Sacramento Area Council of Governments

2000 Sacramento Area Household Travel Survey

Final Report

(November 2000)

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PERSON DATA

TRIP DATA

Executive Summary

NuStats Research and Consulting conducted the Year 2000 Sacramento Area Household Travel Survey on behalf of the Sacramento Area Council of Governments (SACOG). The study area includes the six counties in SACOG's jurisdiction: Sacramento, Yolo, Yuba, Sutter, Placer, and El Dorado.

A pilot test was conducted during November and December 1999 to test the survey procedures and materials. Respondents and data collection staff provided valuable feedback about the survey process and materials. Feedback was also provided by SACOG employees who participated in the pilot test as "plants" (data collection staff were unaware of who the plants were so that an objective assessment of the pilot test could be made). All changes to the process and materials were incorporated prior to the full implementation of the study.

A four-phase data collection procedure was used: 1) advance calls, 2) recruitment, 3) reminder calls; 4) data retrieval. The entire data collection task was conducted from February to June 2000. A total of 9,151 households agreed to receive a letter and a brochure about the survey; 4,724 households were recruited to participate and 3,942 households completed 24-hour place-based diaries. A completion rate of 83.5%, which is the percentage of completes to recruited households, was achieved (each person in the household had to provide trip information in order for the household to be considered a complete). The total number of completed surveys is 3.7% more than the contractual requirement of 3,800.

As directed by SACOG, all results presented in this report are unweighted. SACOG will apply weights that are based on 2000 Census data when the data are available.

Survey findings include:

- The average household size in the entire study area is 2.3 persons.
- Exurban households are larger on average than those located elsewhere with an average size of 2.54 persons each.
- The average vehicle ownership is 1.9 for the six-county study. Rural households have on average the highest average vehicle ownership per household at 2.5.
- Four percent of all households in the survey do not own a vehicle; another 65% own two or more.
- The median household income for 1999 is $42,500 for the region as a whole.
- The average daily household trip rate for the entire region is 8.6 with households in the Exurban areas making and average of just under 10 trips.
- Slightly more than eight in ten (81%) respondents live in a single family home and an additional 11% live in an apartment. Among all respondents, nearly six-in-ten (59%) have lived at their current address for 10 years or longer.
- There is no statistically significant difference in the average number of trips generated between males and females.
- The rural region has a slightly older population than other areas with 41% 55 or older.
- Persons between the ages of 35 and 44 generate an average of 4.5 daily trips each; this is significantly more than the average of 3.7 trips per person overall.
- The urban area has a slightly larger percentage of mobility impaired residents (7%) than the region as a whole (5%).
- Exurban households have an average of 1.3 workers per household compared to the overall average of 1.1. Urban area households have an average of 1.0.
- Urban area households work longer hours per week (44.6) than their counterparts. The overall average number of hours worked per week is 40.3.

- Urban area households have the smallest percentage of its residents as students at 29% compared to 34% for the entire region. In the entire study area, of all students, 62% percent are in K-12th.
- Exurban households generate a daily, weekday trip rate of 9.9 compared to the region-wide rate of 8.6 trips. Urban area households generate an average of 7.4 trips.
- Exurban households also generate the highest person trip rate at 3.9 compared to the overall study area average of 3.7. Respondents in the Urban areas produce the fewest trips per person at 3.5.
- Other than activities at home (33%) or work (15%), incidental shopping (9%) and personal business activities (8%) are the most frequent primary trip activities. Incidental trips are typically side trips to purchase gas, small-item groceries, etc.
- Sixty-nine percent of all trips are made by auto drivers and 22% as passengers. Walk mode comprises 5% of all trips while public transit pulls in a smaller share at just over 1% (1.2%).
- Peak trip start times are between 3 p.m. and 6 p.m.
- Just more than one-in-five (22%) trips are five minutes or less in duration; another 24% are 6-10 minutes in length; and 20% are between 11 and 15 minutes. The mean trip duration is 17.4 minutes.

Introduction

This report documents the design, implementation and results of the Year 2000 Sacramento Area Household Travel Survey, conducted February through June 2000. The survey is an essential element in the regional study of transportation activity and travel patterns within the six-county jurisdictions of the Sacramento Area Council of Governments (SACOG).

The purpose of the study was to provide data for the continuing development and refinement of the Regional Travel Demand Forecasting Model, as well as to provide a better understanding of travel behavior in the north central California region. The study area consists of Sacramento, Yolo, Yuba, Sutter, Placer, and El Dorado counties. The resultant data set will be used to fulfill the model's functions of estimating trip generation and distribution, mode choice, and assignments.

The Year 2000 Sacramento Area Household Travel Survey, like all recent household travel surveys, relied on the willingness of area residents to complete diary records of their daily travel over a 24-hour period. Household recruitment was conducted through a "recruitment interview" in which respondents were informed of the survey, its purpose and the respondent's obligation to complete diaries. Data on households and household members were also collected during the recruitment interview.

Participating households were assigned a specific travel day to record their travel, which typically occurred 7-10 days after recruitment and during which household members were asked to record travel information in their diaries for the specified 24-hour period. Beginning the day after the assigned date, attempts to contact households were made to retrieve the diary information. A total of 4,724 households were recruited to participate in the study. Of these, 3,942 households (83.5%) completed travel diaries, and the information was retrieved from all household members regardless of age. The 3,942 households represent 9,132 persons, 5,853 vehicles and 33,954 trips.

While the sample is a good representation of households in the six-county region, weights will be applied to bring the households into proportion to the distribution of households, by county and area type, according to the 2000 Census when data are available. These weights will also be based on household size, income, vehicle ownership and number of workers. A final factor will be applied to produce an overall weight variable based on telephone ownership (inverse of the number of phone lines dedicated to a telephone to account for probability of selection). A description of the calculation of this weight variable is provided in the Calculation of Weights section of this report. *All data presented in this report are unweighted.*

The survey used a scientifically formulated sample design, appropriate instruments for data collection, a package of written materials and internet-based methods to communicate with survey respondents, a toll-free survey hotline, and data collection and processing and reporting procedures.

This report presents the results and describes survey execution. It is organized into chapters by major topic. The chapters include:

- Sample Methods
- Survey Methods
- Survey Results

Sample Methods

The purpose of this chapter is to review the sample methods used to conduct the study. The sample design, generation, and final sample composition are presented. The response rate and identification of sample bias are also discussed in this section.

Survey Universe

The universe for the Year 2000 Sacramento Area Household Travel Survey is defined as all households located in the SACOG jurisdiction. According to 1998 estimates, the study area contains approximately 740,000 households and slightly less than 1.8 million persons. Study area households are those located in the following geographic areas:

Table 1
Study Area Definition

County	Townships
Sacramento	(All)
Yolo	(All)
Yuba	(All)
Sutter	(All)
Placer	(Excluding a small portion of the Tahoe Basin)
El Dorado	(Excluding a small portion of the Tahoe Basin)

Sample Size

The survey produced a sample size of 3,942 randomly selected households with an overall accuracy of ±1.6 percentage points at the 95% confidence level.

To ensure proper model calibration, there is a *minimum* number of samples required in each of the household size, income and number of workers cell stratum. The number of households in the study area (1990), by household size, income and number of workers, is shown in Table 2. However, a disproportionate area type distribution was desired. An over sample of the urban households was recommended by SACOG to obtain additional transit users that otherwise would not have been surveyed through a proportionate sample. The implications of over sampling for a specific area type shifts the actual distribution of household size, income and number of workers as shown in Table 2. When 2000 Census data become available the survey data will be weighted back to the actual distribution.

Table 2
1990 Census Distribution of Households by Size, Income, Number of Workers and Area Type

	Household Size				
Workers / Income / Area Type	**1 Person**	**2 Persons**	**3 Persons**	**4+ Persons**	**Row Ttl.**
0-Workers	***69,369***	***65,019***	***13,769***	***17,213***	**165,370**
Low Income (<$15K)	**25,586**	**18,681**	**5,044**	**6,764**	**56,075**
Rural	4,325	4,465	757	1,017	10,564
Exurban	5,416	4,336	1,031	1,210	11,993
Suburban	4,123	3,370	1,005	959	9,457
Urban	11,721	6,511	2,251	3,578	24,061

Table 2 (Continued)

Workers / Income / Area Type	Household Size 1 Person	2 Persons	3 Persons	4+ Persons	Row Ttl.
0-Workers (Continued)					
Medium-Low Income ($15<$25)	**19,395**	**18,054**	**3,946**	**5,373**	**46,768**
Rural	3,777	4,962	775	1,121	10,634
Exurban	4,503	4,896	907	1,087	11,393
Suburban	3,591	3,240	832	782	8,445
Urban	7,525	4,956	1,433	2,383	16,296
Medium Income ($25<$45)	**14,322**	**15,696**	**2,873**	**3,286**	**36,177**
Rural	2,821	4,605	657	689	8,772
Exurban	3,686	4,411	703	768	9,569
Suburban	2,994	3,023	660	613	7,291
Urban	4,820	3,657	852	1,216	10,546
Medium-High Income ($45<$65)	**5,622**	**6,794**	**1,062**	**1,091**	**14,569**
Rural	992	1,809	231	212	3,243
Exurban	1,351	1,941	277	294	3,862
Suburban	1,472	1,573	262	217	3,524
Urban	1,808	1,471	292	368	3,940
High Income ($65K+)	**4,444**	**5,794**	**844**	**699**	**11,781**
Rural	881	1,630	213	178	2,902
Exurban	1,028	1,691	233	183	3,134
Suburban	1,151	1,337	230	162	2,880
Urban	1,384	1,135	169	176	2,865
1-Worker	***81,680***	***67,777***	***38,761***	***55,033***	**243,251**
Low Income (<$15K)	**7,215**	**5,389**	**2,992**	**4,107**	**19,703**
Rural	834	1,077	539	973	3,423
Exurban	1,399	1,269	790	1,098	4,556
Suburban	1,718	1,263	666	751	4,398
Urban	3,264	1,780	997	1,285	7,326
Medium-Low Income ($15<$25)	**16,707**	**12,488**	**7,084**	**10,016**	**46,295**
Rural	1,749	2,452	1,515	2,647	8,363
Exurban	3,561	2,994	1,785	2,691	11,030
Suburban	4,181	2,939	1,520	1,758	10,399
Urban	7,215	4,102	2,265	2,919	16,501
Medium Income ($25<$45)	**26,838**	**21,164**	**12,372**	**17,270**	**77,644**
Rural	2,920	3,957	2,353	4,097	13,326
Exurban	6,664	5,981	3,787	5,747	22,179
Suburban	6,761	4,982	2,701	3,073	17,517
Urban	10,493	6,246	3,531	4,354	24,623

Table 2 (Continued)

Workers / Income / Area Type	Household Size 1 Person	2 Persons	3 Persons	4+ Persons	Row Ttl.
1-Worker (Continued)					
Medium-High Income ($45<$65)	**16,498**	**14,323**	**8,391**	**11,968**	**51,180**
Rural	2,161	3,107	1,747	2,979	9,994
Exurban	4,909	4,751	3,116	4,872	17,648
Suburban	4,104	3,235	1,792	2,116	11,246
Urban	5,324	3,231	1,737	2,001	12,293
High Income ($65K+)	**14,422**	**14,412**	**7,923**	**11,673**	**48,430**
Rural	2,091	3,380	1,873	3,232	10,577
Exurban	4,475	4,943	3,078	5,051	17,547
Suburban	3,883	3,428	1,738	1,908	10,957
Urban	3,973	2,660	1,234	1,481	9,349
2-Workers	***N/A***	***91,427***	***49,205***	***73,126***	**213,758**
Low Income (<$15K)	**N/A**	**1,655**	**860**	**1,254**	**3,769**
Rural	**N/A**	251	146	296	693
Exurban	**N/A**	400	234	355	989
Suburban	**N/A**	471	239	293	1,003
Urban	**N/A**	533	242	309	1,085
Medium-Low Income ($15<$25)	**N/A**	**5,755**	**2,852**	**4,267**	**12,875**
Rural	**N/A**	826	562	1,156	2,544
Exurban	**N/A**	1,320	753	1,176	3,249
Suburban	**N/A**	1,573	744	871	3,188
Urban	**N/A**	2,037	793	1,065	3,895
Medium Income ($25<$45)	**N/A**	**18,083**	**9,416**	**13,555**	**410,054**
Rural	**N/A**	2,878	1,865	3,251	7,994
Exurban	**N/A**	4,940	3,042	4,377	12,359
Suburban	**N/A**	4,484	2,098	2,550	9,131
Urban	**N/A**	5,780	2,412	3,377	11,570
Medium-High Income ($45<$65)	**N/A**	**23,165**	**12,690**	**18,965**	**54,820**
Rural	**N/A**	4,130	3,251	4,555	11,174
Exurban	**N/A**	8,037	4,377	7,455	20,448
Suburban	**N/A**	5,313	2,550	3,285	11,202
Urban	**N/A**	5,683	3,377	3,670	11,997
High Income ($65K+)	**N/A**	**42,769**	**23,386**	**35,086**	**101,240**
Rural	**N/A**	8,073	4,555	7,964	20,586
Exurban	**N/A**	15,863	7,455	15,002	40,464
Suburban	**N/A**	10,030	3,285	6,663	21,789
Urban	**N/A**	8,803	3,670	5457	18401

Table 2 (Continued)

Workers / Income / Area Type	Household Size				Row Ttl.
	1 Person	2 Persons	3 Persons	4+ Persons	
3+ Workers			***15,188***	***28,452***	**43,640**
Low Income (<$15K)	**N/A**	**N/A**	**108**	**213**	**321**
Rural	**N/A**	**N/A**	32	55	88
Exurban	**N/A**	**N/A**	14	38	52
Suburban	**N/A**	**N/A**	45	77	122
Urban	**N/A**	**N/A**	16	43	59
Medium-Low Income ($15<$25)	**N/A**	**N/A**	**482**	**861**	**1,343**
Rural	**N/A**	**N/A**	62	175	238
Exurban	**N/A**	**N/A**	60	118	178
Suburban	**N/A**	**N/A**	237	339	576
Urban	**N/A**	**N/A**	123	229	352
Medium Income ($25<$45)	**N/A**	**N/A**	**1,679**	**3,096**	**4,775**
Rural	**N/A**	**N/A**	293	648	941
Exurban	**N/A**	**N/A**	479	865	1,345
Suburban	**N/A**	**N/A**	422	672	1,094
Urban	**N/A**	**N/A**	485	911	1,396
Medium-High Income ($45<$65)	**N/A**	**N/A**	**2,730**	**5,197**	**7,928**
Rural	**N/A**	**N/A**	587	1,344	1,930
Exurban	**N/A**	**N/A**	888	1,603	2,491
Suburban	**N/A**	**N/A**	596	943	1,539
Urban	**N/A**	**N/A**	659	1,308	1,968
High Income ($65K+)	**N/A**	**N/A**	**10,189**	**19,085**	**29,273**
Rural	**N/A**	**N/A**	1,955	4,395	6,350
Exurban	**N/A**	**N/A**	3,818	7,213	11,031
Suburban	**N/A**	**N/A**	2,236	3,731	5,967
Urban	**N/A**	**N/A**	2,179	3,747	5,926
Column Totals:	***151,050***	***224,223***	***116,923***	***173,824***	***666,020***

Source: SACOG

Area Type Distribution

There were four area type categories created for the survey effort. These are Rural, Exurban, Suburban and Urban.

- *Urban* - characterized by the full range of peak and off-peak transit service with access to at least 100,000 jobs within 45 minutes of total travel time via transit. This sub-region has greater incidences of 0-car households and thus has higher propensity to generate transit and walk trips.
- *Suburban* - where there is access via transit to at least 50,000 jobs (but less than 100,000) within the 45 minute transit travel time, including walk access.
- *Exurban* - less dense locations with limited public transit service, but with access via transit to fewer than 50,000 jobs in the 45 minute transit travel time.
- *Rural* - all other areas in the study region, characterized by not having any fixed route transit service at all.

The minor zones used by SACOG were categorized into one of these four area types and provided to NuStats electronically in table format. The table was imported into ArcView and used as a geocoding attribute for the home addresses.

Table 3
Area Type Distribution

Area Type	1990 Households	Percent of Study Area	Sampling Plan Distribution Goal
Rural	134,333	20%	17%
Exurban	205,516	31%	20%
Suburban	141,724	21%	22%
Urban	184,447	28%	41%
Total:	***483,505***	***100%***	***100%***

Source: SACOG

Sample Selection

The survey employed a probability sample selection process to include households in the survey. The major requirement for probability samples is that the relative probability (or chance) that any household in the universe that will be included is known. Once the sampling procedure is determined, selection of specific households for inclusion in the sample is left entirely to chance.

The type of probability sample used is stratified sampling in which the sample elements were drawn proportionately to households within the six counties with an over sample in the urban areas. The sample was randomly generated across all telephone exchanges within the study area.

The 1990 Census reveals that the overall percentage of households with telephones in the study area is 97%. Table 4 shows the percentage of households with telephones, by county. Twenty-nine percent of households surveyed have two or more phone lines. Of these households, 36% have phone lines that are strictly for telephone use. A weight variable, which is the inverse of the number of phone lines and dedicated for phone use is included in the data set. A description of the calculation of this weight variable is provided in the Calculation of Weights section of this report.

Table 4
Telephone Coverage by County

Area	Percentage of Households with a Phone
El Dorado	97%
Placer	97%
Sacramento	97%
Sutter	96%
Yolo	96%
Yuba	96%
Overall	97%

Source: U.S. Census, 1990

Sample Frame Generation

The sample frame for the survey included listed and unlisted telephone numbers. A “listed” telephone number is a telephone number for which a household address can be identified; an “unlisted” telephone number is one for which a household address can not be identified.

Both the listed and unlisted telephone numbers were generated using random digit dial (RDD) procedures. Using a telephone database which contains the universe of listed business and residential telephone numbers, NuStats identified all the working blocks for telephone numbers in the study area. For each working exchange/block combination a comprehensive analysis was conducted to determine its efficiency. Telephone companies reserve

certain exchange/block combinations strictly for commercial assignments while others may have a mix of business and residential use.

In generating the *listed* sample, NuStats included in the sample frame those exchange/block combinations with a minimum 70% residential listing. However, all exchange/block combinations (including those that have less than 70% residential listings) were used to generate the "unlisted" sample. This assured that mixed-use developments (both commercial and residential use) were not excluded from the sample frame. Eliminating business listings during sample generation minimized time spent screening out businesses during the advance call stage. All of these numbers comprised the sampling frame for the listed telephone numbers.

Unlisted telephone numbers were generated based on the telephone exchanges and blocks identified from the listed sample generation. Telephone numbers were randomly generated from these exchange/block combinations and then compared to all phone numbers listed (both business and residential) in the six counties as identified in the telephone database. Any generated telephone numbers that are also listed within the database were purged from the sample frame thus providing assumed unlisted telephone numbers.

The overall incidence of unlisted telephone numbers for the entire study area is approximately 75% (Source: Survey Sampling, Inc.).

A recruitment goal of 4,900 households assumes a retrieval rate (that is, percentage of recruited households that will be completed) of 78%. However, during the course of the project, the retrieval rates were higher than anticipated and so the goal of recruited households were reduced to 4,700. This recruitment sample size and retrieval rate produces a minimum of 3,800 completed surveys. NuStats typically completes about 2% to 4% more surveys to accommodate for surveys that are deemed unacceptable during data processing. For this study, a total of 3,942 surveys were completed or 3.7% more than contractually required.

Sample Preparation

The sample was prepared for administration by organizing it into replicates. A replicate is a systematically selected sub-sample of the universe. The main benefit of using replicated samples is that the interviewers do not need to call the entire sample frame in order to ensure proper representation of the study area. When the quota of completed households is accomplished, it is only necessary to attempt to complete households in the current replicate that has been released or opened.

Advance calls are made to each unlisted telephone number in order to *elicit* a home address. Advance calls are also made to each listed telephone number to verify that the telephone number is assigned to a household rather than a business. Since listed telephone numbers do not have an apartment or unit number attached, the advance call also serves to elicit or verify this information, which is critical to the mailing procedure. Once addresses are verified, an advance letter and brochure are mailed to home addresses for each record in the sample file that has been geocoded. The number of advance calls made and advance letters sent are determined by the assumed rate of recruitment. For this survey, we assumed a 52% recruitment rate producing a mailing goal of 9,000 advance letters.

During survey administration, progress on advance calls, advance letters, recruitment, and data retrieval was tracked daily by NuStats' production staff.

Component and Overall Response Rates

The sampling plan is but a means to an end, because it is the response of the actual sample that matters. The responses of those who completed the survey comprise the data set, and an acceptable response rate is critical. Overall response rate is one guide to the representation of the sample respondents. The Year 2000 Sacramento Area Household Travel Study used a multi-stage survey process (i.e., advance call, household recruitment and household retrieval). In this case, a rate is calculated for each survey stage — called the component response rate, then the overall response rate is determined by multiplying the rates together.

Advance Calls

From the sampling frame, NuStats randomly selected 32,683 telephone numbers for inclusion in the study. As shown in Table 5 on the following page, a total of 8,745 telephone numbers was found to be ineligible for the study (disconnects, business/government, computer/fax and out of area). Dividing the total eligible units (13,261) by the sum of the total eligible and ineligible units (13,261+8,745=22,006) is the eligibility rate for the screening phase or advance call phase. The rate is 60.3%.

Table 5
Advance Call Outcomes

Call Outcome	Frequency
Eligible Units	
Agreed to receive letter	9,151
Refused to participate	4,110
SUB-TOTAL ELIGIBLE	***13,261***
Ineligible Units	
Disconnected number	5,068
Business / Government	1,732
Computer / fax line	1,329
Out of area/Over Quota	616
SUB-TOTAL INELIGIBLE	***8,745***
Eligibility Unknown Units	
No answer	3,797
Call Back	4,007
Answering machine	2,456
Busy	417
SUB-TOTAL ELIGIBILITY UNKNOWN UNITS	***10,677***
GRAND TOTAL:	***32,683***

Recruitment Rate

Table 6 summarizes the recruitment call outcomes. As shown in the table, the recruitment call outcomes also yielded two types of sample dispositions: eligible and ineligible. The small percentage of ineligible calls resulted from the advance calls performed earlier in the process with the purpose of identifying and purging non-working numbers from the sample prior to the recruitment effort.

The recruitment rate is the number of recruited households divided by the total eligible (eligibility is a known residence for all sample because these base are advance call completes). The recruitment rate is 51.6% (or 4,724/9,151).

Table 6
Recruitment Call Outcomes

Call Outcome	Frequency
Eligible Units	
Recruited	4,724
Refused to participate	2,108
Pending (no answer, call backs, answering machines)	2,319
TOTAL ELIGIBLE	***9151***

Retrieval Rate

The retrieval rate is then calculated using the same formula as the advance call rate. Of the total 4,724 recruited households, virtually all are eligible since the vast majority had been *both* screened and recruited. The retrieval rate is 83.9% (3,942/4,699). The outcomes are summarized in Table 7 on the following page.

Table 7
Retrieval Call Outcomes

Call Outcome	Frequency
Eligible Units	
Completed	3,942
Refused to participate	133
Pending (no answer, call backs, answering machines)	624
SUB-TOTAL ELIGIBLE	***4,699***
Ineligible Units	
Disconnected/non-working	25
SUB-TOTAL INELIGIBLE UNITS	***25***
GRAND TOTAL:	***7,333***

Overall Response Rate

In addition to the component rates, an overall response rate is calculated. The overall response rate can be computed using the following formula:

$$RR = \left(\frac{a_1}{A_1*(C_1 * ER_1)}\right) * \left(\frac{a_2}{A_2*(C_2 * ER_2)}\right) * \left(\frac{a_3}{A_3*(C_3 * ER_3)}\right)$$

Where,

RR is the Overall Response Rate,
a_1, a_2 and a_3 are the number of completed surveys for each of the three phases,
A_1, A_2 and A_3 are the number of eligible telephone numbers for each of the three phases,
C_1, C_2 and C_3 are the number of eligibility unknown for each of the three phases, and
ER_1, ER_2 and ER_3 are the eligibility rates for each of the three phases.

Using this formula, the Overall Response Rate is 26.1% (0.603 * 0.516 * 0.839). Although response rates are declining in the survey research field, this response rate is higher than what has been typically achieved in previous household travel surveys. An overall response rate of about 20% is typical. The response rate calculation uses the same formula prescribed by the Council of American Survey Research Organizations (CASRO).

Final Sample Composition

Tables 8a,b, and c summarize the final distribution of households by household size, number of workers, income and area type.

Table 8a
Final Distribution of Households – Area Type by Household Size
(n=3,942)

	Area Type				
Household Size	**Rural**	**Exurban**	**Suburban**	**Urban**	**Total**
1-Person	103	180	226	499	1,008
2-Persons	285	364	417	628	1,694
3-Persons	103	139	152	186	580
4+-Persons	109	204	155	192	660
Column Totals	600	887	950	1,505	3,942

Table 8b
Final Distribution of Households – Area Type by Number of Workers
(n=3,942)

	Area Type				
Workers	**Rural**	**Exurban**	**Suburban**	**Urban**	**Total**
0-Workers	187	210	292	512	1,201
1-Worker	166	272	299	535	1,272
2-Workers	202	329	304	394	1,229
3+-Workers	45	76	55	64	240
Column Totals	600	887	950	1,505	3,942

Table 8c
Final Distribution of Households – Area Type by Household Income
(n=3,942)

	Area Type				
Income	**Rural**	**Exurban**	**Suburban**	**Urban**	**Total**
Low Income (<$15K)	34	55	71	196	356
Medium-Low Income ($15<$25)	62	78	83	177	400
Medium Income ($25<$45)	113	167	177	318	775
Medium-High Income ($45<$65)	198	272	279	356	1105
High Income ($65K+)	150	238	240	300	928
Don't Know/Refused	43	77	100	158	378
Column Totals	600	887	950	1,505	3,942

Tables 8d,e, and f below summarize the percent achieved of the goal for each stratum. The goals are based on a proportional distribution of the 1990 Census data. As shown there are a total of 52 individual cell strata. Twenty-seven of the cells (highlighted) either exceed the goal or are within 10% of the goal. The imbalances are mainly attributable to the purposeful over sampling of urban area households. As mentioned previously, the results will be weighted by SACOG upon the availability of Year 2000 Census data.

Table 8d
Percent of Goal by Stratum – Area Type by Household Size
(n=3,942)

	Area Type				
Household Size	**Rural**	**Exurban**	**Suburban**	**Urban**	**Total**
1-Person	77%	82%	112%	147%	113%
2-Persons	101%	91%	140%	181%	128%
3-Persons	75%	59%	100%	110%	84%
4+-Persons	45%	56%	82%	81%	64%
Total	91%	113%	111%	92%	104%

Table 8e
Percent of Goal by Stratum – Area Type by Number of Workers
(n=3,942)

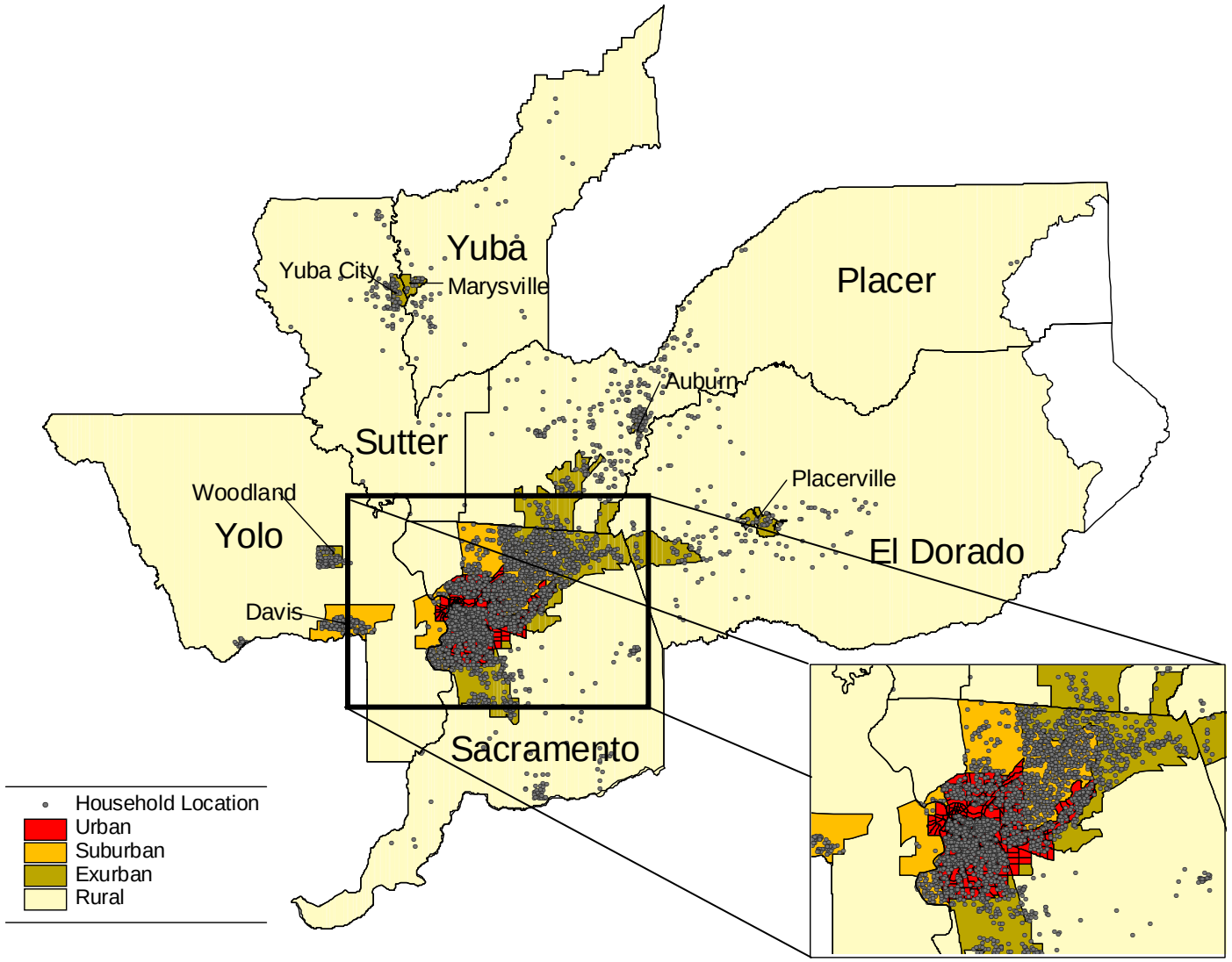
	Area Type				
Workers	**Rural**	**Exurban**	**Suburban**	**Urban**	**Total**
0-Workers	92%	47%	165%	158%	104%
1-Worker	65%	66%	98%	136%	93%
2-Workers	82%	78%	122%	149%	104%
3+-Workers	84%	90%	105%	118%	98%
Total	91%	113%	111%	92%	104%

Table 8f
Percent of Goal by Stratum – Area Type by Household Income
(n=3,942)

	Area Type				
Income	**Rural**	**Exurban**	**Suburban**	**Urban**	**Total**
Low Income (<$15K)	43%	58%	89%	113%	83%
Medium-Low Income ($15<$25)	53%	56%	69%	89%	70%
Medium Income ($25<$45)	68%	69%	94%	123%	91%
Medium-High Income ($45<$65)	140%	114%	190%	220%	161%
High Income ($65K+)	69%	62%	108%	153%	91%
Total	91%	113%	111%	92%	104%

The location of each of the 3,942 completed households is shown in Figure 1 on the following page. The map depicts the actual household address location with the county boundary and area type overlay.

Figure 1
Household Distribution by County and Area Type
(n=3,942)



For modeling purposes, it is important to maintain a fairly equal distribution of travel days across the week. However, this was secondary to the achievement of the sampling goals (it was more important to approximate the distribution of household by area type than the day-of-week distribution). Although obtaining an even day-of-week distribution was a secondary goal, a final distribution across the five weekdays was achieved as shown in the following table.

Table 9
Distribution of Households by Day-of-Week

Day-of-Week	Goal	Frequency	Percent
Monday	760	825	21%
Tuesday	760	818	21%
Wednesday	760	792	20%
Thursday	760	769	19%
Friday	760	738	19%
Total:	***3,800***	***3,942***	***100%***

Calculation of Weights

The weight variable for the Year 2000 Sacramento Area Household Travel Survey data will be comprised of at least three elements in which their product adjusts the data for the following:

1. Probability of selection
2. County or Area Type weight
3. Other weights as deemed necessary by SACOG

The weighting process includes the development of these factors, then multiplying them together to determine the "final" weight. SACOG will weight the data set when Year 2000 Census data are available. However, NuStats included the probability of selection factor in the final data set, which should be used upon completion of the final weight factor calculations by SACOG.

Probability of Selection

The first step is to account for differential probabilities of selection in the sample generation stage. Under ideal conditions, assuming that the study area is relatively homogenous with respect to telephone ownership, one would only need to take into account the geographic distribution by area type and the estimated universe of households within the specific sample strata. The unique relationship of those two numbers for each stratum is the probability of selection and the inverse is the weight factor that would be applied.

The central California region, however, does not meet the assumption of homogeneity. In general, certain locations have very high levels of telephone ownership turnover and very differential rates of working telephone numbers, while others are much more stable and have higher rates of ownership and working rates. The actual weighting factor incorporates both probability of selection weighting and the heterogeneity of the study region. This approach combines weighting with geographic balancing and uses the actual number of completed households and the universe of households by sample strata.

Households with more than one phone line not dedicated to a fax or modem have a greater probability of selection compared to those with only a single line. A weight must be calculated for households with multiple phone lines. The weight factor is the inverse of the number of phone lines in the household dedicated for a telephone. The weight factor is included in the data set and should be multiplied by any other weight factors developed by SACOG to calculate a final weight variable.

Another weight factor is the sampled distribution of households by area type compared to the actual. Since SACOG will wait until Year 2000 Census data are available to calculate this weight factor, the following is for illustrative purposes only and should be updated when Year 2000 Census data are available.

The calculation of the area type weight factor is a fairly straightforward process. First, the natural or proportionate distribution of the households is compared to the actual sample outcomes. This distribution is shown in the following table.

Table 10
Sample Plan Distribution by Area Type

Area Type	Proportional Distribution	Proportional Percent	Sampling Plan Distribution	Sampling Plan Percent
Rural	766	20.2%	600	15.2%
Exurban	1,173	30.8%	887	22.5%
Suburban	809	21.3%	950	24.1%
Urban	1,052	27.7%	1,505	38.2%
Total:	***3,800***	***100.0%***	***3,942***	***100.0%***

The weights are then calculated to bring the final sample distribution of households in line with the actual distribution of households (in this example, according to the 1990 Census). The final weights are shown in the following table. The value 1.0 means that the sampled elements accurately reflect the population at large, a value less than 1.0 means that there is an over representation and a value greater than 1.0 means that there is an under representation.

Table 11
Weight Factors to Account for Probability of Selection by Area Type

Area Type	Proportional Percent	Sampling Plan Percent	Weight Factor
Rural	20.2%	15.2%	1.3290
Exurban	30.8%	22.5%	1.3689
Suburban	21.3%	24.1%	0.8838
Urban	27.7%	38.2%	0.7251
Total:	***100.0%***	***100.0%***	

The variability of the average trip rate is dependent upon the size of a household as well as the number of vehicles owned. Table 12 shows the standard deviation of the average trip rate by area type. The formula for calculating the standard deviation is:

$$S = \sqrt{\frac{1}{n-1} \sum (x_i - \overline{x})^2}$$

where,

n=sample size
x_i = observed value of the variable
$\overline{x}$ = sample mean of the variable

As one might expect, the average number of trips is higher in the less urbanized areas which produces a higher variability from the mean trip rate. One explanation might be that less urbanized households do not have shopping and other services localized in a centralized area (e.g. strip mall, shopping mall) and may have to make more trips than the urbanized areas to meet their shopping and personal service needs. Trip rates are discussed in further detail in the Survey Results section of this report.

Table 12
Average Daily Weekday Trip Rate and Standard Deviation of the Trip Rate by Area Type

Area Type	Average Household Trip Rate	Standard Deviation
Rural	9.11	7.39
Exurban	9.90	8.43
Suburban	8.96	7.28
Urban	7.44	6.94
Total:	***8.61***	***7.51***

Survey Methods

The purpose of this section of the report is to review the methods used to conduct the survey. First, an overview of data collection activities is presented, and then the various components of data collection are discussed.

Data Collection Overview

The Year 2000 Sacramento Area Household Travel Survey was a multistage study, as it involved three telephone interviews and two mailings to the households. The procedures and materials used in the conduct of the study are discussed in the next section. The study itself was administered from February to June 2000, with no travel days assigned during Washington's Birthday (Monday, February 21), local universities' and colleges' Spring Break (March 27 — 31) or on Memorial Day (Monday, May 29). Prior to the start of data collection, a pilot test was conducted. The objectives of the pilot test were to refine the survey materials and to fine-tune the processes and programs that were used to carry out the travel behavior survey.

The principal component of the pilot test was a complete run-through of survey procedures for a small sample of Sacramento County households. "Complete" data from 51 households were collected. Pilot test households were recruited, received mail packages, traveled, and were re-contacted to report their travel activities. The Pilot Test Report is included in the appendix.

As a result of the pilot test, the following modifications were made prior to implementing the full study. Suggested changes were categorized into one of two areas: survey process and survey materials.

Survey Process

- Better training was needed for the interviewers. SACOG plants had a general sense that the interviewers were not as comfortable or familiar with the script as they should have been.
- Better rescheduling of households that did not receive a diary in time prior to the assigned travel date.
- It was suggested that collecting intersecting streets for addresses should be sufficient so as not to over burden the respondent by probing for more detail. NuStats advised against this if minimum goals are set in terms of geocoding match rates. NuStats continued to probe for additional address information from insufficient address responses.
- Mailing of diary materials was increased from five days to seven days. This allowed ample time for diaries to reach respondents particularly in the more rural regions of the study area.

Survey Materials

- Added text to diary to indicate intersecting streets are also acceptable if an exact address is not known.
- More brief activity descriptions were made in the diary. Since we will know the location of the activity, some descriptions were eliminated such as "…at work" or "…at home."
- The text in the diary "HOW did you get from PLACE #X to PLACE #Y" was boxed to match the example diary.
- In the example diary a multi-modal trip was included.

Survey Procedures and Materials

The survey process followed an eight-step plan. 1) First, advance calls were made to households to confirm and/or obtain a mailing address and to gather key demographic data for sample management. 2) Following this, an introductory letter and brochure were mailed to each household. 3) The recruitment call secured the household's participation in the study and obtained vehicle data and person-level demographic information, which was used to 4) prepare personalized travel diaries for all household members and mail to each member of a household to use during their assigned travel day to record all of their travel. 5) In addition, a reminder call was made to confirm receipt of the packet and answer any last minute questions prior to the assigned travel days. 6) Following the assigned travel day, a retrieval call was made to obtain the recorded information. 7) The retrieved data was edited and processed, then 8) reported locations were geocoded to x/y coordinates. More detail about each stage is contained below.

1) Advance Calls. The purpose of the advance call was to confirm or obtain a name and mailing address for each sampled household. As with all telephone contacts, advance calls were made using Computer Assisted Telephone Interviewing (CATI) script to walk the interviewer through the interview. Address data were used to assign the area type. These data were key in achieving the area type distribution goals. The advance call questionnaire is contained in the appendix.

2) Advance Mailing. The day following the advance call, any new addresses were sent to geocoding. For all households where a definite location could be determined, an advance notification packet was prepared. This packet included a personalized letter on SACOG letterhead as well as a brochure explaining the study. These are included in Appendix D of this report. Letters were prepared and mailed by NuStats' Fulfillment Department from Austin, Texas.

3) Recruitment Interview. The purpose of the recruitment interview was to secure household participation in the study. The interview was also conducted using CATI. The questionnaire introduction was specifically designed to obtain agreement on participation. The other objectives of the recruitment questionnaire were to collect information on the characteristics of the household and the individual people in the household. The recruitment questionnaire is included in Appendix E of this report.

4) Respondent Material Mailing. The day following recruitment, the demographic information was used to prepare personalized diaries to send to each member of the household. A personalized cover letter was also prepared and included in the packet, along with an example of how to complete the diary. These materials are included in Appendix F of this report. The packets were mailed by NuStats' Fulfillment Department from Austin, Texas.

5) Reminder Call. The night prior to the assigned travel day, a reminder call was made to each household to confirm receipt of the packet and answer any last minute questions. If the packet was not received by this time, the address was re-confirmed and a new travel date was assigned and the diary packet re-sent.

6) Retrieval Interview. Using CATI, the interviewers collected all travel information recorded by respondents for the designated 24-hour travel diary period. The CATI program prompted interviewers to gather all pertinent information, as well as reference the same trips made by other household members. The retrieval questionnaire is included in Appendix G of this report.

Several techniques were employed during the retrieval interview to help ensure that all trips were accounted for. These included a simple question of "did you make any stops along the way" as each new location was reported. Tracking whether any other household members also went on a given trip helped to ensure consistency within the household records as well as providing a method for ensuring that each household member then reported the shared trip. Proxy reporting and diary usage were also tracked for each respondent.

7) Data Editing and Processing. The data collected were subjected to a rigorous edit check program, which performed electronic edits of the data. These edits included both within file checks (intrafile) for consistency, as well as cross-file checks (interfile) for logic and compatibility. For example, the edit check program confirmed that all responses were appropriate (e.g., if a household reported not having a car, all vehicle

variables should be blank). Additionally, if the household reported having four vehicles, the program checked to confirm that there are four vehicle records in the vehicle file. A complete list of edits is included in the appendix. A few of the standard data checks include:

Across all Files:

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

Household File:

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

Person File:

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

Vehicle File:

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

Trip File:

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

8) Geocoding. All locations were geocoded using Arc View 3.1 against SACOG-provided coverage files. Home addresses were geocoded soon after sample generation. Home addresses that did not geocode were investigated and corrected during the recruitment interview. Each of the 3,942 household addresses was geocoded (100% match rate).

Work and school addresses for all household members were collected during the recruitment interview. Those addresses that did not geocode were investigated and corrected during reminder and retrieval calls. Ninety-seven percent of the all work and school addresses traveled to are geocoded.

Addresses of trip origins and destinations were verified as the data were collected. The interviewer was assisted in this effort through the use of “nested” address databases built into the CATI system. Geocoding took place by NuStats geocoding technicians as well as SACOG interns. Of the over 24,000 trip addresses (non-home, work or school), 97% are geocoded. Appendix K details the geocoding procedures.

Table 13 on the following page displays the distribution of households in the study area by area type. An over sample of the urban area households was conducted to collect additional data of transit use than otherwise would have been collected in a proportional sample.

Table 13
Area Type Distribution
(n=3,942)

Area Type	Percent of Study Area*	Percent of Survey
Rural	20.2%	15.2%
Exurban	30.8%	22.5%
Suburban	21.3%	24.1%
Urban	27.7%	38.2%
Total:	***100.0%***	***100.0%***

**Source: SACOG*

Geocoding Quality Control

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

A second electronic check on the data involved calculating travel speeds and comparing them against mode-specific standards. This check was performed on all trip records for which both the origin and destination were successfully geocoded. The x/y coordinates were used to calculate a trip distance, while the reported travel times were used to calculate travel time. The speed or rate of travel was distance divided by time or miles per hour. The mode specific standards include:

- Auto rates up to 70 mph
- School bus rates up to 45 mph
- Transit rates up to 35 mph
- Bike rates up to 10 mph
- Walk rates up to 10 mph

Of the over 33,000 total trips, approximately 1/10 of one percent of the trips were flagged as exceeding the threshold speeds. Full procedural documentation used in the speed check calculations is provided with the data set delivery. The trip data file contains the speed check outcome variable.

Survey Results

Household Data

On average, Sacramento area households are comprised of 2.3 members. As Table H-1 shows, single person households comprise 25% of the sample, while large households (4+ persons) account for 17%.

There is a total of 7,734 vehicles which is an average of 1.9 per household. The mean age of all vehicles is 10.4 years. Twenty percent are three years old or less. The three most popular makes are Ford (20%), Chevrolet (12%) and Toyota (12%). Among all vehicles, nearly four-in-ten (36%) have a 6-cylinder engine. Another 33% have a 4-cylinder and 22% have an 8-cylinder engine. Ninety-five percent are owned while 3% are being leased.

A cross tabulation of Household Size by Area Type reveals that the Urban area type has the largest percentage (33%) of its households containing only a single person, while the Rural area type has the smallest percentage (17%) of its households with only one person. Twenty-three percent (23%) of Exurban households contain 4 or more persons, the highest percent of large households among all area types. Among all area types, the Urban area type has the lowest percentage of households with four or more persons (13%). The average household size of those with four or more members is 4.5 persons.

Table H-1
Household Size Distribution by Area Type
(n=3,942)

	Household Size				
Area Type	**1 person**	**2 persons**	**3 persons**	**4+ persons**	**Row Totals**
Rural	17%	48%	17%	18%	100%
Exurban	20%	41%	16%	23%	100%
Suburban	24%	44%	16%	16%	100%
Urban	33%	42%	12%	13%	100%
Overall:	25%	43%	15%	17%	100%

Table H-2 summarizes the average household size by area type. As revealed in the previous table, urban area households have a higher percentage of single-member households. The average household size in the urban area is 2.12. Exurban households have the largest average household size among the four area types at 2.54 persons.

Table H-2
Average Household Size by Area Type
(n=3,942)

Area Type	Average Household Size
Rural	2.45
Exurban	2.54
Suburban	2.34
Urban	2.12
Overall:	***2.32***

More than half (57%) of all households in the Sacramento area are considered to have a high annual income (more than $45,000). As shown in Table H-3 on the following page, just over one-in-five (21%) earn less than $25,000. The median household income for the entire study area is $42,500.

Rural and Exurban area types have the largest percent of households considered to have a high income at $45,000 per year or more (63% each). The Urban area type has the smallest percent of households in this category, with just less than half (48%). The Rural and Exurban area types also have the smallest percent of households having an income of less than $25,000 with 17% each. The Urban area type has the highest percent of households in this category at 28%.

Table H-3
1999 Household Income by Area Type
(n=3,564)

	2000 Household Income				
Area Type	**<$15K**	**$15<25K**	**$25<45K**	**$45<65K**	**$65K+**
Rural	6%	11%	20%	36%	27%
Exurban	7%	10%	21%	34%	29%
Suburban	8%	10%	21%	33%	28%
Urban	15%	13%	24%	26%	22%
Overall:	10%	11%	22%	31%	26%

Base: All households reporting income.

Table H-4 shows the number of households and the percentage of all households for each household size and vehicle ownership stratum for the Sacramento study area. Just over four-in-ten households have two household members. Approximately the same percentage of households has two-vehicle households.

Table H-4
Number of Households/(Percent of Total) by Stratum
Entire Region
(n=3,942)

	Household Size				
Vehicles	**1**	**2**	**3**	**4+**	**Row Total**
0 Vehicles	125/(3.2%)	31/(0.8%)	7/(0.2%)	8/(0.2%)	171/(4.3%)
1 Vehicle	703/(17.8%)	325/(8.2%)	82/(2.1%)	84/(2.1%)	1,194/(30.3%)
2 Vehicles	127/(3.2%)	991/(25.1%)	250/(6.3%)	289/(7.3%)	1,657/(42.0%)
3 Vehicles	45/(1.1%)	248/(6.3%)	175/(4.4%)	157/(4.0%)	625/(15.9%)
4+ Vehicles	8/(0.2%)	99/(2.5%)	66/(1.7%)	122/(3.1%)	295/(7.5%)
Total:	***1,008/(25.6%)***	***1,694/(43.0%)***	***580/(14.7%)***	***660/(16.7%)***	***3,942/(100.0%)***

Table H-5 summarizes the number of trips for each household size and vehicle ownership stratum for the Sacramento study area. Although the 4+-person/2-vehicle households make up only 7.3% of the sample, they generate slightly more than 15% of the total trips.

Table H-5
Total Trips/(Percentage of Total) by Household Size and Vehicle Ownership
(n=33,954)

	Household Size				
Vehicles	**1**	**2**	**3**	**4+**	**Total**
0 Vehicles	240/(0.7%)	142/(0.4%)	39/(0.1%)	89/(0.3%)	510/(1.5%)
1 Vehicle	2,757/(8.1%)	1,997/(5.9%)	782/(2.3%)	1,179/(3.5%)	6,715/(19.8%)
2 Vehicles	496/(1.5%)	7,223/(21.3%)	2,970/(8.7%)	5,302/(15.6%)	15,991/(47.1%)
3 Vehicles	165/(0.5%)	1,891/(5.6%)	1,912/(5.6%)	2,805/(8.3%)	6,773/(19.9%)
4+ Vehicles	35/(0.1%)	789/(2.3%)	725/(2.1%)	2,416/(7.1%)	3,965/(11.7%)
Total:	***3,693/(10.9%)***	***12,042/(35.5%)***	***6,428/(18.9%)***	***11,791/(34.7%)***	***33,954/(100.0%)***

Table H-6 summarizes the average daily trip rate and standard deviation for each household size by vehicle ownership stratum for the Sacramento study area. The 4+ person/2-vehicle households have a high variability in

the average number of trips this group makes. The number of trips varies from zero trips to a high of 61 trips. Twenty-percent of these households made 25 or more trips in a 24-hour period.

Table H-6
Household Trip Rate/Standard Deviation by Household Size and Vehicle Ownership
(n=3,942)

	Household Size				
Vehicles	**1**	**2**	**3**	**4+**	**Total**
0 Vehicles	1.9 / 2.06	4.6 / 4.86	5.6 / 4.08	11.1 / 13.83	3.0 / 4.52
1 Vehicle	3.9 / 2.98	6.1 / 5.05	9.5 / 6.57	14.0 / 9.97	5.6 / 5.46
2 Vehicles	3.9 / 2.80	7.3 / 4.68	11.9 / 6.27	18.4 / 9.57	9.7 / 7.44
3 Vehicles	3.7 / 3.12	7.6 / 5.02	10.9 / 6.26	17.9 / 8.76	10.8 / 7.81
4+ Vehicles	4.4 / 2.20	8.0 / 5.40	11.0 / 5.22	19.8 / 10.04	13.4 / 9.37
Total:	***3.7 / 2.93***	***7.1 / 4.88***	***11.1 / 6.24***	***17.9 / 9.72***	***8.6 / 7.51***

Table H-7 summarizes the average household trip rate by total household income. As one can expect, the higher the income, the higher the average trip rate. Higher income households tend to own more vehicles than their lower income counterparts and therefore have a higher propensity to make more trips as shown in Table H-8.

Table H-7
Household Trip Rate by Household Income
(n=3,942)

Income	**Frequency**	**Percent**	**Trip Rate**
Low (<$15K)	356	9%	5.4
Medium-Low ($15<$25K)	400	10%	5.6
Medium ($25-$45K)	775	20%	7.8
Medium High ($45<$65K)	1,105	28%	9.3
High ($65K+)	928	24%	11.7
Don't Know	337	8%	7.0
Refused	41	1%	5.2
Overall:	***3,942***	***100%***	***8.6***

Base: All households reporting income (9% refused to provide income data).

Table H-8
Average Number of Vehicles Owned by Household Income
(n=3,942)

Income	**Percent**	**Vehicles**
Low (<$15K)	9%	1.0
Medium-Low ($15<$25K)	10%	1.3
Medium ($25-$45K)	20%	1.7
Medium High ($45<$65K)	28%	2.2
High ($65K+)	24%	2.4
Don't Know	8%	1.9
Refused	1%	1.5
Overall:	***100%***	***2.0***

Base: All households reporting income.

Households in the Sacramento study area report having an average of 2.0 vehicles. Table H-9 shows rural households own more vehicles on average than households in other area types at 2.5 vehicles per household. The Urban area type has the lowest average of vehicles per household at 1.7.

Table H-9
Average Number of Vehicles Owned
(n=3,942)

Area Type	Average Number of Vehicles
Rural	2.5
Exurban	2.1
Suburban	1.9
Urban	1.7
Overall:	***2.0***

Table H-10 below summarizes the average number of vehicles owned by household size. As one might expect, the larger the household size the greater the need for transportation.

Table H-10
Average Number of Vehicles Owned by Household Size
(n=3,942)

Household Size	Average Number of Vehicles
One Person	1.1
Two Persons	2.1
Three Persons	2.4
Four or More Persons	2.6
Overall:	***2.0***

Bicycle ownership is fairly consistent among the four area types as shown in the following table. Urban households own few bicycles than households located in other area types.

Table H-11
Distribution of Bicycle Ownership
(n=3,942)

	Bicycle Ownership		
Area Type	**1**	**2**	**3+**
Rural	16%	20%	21%
Exurban	15%	20%	23%
Suburban	18%	23%	24%
Urban	22%	19%	16%
Overall:	18%	20%	19%

Base: Among those responding to this question.

Table H-12 on the following page summarizes the dwelling type by area type. There are more apartments in the urban and suburban areas compared to those in the rural and exurban locations. Nearly eight-in-ten (78%) respondents own their home while the other 22% rent.

Table H-12
Dwelling Type
(n=3,942)

	Dwelling Type						
Area Type	**Single Family**	**Condo**	**Duplex**	**Apartment**	**Mobile Home**	**Dormitory**	**Other**
Rural	90%	1%	1%	3%	4%	0%	1%
Exurban	85%	2%	2%	8%	3%	0%	1%
Suburban	78%	4%	6%	11%	1%	<1%	1%
Urban	77%	3%	4%	15%	1%	0%	1%
Overall:	81%	3%	4%	11%	2%	0%	1%

Nearly six-in-ten respondents (59%) have lived at their current address for 10 years or longer. Table H-13 summarizes the number of years respondents have lived at their current address.

Table H-13
Years Living at Current Address
(n=3,942)

Time	Percentage
Less than 2 years	16%
2-5 years	12%
5-10 years	13%
10 years or more	59%
Overall:	***100%***

NuStats created a segmentation variable called lifecycle. The lifecycle variable is based on the age of the householder, work status and whether or not children are present. The four segments are:

1) Households without children - these are households in which the head of household is not retired, is of any age and does not have any children living in the home

2) Younger Households with Children – these are households in which the head of household is not retired, is 35 years old or younger and has children living in the home

3) Older Households with Children – same as number two above but 36 years old or older

4) Retired – these are households in which the head of household is retired, is of any age and may or may not have children living in the home

In theory, as households move through various stages of this lifecycle, a corresponding change in the number of trips generated will occur as well. This is clearly evident in Table H-14. As households, in general, are in the "No Children" cycle, the average household trip rate is 6.6. Moving to the next cycle, as children become part of the household, the trip rate begins to increase (13.3). In the third stage in which the head of household gets older (and children do as well and become licensed drivers and are more independent) the trip rate increases to 15.4. Moving to retirement and with the children now out of the home, the trip rate drops back to 5.6.

Table H-14
Number of Households and Mean Household Trips by Lifecycle and Area Type
(n=3,942)

County	Households Without Children	Younger Hhlds. With Children	Older Hhlds. With Children	Retired Hhlds.	Overall
Rural	219 / 7.2	33 / 11.6	148 / 15.3	200 / 6.2	600 / 9.1
Exurban	349 / 6.7	62 / 15.2	256 / 16.4	220 / 5.9	887 / 9.9
Suburban	399 / 7.2	48 / 14.4	219 / 14.9	284 / 6.0	950 / 9.0
Urban	690 / 6.0	85 / 12.0	241 / 14.9	489 / 5.0	1505 / 7.4
Overall:	***1,657 / 6.6***	***228 / 13.3***	***864 / 15.4***	***1,193 / 5.6***	***3,942 / 8.6***

Additional questions were asked about technology use in the household. First, respondents were asked what type of equipment is used in the home. Table H-15 summarizes the various types of equipment used in the home (households can use more than one type of equipment). Desktop computers are used by over six-in-ten of all surveyed households. Two-in-ten households do not use any of the technologies listed.

Table H-15
Equipment Used in the Home
(n=7,012 responses)

Equipment	Percent of Households*
Desktop computer	62%
Cellular phone	52%
Facsimile machine	21%
Portable computer	17%
Web TV	4%
None of the above	22%

**Column total adds to more than 100% due to allowance of multiple responses per household.*

Respondents were also asked the types of technology services the household subscribes. The following table summarizes the subscription services survey respondents use. Cable television is the most popular subscription service (60% of respondents) with on-line/internet and cellular phone services not too far behind.

Table H-16
Subscription Services
(n=7,898)

Service	Percent of Households*
Cable Television	60%
On-line/Internet service	50%
Cellular telephone service	47%
Pager service	13%
Satellite Television	10%
Special subscription information	7%
None of the above	13%

**Column total adds to more than 100% due to allowance of multiple responses per household.*

Person Data

As mentioned previously, the Year 2000 Sacramento Area Household Travel Survey represents 9,132 persons in 3,942 households. This is an average of 2.3 persons per household.

The gender split among the four area types is consistent as shown in Table P-1.

Table P-1
Gender by Area Type
(n=9,132)

Area Type	Male	Female	Refused
Rural	51%	49%	<1%
Exurban	49%	51%	<1%
Suburban	48%	51%	1%
Urban	49%	51%	<1%
Overall:	49%	51%	<1%

There is no significant difference in the average daily trip rates between males and females. Females generate an average weekday trip rate of 3.8 while males generate 3.7.

Questions were included in the survey to ascertain possible trip substitution through the use of the Internet or videoconferencing. Nearly two-thirds (66%) of all respondents use some high technology devices such as a computer, the Internet or videoconferencing. The most common devices are desktop computers at home (25%) or at work/school (21%), Internet use at home (21%) or work/school (14%). Three percent of all devices used are teleconferencing or videoconferencing tools used at work. Interestingly, among those who use the Internet to shop either at home or work, the average weekday person trip rates are actually higher (4.5) than those who do not use the Internet to shop (3.6). This tends not to support the theory of trip substitution.

There is a slightly older population in the rural areas compared to the other area types as shown in the table below. In fact, 41% of all surveyed persons are 55 years of age or older in the rural areas.

Table P-2
Household Member Age by Area Type
(n=9,010)

	Age								
Area Type	**<5**	**5-14**	**15-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
Rural	3%	8%	7%	5%	6%	13%	17%	18%	23%
Exurban	5%	11%	8%	6%	7%	14%	20%	14%	16%
Suburban	4%	9%	6%	8%	9%	12%	17%	13%	21%
Urban	5%	7%	5%	6%	10%	13%	17%	14%	24%
Overall:	***4%***	***9%***	***6%***	***7%***	***8%***	***13%***	***18%***	***14%***	***21%***

Base: Among those who provided their age.

The overall average weekday person trip rate is 3.7. The average daily person trip rate peaks among the 35 to 54 year-olds and then declines around the age of retirement. Table P-3 on the following page summarizes the average daily person trip rate by age.

Table P-3
Average Weekday Person Trip Rate by Age
(n=9,010)

Age	Average Weekday Person Trip Rate
<5	2.8
5-12	3.1
13-17	3.6
18-24	3.6
25-34	3.9
35-44	4.5
45-54	4.3
55-64	3.9
65+	3.0
Overall:	***3.7***

Base: Among respondents who provided their age.

A lower percentage of respondents are licensed to drive in the urban areas compared to those living elsewhere as shown in Table P-4. Perhaps there is less need for private auto transportation in the urban areas because of the availability of public transportation and/or walking trips are more feasible because of the close proximity of businesses to the home; and therefore, fewer licensed drivers.

Table P-4
Licensed Drivers by Area Type
(n=7,634)

Area Type	Licensed	Not Licensed
Rural	92%	8%
Exurban	91%	9%
Suburban	92%	8%
Urban	85%	15%
Overall:	***89%***	***10.6%***

Base: Respondents 15 years of age or older.

As shown in Table P-5, there are fewer licensed drivers among 18-24 year olds (84%) as well as those 65 years of age or older (87%) than other age categories with the exception of 15-17 year-olds.

Table P-5
Licensed Drivers by Age
(n=7,634)

Age	Licensed	Not Licensed
15-17	32%	68%
18-24	84%	15%
25-34	92%	8%
35-44	95%	5%
45-54	96%	4%
55-64	96%	4%
65+	87%	13%
Overall:	***89%***	***11%***

Base: Respondents 15 years of age or older.

Respondents were asked if they have a physical, mental or other health disability that has lasted six months or longer and which makes it difficult to go outside the home. Overall, 5% of persons surveyed report being mobility impaired. The urban area has a slightly larger percentage of its population that is mobility impaired. As one might expect, the average number of person trips made by persons without a disability (3.8) is higher compared to persons with a disability (2.1).

Table P-6
Persons with Mobility Impairment by Area Type
(n=9,102)

County	Yes	No
Rural	4%	95%
Exurban	4%	96%
Suburban	3%	97%
Urban	7%	93%
Overall:	***5%***	***95%***

Base: Among those responding to this question.

As shown in Table P-7, surveyed households average 1.1 workers per household. Exurban households have slightly more workers per household than households located in the other area types. Urban households have the fewest number of workers on average.

Table P-7
Average Number of Workers Per Household by Area Type
(n=9,132)

County	Average Number of Workers
Rural	1.2
Exurban	1.3
Suburban	1.1
Urban	1.0
Overall:	***1.1***

Nearly one-half (49%) of all respondents of working age (15+ years old) are employed either full-time or part-time with 6% working two or more jobs. Nearly seven-in-ten (69%) work five days per week while another 8% work more than that. A large percentage (41%) of those who are employed have been at their primary job ten years or longer. Seventeen percent worked at home at least one day during the week prior to the survey.

Eighty-two percent of those who are employed drive to work alone. Seven percent get to work via a shared ride while another three percent use public transit. Five percent get to work by walking or bicycling. Of the employed, 12% report their employer does not provide parking facilities such as a lot or garage. Employers who do, pay for all or part of the parking. Interestingly, the same percentage report that their employer either provides a free or reduced bus pass or the employer pays for a portion for the cost of a vanpool. Twelve percent do not know whether or not their employer subsidizes any alternative mode options.

Of those who are not employed, 21% are retired, 5% are homemakers and another 4% are students.

As one would expect, the mean household trip rate increases as the household size and number of workers increase as shown in Table P-8 below. Of the households with three or more workers, the average household size is 4.0 persons. The larger the household size and number of workers, the more mean number of trips produced as shown in the table. The mean household trip rate overall is 8.6.

Table P-8
Number of Households and Mean Household Trip Rate by Size and Number of Workers
(n=3,942)

	Household Size				
Workers	**1**	**2**	**3**	**4+**	**Total**
0 Workers	537 / 3.0	596 / 6.3	40 / 8.7	28 / 15.1	1,201 / 5.1
1 Worker	471 / 4.4	454 / 7.0	172 / 9.8	175 / 17.7	1,272 / 7.9
2 Workers	--	644 / 8.0	270 / 12.2	315 / 17.8	1,229 / 11.4
3+ Workers	--	--	98 / 11.1	142 / 18.8	240 / 15.6
Overall	1,008 / 3.7	1,694 / 7.1	580 / 11.1	660 / 17.9	3,942 / 8.6

Persons located in urban areas tend to work more hours than persons in other areas; working an average of 44.6 hours per week compared to 40.3 hours overall. Persons living in suburban areas work slightly less than the average working 39.6 hours per week.

Table P-9
Average Number of Work Hours by Area Type
(n=6,767)

County	Average Work Hours Per Week
Rural	40.3
Exurban	40.5
Suburban	39.6
Urban	44.6
Overall:	***40.3***

Base: Respondents who work either full-time or part-time.

The majority (56%) of employers provides benefits that help reduce traffic congestion including flex-time, on-site eating facilities, shower facilities and bicycle racks. The most common benefits are flex-time (20%) and an on-site cafeteria (17%).

One-in-five (21%) of all persons report that they do volunteer work. Thirty-six percent do so on a regular schedule while the others vary their schedule. Three-fourths volunteer at a regular location while others vary their location.

Nearly half (47%) of all respondents report having attained an education beyond high school.

A higher percentage of households located in urban areas have at least one household member who is a student (29%) as shown in Table P-10. Nearly four-in-ten (38%) of all students get to school via a shared ride. Twenty-six percent drive alone to school, 12% walk and 4% ride public transit to school.

Fourteen percent report that their school does not have parking facilities. Of those that do, nearly six-in-ten (57%) do not subsidize the cost for parking. Also, 64% of all students report that their school does not subsidize travel costs such as free or reduced bus passes or subsidized vanpool costs.

Table P-10
Student Status by Area Type
(n=3,942)

County	Yes	No
Rural	33%	67%
Exurban	38%	62%
Suburban	38%	62%
Urban	29%	71%
Overall:	***34%***	***66%***

Nearly one-third (30%) of respondents who are attending school are attending classes beyond high school as summarized in Table P-11 below.

Table P-11
Type of School Attending
(n=2,246)

Type of School	Percent
Daycare/preschool	7%
K-12th	62%
Post-secondary	24%
Vocational/Technical	4%
Post-Graduate	2%
Other	1%
Total:	***100%***

Base: Among respondents who are in school

Trip Data

The 3,942 completed surveys represent 33,954 trips or 8.6 trips per household. Table T-1 summarizes the household daily average trip rate by area type. Exurban households make, on average, significantly more trips than households located in urban areas. Rural and suburban households generate the same average number of trips.

Table T-1
Household Trip Rate by Area Type
(n=3,942)

Area Type	Household Trip Rate
Rural	9.1
Exurban	9.9
Suburban	9.0
Urban	7.4
Overall:	***8.6***

Table T-2 shows the average weekday trip rate per person by area type. Persons living in urban areas make slightly fewer trips on average than those living in other areas.

Table T-2
Person Trip Rate by Area Type
(n=33,954)

County	Person Trip Rate
Rural	3.7
Exurban	3.9
Suburban	3.8
Urban	3.5
Overall:	***3.7***

Table T-3 shows the primary trip activity for each of the 33,954 generated trips. Other than to return home or go to work, incidental shopping (8.8%), personal business (8.3%) and social/recreational trips (7.4%) account for the largest percentage of all trips. To serve a passenger (drop-off or pick-up) accounts for another 8.6%.

Among all activities conducted (including primary, secondary and tertiary) at the destination of each trip, whether performed at home or outside the home, 1.6% were for Internet use (1.2% at home and 0.6 at work). Four-in-ten were activities conducted at home, 11% were for work, 9% were for eating meals outside the home and 8% were for social/recreational purposes. It should be noted that this distribution includes home activities (if the home is a final trip destination) and should not be compared to traditional regional trip purpose summaries such as home-based work trips.

Table T-3
Primary Trip Activity at Destination
(n=33,954)

Primary Trip Activity	Frequency	Percent
Personal activities at home	11,302	33.3%
Work (other than at home)	5,131	15.1%
Shopping - incidental (gas, groceries, etc)	2,979	8.8%
Personal business	2,828	8.3%
Social/recreational	2,528	7.4%
Eat meals outside of home	1,664	4.9%
Pick-up/drop-off passenger at other place	1,545	4.6%
Pick-up/drop-off passenger at school	1,353	4.0%
School - daycare/k-12th	1,351	4.0%
Shopping - major (appliances, autos, etc.)	951	2.8%

Table T-3
Primary Trip Activity at Destination (Continued)

Primary Trip Activity	Frequency	Percent
Medical	571	1.7%
Civic activities	442	1.3%
School - college/vocational	401	1.2%
Church activities	364	1.1%
Pick-up/drop-off passenger at work	276	0.8%
Other	268	0.8%
Overall:	***33,954***	***100.0%***

Table T-4 below shows the trip mode distribution for all trips. Nearly seven-in-ten (69%) of all trips were made by auto driver. The average vehicle occupancy for auto driver trips is 1.4. Slightly more than one-in-five trips were made with at least two persons in the vehicle. Five percent of all trips were made via walking.

Table T-4
Trip Mode
(n=33,954)

Mode	Frequency	Percent
Auto Driver	23,515	69.3%
Auto Passenger	7,360	21.7%
Walk	1,700	5.0%
Bike	549	1.6%
School Bus	334	1.0%
Transit - Public Bus	248	0.7%
Transit - LRT	162	0.5%
Other (specify)	86	0.2%
Total:	***33,954***	***100%***

The average vehicle occupancy other than to serve a passenger is highest among trips for church activity (2.1), eating a meal (2.0) and for social/recreation (2.0).

Trips are typically made late afternoon (3:00 p.m. to 6:00 p.m. – 25%) as shown in Table T-5 below.

Table T-5
Trip Start Time
(n=33,954)

Mode	Frequency	Percent
6:00am-8:59am	1951	5.7%
9:00am-11:59am	3651	10.8%
Noon-2:59pm	6363	18.7%
3:00pm-5:59pm	8318	24.5%
6:00pm-8:59pm	4550	13.4%
9:00pm-11:59pm	1372	4.0%
Midnight-5:59am	7749	22.8%
Total:	***33,954***	***100%***

Table T-6 on the following page summarizes the trip mode distribution by trip purpose. The numbers shown are the percentage of the trip purposes for each mode type. As an example, 13% of the walking trips are to go to work and another 8% are for incidental shopping.

Table T-6
Activity Distribution by Mode
(Percent/Frequency)
(n=33,954)

	TRIP MODE											
Primary Activity	**Auto Driver**	**Auto Passenger**	**Transit-Public Bus**	**Transit-Light Rail**	**School Bus**	**Motorcycle**	**Taxi**	**Walk**	**Bicycle**	**Other**	**Don't Know/ Refused**	**Row Total**
Personal activities at home	32.7/7,698	34.0/2,501	39.5/98	32.1/52	41.9/140	31.3/5	30.8/4	34.0/578	38.1/209	27.8/15	66.7/2	33.3/11,302
Internet use at home	.0/7	.0/1							.2/1			.0/9
Work at home	.3/79	.0/2		.6/1				.4/6	.7/4			.3/92
Work (other than at home)	18.8/4,421	3.7/2,69	19.8/49	34.0/55	1.8/6	12.5/2	30.8/4	13.3/226	16.4/90	14.8/8	33.3/1	15.1/5,131
Telecommunications at work instead of travel	.0/1											.0/1
School - college/vocational	1.1/257	.4/30	8.1/20	3.1/5	1.8/6			1.4/23	10.6/58	3.7/2		1.2/401
School - daycare/k-12th	.4/98	11.5/845	9.3/23	3.7/6	43.7/146			11.0/187	8.2/45	1.9/1		4.0/1351
Shopping - incidental (gas, groceries, etc.)	9.4/2,218	7.9/585	4.4/11	3.1/5		6.3/1		7.9/134	4.4/24	1.9/1		8.8/2,979
Shopping - major (appliances, autos, etc.)	2.9/692	3.3/243						.8/14	.4/2			2.8/951
Personal business	8.8/2,079	7.4/548	6.0/15	8.0/13	2.7/9	18.8/3	7.7/1	6.5/111	6.7/37	22.2/12		8.3/2,828
Medical	1.8/415	1.9/139	1.6/4	.6/1			15.4/2	.5/9	.2/1			1.7/571
Eat meals outside of home	4.3/1,005	7.0/512	1.2/3	1.2/2		12.5/2	7.7/1	7.3/124	2.6/14	1.9/1		4.9/1,664
Social/recreational	6.3/1,472	11.0/810	4.4/11	1.9/3	4.2/14	12.5/2	7.7/1	9.3/158	8.6/47	18.5/10		7.4/2,528
Civic activities	1.4/337	.9/69	.4/1	.6/1		6.3/1		1.6/28	.9/5			1.3/442
Church activities	1.0/224	1.7/123	.8/2		.3/1			.6/11	.4/2	1.9/1		1.1/364
Pick-up/drop-off passenger at work	.9/214	.8/61						.1/1				.8/276
Pick-up/drop-off passenger at school	4.4/1,046	3.4/249	.4/1		.6/2			2.9/50	.9/5			4.0/1,353
Pick-up/drop-off passenger at other place	5.0/1,186	4.6/336	.8/2	1.9/3	.9/3			.8/13	.4/2			4.6/1,545
Other	.3/64	.5/36	2.8/7	9.3/15	2.1/7			1.6/27	.5/3	5.6/3		.5/162
Don't know/Refused	.0/2	.0/1	.4/1									.0/4
Column Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

**Total may not add to 100.0% due to rounding.*

Table T-6a
Mode Distribution by Activity
(Percent/Frequency)
(n=33,954)

	TRIP MODE											
Primary Activity	**Auto Driver**	**Auto Passenger**	**Transit-Public Bus**	**Transit-Light Rail**	**School Bus**	**Motorcycle**	**Taxi**	**Walk**	**Bicycle**	**Other**	**Don't Know/ Refused**	**Row Total**
Personal activities at home	68.1/7,698	22.1/2,501	.9/98	.5/52	1.2/140	.0/5	.0/4	5.1/578	1.8/209	.1/15	.0/2	100/11,302
Internet use at home	77.8/7	11.1/1							11.1/1			100/9
Work at home	85.9/79	2.2/2		1.1/1				6.5/6	4.3/4			100/92
Work (other than at home)	86.2/4,421	5.2/269	1.0/49	1.1/55	.1/6	.0/2	.1/4	4.4/226	1.8/90	.2/8	.0/1	100/5,131
Telecommunications at work instead of travel	100/1											100/1
School - college/vocational	64.1/257	7.5/30	5.0/20	1.2/5	1.5/6			5.7/23	14.5/58	.5/2		100/401
School - daycare/k-12th	7.3/98	62.5/845	1.7/23	.4/6	10.8/146			13.8/187	3.3/45	.1/1		100/1,351
Shopping – incidental (gas, groceries, etc.)	74.5/2,218	19.6/585	.4/11	.2/5		.0/1		4.5/134	.8/24	.0/1		100/2,979
Shopping – major (appliances, autos, etc.)	72.8/692	25.6/243						1.5/14	.2/2			100/951
Personal business	73.5/2,079	19.4/548	.5/15	.513	.3/9	.1/3	.0/1	3.9/111	1.3/37	.4/12		100/2,828
Medical	72.7/415	24.3/139	.7/4	.2/1			.4/2	1.6/9	.2/1			100/571
Eat meals outside of home	60.4/1,005	30.8/512	.2/3	.1/2		.1/2	.1/1	7.5/124	.8/14	.1/1		100/1,664
Social/recreational	58.2/1,472	32.0/810	.4/11	.1/3	.6/14	.1/2	.0/1	6.3/158	1.9/47	.4/10		100/2,528
Civic activities	76.2/337	15.6/69	.2/1	.2/1		.2/1		6.3/28	1.1/5			100/442
Church activities	61.5/224	33.8/123	.5/2		.3/1			3.0/11	.5/2	.3/1		100/364
Pick-up/drop-off passenger at work	77.5/214	22.1/62						.4/1				100/276
Pick-up/drop-off passenger at school	77.3/1,046	18.4/249	.1/1		.1/2			3.7/50	.4/5			100/1,353
Pick-up/drop-off passenger at other place	76.8/1,186	21.7/336	.1/2	.2/3	.2/3			.8/13	.1/2			100/1,545
Other	39.5/64	22.2/36	4.3/7	9.3/15	4.3/7			16.7/27	1.9/3	1.9/3		100/162
Don't know/Refused	50/2	25.0/1	25.0/1									100/4

**Total may not add to 100.0% due to rounding.*

Table T-7 shows the average trip time, in minutes for all trips made. Nearly one-half (45%) of all trips are ten minutes or less in duration. Eighteen percent are more than 30 minutes in duration. The mean trip time is 17.4 minutes.

Table T-7
Trip Duration (in minutes)
(n=33,954)

End Time	Frequency	Percent
5 minutes or less	7,581	22%
6-10 minutes	8,100	24%
11-15 minutes	6,680	20%
16-20 minutes	3,405	10%
21-30 minutes	2,089	6%
31-45 minutes	4,674	14%
More than 45 minutes	1,425	4%
Total	***33,954***	***100%***

Other than to go home or to work, respondents made trips that lasted just over 20 minutes in duration for college/vocational school (21.5), medical (21.5) and social/recreational purposes (20.7) as shown in the following table.

Table T-8
Mean Trip Duration (in minutes) by Trip Activity
(n=33,954)

Trip Purpose	Mean Trip Duration (in minutes)
Personal activities at home	18.3
Internet use at home	25.1
Work at home	11.9
Work (other than at home)	21.5
Telecommunications at work instead of travel	7.0
School - college/vocational	21.5
School - daycare/k-12th	14.1
Shopping - incidental (gas, groceries, etc)	12.6
Shopping - major (appliances, autos, etc.)	15.2
Personal business	15.7
Medical	21.5
Eat meals outside of home	14.8
Social/recreational	20.7
Civic activities	18.1
Church activities	14.3
Pick-up/drop-off passenger at work	16.1
Pick-up/drop-off passenger at school	11.8
Pick-up/drop-off passenger at other place	14.7
Other	20.1
Don't know/Refused	35.0
Overall	17.4