. We want to know about all the little stops you make during the day, which are easier for many people to remember if we ask about your activities over the day instead of just your travel. Also, if we discover that there is a trend for people to do certain kinds of activities more than we realized, it may be necessary to find better means of transportation to the places those activities happen.

**Why do you need this information for my small children?**

We need a diary for everyone in the household, even infants. Planners have found that adults often make travel decisions because their children need to get around. There is an activity called "be with another person at their activity" that may be the appropriate one to use for some of a small child's travel. Activities are also listed for school and childcare.

**SPECIFIC TRAINING TIPS**

The following presents tips for handling specific questions in the retrieval script.

**Minimizing Proxy Reporting** It is very important that we speak to respondents directly, if at all possible. On previous studies, we have found that people report their own travel information much more completely than they report information for others. There is a specific system that we are using to monitor proxy reporting, and to help you determine when it is acceptable to collect data from a proxy.

**Persuading People to Participate and Documenting Refusals** By the time you are conducting the retrieval calls, we have invested a lot of time and money in the household. We have called them three times (recruit, verify, remind) to encourage their participation. If the respondent is hesitant to participate during the retrieval phase, it is very important that we make every effort to persuade them to change their mind. Remind him/her that most of the questions in the diary require check marks or codes only, and that it takes less time than they think to complete. If he/she refuses, you must document why.

**IF THE RESPONDENT REFUSES TO HAVE THE HOUSEHOLD PARTICIPATE IN THE STUDY,  
READ:** What is the main reason that you won't participate in the study?

IF RESPONDENT GIVES **ANSWER 1-5:** TRY TO PERSUADE PARTICIPATION.  
IN RESPONSE TO **ANSWER 4,** REMEMBER THAT WE CAN COLLECT INFORMATION FROM JUST THOSE HOUSEHOLD MEMBERS WHO ARE WILLING.  
IF RESPONDENT GIVES **ANSWER 6-7,** SKIP TO APPROPRIATE SCREEN AND PROBE FURTHER.  
IF RESPONDENT CONTINUES TO REFUSE, THANK THEM AND TERMINATE.

- 1 Forms are too complicated/confusing
- 2 Forms request too much information/invoke privacy
- 3 Forms take too much time to complete
- 4 Cannot get other family members to participate
- 5 Other (please specify):
- 6 I travel too little to make difference (GO TO A)
- 7 I travel too much to track my activities (GO TO B)
- 8 Refused (**DO NOT READ**)
- 9 Don't know (**DO NOT READ**)

- A. We are interested in the travel patterns of all kinds of people. Even if you travel only a little, the information you provide is important in understanding how people get around. Please would you think again about your decision not to take part in the study?

B. Does your work involve constant travel, for instance, as a traveling sales person, truck driver, or mail carrier?

- 1 Yes---> If your work involves constant travel, all we ask is that you tell us where and when you started work, where and when you ended work, and if you did any personal chores during the day between work stops. The study will help transportation planners decide how to spend over \$15 billion dollars on the metroplex's highways and transit systems over the next 20 years. Please would you think again about your decision not to take part in the study?
- 2 No---> We are interested in the travel patterns of all kinds of people. We know that recording your activities in the diary will take some time, but finding out more about how people get around is very important. The study will help transportation planners decide how to spend over \$15 billion dollars on the metroplex's highways and transit systems over the next 20 years. Please would you think again about your decision not to take part in the study?

**Make and Model of the Household Vehicles** You will be provided an alphabetical list of the most common makes of vehicles. However, not every make is listed (makes of R.V.s are not provided, for example). Select the make from the list. You will then ask the model. You will be responsible for typing in the model type exactly. Model types may be: RX-7, Taurus, Legend, Rabbit, 626.

**Odometer Readings** The odometer readings for each vehicle should be noted on the Household and Vehicle Form. You will note that the odometer reading at the end of the day must be the same or greater than the odometer reading at the beginning of the day.

**Identifying Household Member's Relationship** On the HH and V form, the respondents are asked to note the relationship of each member to the individual who is completing the form.

**Obtaining Income Data** There are several income ranges printed on the HH and V form. The respondents will be asked to tell you which one best represents their household's total annual household income before taxes. You will also be asking for each person's income - if they are reluctant to provide the actual amount, you can collect a range. **IF THERE IS ANY HESITATION ON THE PART OF THE RESPONDENT, READ: I understand your hesitation to provide this information, but it is very important to the study. Again, your answers will remain strictly confidential and will be used for study purposes only.**

**Delivery Trucks** . Transportation planners also want to know the extent to which travel is generated by the household due to demand for certain services. You will ask the respondents to report if they had any delivery trucks or commercial vehicles that come to their home during the diary day.

**Determine the Respondents' Student/Worker Status** . We have developed several different sets of questions, depending upon whether the individual you speak to is a student, is employed full-time or part-time, or is retired, a homemaker, or seeking work. Question #5 in the diary provides the opportunity to enter up to two responses that will dictate what questions will be answered next. The program will automatically skip you to the appropriate questions.

**Travel is an Activity** Unlike other travel surveys on which you may have worked, this one treats travel explicitly as an activity. So starting your day at home, driving to work, and working would count at three activities.

## **Recording Addresses**

Accuracy is particularly important in recording addresses. There are seven components to an address:

- 1) The place or establishment name (such as McDonald's);
- 2) The street prefix, such as North, South, East, West, Northwest, etc -- this field is two spaces long because we expect you to abbreviate your entries;
- 3) The street number;
- 4) The street name;
- 5) The street suffix, such as street, avenue, drive, lane, road, etc.;
- 6) The city; and,
- 7) The state.

**Be sure that you ask the respondents to spell out the names of streets and places.**

There is a program to help you with the names of the cities in the area.

**School, Main and Secondary Employer Addresses.** We will be collecting the name and address of the respondent's school, main, and second employer. You must spell the establishment names slowly, to make sure you have entered the name correctly. Some individuals will be self-employed and work out of their homes. You will need to note this as a separate punch.

**Main Transportation Used to Get to School and/or to Work** In asking this question, be sensitive to individuals who report that they use more than one type of transportation to get to school and/or to work. It is possible that individuals may take the bus, and then walk a considerable distance to their final destination. If this is the case, ask the respondents to tell you about the transportation they use for the **greatest time** of the trip.

**Industry and Occupation** In asking about industry and occupation listen very carefully and record exactly what the respondent says.

***Who do you work for?***

**(INPUT VERBATIM)**

A person may work for him/herself.

***What kind of business or industry is your main employer in? (e.g. hospital, publishing, construction, retail, education)***

**(INPUT VERBATIM)**

***What do you (does this person) do for your (his/her) main job?***

**(INPUT VERBATIM)**

## **The Activity Pages**

This is the most important part of the diary. By the time you get here, however, the respondent may be fatigued. Encourage him or her to continue, and remind him/her that most of the information we need can be provided by check marks or codes in the diary or is address information. You must get through at least one complete diary in order for any data to be saved! You should have a copy of the diary next to you at your station.

### **ACTIVITY I**

**1) Enter the activity code.** Start by asking the respondent about **Activity I, what they were doing at 3:00 a.m.** Be prepared for the respondent to tell you exactly what they were doing, not in the form of the response options. Offer a

suggested response option to him/her, and ask if this is the appropriate code to enter. In most cases, the first activity should be "sleep at home". Once they verify yes, this is appropriate, you will move on.

**2) Enter the code for the location of this activity, or the address.** You will then ask, "Where were you?" Again, the respondents may not answer according to the response options in the diary (at my home, at my school, at my main work place, at my second work place, at a bus stop, at another place). They may just say, "I was at Jane's house." In this case, you must make a decision as to whether they were at home, school, or work, or (as in this case) at "another location." Enter the appropriate code.

For the first activity, you will verify where the respondent was if it was someplace other than home. Most respondents -- but not all -- will be at home. Remember - respondents could also be traveling at 3 a.m., since travel is an activity, too.

Any time the respondent was at a location other than their home, job, or school, you will collect the name of the place, the full street address or cross streets, and the community name. You will start this process by asking for the correct spelling of the place name. All place names must be spelled out.

## **ACTIVITY 2**

**Starting with Activity 2, there are several different sequences of questions. The basic sequence is as follows:**

**1) Enter the time the activity started.** Unlike Activity 1, we do not know what time Activity 2 started. When the respondent tells you a time, you will enter the hour first, then the minutes, and then a.m. or p.m.

**Now you will ask the respondent whether they were traveling or not:**

If they were traveling, you will ask them the mode-specific questions.

If they were doing something else, you will find out what it was, where they were, etc.

### **Bus/Trolley/Taxi**

If the respondent used transit or taxi, be sure that the proper sequence of activities was reported. Refer to the attached pink pages for diagrams illustrating this sequence. It should be as follows:

#### **Simple Transit Trip**

- 1. Origin**
- 2. Travel to bus**
- 3. Wait for/get on bus**
- 4. Travel on bus**
- 5. Leave/get off bus**
- 6. Travel to destination**

#### **Transit Trip with Transfer**

- 1. Origin**
- 2. Travel to bus**
- 3. Wait for/get on bus**
- 4. Travel on bus**
- 5. Leave/get off bus**
- 6. Wait for/get on bus**
- 7. Travel on bus**
- 8. Leave/get off bus**
- 9. Travel to destination**

In recording the place name and address for bus stops, you may sometimes have the name of a transit center or park-n-ride facility given to you; in other cases, it will just be "bus stop." In most cases, you will collect crosstreets for such places rather than completed addresses.

### **End of Diary Day**

A respondent may tell you that they continued an activity for the rest of the day. You will then be prompted to confirm that it lasted until 3 am. If the activity was not at home, there will be two confirmations, because sometimes people forget to tell us about their return trip home. In this case, make sure you collect their travel back home as an activity, and then their at-home activity(ies) separately. In most cases, the last activity for a person will be sleeping. You may need to prompt

respondents to tell you what time they went to sleep, and you are expected to do so whenever a person finishes his/her day at home.

### **Travel for a Living**

If people travel for a living, they would have far too many activities to report on the diary and during the retrieval call, so we only ask them to tell where and when they started work, where and when they ended work, and if they did any personal chores during the day between work stops. **We do need to know about their last work stop before a personal errand.** Note that the time questions will be a little awkward in such a circumstance -- we want to know about the time they started and stopped their first and last work activities.

### **Embarking/Disembarking at an Airport, Rail Station, Bus Depot**

Two activity categories that will appear to you on your CRT, but which the respondents will not see are embarking and disembarking activities. If you hear a respondent tell you about these as an "other" activity, make sure to record the proper code rather than simply choosing "other" and typing in their response. Even if people go out of the area, we still want to know about their travel. (The only exception to this is a household member who was gone before the diary day started, and who did not return until after the diary day ended.) This the reason for the two "stealth" categories. Remember that city names are only programmed for places in the Dallas-Fort Worth area so you will have to ask for the spelling of other locations and type them in.

Some other things to keep in mind:

- If people use an airport shuttle, treat it as a taxi.
- If people stay at a hotel, record it as "other (specify)" and indicate hotel.
- If people stay at someone else's home, record it as "social/visiting."

### **More Tips**

- "Work at home (related to main or second job)" activities include only activities that are conducted at home that are related to work. Many times this is called telecommuting. This does not include housework, or paying bills. It does include work-related reading and writing, or work-related computer work.
- Passengers do not drop people off or pick people up. Only drivers do so. If someone reports riding as a passenger, they should not have drop off or pick up activities.
- When someone reports being dropped off, make sure to collect the activity they did at the drop-off location. For instance, the activity of "dropped off" (at school) should be followed by the activity of "school."
- A matrix will appear on screen to indicate to you how many diaries remain to be collected. You will ask to speak to the next household member by their gender and year of birth.
- For activities that come **before and after a work activity**, you will come to a screen that asks: "Did you do any activities on your way (to or from) work?" This is designed to help capture the little stops that people tend to make en route to and from work. You are likely to discover new activities. If so, you will be taken back to the activity section, and enter the appropriate code that best describes the newly discovered activity.
- You can collect up to 30 different activities before the computer writes data to memory. You can then collect 30 more activities.
- If a respondent has not completed his/her diaries and refuses to remember what he/she did, you will need to politely encourage the respondent to remember his/her activities. Walk them through the script and help them whenever possible. If some members of a household will not participate but others are cooperative, collect information from those who are willing to take part.

**The Thank You Script** Please read the "thank you script" and remind the respondents to mail their diaries back to us.

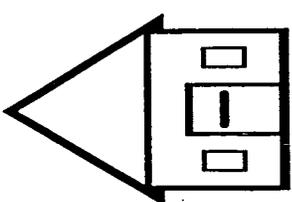
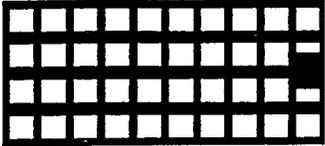
## **Top Eight Things To Remember Dallas Retrieval**

- 1. Get each respondent home at the end of the day AND to sleep as the last activity.** *(Once they are home, the question "Did you do anything else..." will come up -- you must answer "Yes" in order to input the sleep activity.)*
- 2. Collect each and every segment of a trip made by transit (bus, school bus, trolley, or taxi).** *(If a respondent has not recorded all of the segments appropriately, be gentle in collecting the information correctly.)*
- 3. Collect each and every segment of a drop-off or pick-up activity.** *(e.g., a mom at home can not have her next activity be "pick-up child at school" -- you must collect the walk or drive to the school and then the pick-up activity. If a respondent has not recorded all of the segments appropriately, be gentle in collecting the information correctly.)*
- 4. When someone gets dropped off, collect the activity at the drop-off location.** *(An activity of "got dropped off" followed immediately by "got picked up" should hardly ever occur).*
- 5. Waiting time should NOT be included in travel time.** *Travel time should only include the time the person and/or vehicle is in motion. Wait time can be lumped into the time spent on an activity at a location, or can be recorded using "Other(specify)".*
- 6. Two of the same travel modes should never occur in a row** *(e.g., car-car, walk-walk, bike-bike, etc.) Listen for this problem, and prompt the respondent to tell you about the activity they did in between the travel segments.*
- 7. When multiple activities occur at a single location, collect each of the activities separately** *(e.g., shop at the mall, eat out at the mall, entertainment at the mall, etc.) In these cases, use the "same as previous activity" code to record the location of the second (or subsequent) activity.*
- 8. Every time a respondent changes location, you need to collect the intervening travel activity.** *The program will remind you to do this, but you can gently probe for the correct information.*

**Remember to refer to your "SPECIAL" screen, your "TIPS" sheets, and the SURVEY INSTRUMENTS.**

# Transit Example One - Home to work on the bus

## Walker Access



Activity 1  
Other at home

Activity 2  
Walking  
(to the bus stop)

Activity 3  
Wait for/get on vehicle  
(at the bus stop -  
even if the bus  
was already there)

- Location
- Time



Activity 4  
Ride the Bus

Activity 5  
Leave/get off vehicle  
(at the bus stop)

- Location
- Time

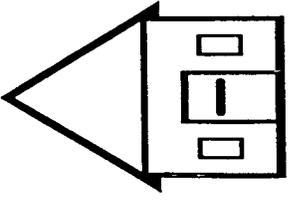
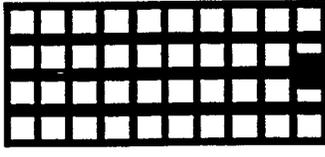


Activity 6  
Walking  
(from the  
bus stop to work)

Activity 7  
Work

# Transit Example Two - Home to work on the bus

## Driver Access

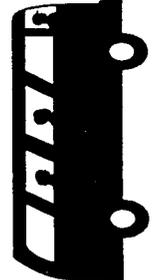


Activity 1  
Other at home

Activity 2  
Driving  
(to the bus stop)

Activity 3  
Wait for/get on vehicle  
(at the bus stop -  
even if the bus  
was already there)

- Location
- Time



Activity 4  
Ride the Bus

Activity 5  
Leave/get off vehicle  
(at the bus stop)

- Location
- Time

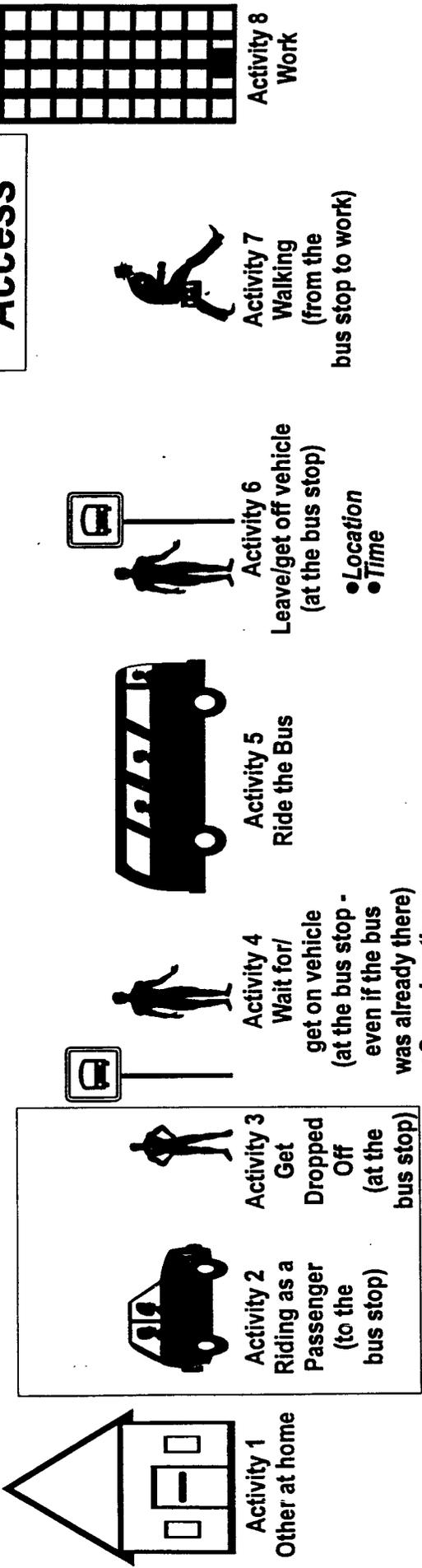


Activity 6  
Walking  
(from the  
bus stop to work)

Activity 7  
Work

# Transit Example Three - Home to work on the bus

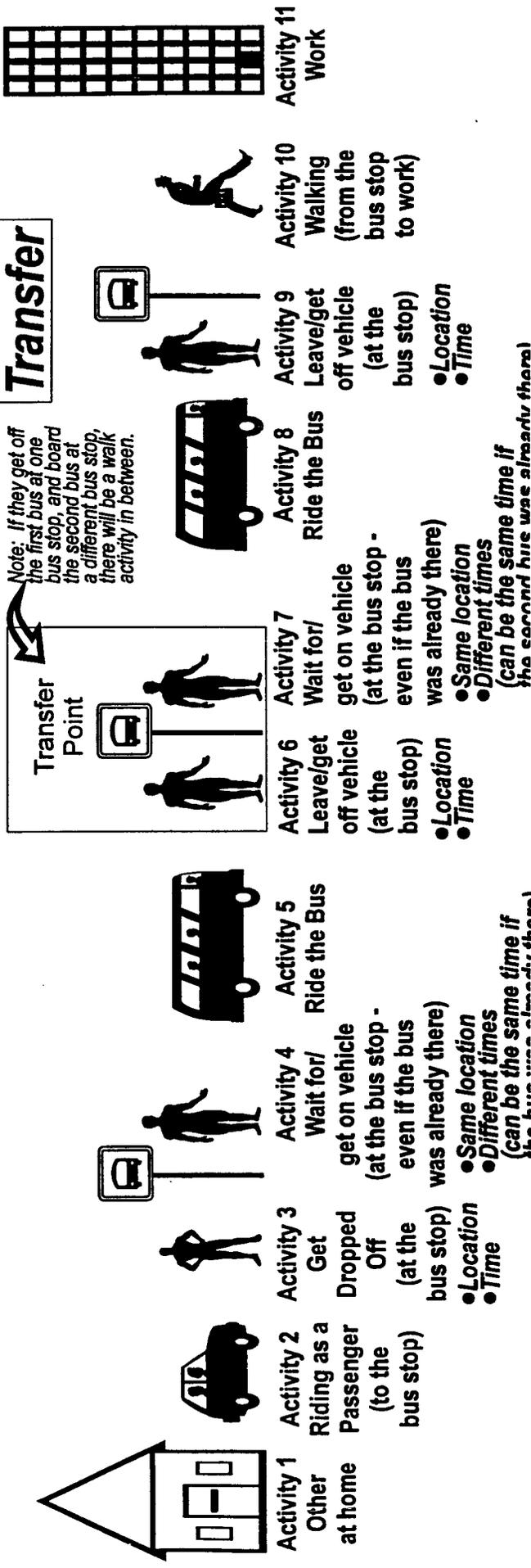
## Passenger Access



● Location  
 ● Time  
 ● Same location  
 ● Different times  
 (can be the same time if the bus was already there)

# Transit Example Four - Home to work on the bus

## With a Transfer



Note: If they get off the first bus at one bus stop, and board the second bus at a different bus stop, there will be a walk activity in between.

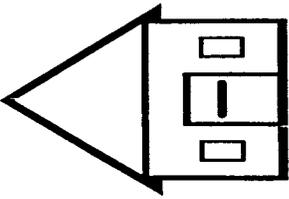
Transfer Point

● Location  
 ● Time  
 ● Same location  
 ● Different times  
 (can be the same time if the bus was already there)

● Location  
 ● Time  
 ● Same location  
 ● Different times  
 (can be the same time if the second bus was already there)

# Transit Example Five - Home to School on the School Bus

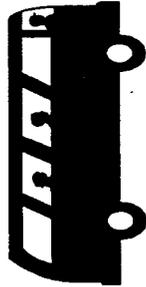
- Waiting at home
- Confirmation of a very short walk
- Getting off at school
- Confirmation of the next activity at the place the bus stopped



Activity 1  
Other at home  
(includes any time  
waiting for the  
school bus  
at home)



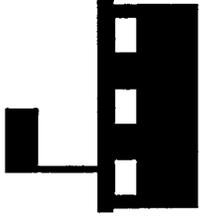
Activity 2  
Get on vehicle  
(same activity code  
as wait for/get on  
vehicle)



Activity 3  
Ride the  
School Bus

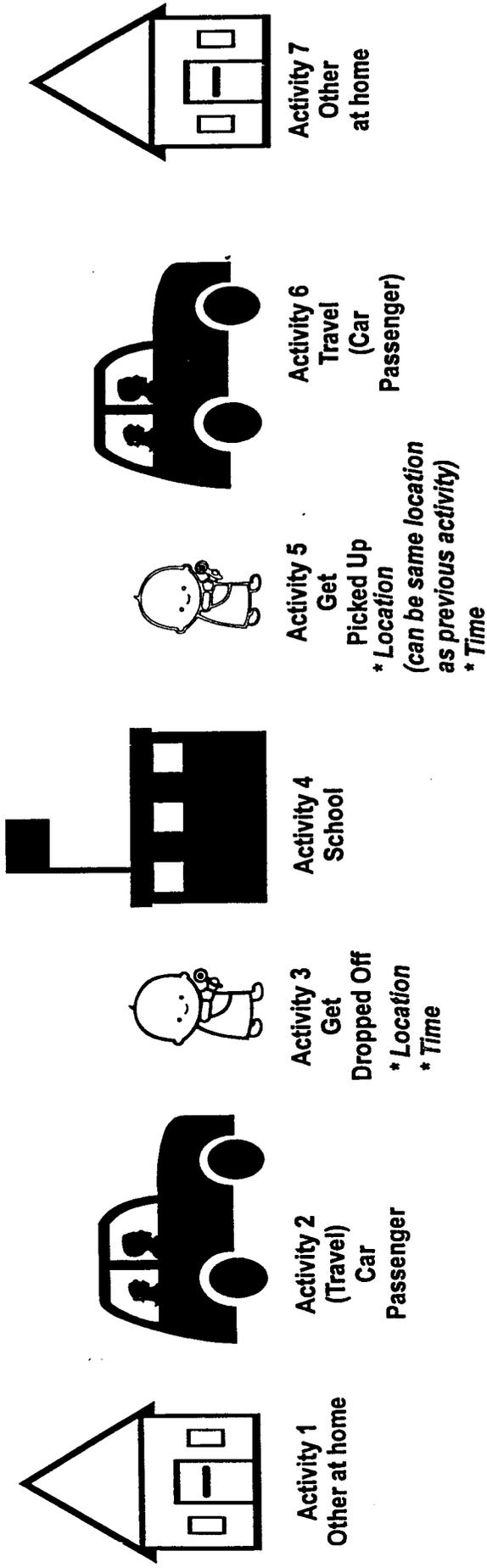


Activity 4  
Leave/get off vehicle  
(at school)

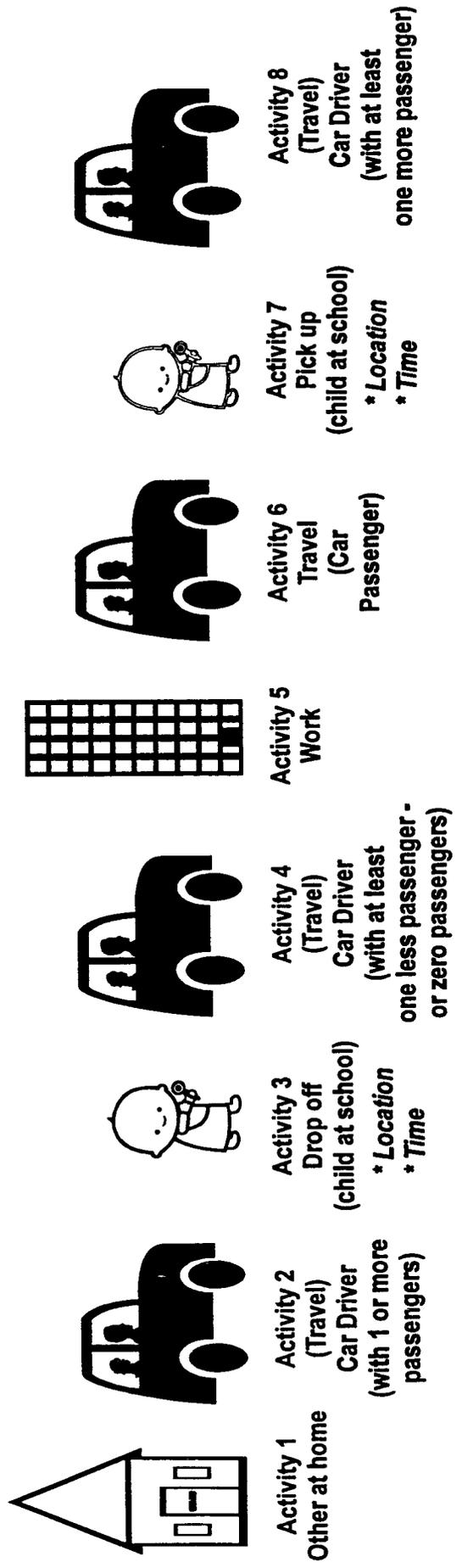


Activity 5  
School

# Drop Off Example 1: Child Gets Dropped At School



# Drop Off Example 2: Parent Drops Child at School



## Dallas Retrieval Interviewer Review

1. **This study is being done for:**
  - Dallas-Fort Worth Council of Governments
  - North Central Texas Transportation Planning Commission
  - Southwest Airlines
  - North Central Texas Council of Governments
  - Dallas-Fort Worth Transportation Planning Commission
  
2. **The reason for this study is:**
  - To learn more about transportation needs in the Dallas-Fort Worth area.
  - \$15 billion will be spent on transportation improvements in Dallas-Fort Worth, and information from this study is needed for planning.
  - This survey will provide a complete and up-to-date picture of all travel done by the households in Dallas-Fort Worth.
  - All of the above
  
3. **If a household says, "I got your package, but I'm not interested, " you should:**
  - Thank the household and say good-bye.
  - Schedule a callback.
  - Immediately code the household as a hard refusal.
  - Try to convince the household to stay in the study.
  
4. **The client for this survey is:**
  - A private transportation firm.
  - A marketing firm.
  - A government agency.
  - An airline.
  
5. **If a household cannot complete their diaries on the assigned diary day, you will:**
  - Ask the household to send back their diary materials so we can re-use them.
  - First try to convince them of the importance of sticking with the assigned date, and then, if necessary, re-assign their diary date.
  - Automatically assign them for the same day of the week, the following week.
  - Make sure they know about the incentive.
  
6. **If you reach an answering machine on the first attempt, you should:**
  - Leave your name and ISA's telephone number.
  - Read the scripted reminder message.
  - Hang-up.
  - Hum a tune.

7. **The household form should be filled out for:**
- Everyone who usually lives in the household.
  - Only people over five years of age who live in the household.
  - Only the adults in the household.
  - Only members of the family - people who are not related to the respondent do not have to be included on the form.
8. **While you are interviewing respondents, you should:**
- Project a positive attitude.
  - Maintain an objective and neutral approach to each respondent and to the subject matter to avoid biasing any findings.
  - Keep control of the interview.
  - All of the above.
9. **In order to answer questions about the diaries, it is important to:**
- Mention the incentive.
  - Be very familiar with the diary forms, and knowledgeable about how they are supposed to be filled out.
  - Tell the respondent what they want to hear.
  - Remember that there are trolleys in Dallas.
11. **Respondents who tell you they travel too much to record their information should be excluded from the study.**
- True
  - False
12. **Respondents who tell you that someone in the household will be away on the assigned diary day should automatically have their diary day re-assigned.**
- True
  - False
13. **If a respondent has questions about the survey that you cannot answer, you should:**
- Type "special"
  - Look through your "tips" sheet for an answer
  - Have your supervisor come to the telephone
  - Recommend the 1-800 hotline number
  - Any of the above
14. **The correct sequence of activities for a bus trip is:**
- Activity 1 \_\_\_\_\_
- Activity 2 \_\_\_\_\_
- Activity 3 \_\_\_\_\_
- Activity 4 \_\_\_\_\_
- Activity 5 \_\_\_\_\_