

REGIONAL TRANSPORTATION COMMISSION

WASHOE COUNTY
TRAVEL CHARACTERISTICS STUDY

*Household Travel Survey
Final Report*



NuStats

3006 Bee Caves Rd., Suite A-300 ■ Austin, Texas 78746
(512) 306-9065 ■ fax (512) 306-9077 ■ www.nustats.com

Contact: Stacey Bricka, *Research Director* or Ramon Dickerson, *Sr. Research Associate*



TABLE OF CONTENTS

Introduction	1
<hr/>	
Survey Methods	2
<hr/>	
Survey Design	3
Sample Design	3
Data Weighting	14
Sample Validation	15
Survey Results	17
<hr/>	
Respondent Summary	17
Travel Behavior	20
Trip Characteristics	25
Mode Choice	30
Travel by Public Transit	31
Travel by School Bus	33
Non-Motorized Travel	36
Travel Times	38
Conclusions	40
<hr/>	
Appendices	41
<hr/>	
Appendix A: Advance Letter	42
<hr/>	
Appendix B: Recruitment Questionnaire	44
<hr/>	
Appendix C: Travel Log	52
<hr/>	
Appendix D: Retrieval Questionnaire	53
<hr/>	



LIST OF TABLES AND FIGURES

Table 1: Household Travel Survey Data Items	3
Table 2: Geographic Strata Assignments	4
Table 3: Survey Goals by Geographic Strata	4
Table 4: County Distribution of Households by Size and Vehicle Ownership	5
Table 5: Survey Goals by Demographic Distribution	5
Table 6: Completed Surveys by Geographic Strata	5
Table 7: Completed Surveys by Size and Vehicle Ownership - Countywide	6
Table 8: Completed Surveys by Size and Vehicle Ownership – Planning Area Only	6
Table 9: Recruitment Interview Length and Contacts	10
Table 10: Retrieval Interview Length and Contacts	11
Table 11: Distribution of Households by Day of Week	12
Table 12: Disposition of GPS Deployment Efforts	13
Table 13: Geocoding Outcomes by Address Type for All Addresses Collected	14
Table 14: Survey Household Characteristics Compared to Census	16
Table 15: Household Characteristics by Area	17
Table 16: Person Characteristics by Area	18
Table 17: Vehicle Age by Area	19
Table 18: Trip Rates by Household Income and Geographic Area	21
Table 19: Trip Rates by Household Size and Household Vehicles	23
Table 20: Person Trip Rates	23
Table 21: Trip Purpose by Geographic Area	25
Table 22: Origins and Destinations of Travel – All Trips	28
Table 23: Origins and Destinations of Travel – Home-Based Work Trips	28
Table 24: Origins and Destinations of Travel – Home-Based Other Trips	29
Table 25: Origins and Destinations of Travel – Non-Home Based Trips	29
Table 26: Travel Mode by Purpose	30
Table 27: Vehicle Ownership of Transit-Using Households	31
Table 28: Income of Transit Users	31
Table 29: Person Level Characteristics of Transit Users	32
Table 30: Vehicle Ownership of School Bus-Using Households	33
Table 31: Income of School Bus Users	34
Table 32: Person Level Characteristics of School Bus Users	35
Table 33: Location of Households Reporting Non-Motorized Travel	36
Table 34: Vehicle Ownership of Non-Motorized Trip Makers	37
Table 35: Person Level Characteristics of Non-Motorized Travelers	37

Figure 1: Sampled Household Locations	7
Figure 2: Participating Household Locations - Countywide	8
Figure 3: Participating Household Locations – Planning Area Only	9
Figure 4: Vehicle Type by Geographic Area	20
Figure 5: Trip Rates by Geographic Area	20
Figure 6: Trip Rates by Household Size and Geographic Area	21
Figure 7: Trip Rates by Household Workers and Geographic Area	22
Figure 8: Trip Rates by Household Vehicles and Geographic Area	22
Figure 9: Reported Trip Locations	24
Figure 10: Trip Purpose by Geographic Area	27
Figure 11: Mode Usage	30
Figure 12: Transit Usage by Weekday	33
Figure 13: School Bus Usage by Weekday	36
Figure 14: Non-Motorized Travel by Weekday	38
Figure 15: Trip Departure Times	38
Figure 16: Trip Departure Times by Trip Purpose	39
Figure 17: Trip Departure Times by Geographic Area	39



INTRODUCTION

This report documents the design, implementation and results of the Household Travel Survey component of the 2005 Washoe County Travel Characteristics Study, sponsored by the Regional Transportation Commission (RTC), which serves as the Metropolitan Planning Organization for the Reno, Nevada region. The primary objective of the study was to document travel behavior data characteristics of regional households in order to update the regional transportation model. The household travel survey was one of several surveys conducted in the Fall of 2005 for the RTC, with the other surveys focusing on the documentation of transit usage, visitor travel behavior, and external travel through the region. Each survey is documented in its own final report.

The household travel survey was conducted using standard travel survey methods and computer-aided telephone interviewing (CATI) technology. It entailed the collection of activity and travel information for all household members regardless of age during a specific 24-hour period. The survey relied on the willingness of regional households to (1) provide demographic information about the household, its members and its vehicles and (2) have all household members record all travel and activity for a specific 24-hour period, including address information for all locations visited, trip purpose, mode, and travel times. No incentives were provided to respondents, although an extensive public information campaign was used throughout the project to emphasize the importance of and benefits from participating.

This study included a technology supplement that involved equipping a subsample of household vehicles with global positioning systems (GPS). The objective of the GPS component was to provide an independent data stream of vehicular travel in order to measure the level of accuracy of the travel data reported over the telephone. GPS equipment was deployed to 157 households and the final data set contains 106 households who provided both the regular travel data and vehicle-based GPS data streams for this comparison. The results suggest that the trip reporting/accuracy levels were extremely high: there was a 95% correspondence between GPS trips detected and respondent-reported trips, with most households underreporting only one trip, on average. A short follow-up survey was conducted with those household members identified as having more GPS-detected trips than trips reported during the telephone interview in order to identify the characteristics and details of the missed trips so that they could be included in the final data set. These details are included in a separate report.

Survey work for the main study (documented in this report) began with design activities in September 2005, followed by the full data collection effort in October and November 2005. In lieu of a formal pilot, the project utilized a “rolling pilot” concept, where the data collection effort started at a small-scale in order to ensure complete review of the results as the survey work commenced. In total, 1,665 households were recruited to participate in the study and 1,207 countywide provided travel data. Of these 1,207 households, 1,174 are within the RTC planning area. The overall response rate, calculated according to standards established by the Council of American Survey Research Organizations, was 26% (this included a 35% recruitment rate and a 73% retrieval rate).

The household travel survey was conducted by a team of consultants, led by NuStats. NuStats designed the survey, managed data collection, processed and geocoded the data, provided quality control and assurance, analyzed the survey data, and created the weighting and expansion factors. NuStats’ DataSource conducted the telephone interviews and mailed the travel log packets. GeoStats fielded the GPS survey supplement and follow-up survey.

This report has four sections: this introduction, methods, results, and conclusions. The appendices contain the survey materials and questionnaires. The focus of this report is on the general household travel survey. A second report contains a detailed discussion of the GPS component methods and results.



SURVEY METHODS

The Household Travel Survey component of the Washoe County Travel Characteristics Study was a comprehensive survey of the travel patterns of households in Washoe County during the fall of 2005. The survey universe was defined as all households residing within Washoe County, Nevada. Eligible households included those residing in the county that provided a valid home address, information about their households and vehicles, and ultimately provided the detailed 24-hour travel data. The goal of the study was to document demographic and travel behavior characteristics for a minimum of 1,200 regional households. This goal was achieved and the final data set contains demographic and trip information for 1,207 Washoe County households. A subset of 1,174 households comprises a second data set that is focused only on the RTC planning area.

The survey was conducted over a two-month period, from October through November 2005. The general progression of the project began in September 2005 with the design stage, where the data elements to support modeling and other desired analyses were identified and used to craft the recruitment and retrieval questionnaires as well as a 24-hour travel log provided to respondents to record their travel. At the same time that consideration was given to what would be collected, equal attention was given to who would be surveyed. This information was used to formalize a sampling plan that would provide sufficient samples in desired proportions to support sub-regional modeling.

Once the design work was completed, full data collection started. The data collection schedule called for a lower number of households traveling on the first few travel days in order to fully evaluate the respondent reaction to the survey and the performance of the survey instruments in eliciting desired elements. This “rolling” pilot indicated that all elements of the survey were functioning as planned, and the volume of interviewing was increased accordingly to a level that would allow timely completion of data collection. The full study data collection activities began October 6, 2005, with travel dates assigned from Tuesday October 18 through Thursday November 17, 2005. As the travel data were collected, they were processed and geocoded as well as subjected to a series of quality assurance tests. The final tasks included (1) the creation of weighting factors that would adjust the data with regard to geographic and demographic distribution and expansion factors to magnify the survey results to the study area population, (2) an analysis of the survey results, and (3) a comparison of the trips reported by respondents over the telephone versus those detected by the GPS equipment (documented in a separate report).

This section of the report provides details about the methodology used to conduct the survey through the stages described above. It concludes with documentation on the development of the weights and expansion factors for use with the final data set. Within each section, the methods used as well as the outcomes from those methods are discussed.

SURVEY DESIGN

The study began with a series of meetings and teleconferences to discuss the data needs that would satisfy upcoming modeling requirements. This resulted in the identification of the following variables (listed based on their location in the final data files):

TABLE 1: HOUSEHOLD TRAVEL SURVEY DATA ITEMS

Household Data File	Person Data File	Vehicle Data File	Travel / Activity Data File
For each household	For each person in HH	For each HH vehicle	For each person trip
Household Size	Gender	Year	Destination Address
# Vehicles Owned	Age	Make	Departure time
Household Income	Disability Status	Model	Arrival Time
Dwelling Type	Licensed Driver	Fuel Type	Trip Purpose
Own/ Rent Status	Employment Status	Body Type	Trip Duration
Home Address	Work Address		Mode
Race/Ethnicity	Occupation		# HH members traveling with
	Educational Attainment		HH vehicle used
	Student Status		Bus Route Used
			Parking Type

Once the data elements were finalized, the recruitment and retrieval questionnaires were developed along with supporting respondent materials. The recruitment instrument was used to obtain the household demographic characteristics, while the retrieval questionnaire was designed to collect the travel details. The main respondent instrument was a travel log, which was designed as a self-completion tool to help respondents remember places visited and exact arrival and departure times. Copies of these instruments are contained in the report appendices.

SAMPLE DESIGN

Equally important as the decision of what to obtain during the survey is from whom to obtain that data. In order to provide a data set representative of the region's population and travel patterns, it was necessary to design a study sample that would provide adequate representation of households by geography as well as the key demographics of household size and household vehicles. The main objectives of the sample design were:

- To produce a statistically adequate number of observations at a geographic level that met RTC's modeling objectives;
- To produce data depicting the diverse travel behavior in the region; and
- To minimize selection bias across subgroups in the population, particularly those that are more difficult to reach (high income households, the very poor, mobile persons such as renters and others).

The general approach was that of a stratified probability sample that was randomly drawn proportionate to the number of households within the county. Since the sampling frame was a listing of all possible telephone numbers available to the county's households, households without telephones and households with only cellular numbers were excluded from the study. Other design parameters included the following:

1. Study Universe: Households in Washoe County, Nevada.
2. Survey Population. Households with in-home wired telephones residing within the study universe.¹
3. Sampling Frame. The sampling frame (or the data base from which the sample was drawn) consisted of all telephone-owning households in the county.
4. Target Number of Completes: For the full study, the goal was travel data from 1,200 households.

The study goals were determined based on geographic and demographic characteristics of regional households. In terms of geography, the study area was divided into three geographic strata. The first step in developing these strata was to identification census block groups based on densities (persons per square mile). Next, census tracts densities were determined. Finally, the actual distribution of tracts by density was reviewed within Census County Divisions (CCDs). Using the density information, population and household counts from the 2000 Census, and maps of the CCD locations the CCDs were categorized into three strata: (1) Reno / Sparks, (2) North Valleys / Sun Valley / Warm Springs/Truckee Canyon, and (3) Remainder of the County. Table 2 shows how the CCDs were assigned to the three strata.

TABLE 2: GEOGRAPHIC STRATA ASSIGNMENTS

CCD	STRATA	COUNTYWIDE HH	PLANNING AREA HH
High Desert CCD	3	351	0
Incline Village CCD	3	4,176	0
North Valleys CCD	2	11,526	11,103
Pyramid Lake CCD	3	614	1,332
Reno North CCD	1	28,598	28,598
Reno SE CCD	1	22,339	22,339
Reno SW CCD	1	23,281	20,941
Sparks CCD	1	21,027	23,209
Sun Valley CCD	2	7,081	7,081
Verdi CCD	3	1,245	1,245
Warm Springs/Truckee Canyon CCD	2	7,492	3,436
Washoe Valley CCD	3	4,354	4,354
County Total		132,084	124,954

Table 3 shows the distribution of households in each geographic stratum, as well as the anticipated number of completed surveys within each stratum. As shown in that table, 72% of all Washoe County residents live in the Reno/Sparks area, followed by 20% in the outlying cities. Households in the outlying areas (including Incline Village as well as the northern portion of the county) represented about 8% of the county's population. The final columns in Table 3 show the proportionate distribution of households within the RTC planning area according to census data.

TABLE 3: SURVEY GOALS BY GEOGRAPHIC STRATA

STRATA	COUNTYWIDE			WITHIN PLANNING AREA		
	HH	% HH	SURVEY GOAL	HH	% HH	SURVEY GOAL
Reno/Sparks	95245	72%	865	94,176	74%	869
Warm Springs, Truckee Canyon, Sun Valley, North Valleys	26099	20%	237	21,665	20%	235
Remainder	10740	8%	98	9,113	6%	70
Total	132,084	100%	1200	124,954	100%	1,174

¹ Census 2000 data indicated that about two percent of occupied housing units in the study area were without telephones. The proportion of cellular-only households was unavailable at the time this report was written.

In addition to the goals to ensure geographic representation, it was important to ensure that the demographic characteristics of the region's households were also represented. To guide data collection in a manner such that the county's diversification by mix of household size and number of vehicles owned, a second set of data collection goals was developed. Table 4 shows the proportionate distribution of the county's households according to these characteristics and Table 5 shows the data collection goals. (Note: some of the data collection cells were collapsed during the actual data collection process due to low incidence levels.) Households within the RTC planning area were assumed to have the same size and vehicle distribution as those countywide.

TABLE 4: COUNTY DISTRIBUTION OF HOUSEHOLDS BY SIZE AND VEHICLE OWNERSHIP

	0-VEHICLE	1-VEHICLE	2-VEHICLES	3+ VEHICLES
1-person	5%	18%	3%	1%
2-persons	2%	9%	17%	6%
3-persons	1%	4%	6%	5%
4+ persons	1%	4%	10%	8%

TABLE 5: SURVEY GOALS BY DEMOGRAPHIC DISTRIBUTION

	0-VEHICLE	1-VEHICLE	2-VEHICLES	3+ VEHICLES	Total
1-person	57	215	48		320
2-persons	48	100	215	72	435
3-persons		47	68	60	175
4+ persons		60	120	90	270
Total	105	422	451	222	1200

The purpose of the geographic and demographic data collection goals was to guide data collection in order to ensure sufficient sample sub-groups for more in-depth analysis. These were necessary to monitor household participation and to ensure that households more-than-willing to participate did not saturate the data set. At the same time, it was recognized that it is common to not exactly meet the data collection goals due mainly to incidence and changes in population between the census year (2000) and the survey year (2005).

Tables 6, 7, and 8 show the final distribution of the households that participated in the survey. As indicated in those tables, all distributions (geographic and demographic) were fairly consistent with the proportion goals set at the start of the study. There were slightly fewer large households with no vehicles (31 vs. goal of 48), but a higher proportion of large households with one vehicle (107 vs. 57). This suggests that vehicle acquisition has increased for these larger households in the five years since the 2000 Census was taken, which is consistent with national trends.

TABLE 6: COMPLETED SURVEYS BY GEOGRAPHIC STRATA

STRATA	COUNTYWIDE	%	PLANNING AREA	%
Reno/Sparks	863	71.5%	869	73.5%
Warm Springs, Truckee Canyon, Sun Valley, North Valleys	247	20.5%	247	21.0%
Remainder	97	8.0%	64	5.5%
Total	1,207	100%	1,174	100%

TABLE 7: COMPLETED SURVEYS BY SIZE AND VEHICLE OWNERSHIP - COUNTYWIDE

Size	Household Vehicles				TOTAL
	0	1	2	3+	
1	56	239	47	16	358
2	22	103	246	93	464
3	6	30	66	64	166
4+	3	27	103	86	219
Total	87	399	462	259	1207

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, unweighted

TABLE 8: COMPLETED SURVEYS BY SIZE AND VEHICLE OWNERSHIP – PLANNING AREA ONLY

Size	Household Vehicles				TOTAL
	0	1	2	3+	
1	56	238	46	16	356
2	21	97	236	90	444
3	6	30	63	61	160
4+	3	27	100	84	214
Total	86	393	447	251	1174

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, unweighted

The study required sampling a total of 20,168 random households for inclusion in the study. Of this, 8% or 1,663 agreed to participate in the study. A total of 1,207 countywide and 1,174 within the planning area actually documented their travel. Figure 1 shows the distribution of the 20,168 sampled households, while the locations for the 1,207 participating households are shown in Figure 2. The home locations for the 1,174 households within the planning area are shown in Figure 3.

FIGURE 1: SAMPLED HOUSEHOLD LOCATIONS

Sampled Household Locations

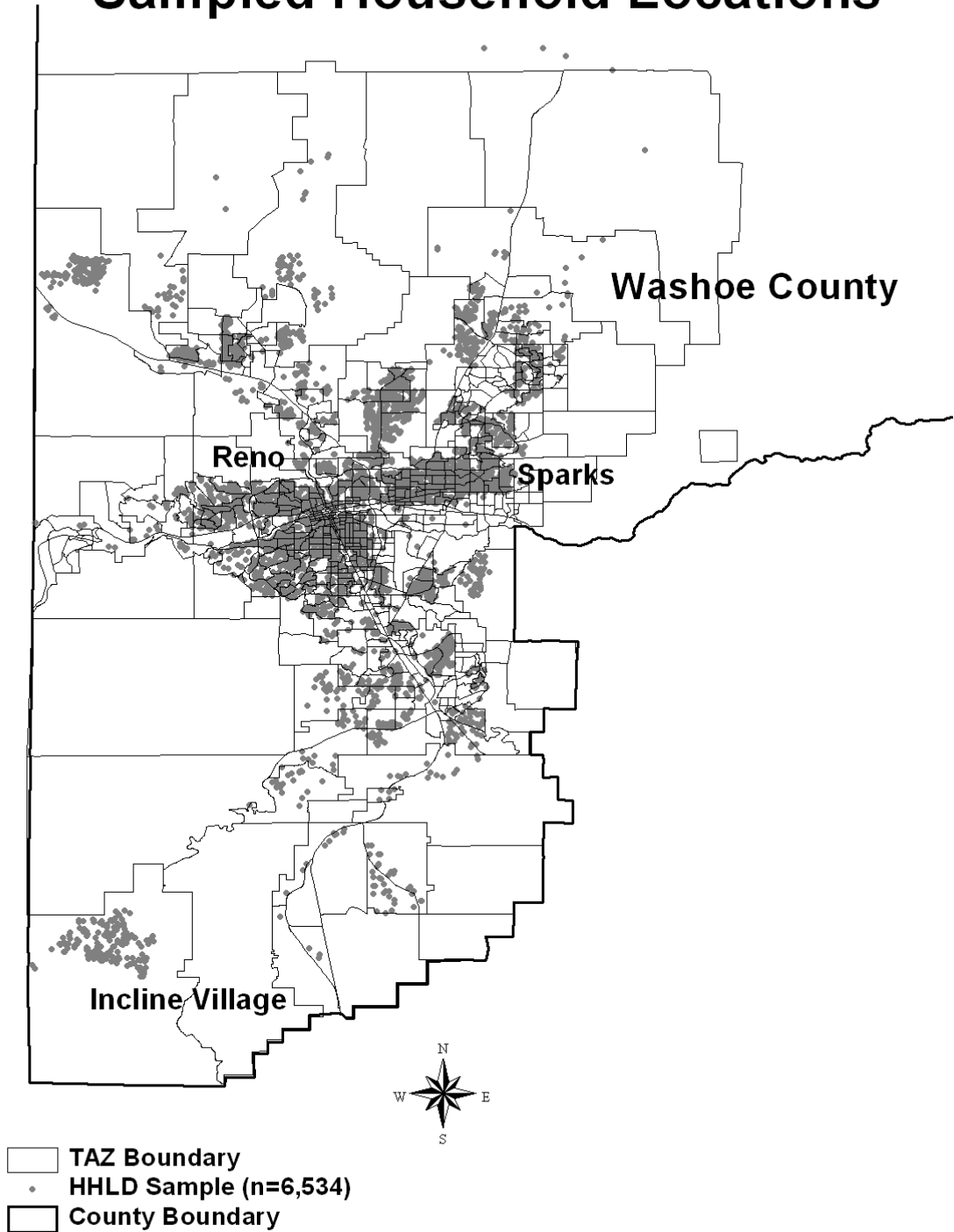


FIGURE 2: PARTICIPATING HOUSEHOLD LOCATIONS - COUNTYWIDE

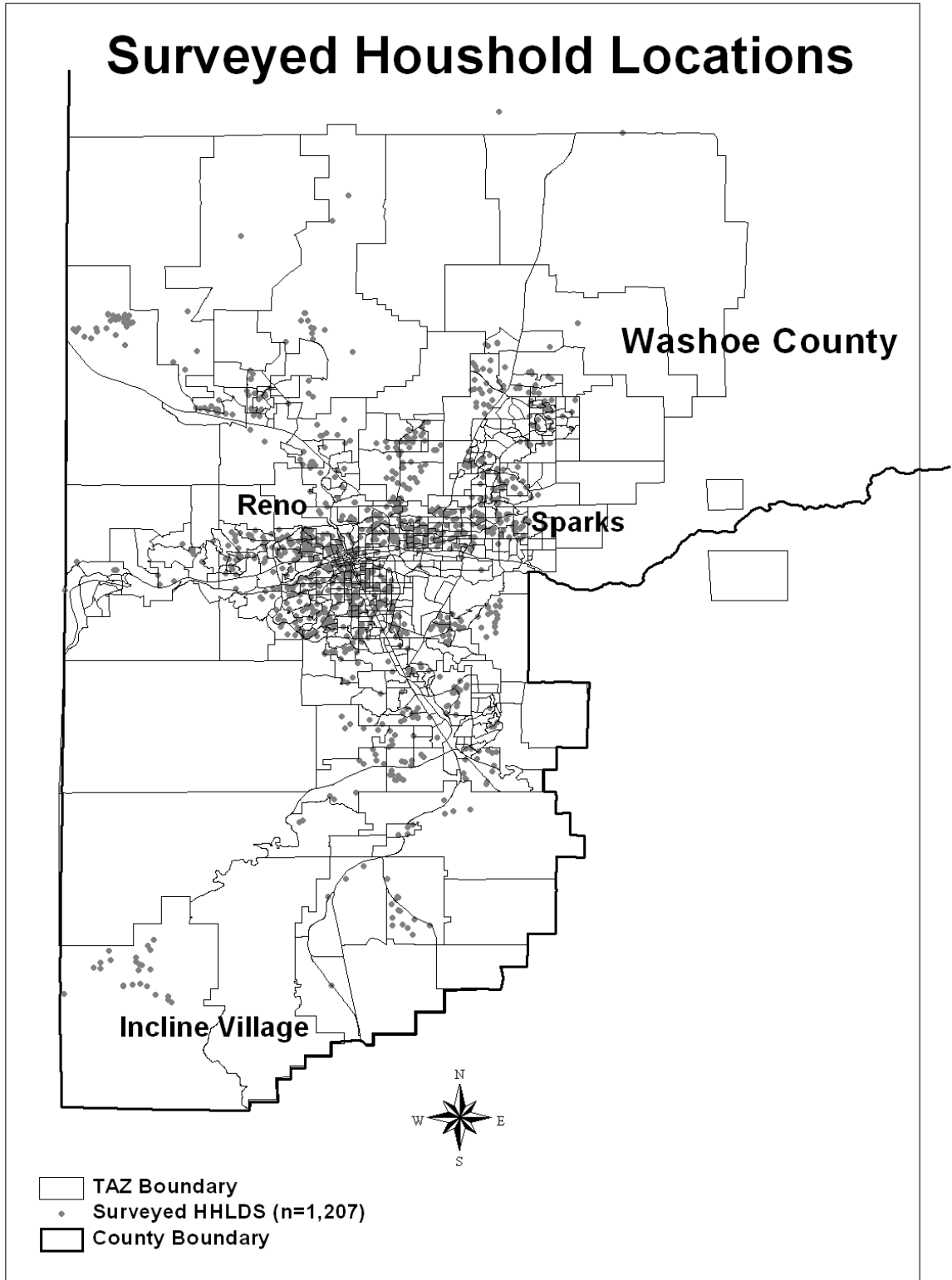
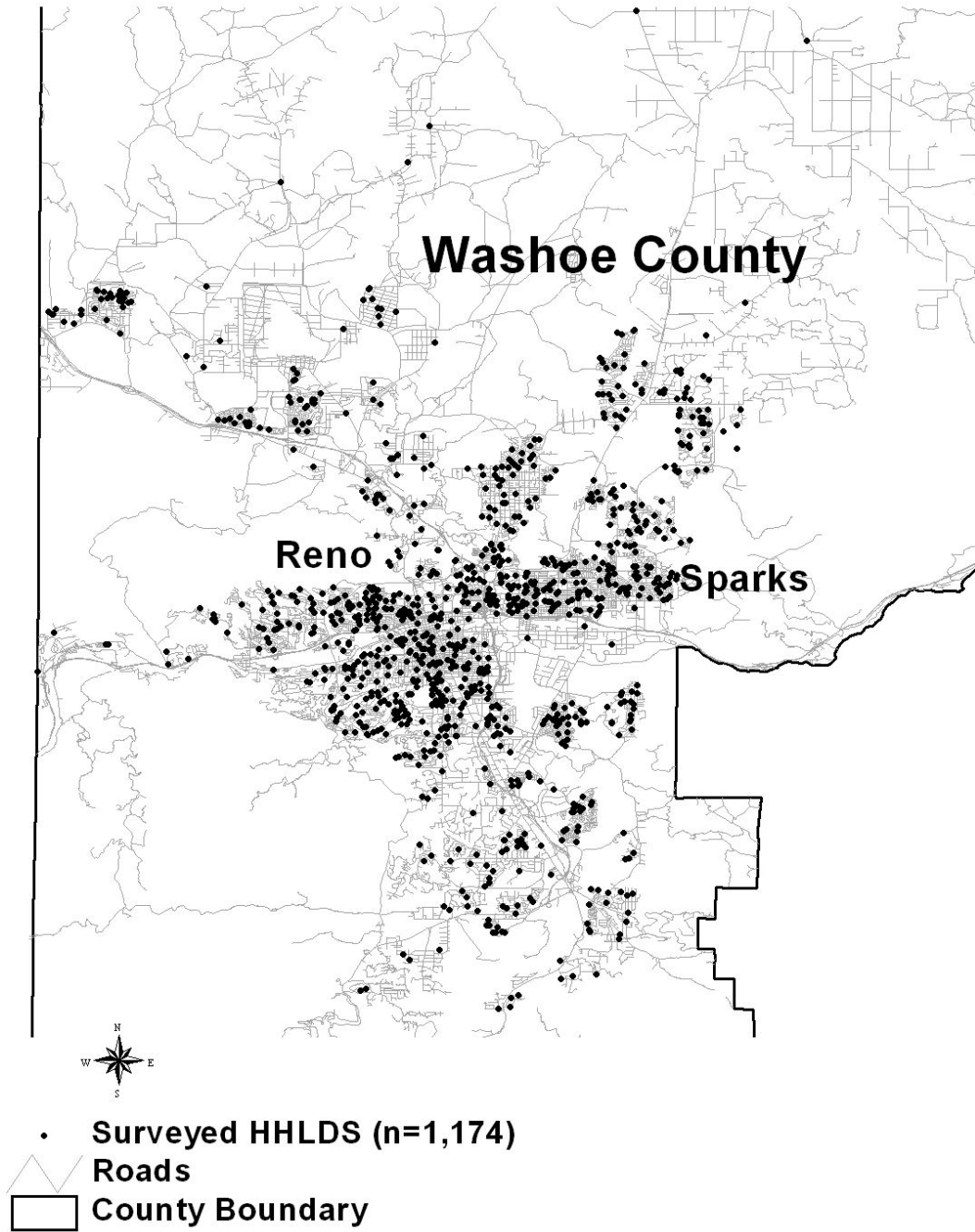


FIGURE 3: PARTICIPATING HOUSEHOLD LOCATIONS – PLANNING AREA ONLY



DATA COLLECTION

The data collection activities centered about six main stages: advance notification, recruitment, material mailing, travel data retrieval, processing, and geocoding. The details regarding each stage are provided in this section.

Advance Notification. A letter was mailed to all households for which a name and addresses were known prior to the recruitment call. This letter served as advance notification to the household that it had been randomly selected and would be receiving a call regarding the study. It provided information about the study sponsor, introduced NuStats DataSource as the company that would be contacting them, and provided the web site address and a telephone number where additional information could be obtained.

Recruitment. The recruitment interview was administered using a computer-assisted telephone-interviewing (CATI) program. Each household was telephoned by an interviewer to determine if they would participate in the study. If the household agreed, demographic information was collected including income, household size, vehicle ownership, and other household characteristics. In addition, demographic characteristics were obtained for each member of the household such as age, gender, employment and school status (see Appendix B for the recruitment questionnaire). (Note that recruitment statistics are only available for the 1,207 countywide sample of households and not at the more precise planning area geography.)

The recruitment calls began on October 6th and continued through November 11th, recruiting a total of 1,663 households. Over the course of the recruitment effort, 20,168 telephone numbers were called. Of these:

- 2,039 (10%) resulted in contact with eligible households.
- 6,172 (31%) were determined to be ineligible (non-working, non-household or non-voice lines, and
- 11,957 (59%) were unable to be classified as eligible or ineligible after 8 call attempts

Of the eligible households reached, 1,663 of the 2,039 agreed to participate in the study (82%). The average length of the recruitment call was 14.2 minutes. It took an average of 2.6 call attempts to reach a household for recruitment. Table 9 shows the average interview length and the average number of call attempts it took to reach each household based on household size. As indicated in that table, the larger the household, the longer the interview length. In addition, the number of call attempts increased with household size.

TABLE 9: RECRUITMENT INTERVIEW LENGTH AND CONTACTS

HOUSEHOLD SIZE	N	INTERVIEW LENGTH	# ATTEMPTS
1 person	456	11.38 min	2.54
2 persons	597	13.24 min	2.35
3 persons	245	15.33 min	2.64
4+ persons	365	18.54 min	2.81
Total	1,663	14.20 min	2.55

The recruitment instrument performed well as item non-response was marginal. The following is list of questions for which respondents did not all provide answers.

- Home ownership (0.1% refused)
- Telephone Service Interruption (0.1% unknown)
- Length of time without service (0.1% unknown)
- Household income (8.4% refused)
- Relationship to Respondent (0.5% refused)

- Gender (1.0% refused)
- Age (3.4% refused)
- Ethnicity (0.7% refused)
- Disability status (0.1% refused)
- License status (0.1% refused)
- Employment Status (0.1% refused)
- Work location (1.0% refused)
- Commercial driver (0.3% refused)
- Student Status (0.3% refused)
- Level of School Attending (0.3% refused)
- School location (2.0% refused)
- Vehicle year (2.3% refused)
- Vehicle make (0.9% refused)
- Vehicle body type (0.6% refused)
- Working cigarette lighter (7.9% unknown)

Packet Mailout. The day following recruitment, the demographic information was processed into the master data set and packets were assembled for each recruited household. These packets included a cover letter, travel log, sample travel logs (both textual and pictorial), and a postage-paid envelope to return the completed logs after the retrieval interview. Travel days were scheduled five to seven days after recruitment to allow for sufficient time for packets to reach the households using priority mail.

Reminder Call. The night prior to the assigned travel day, reminder calls were made to the households. This reminder call served three key purposes:

1. Confirm that the household received the packet and answer any questions respondents might have about using the log to track their travel.
2. Schedule an appointment to conduct the retrieval interview.
3. Increase the likelihood that the household will follow-through with recording their travel by reiterating the importance of the study and the household’s commitment to participate.

For those instances where an answering machine was reached, the interviewers left brief messages that referenced a toll-free number for respondents to call if they had questions.

Retrieval. The day after an assigned travel day or at the appointed time, telephone calls were made to retrieve the travel data recorded by each household member. The interviews were guided using CATI programs of the retrieval instrument (see Appendix D). The average interview length was 22 minutes and it took 6 call attempts to reach each household, on average. Note that contact and interview length statistics are available for the countywide households only.

TABLE 10: RETRIEVAL INTERVIEW LENGTH AND CONTACTS

HOUSEHOLD SIZE	N	INTERVIEW LENGTH	# ATTEMPTS
1 person	358	13.62 min.	5.76
2 persons	464	20.18 min.	5.16
3 persons	166	26.01 min.	7.26
4+ persons	219	35.70 min.	8.78
Total	1,207	21.80 min.	6.30

Travel days were assigned beginning Tuesday, October 18th and continued through Thursday, November 17th. Retrieval interviews began on Wednesday, October 19th and continued through Sunday, December 4th (with the retrieval calls made after Thanksgiving focused on obtaining additional details from travel logs that were mailed in rather than full retrieval surveys). Data was collected from all household members for the 1,207 households that completed the study. This is a retrieval rate of 73% (1207 retrieved / 1663 recruited). This retrieval rate is within the typical range of 70 to 75 percent and is reflective of respondents that took their participation seriously.

The overall response rate for the study is determined by multiplying the recruitment rate (35%) by the retrieval rate (73%). For this study, the overall response rate is 26%, calculated according to CASRO standards. This means that 26% of all eligible households contacted about participation in the household travel survey completed all activities associated with the project.

In the survey materials and interview scripts, respondents were assured that their responses would be kept confidential and that their responses would be analyzed in the aggregate only. As a result, the data files were structured such that a 7-digit unique identifier (“sample number”) will be used to link each household’s data together and documentation was prepared to ensure the public use data files would be stripped of all identifying information prior to their release. Households were randomly assigned to non-Holiday “typical” weekdays for recording their travel (Tuesday through Thursday). The final distribution of households by day of week is shown in Table 11.

TABLE 11: DISTRIBUTION OF HOUSEHOLDS BY DAY OF WEEK

DAY OF WEEK	COUNTYWIDE	PERCENT	PLANNING REGION	PERCENT
Tuesday	432	35.8%	425	36.2%
Wednesday	388	32.1%	377	32.1%
Thursday	387	32.1%	372	31.7%
Total	1,207	100%	1,174	100%

The retrieval instrument had nominal item non-response. The only variables that experienced item non-response were the cost to pay for park, which was 0.03%, where parked (2.2% unknown), bus route (0.2% unknown), and whether vehicle was available during transit trip (3.3% unknown).

GPS Supplement. A subsample of households that participated in the general travel survey also participated in the GPS supplement. The purpose of the supplement was to provide an independent data stream (captured through the use of global positioning systems or GPS) to audit the CATI-reported trip data. The results of prior travel surveys suggest that some respondents have a tendency to under-report their trip-making activities (either intentionally due to the long interview length or unintentionally, not realizing all stops should be recorded). The GPS supplement had two activities: recording vehicular travel and conducting a prompted recall survey aimed at a small portion of those that had not recorded all their trips (according to the GPS data streams).

The main portion of the GPS supplement was the documentation of vehicular travel. This entailed contacting a sample of the households recruited for the study and requesting their participation in the study. Of the 1,663 households recruited for the study, 1,031 were eligible to participate in the GPS study. Of these 1,031 households, 557 (54%) indicated an interest in participating in the GPS study. GeoStats contacted a portion of the interested households assigned to each particular travel day and enlisted their participation in the GPS supplement.

Participation entailed the installation of the GPS equipment into the vehicle, using that equipment during all vehicle trips, and subsequent retrieval of the equipment. Of the 557 households interested in participating in the GPS study, equipment was deployed to 157 households (the goal was to deploy to 150 households). The following table shows the results of the deployment effort.

TABLE 12: DISPOSITION OF GPS DEPLOYMENT EFFORTS

DEPLOYMENT OUTCOME	FREQUENCY	PERCENT
Complete (GPS + CATI)	110	70.1%
Full GPS data but no CATI data	13	8.3%
Partial GPS data and full CATI data	15	9.6%
Partial GPS data but no CATI data	1	0.6%
No GPS data but full CATI data	7	4.4%
No GPS data and no CATI data	11	7.0%
Total	157	100%

In the second part of the GPS supplement, GeoStats reviewed the CATI data as compared to the GPS data. They found that of all trips reported across the 106 households, 95% of all trips reported were in both CATI and GPS datasets. The 5% missing trips were distributed across several households, with a total of 41 out of the 106 households having at least one missed trip (most had only one missing). A follow-up survey was conducted with 36 of the 41 households in which the GPS data showed a trip but there was not a corresponding match in the CATI data.² A small questionnaire was sent to those households that showed the discrepancies to the participant through a two-list comparison between the reported and acquired data, along with a map of the unmatched, acquired trips. The participants were then asked to identify the unreported stops, the driver of the vehicle, and the number of household members with them at the time and the reason for not reporting

Processing. Data processing took place throughout the study, beginning with the creation of the advance notification mailing, continuing with the release of sample for recruitment, processing recruitment data for the respondent mailout, appending the retrieval data to the master tables, and performing initial quality control measures on the data. A master control file tracked the progress of each household through the various survey stages, with codes to allow immediate identification of problem cases that were not progressing according to schedule as well as confirmation that cleared cases moved along as appropriate. Routine data checks included the following:

- Data range checks to ensure data were inside the expected ranges for each variable and that there was agreement across data files (for example, if the household had 4 persons and 2 vehicles, there should be 4 records in the person file and 2 records in the vehicle file).
- Confirmation that travel data were collected from all household members.
- If a person reported no travel, the household was flagged for manual review to confirm the reason for non-travel was appropriate based on the demographic characteristics of the household member. Those cases where the reason for non-travel was suspect or did not make sense within the context of the available demographic information were flagged and returned to DataSource for confirmation or replacement.
- Within the travel data itself, several items were checked. The following are examples of conditions researched within the trip data:
 - Did each trip begin and end at a different location?
 - Did each person return home at the end of the travel day? If not, did the final recorded destination make sense within the context of the household and person characteristics?
 - For all instances where a respondent reported traveling with other household members, was the shared trip reported for all other household?
 - For all trips with “auto-driver” as the reported mode, was the respondent a licensed driver?

² The prompted recall survey was attempted for all 41 households, with 36 completing the survey.

- For all trips reported as “auto-passenger”, did another household member report the same trip as an auto-driver? If not, did the passenger report riding in a non-household vehicle with at least one other person making the trip?

Geocoding. The term “geocoding” refers to the process of evaluating address information with the goal of assigning a geocode corresponding to the latitude and longitude of the location. This process took place throughout the course of the project, beginning with the home addresses, continuing with habitual addresses (work and school locations), and also including the trip ends (non-home and non-habitual locations) collected during the retrieval stage of the project.

Using ArcView software, all home, work, school and trip locations reported were subjected to the geocoding task, using coverage files provided by RTC. During the course of the project, respondents reported visiting a total of 6,087 addresses, which comprise the final “location” file for the 1,207 countywide households that completed the study. Of these, 98% were successfully matched to latitude/longitude coordinates or identified as falling outside the study area. The distribution of addresses by type and geocoding status is shown in Table 13.

As shown in Table 13, there were two different types of matching. The first (“Matched”) refers to addresses matched by NuStats geocoding technicians using the coverage files and respondent provided information. The other type of matching (“List Match”) refers to instances where the respondent provided details to ensure a reliable match against an address in a list of major employers, schools, and landmarks, which was included in the CATI programs. In the data set, those locations matched to a list have a code of “L” while those matched through the standard geocoding process are marked with an “M” to help distinguish the source of the geocode information.

TABLE 13: GEOCODING OUTCOMES BY ADDRESS TYPE FOR ALL ADDRESSES COLLECTED

LOCATION	MATCHED	LIST MATCH	OUT OF AREA	UNMATCHED	TOTAL
Home	100.0%				100.0%
Work	86.8%	2.3%	4.1%	6.8%	100.0%
School	50.5%	44.7%	1.2%	3.5%	100.0%
Other	93.7%	1.2%	3.7%	1.4%	100.0%
Total	90.0%	4.8%	2.9%	2.3%	100.0%

The results in Table 13 consider all addresses reported, including those work and school locations that were provided during recruitment but were not used on the travel day. All (100%) home addresses, 93% of work locations, 99% of school locations, and 97% of all other locations were geocoded.

DATA WEIGHTING

As discussed earlier, the sample design was crafted to enable the collection of data from a representative and randomly selected sample of households from Washoe County. Demographic and geographic targets were used to guide data collection with the goal of having a final data set that reflected the 2000 Census population proportions of households by size and vehicle ownership, across three geographies defined by densities. Although the sample was randomly selected, not all sampled households agreed to participate, nor did all households that agreed to participate actually complete the study. This resulted in a non-response bias in the data set. To correct for this, the two final data sets (countywide and RTC planning area only) both include a weight variable that was developed to account for the non-response bias of particular population segments. There is also an expansion weight that factors the survey data to represent total households in Washoe County and the RTC planning area. The 2000 Census data for Washoe County was used to calculate these factors.

The basis for the weight calculations was the sampling plan. As detailed in that technical memorandum and summarized in an earlier section of this report, the sample was drawn to support the identification and

inclusion of households based on geographic location, size, and vehicle ownership. The weighting process thus entailed three steps: determining the census proportion of households for each of the three variables (geography, size, and ownership), identifying the survey proportion of households in the same categories, and creating a weight factor that adjusts the survey proportion of households into alignment with that of the census. The process used was iterative proportionate fitting. This meant that the data were first weighted for geography, and then a raking procedure was used that readjusted the weight to balance the proportions of the three variables. After nine rounds, the weights converged and the weighted survey proportions matched those of the census.

SAMPLE VALIDATION

The purpose of this section is to review the survey results with regards to general population parameters as reflected in the 2000 Census, focusing on key demographic characteristics. The first comparison is on key household characteristics, including household size, vehicles, household workers, household income, residence type, and home ownership. This comparison is shown in Table 14, which includes both the weighted final survey data and census proportions.

The weighted survey data reflects the census proportions for household size, vehicles income, and residence type fairly consistently, with no survey proportion more than 5 percent different from the census data. At the county level, the differences in respondent age range from only a 2-percent difference for those respondents in the lower age cohort of “under 20” to 7% difference for those respondents in the “25 to 54 years of age” cohort. The greatest difference comes in the ethnic mix of the respondents. The survey data includes almost a 10% higher proportion of non-minorities as compared to census. This difference, however, is still within a reasonable range of error for the survey data. At the RTC planning area level, the findings were virtually the same.

TABLE 14: SURVEY HOUSEHOLD CHARACTERISTICS COMPARED TO CENSUS

Characteristics	Census Data	Countywide Surveys		Planning Area Surveys	
		Survey Data (Weighted)	Difference	Survey Data (Weighted)	Difference
Household Size					
1	27.00%	27.03%	0.03%	27.25%	0.25%
2	34.10%	33.70%	-0.40%	33.25%	-0.85%
3	16.00%	15.93%	-0.07%	15.93%	-0.07%
4+	22.90%	23.34%	0.44%	23.57%	0.67%
Household Vehicles					
0	8.90%	8.84%	-0.06%	9.10%	-0.20%
1	35.10%	34.80%	-0.30%	35.24%	0.14 %
2	36.90%	37.09%	0.19%	36.65%	-0.25%
3+	19.10%	19.28%	0.18%	19.01%	-0.09%
Household Income					
< \$15k	12.00%	11.85%	-0.15%	12.27%	0.27%
\$15k - < \$25k	12.10%	7.81%	-4.29%	7.91%	-4.19%
\$25k - < \$50k	30.20%	29.35%	-0.85%	29.26%	-0.94%
\$50k - < \$100k	32.70%	37.42%	4.72%	37.03%	4.33%
\$100k +	13.00%	13.57%	0.57%	13.53%	0.53%
Residence Type					
Single family	67.40%	70.56%	3.16%	70.68%	3.28%
All other types	32.60%	29.44%	-3.16%	29.32%	-3.28%
Respondent Ethnicity					
White	80.40%	90.26%	9.86%	90.11%	9.71%
Black/African American	2.10%	2.12%	0.02%	2.24%	0.14%
Other	17.50%	7.62%	-9.88%	7.65%	-9.85%
Respondent Age					
<20	27.80%	26.12%	-1.68%	26.24%	-1.56%
20 – 24	7.00%	4.50%	-2.50%	4.50%	-2.50%
25 – 54	45.70%	38.51%	-7.19%	38.31%	-7.39%
55 – 64	9.10%	13.84%	4.74%	13.71%	4.61%
65+	10.40%	17.03%	6.63%	17.25%	6.85%

Census Data obtained from American FactFinder for Washoe County.



SURVEY RESULTS

A total of 1,207 countywide households participated in the Household Travel Survey component of the 2005 Washoe County Travel Characteristics Study. These households provided data about their household composition, vehicles owned, and travel about the region. **This section of the report focuses only on the 1,174 households within the RTC planning area.**

When properly weighted to adjust for non-response, the data from the 1,174 households contains details about 2,679 household members, 2,138 vehicles, and details regarding 11,077 unlinked trips during a 24-hour period. When expanded to the survey universe, the travel data represents 124,984 households, 308,777 persons, 217,192 vehicles, and 1,260,779 trips. In all, the households reported an average of 10.09 daily household trips and 4.08 daily person trips.

The purpose of this chapter is to summarize characteristics of participating households and to provide details highlighting how demographic variations in the households across the study area are reflected in the travel behavior data. It is organized about the following topics: summary of respondent characteristics, their associated travel behavior, trip characteristics, then a more detailed look at mode choice and time-of-day that travel occurred. All results are weighted, unless otherwise noted, and most discussions focus on the differences in characteristics and travel across the three geography areas of Reno/Sparks, Cities immediately surrounding Reno/Sparks, and the remainder of the planning area.

RESPONDENT SUMMARY

Demographic characteristics for the 1,174 households were shown above in Table 14. Table 15 below shows how those characteristics vary across the three geographic areas of the planning area. As indicated in that table, average household size was smallest in the Reno/Sparks area, and highest for ring of cities around Reno/Sparks. Vehicle ownership was highest, on average, in the outlying planning area region (2.39 on average as compared to 1.63 in Reno/Sparks and 1.97 in the other cities). Reported trip-making was also highest for the outlying planning area as well: 11.87 daily household trips reported as compared to 9.66 in Reno/Sparks and 11.34 for the other cities. The overall average trip rate was 10.09 daily household trips.

TABLE 15: HOUSEHOLD CHARACTERISTICS BY AREA

Household Characteristics	Reno/Sparks	Warm Springs, Truckee Canyon, Sun Valley, North Valleys	Remainder of Planning Area	Total
# HHlds	863	247	64	1,174
Households (expanded)	95,245	26,099	6,955	128,299
HH Size	2.33	2.95	2.80	2.47
HH Members Age 16+	1.86	2.14	2.10	1.92
HH Workers	1.55	1.68	1.70	1.59
HH Vehicles	1.63	1.97	2.39	1.74
HH Income (median)	\$35k but less than \$50k	\$50k but less than \$75k	\$50k but less than \$75k	\$50k but less than \$75k
HH Trips	9.66	11.34	11.87	10.09

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, weighted

The person-level characteristics of these household members are shown in Table 16, for the planning area as a whole as well for the sub-planning areas. As indicated in that table:

- **Gender.** The participating households were comprised of slightly more females than male, as evidenced by the area-wide proportion of 52% female. There were slightly more females in the Reno/Sparks area (52%) as compared to the rest of the planning area.
- **Age.** The respondents in the Reno/Sparks area were slightly older than those in the other portions of the planning area. Households in the surrounding cities had the highest proportion of members under the age of 15 (26% compared to 20% in Reno/Sparks and 23% in the outlying area).
- **Disability.** Respondents in Reno/Sparks were most likely to report being disabled, as 8% answered affirmatively to the question compared to 4-5% in the other areas.
- **Licensed Drivers.** Eighty-nine percent of all respondents age 16 and older were licensed to drive. Within the specific regions, respondents in the Reno/Sparks area had the lowest proportion of licensed drivers (87%).
- **Workers.** 57% of respondents age 16+ indicated they were employed. This includes 55% of those age 16+ in the Reno/Sparks area and 61% in the surrounding cities. 60% of respondents age 16+ in the remainder of the planning area were also employed.
- **Students.** Overall, 25% of respondents reported attending school at some level. This was highest in the surrounding cities (29% of participants).

TABLE 16: PERSON CHARACTERISTICS BY AREA

Person Characteristics		Reno/Sparks	Warm Springs, Truckee Canyon, Sun Valley, North Valleys	Remainder of Planning Area	Total
Gender	Male	47.7%	49.0%	49.6%	48.1%
	Female	52.3%	51.0%	50.4%	51.9%
Age	Younger than 5	7.0%	6.8%	7.4%	7.0%
	5 to 14	12.6%	19.3%	15.7%	14.3%
	15 to 24	9.2%	10.3%	8.9%	9.4%
	25 to 34	10.0%	10.4%	4.8%	9.7%
	35 to 44	13.7%	15.8%	19.9%	14.5%
	45 to 54	13.3%	15.8%	16.1%	14.0%
	55 to 64	14.5%	11.5%	12.2%	13.7%
65+	19.6%	10.2%	15.0%	17.2%	
Disability	Yes	7.8%	4.9%	4.3%	7.0%
	No	92.2%	95.1%	95.7%	93.0%
Licensed to drive	Yes	87.3%	93.0%	95.5%	88.9%
	No	12.7%	7.0%	4.5%	11.1%
Worker	Yes	55.3%	60.7%	59.6%	56.7%
	No	44.7%	39.3%	40.4%	43.3%
Student	Yes	24.1%	29.3%	27.6%	25.4%
	No	75.9%	70.7%	72.4%	74.6%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, weighted

In general, the participating households in the Reno/Sparks region tend to be smaller, with fewer workers and fewer vehicles. They also have the lowest reported household trip rate, which correlates with these attributes. They tend to be older, with a higher level of disabilities, but still maintain their drivers licenses at the average level for the RTC planning area.

Those in the surrounding cities are larger than average and own more vehicles as compared to the area-wide average. They are also younger (with more children), so it follows that more are students. Almost all adults are licensed to drive and they are employed at a higher level.

Households in the remainder of the planning area are also larger than average, have more workers and vehicles than average, and are less likely to be disabled. These households also reported the highest level of household trip making in the region.

Vehicle Characteristics. On average, the 1,174 participating households had 1.74 vehicles available. Households in the outlying non-urban area owned 2.39 vehicles on average, while those in the Reno/Sparks area owned 1.64 vehicles, on average. As shown in Table 17, there was little variation in the proportion of older vehicles owned (pre-1995) throughout the planning area. Households in the surrounding cities owned slightly newer vehicles, but overall the age of the vehicle fleet was fairly consistent throughout the planning area.

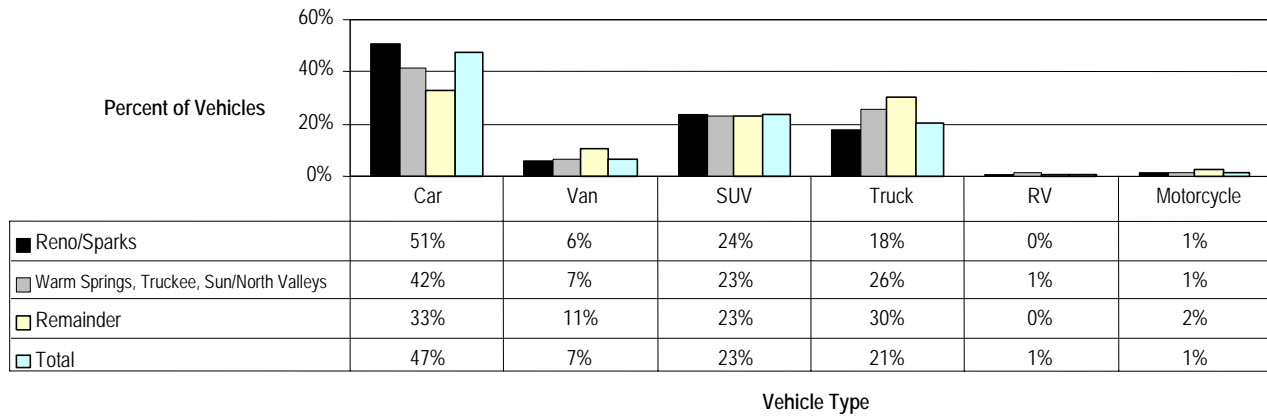
TABLE 17: VEHICLE AGE BY AREA

Vehicle Year	Reno/Sparks	Warm Springs, Truckee Canyon, Sun Valley, North Valleys	Remainder of Planning Area	Total
Pre-1989	13.07%	15.33%	14.41%	13.64%
1990 - 1994	13.76%	11.89%	14.07%	13.40%
1995 - 1999	26.01%	25.30%	21.73%	25.53%
2000	6.99%	7.22%	9.69%	7.24%
2001	7.14%	5.75%	9.72%	7.05%
2002	8.42%	6.70%	7.62%	8.00%
2003	8.48%	7.95%	9.17%	8.42%
2004	7.22%	8.36%	8.67%	7.57%
2005	6.73%	9.53%	3.50%	7.07%
2006	0.71%	1.01%	0.81%	0.78%
Refused	1.46%	0.96%	0.60%	1.29%
Total	100.00%	100.00%	100.00%	100.00%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, weighted

The fleet composition was different based on where in the planning area the household was located. Households in the Reno/Sparks area were most likely to own a car and least likely to own a truck, while those in the outlying areas were least likely to own a car and most likely to own a van truck. SUV ownership was fairly uniform across the planning area.

FIGURE 4: VEHICLE TYPE BY GEOGRAPHIC AREA

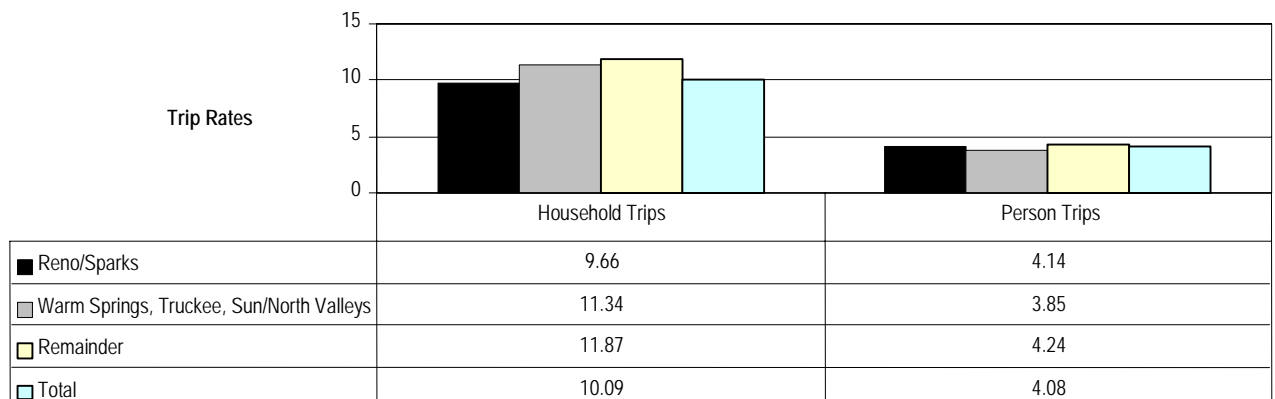


TRAVEL BEHAVIOR

The previous section provided a summary of the demographic characteristics for the participating households. The variations among participating households based on the area of residence suggests that travel behavior does vary throughout the planning area. The purpose of this section is to review the travel behavior reported by the 1,174 participating RTC planning area households in order to document the extent to which there is variation in travel behavior. This includes summaries of trip rates by the different household and person characteristics for each portion of the planning area as well as the area-wide totals.

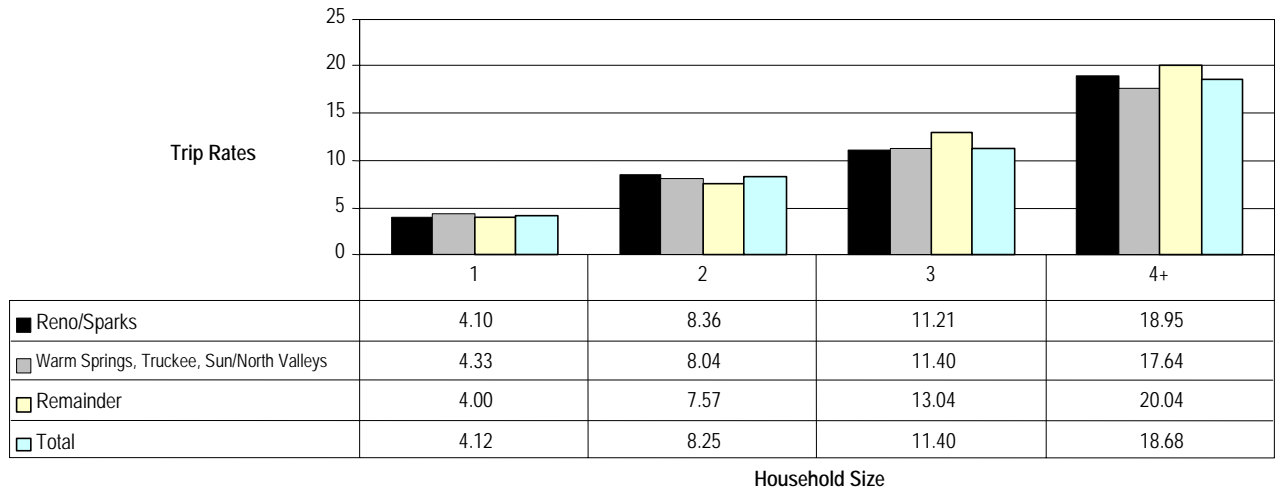
Household Travel. The average household daily trip rate was 10.09 trips for all household members regardless of age. The average daily person trip rate for these same household members was 4.08 trips. The rates did vary by area, as shown in Figure 5. Households in the outlying area made more trips on average, while those in Reno/Sparks made fewer trips on average.

FIGURE 5: TRIP RATES BY GEOGRAPHIC AREA



The average number of reported daily household trips increased as household size increased, which was an expected trend. As shown in Figure 6, the average number of trips for a 1-person household was 4.12, which is half that of 2-person households (8.25 trips). Households with three persons reported 11.40 trips, while those with four or more reported 18.68 trips.

FIGURE 6: TRIP RATES BY HOUSEHOLD SIZE AND GEOGRAPHIC AREA



Trip rates increase as household income increases as well. As Table 18 shows, while the Reno/Sparks household trip rate is lower than the other regions, it still follows the same trend.

TABLE 18: TRIP RATES BY HOUSEHOLD INCOME AND GEOGRAPHIC AREA

Household Income	Reno/Sparks	Warm Springs, Truckee Canyon, Sun Valley, North Valleys	Remainder of Planning Area	Total
Less Than \$10k	4.20	7.36	*	4.60
\$10k But Less Than \$25k	7.79	7.68	7.56	7.77
\$25k But Less Than \$50k	7.80	10.64	7.72	8.42
\$50k But Less Than \$75k	11.72	10.50	10.44	11.33
\$75k But Less Than \$100k	11.96	13.63	12.90	12.26
Greater Than \$100k	12.74	15.98	16.86	13.78
Total	9.66	11.34	11.87	10.09

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, weighted
 *Denotes less than 5 observations.

Figures 7 and 8 show the household trip rates by household workers and household vehicles, with detail for the specific geographic areas. As the number of workers and vehicles available increases, so do the trip rates for the Reno/Sparks and surrounding cities. Travel for the outlying area was slightly different, with an average trip rate of 13.00 trips for the 0-worker households. However, this is a reflection of a very small sample size in this cell.

FIGURE 7: TRIP RATES BY HOUSEHOLD WORKERS AND GEOGRAPHIC AREA

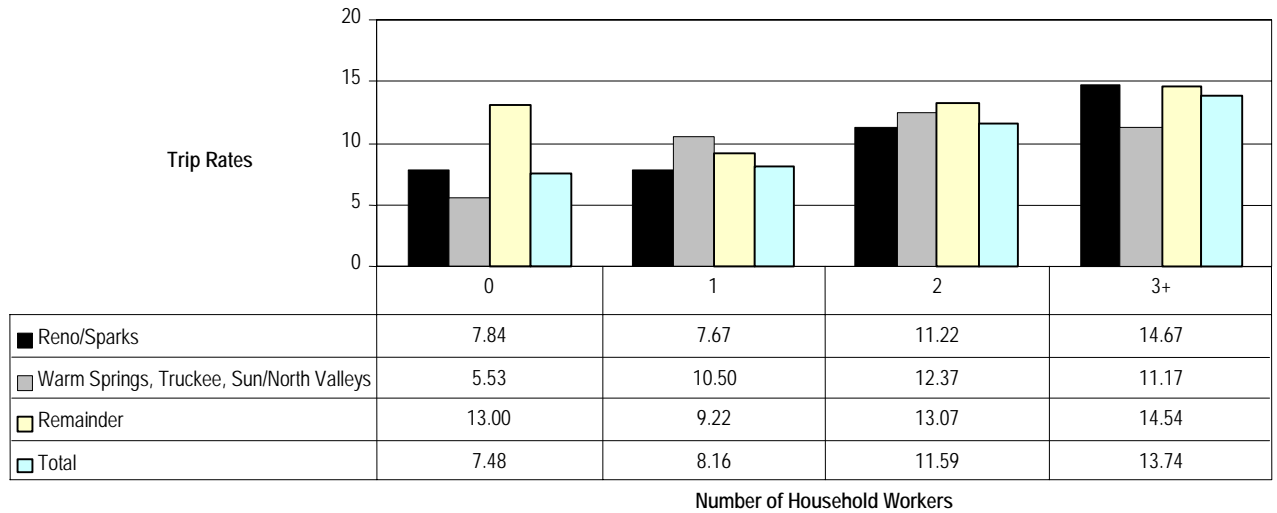


FIGURE 8: TRIP RATES BY HOUSEHOLD VEHICLES AND GEOGRAPHIC AREA

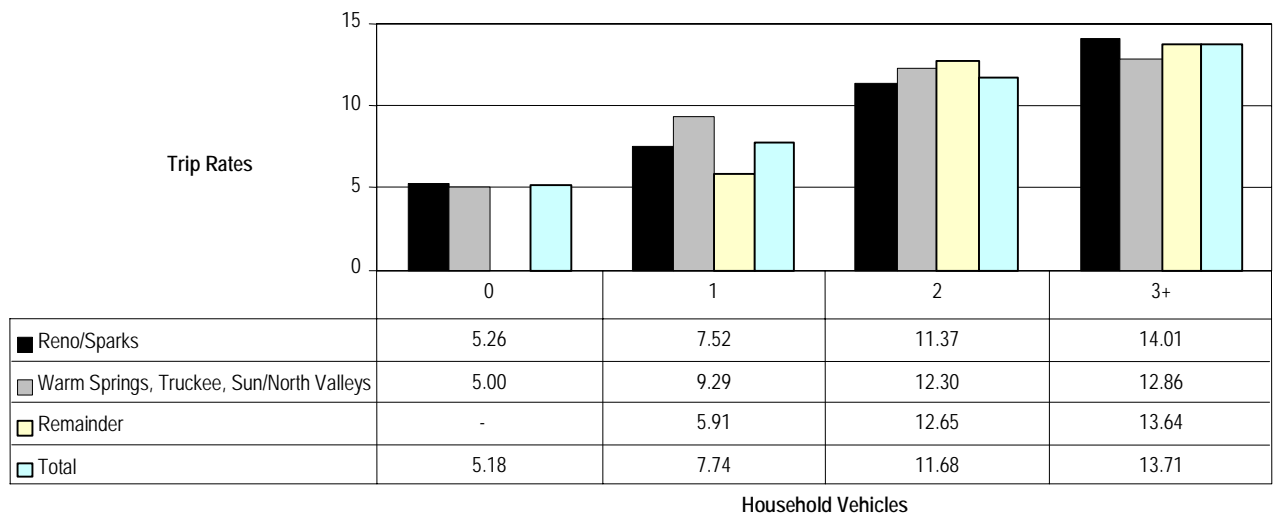


Table 19 shows the average household trip rate according to household size and household vehicles. The trip rate increases as the household size and number of vehicles increases.

TABLE 19: TRIP RATES BY HOUSEHOLD SIZE AND HOUSEHOLD VEHICLES

Household Size	Household Vehicles				Total
	0	1	2	3+	
1	2.62	4.47	4.66	4.03	4.12
2	6.01	8.24	8.35	8.74	8.25
3	11.31	10.72	11.60	11.64	11.40
4+	11.24	17.20	19.49	19.54	18.68
Table Total	5.18	7.74	11.68	13.71	10.09

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, weighted.

Person Travel. The following is general summary of person-level trip making.

- **Gender.** Female respondents made more trips, on average, than the male respondents.
- **Worker.** Employed respondents reported making more trips than unemployed respondents. The disparity was greatest between employed and unemployed respondents in the Reno/Sparks area.
- **Student.** Across the planning area, non-students reported making more trips than students.
- **Age.** The average number of daily person trips was highest for respondents age 45 to 54 (4.85 trips) and lowest for those under the age of 5 (3.24 trips).

TABLE 20: PERSON TRIP RATES

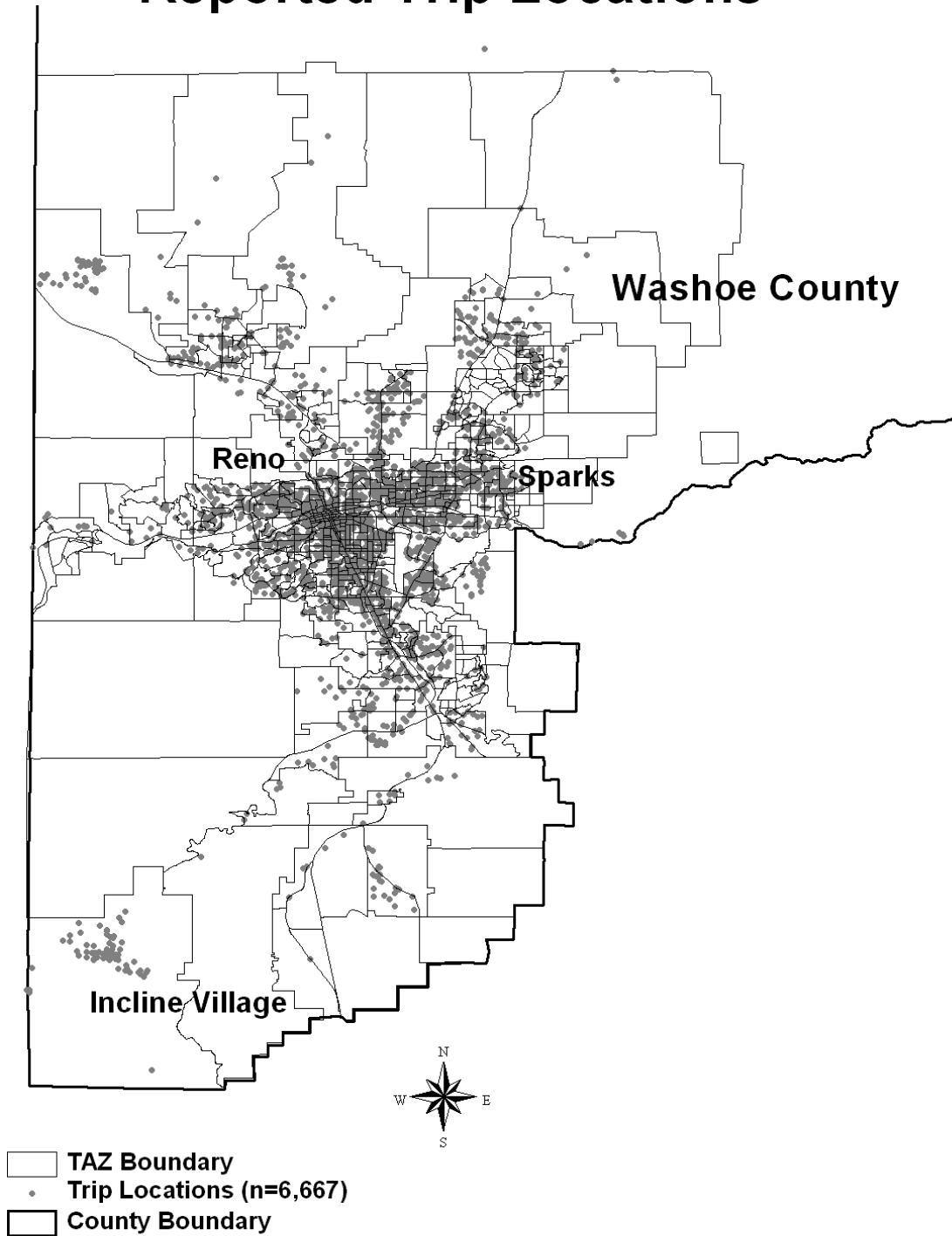
PERSON CHARACTERISTICS		Reno/Sparks	Warm Springs, Truckee Canyon, Sun Valley, North Valleys	Remainder of Planning Area	Total
Gender	Male	4.05	3.51	3.97	3.92
	Female	4.24	4.12	4.51	4.23
Worker	Yes	4.76	4.18	4.62	4.62
	No	3.62	3.51	3.94	3.62
Student	Yes	3.80	3.72	3.66	3.77
	No	4.25	3.84	4.47	4.18
Age	Under 5	3.18	3.07	4.38	3.24
	5 to 14	3.47	3.39	3.51	3.45
	15 to 24	3.75	3.55	3.73	3.70
	25 to 34	4.70	4.62	3.87	4.66
	35 to 44	4.78	4.19	4.91	4.65
	45 to 54	5.00	4.31	5.34	4.85
	55 to 64	4.11	3.66	4.47	4.04
65+	3.90	3.34	2.85	3.77	

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, weighted

The map on the following page shows the locations of all trips made within Washoe County.

FIGURE 9: REPORTED TRIP LOCATIONS

Reported Trip Locations



TRIP CHARACTERISTICS

The main portion of the Household Travel Survey captured purpose for each trip made by each household member regardless of age. The main activity or reason for travel is shown in Table 21. As indicated in that table, the majority of trips were to return home (33%) followed by trips to work (11%) and for shopping (10%). For respondents in the Reno/Sparks area, the main reasons for travel were to return home (34%), work (11%), to pick up/drop off passengers (10%), or to shop (10%). Surrounding city respondents reported most of their travel as being to return home (31%), for shopping (11%), for work (11%), and for passenger needs (10%). Households in the outlying area reported 29% of their trips for the purpose of returning home, 11% for shopping or personal business, and 11% for work.

Table 21 also shows the average trip duration (minutes) and distance (miles). As indicated in Table 21, trip duration ranged from 11 minutes (quick stops) to 25 minutes (medical), with most trips ranging 15 to 17 minutes in length. In terms of trip distance, the average distance was 3.6 miles, with the shortest trips being for school (2.6 miles) and the longest trips being for work or work-related (4.6 and 4.3 miles, respectively).

TABLE 21: TRIP PURPOSE BY GEOGRAPHIC AREA

Main Activity	Reno/Sparks	Warm Springs, Truckee Canyon, Sun Valley, North Valleys	Remainder of Planning Area	Total	Avg Trip Duration (min)	Avg Trip Distance (miles)
Return Home	33.70%	30.66%	29.01%	32.76%	19.3	3.7
Work	11.00%	11.07%	11.47%	11.05%	19.9	4.6
Shopping	9.58%	11.48%	11.37%	10.09%	14.4	2.9
Pick Up / Drop Off Passenger	9.83%	9.58%	7.40%	9.61%	14.5	3.1
Personal Business	8.95%	6.78%	10.85%	8.62%	15.5	3.1
Eat Meal	5.52%	5.12%	4.38%	5.36%	14.8	2.9
School	4.81%	6.65%	5.59%	5.24%	17.1	2.9
Work-Related	4.30%	4.93%	5.40%	4.50%	21.6	4.3
Visit	2.99%	3.01%	2.50%	2.97%	20.6	3.3
Recreation Or Fitness	2.78%	2.74%	3.43%	2.82%	17.0	3.7
Medical	2.53%	2.03%	2.59%	2.43%	24.8	4.3
Quick Stop (ATM, Gas)	1.96%	3.30%	4.85%	2.42%	11.3	3.2
Civic Or Religious	1.19%	1.23%	0.71%	1.17%	15.3	4.2
Entertainment	0.54%	1.18%	0.12%	0.64%	17.8	3.2
Work At Home	0.32%	0.25%	0.34%	0.30%	15.8	4.5
Total	100.00%	100.00%	100.00%	100.00%	17.7	3.6

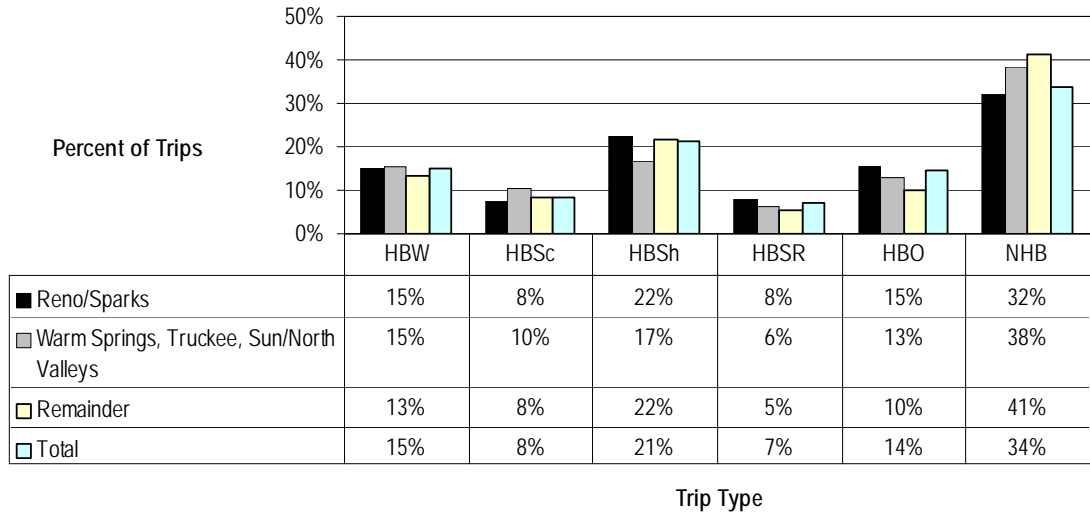
Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, ***weighted linked trips***

Most travel demand models consider trips based on the origin and destination of travel, as well as the purpose. Of importance in these groupings is whether the trip is home-based or not, and of particular interest is the “home-based work trip.” For the next series of tables and figures, the trip purposes as expressed in Table 21 have been converted into these modeling categories using the following criteria:

- Home-based work – origin was home and destination was work, or vice versa. Also, origin was home and destination was work-related, or vice versa. Work and Work-Related are determined by the trip purpose codes of “work” or “work-related”.
- Home-based school – origin was home and destination was school, or vice versa. School was determined by the trip purpose code of “school.”
- Home-based shop – origin was home and destination was shopping, or vice versa. Shopping was determined by the trip purpose codes of “minor shopping,” “major shopping,” “personal business,” “eating or drinking at restaurant/bar,” and “quick stop.”
- Home-based social/recreation – origin was home and destination was social/recreation. “Social/recreation” included the trip purposes of “visiting friends or relatives,” “outdoor recreation participation,” “indoor recreation participation,” “entertainment,” or “tagging along with someone else on their activity.”
- Home-based other – origin was home and destination was any other trip purpose, or vice versa. This included the trip purposes of “medical,” “religious,” “community/political meeting,” “loop trips,” “picking up someone,” “dropping off someone,” “change mode of travel,” or other.
- Non-home based – any trip for any purpose that did not begin or end at home.

Figure 10 shows trip purpose by geography. The fact that home-based work trips are 15% of all trips and non-home based trips are 34% of all trips is a reflection of the prominence of trip-chaining in the travel of today’s families.

FIGURE 10: TRIP PURPOSE BY GEOGRAPHIC AREA



The next series of tables shows the origins and destinations of travel for all reported trips, HBW trips, HBO trips (which includes home-based school, home-based shop, home-based social/rec, and home-based other), and NHB trips. For each table, the trip origin is listed in the left hand column and the trip destinations appear in the remaining columns. The cell percentages reflect the proportion of trips that begin in each specific origin city and where they end. For example, in Table 22, 98% of trips that begin in Reno also end in Reno, while 1% begin in Reno and end in Sparks.

Table 23 shows the origin-destination flow for home-based work trips (for both trips from home to work and work to home). Table 24 shows the flows for home-based other trips and Table 25 shows the distribution of non-home based travel.

TABLE 22: ORIGINS AND DESTINATIONS OF TRAVEL – ALL TRIPS

Origin City	Destination City									TOTAL
	Reno	Sparks	Sun Valley	Truckee	Verdi	Washoe Valley	REMAINDER	OUT OF AREA	UNMATCHED	
Reno	97.5%	1.3%	.2%		.0%	.0%	.9%			100.00%
Sparks	2.4%	96.0%	.8%				.8%			100.00%
Sun Valley	1.4%		98.6%							100.00%
Truckee							76.5%	23.5%		100.00%
Verdi					100.0%					100.00%
Washoe Valley	2.6%					95.9%	1.4%			100.00%
REMAINDER	23.6%	15.5%	2.0%		.3%	1.0%	57.6%			100.00%
OUT OF AREA	5.8%					4.7%	1.2%	81.6%	6.7%	100.00%
UNMATCHED	20.9%							7.4%	71.7%	100.00%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, ***weighted linked trips***.

TABLE 23: ORIGINS AND DESTINATIONS OF TRAVEL – HOME-BASED WORK TRIPS

Origin City	Destination City									TOTAL
	Reno	Sparks	Sun Valley	Truckee	Verdi	Washoe Valley	REMAINDER	OUT OF AREA	UNMATCHED	
Reno	98.5%	1.0%					.5%			100.00%
Sparks	2.1%	95.6%	1.0%				1.3%			100.00%
Sun Valley			100.0%							100.00%
Truckee							100.0%			100.0%
Verdi					100.0%					100.00%
Washoe Valley						100.0%				100.00%
REMAINDER	10.2%	9.4%	1.3%		1.1%	3.9%	74.1%			100.00%
OUT OF AREA	100.0%									100.00%
UNMATCHED	98.5%	1.0%			.3%	1.1%	3.5%			100.00%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, ***weighted linked trips***.

TABLE 24: ORIGINS AND DESTINATIONS OF TRAVEL – HOME-BASED OTHER TRIPS

Origin City	Destination City									TOTAL
	Reno	Sparks	Sun Valley	Truckee	Verdi	Washoe Valley	REMAINDER	OUT OF AREA	UNMATCHED	
Reno	97.6%	1.0%	.4%			.0%	.9%			100.00%
Sparks	1.5%	96.9%	1.0%				.6%			100.00%
Sun Valley	1.9%		98.1%							100.00%
Truckee							100.0%			
Verdi					100.0%					100.00%
Washoe Valley						97.7%	2.3%			100.00%
REMAINDER	26.9%	26.0%	4.5%				42.6%			100.00%
OUT OF AREA						100.0%				100.00%
UNMATCHED	100.0%									100.00%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, ***weighted linked trips***.

TABLE 25: ORIGINS AND DESTINATIONS OF TRAVEL – NON-HOME BASED TRIPS

Origin City	Destination City									TOTAL
	Reno	Sparks	Sun Valley	Truckee	Verdi	Washoe Valley	REMAINDER	OUT OF AREA	UNMATCHED	
Reno	96.9%	1.9%	.0%		.1%		1.1%			100.00%
Sparks	4.2%	94.4%	.3%				1.1%			100.00%
Sun Valley			100.0%							100.00%
Truckee							68.2%	31.8%		
Verdi					100.0%					100.00%
Washoe Valley	15.5%					84.5%				100.00%
REMAINDER	29.7%	9.2%					61.2%			100.00%
OUT OF AREA	4.8%						1.3%	86.7%	7.1%	100.00%
UNMATCHED	15.6%							7.9%	76.5%	100.00%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, ***weighted linked trips***.

MODE CHOICE

Travel in the RTC planning area was primarily auto-based (drivers, passengers, and motorcycles). As shown in Figure 11, 89% were auto-based. The mode usage remains fairly consistent throughout the planning area, with residents in the more urban areas reporting more transit (public bus and school bus) and walk/bike trips.

FIGURE 11: MODE USAGE

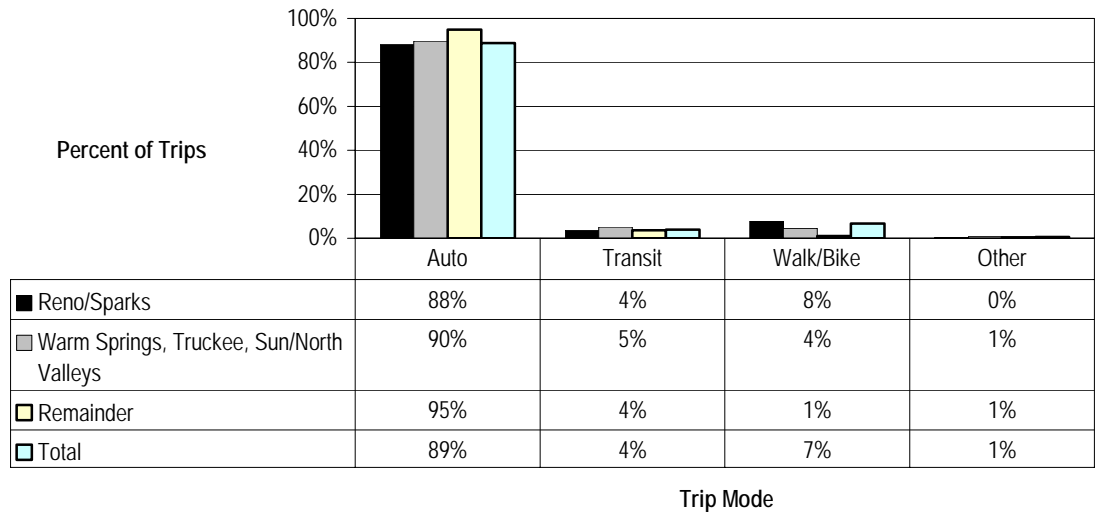


Table 26 presents travel mode by trip purpose. Auto was the dominant mode for all trips, regardless of purpose. The greatest variation in reported mode was for home-based school trips, where 55% of trips were by auto, 26% by transit (which includes school bus), and 19% by walk or bike.

TABLE 26: TRAVEL MODE BY PURPOSE

Trip Purpose	Auto	Transit	Walk/Bike	Other	Total
Home-Based Work	92.2%	3.1%	4.3%	.4%	100.0%
Home-Based School	54.7%	26.2%	19.1%		100.0%
Home-Based Shopping	93.3%	2.0%	4.1%	.6%	100.0%
Home-Based Social/Rec	85.6%	.9%	12.6%	.9%	100.0%
Home-Based Other	86.7%	3.5%	9.6%	.2%	100.0%
Non-Home Based	94.5%	1.0%	3.7%	.8%	100.0%
Total	88.9%	4.0%	6.6%	.5%	100.0%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, ***weighted linked trips***.

TRAVEL BY PUBLIC TRANSIT

Of all trips reported by the participating households in the planning area, 200 trips (2%) were by public transit. Of these, virtually all were made by households located in the Reno/Sparks area to other locations within the same geographic area. In sum, a total of 89 respondents from across 73 households reported making at least one trip by transit. The unweighted demographic characteristics of those transit-using households are summarized in this section.

Most transit trips were reported by respondents who had no household vehicles. As shown in the table below, 56% of transit-using households reported owning no vehicles. An additional 26% of transit using households had only one vehicle. Only 11% of transit using households had 3 or more vehicles. Table 27 also shows the distribution of household vehicles owned by the persons who use transit, and the number of trips reported made by transit.

TABLE 27: VEHICLE OWNERSHIP OF TRANSIT-USING HOUSEHOLDS

HH Vehicles	Households		Persons		Trips	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
0	41	56.0%	51	57.3%	132	66.0%
1	19	26.0%	23	25.8%	40	20.0%
2	5	7.0%	6	6.7%	12	6.0%
3+	8	11.0%	9	10.2%	16	8.0%
Total	73	100.0%	89	100.0%	200	100.0%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, unweighted

More than half of the transit-using households had reported household incomes of less than \$25,000. An additional 29% of transit-using households had incomes between \$25,000 and \$50,000. A few higher income households (6%) also reported at least one person making one trip by transit. Table 28 also shows the distribution of household income for persons who used transit and for each actual transit trip reported.

TABLE 28: INCOME OF TRANSIT USERS

Household Income	Households		Persons		Trips	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Less Than \$10k	12	16.4%	14	15.7%	41	20.5%
\$10k But Less Than \$25k	26	35.6%	35	39.3%	84	42.0%
\$25k But Less Than \$50k	21	28.8%	24	27.0%	42	21.0%
\$50k But Less Than \$75k	7	9.6%	8	9.0%	16	8.0%
\$75k or Greater	4	5.5%	4	4.5%	8	4.0%
Income Refused	3	4.1%	4	4.5%	9	4.5%
Total	73	100.0%	89	100.0%	200	100.0%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, unweighted

At the person level, more transit-users were female (55%). The average transit-user was 44 years old, with 15% of all transit riders between the ages of 35 and 44 years. As shown in Table 29, there was evidence of children using transit (accompanied by an adult), with 9% of transit-users being under the age of 15. 35% of transit users in this data set were age 55 or older. Of those age 16 or older, only 33% held valid drivers licenses, indicating that most transit users in this data set are captive riders. A little more than half of those age 16 and older are employed (59%). One-third (regardless of age) reported some type of physical disability.

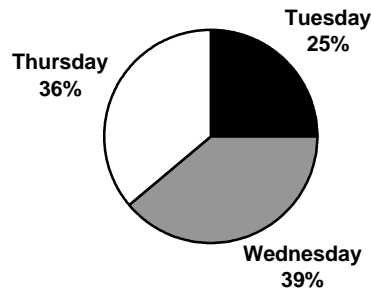
TABLE 29: PERSON LEVEL CHARACTERISTICS OF TRANSIT USERS

Characteristics	N	%
Gender		
Male	39	44.8%
Female	48	55.2%
Age		
Under Age 5	3	3.5%
5 – 14	5	5.9%
15 – 24	13	15.3%
25 – 34	7	8.3%
35 – 44	13	15.3%
45 – 54	14	16.5%
55 – 64	15	17.6%
65+	15	17.6%
Licensed Driver Status		
Licensed to Drive	27	33.3%
Not Licensed	54	67.7%
Disability Status		
Disabled	31	34.8%
Not Disabled	58	65.2%
Employment Status		
Employed	48	59.3%
Not Employed	33	40.7%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, unweighted

This survey only focused on travel for mid-week (Tuesday through Thursday). As shown in Figure 12, most transit trips were reported on a Wednesday (39%) or Thursday (36%). Only 25% were taken on a Tuesday.

FIGURE 12: TRANSIT USAGE BY WEEKDAY



TRAVEL BY SCHOOL BUS

Of all trips reported by the participating households, 194 trips (2%) were by school bus. These were distributed across the three areas, with the majority (47%) being reported in the outlying cities, 39% in Reno/Sparks, and the other 14% in the remainder of the planning area. In sum, a total of 115 respondents from across 85 households reported making at least one trip by school bus. The demographic characteristics of those school bus-using households are summarized in this section.

Most school bus trips were reported by respondents who had at least two household vehicles. As shown in the table below, 42% of school bus-using households reported owning 2 vehicles. An additional 33% of school bus using households had 3+ vehicles. Only 5% of school bus using households had no vehicles. Table 30 includes the distribution of household vehicles by school bus-using persons and the school bus trips themselves.

TABLE 30: VEHICLE OWNERSHIP OF SCHOOL BUS-USING HOUSEHOLDS

HH Vehicles	Households		Persons		Trips	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
0	4	4.7%	7	6.1%	13	6.7%
1	17	20.0%	22	19.1%	39	20.1%
2	36	42.4%	46	40.0%	74	38.1%
3+	28	32.9%	40	34.8%	68	35.1%
Total	85	100.0%	115	100.0%	194	100.0%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, unweighted

More than half of the school bus-using households had reported household incomes of at least \$50,000. An additional 26% of school bus-using households had incomes between \$25,000 and \$50,000. A few lower income households (10%) also reported at least one person making one trip by school bus.

TABLE 31: INCOME OF SCHOOL BUS USERS

Household Income	Households		Persons		Trips	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Less Than \$10k	1	1.2%	3	2.6%	6	3.1%
\$10k But Less Than \$25k	8	9.4%	11	9.6%	20	10.3%
\$25k But Less Than \$50k	22	25.9%	27	23.5%	46	23.7%
\$50k But Less Than \$75k	19	22.4%	27	23.5%	47	24.2%
\$75k or Greater	32	37.6%	43	37.3%	69	35.6%
Income Refused	3	3.5%	4	3.5%	6	3.1%
Total	85	100.0%	115	100.0%	194	100.0%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, unweighted

At the person level, more school bus-users were female (52%). All school bus riders were children, mostly between the ages of 5 and 14. Of those age 16 or older, only 33% held valid drivers licenses, indicating that most school bus users in this data set are captive riders. None were employed and only 2% reported some type of physical disability.

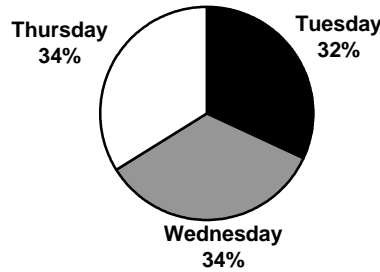
TABLE 32: PERSON LEVEL CHARACTERISTICS OF SCHOOL BUS USERS

Characteristics	N	%
Gender		
Male	54	47.8%
Female	59	52.2%
Age		
Under Age 5	1	0.9%
5 – 14	92	84.4%
15 – 24	16	14.7%
25 – 34	0	0.0%
35 – 44	0	0.0%
45 – 54	0	0.0%
55 – 64	0	0.0%
65+	0	0.0%
Licensed Driver Status		
Licensed to Drive	3	33.3%
Not Licensed	6	66.7%
Disability Status		
Disabled	2	1.8%
Not Disabled	111	98.2%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, unweighted

This survey only focused on travel for mid-week (Tuesday through Thursday). As shown in Figure 13, the school bus trips were equally spread across the travel days.

FIGURE 13: SCHOOL BUS USAGE BY WEEKDAY



NON-MOTORIZED TRAVEL

Seven percent of all trips reported (770 trips) were using non-motorized modes (walk or bicycle). These were reported by 345 persons living in 227 households. The characteristics of those trips are summarized in this section. This includes information about those who reported the non-motorized trips as well as some information about the non-motorized trips themselves. First, three-fourths (76%) live in the Reno/Sparks area.

TABLE 33: LOCATION OF HOUSEHOLDS REPORTING NON-MOTORIZED TRAVEL

Household Location	Frequency	Percent
Reno/Sparks	174	76.7%
Warm Springs, Truckee Canyon, Sun Valley, North Valleys	45	19.8%
Remainder of Planning Area	8	3.5%
Total	227	100.0%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, unweighted

Unlike the transit trips, which were made predominantly by members of households with no vehicles, the majority of non-motorized trips were by those in households with vehicles. As shown in the table below, respondents in households with 2 vehicles reported the highest proportion of walk and bike trips (32%), followed closely by those in one-vehicle households (29%). The distribution of household vehicles by persons who walked and the actual walk trips are also shown in this table.

TABLE 34: VEHICLE OWNERSHIP OF NON-MOTORIZED TRIP MAKERS

HH Vehicles	Households		Persons		Trips	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
0	39	17.2%	55	15.9%	139	18.1%
1	65	28.6%	106	30.7%	256	33.2%
2	73	32.2%	116	33.6%	239	31.0%
3+	50	22.0%	68	19.7%	136	17.7%
Total	227	100.0%	345	100.0%	770	100.0%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, unweighted

The following table summarizes the person-level characteristics for those respondents reporting non-motorized travel. There was little gendered differences in persons who walk or bike in the RTC planning area. However, the majority was under the age of 15 (37%).

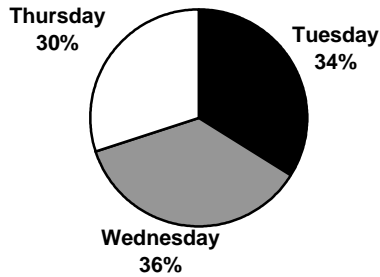
TABLE 35: PERSON LEVEL CHARACTERISTICS OF NON-MOTORIZED TRAVELERS

Characteristics	N	%
Gender		
Male	564	48.4%
Female	602	51.6%
Age		
Under Age 5	80	6.9%
5 – 14	342	29.6%
15 – 24	119	10.3%
25 – 34	117	10.1%
35 – 44	205	17.7%
45 – 54	126	10.9%
55 – 64	86	7.5%
65+	80	6.9%
Licensed Driver Status		
Licensed to Drive	588	81.0%
Not Licensed	138	19.0%
Disability Status		
Disabled	70	6.0%
Not Disabled	1095	94.0%
Employment Status		
Employed	509	70.0%
Not Employed	218	30.0%

Source: 2005 Washoe County Travel Characteristics Study, Household Travel Survey, unweighted

Respondents were most likely to report walk or bike trips on a Tuesday (34%) or a Wednesday (36%)

FIGURE 14: NON-MOTORIZED TRAVEL BY WEEKDAY



TRAVEL TIMES

During the course of the survey, respondents reported all trips for a designated 24-hour period that began at 3 am and ended at 2:59 am the following calendar day. Figure 15 shows the departure time for all trips. Travel peaks at 7 and 8 am, then again at 4 pm. In addition, there is a slight increase in travel during the lunch hour. Figure 16 shows the trip departure times by trip purpose. In that figure, HBW trips peak between 6 and 7 am and again at 5 pm. HBO trips are more consistent throughout the day, but do show a slight peak at 8 am and 3 pm as well. Non-Home based trips peak during the mid-day time period.

FIGURE 15: TRIP DEPARTURE TIMES

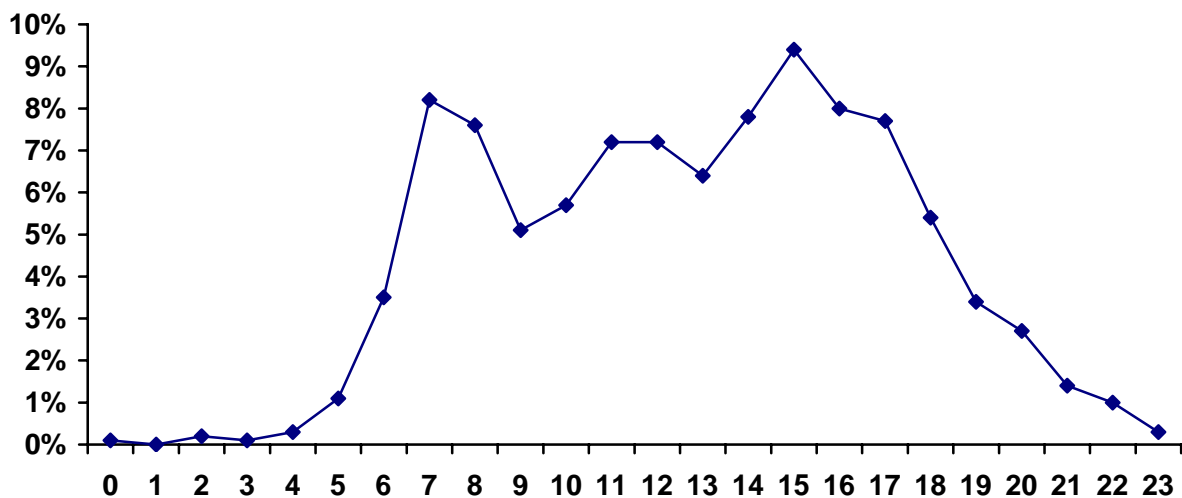
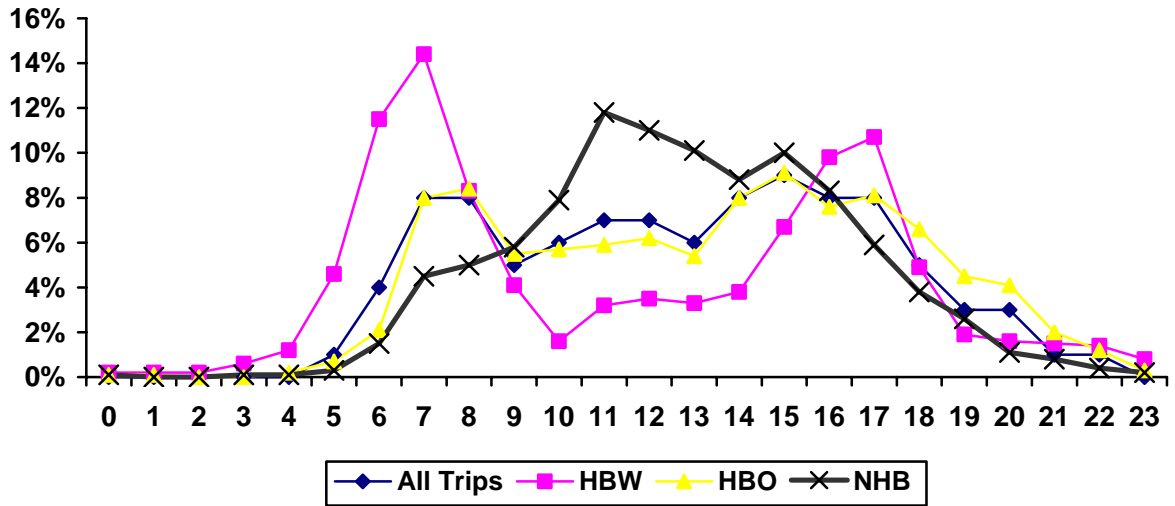
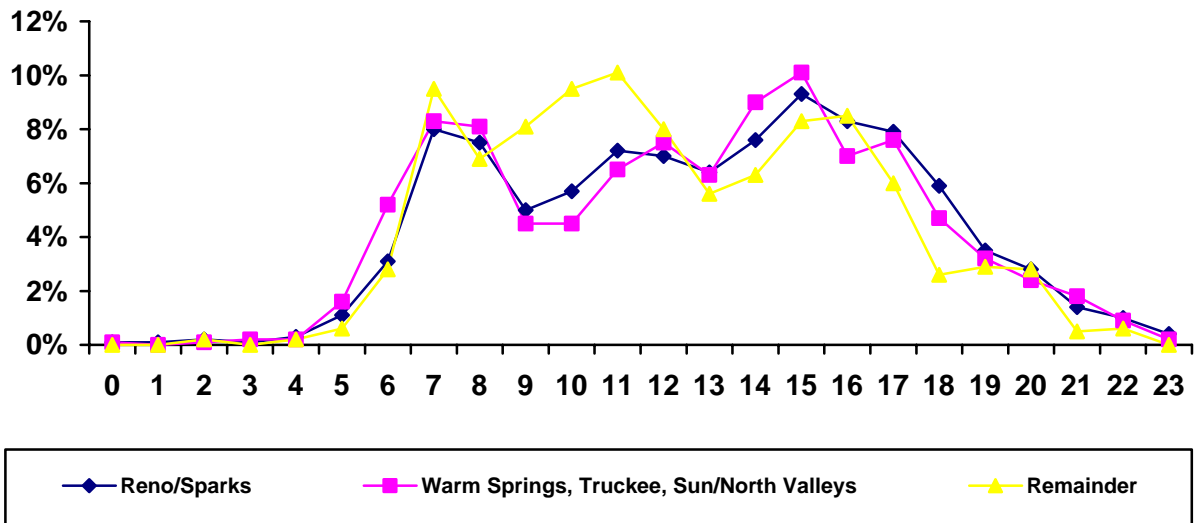


FIGURE 16: TRIP DEPARTURE TIMES BY TRIP PURPOSE



Travel times varied based on the geographic area of the planning area. Households in the Reno/Sparks area reported a lower mid-day peak than those in the other areas. Households in the surrounding cities left earlier in the morning and reported the lowest mid-morning travel than the rest of the planning area. Respondents from the non-urban portion of the planning area had a higher and longer morning peak.

FIGURE 17: TRIP DEPARTURE TIMES BY GEOGRAPHIC AREA





CONCLUSIONS

The Household Travel Survey was conducted in October and November 2005 and provides a rich source of information about travel behavior in the region. Sponsored by the Regional Transportation Commission (RTC), this study details the travel and activities of 1,207 participating households from throughout Washoe County, Nevada and 1,174 households specifically in the RTC planning area.

The study was conducted using standard household travel survey methods. This included the use of an advance notification letter (to advise households they were randomly selected for inclusion in the study), telephone recruitment, placement of respondent materials (including travel logs for all household members) via US mail, telephone retrieval, continuous data processing and geocoding, and fine-tuned quality assurance data checks. The study did not provide any incentives to the households, who spent an average of 36 minutes each for the two telephone interviews and 20 minutes per person completing the travel logs. The overall response rate (calculated according to CASRO standards) was 26%.

The Household Travel Survey obtained demographic and travel behavior details for 1,207 regional households, including their 2,980 household members and 2,113 vehicles. They also provided trip destinations, travel times, travel modes, and the reasons for making 12,235 trips during a 24-hour period. When expanded to the survey universe, the travel data represents 132,084 households, 326,146 persons, 231,203 vehicles, and 1,338,800 trips. In all, the households reported an average of 10.14 daily household trips and 4.11 daily person trips (for all household members).

Of these, 1,174 households were in the RTC planning area. When properly weighted to adjust for non-response, the data from the 1,174 households contains details about 2,679 household members, 2,138 vehicles, and details regarding 11,077 unlinked trips during a 24-hour period. When expanded to the survey universe, the travel data represents 124,984 households, 308,777 persons, 217,192 vehicles, and 1,260,779 trips. In all, the households reported an average of 10.09 daily household trips and 4.08 daily person trips.

Most respondents reported traveling by auto (89%). The survey data also includes a small number of households with no vehicles (86), who mainly relied on transit and walking to meet their mobility needs. Common trip purposes for all respondents included work, personal business and shopping, in addition to "returning home" from other locations. The average reported trip length was 18 minutes and the length 3.6 miles. The longest trips were for medical purposes (25 minutes), work-related travel (22 minutes), and visit (21 minutes). The shortest was for "quick stops" at the ATM or gas stations (11 minutes).

In conclusion, the data set produced as a result of the Household Travel Survey component of the Washoe County Travel Characteristics Study represents a comprehensive summary of regional travel behavior for the transportation planning efforts of RTC and others in the transportation planning community. The survey approach, combined with careful planning at the start of the project and continuous quality assurance efforts during data collection, have resulted in a high quality data set that will be useful in future model development efforts as well as general planning needs.



APPENDICES

Appendix A: Advance Letter

Appendix B: Recruitment Questionnaire

Appendix C: Travel Log

Appendix D: Retrieval Questionnaire



APPENDIX A: ADVANCE LETTER

Regional Transportation Commission

Administration Office: 2050 Villanova Drive, Reno, Nevada, 89502 — Phone: 775-348-0400 — FAX: 775-324-3503

John R. Mayer, Chair
Dwight Dortch, Commissioner

David E. Humke, Vice Chair
Bob Larkin, Commissioner

David Aiazzi, Commissioner
Gregory H. Krause, Executive Director

DATE

John Smith
1234 Main Street
Reno, NV 89502

Dear John,

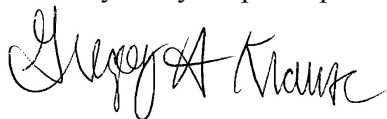
We need your help! Your household has been selected, together with a few other families in the <<ZIP>> zipcode, to participate in the **Washoe County Regional Household Travel Survey**, sponsored by the Regional Transportation Commission (RTC) – your local metropolitan planning organization. This survey will collect data about where our families go and how they get there. RTC will use the survey results to plan projects such as jogging paths, sidewalks, bike routes, transit services, new roads and existing road maintenance that affect access to jobs, air quality, and/or quality of life.

What are we asking of you?

- **First, participate in a 10-minute telephone interview.** In the next few days, you'll receive a phone call between 4:00 and 9:00 pm to confirm your participation. An interviewer from NuStats/DataSource, a nationally recognized survey research firm, will call to answer any of your questions and also to ask some questions about your household.
- **Next, record your travel for 24 hours.** After the phone call, you will receive personalized travel logs in the mail. Your family should use the logs to record all the places they visit, or stops they make, whether it's around town or out of town, on an assigned day. We ask your help in ensuring that everyone in your household over the age of 12 fills out their travel logs completely and accurately. Parents should fill out the logs of children under age 12.
- **Finally, provide your travel information in a follow-up phone call.** An interviewer will call after your travel day to collect the information from each person's travel log. The interviewer must speak directly with each person age 16 and older. If the logs were used to record exactly where people went, this interview is quick!

Confidentiality is critical to the success of our survey. We want you to feel secure in providing candid responses to our questions and *in giving us* your travel information. All information will be held in strict confidence. If you want to find out more about this survey, visit the survey website at www.nustats.com/rtcwashoe or call Bobbi Coulter the project representative for RTC at (775) 771-7320 or email bjcoulter@charter.net.

Thank you – your participation will really make a difference!



Gregory H. Krause, *Executive Director*
RTC



APPENDIX B: RECRUITMENT QUESTIONNAIRE

Household Survey, Washoe County Travel Characteristics Study Recruitment Questionnaire

Introduction

Hi – my name is _____ and I'm calling on behalf of Regional Transportation Commission, the area's planning organization. We're interviewing families in Washoe County about their daily travel. This study will benefit your community by providing information about residents travel patterns for better transportation planning and identification of transportation improvements. May I speak with [Imported Name] or an adult in the household? We're conducting a study to understand why and how people travel as part of planning for future transportation needs. You may have received a letter providing information about the study. The study is purely a research effort, and your answers will be completely confidential. For the first part of the study, I'll be asking some questions about your household. These questions are important in making sure that everyone in Washoe County is properly represented in the study. For the second part of this study, we're asking households to record their travel for a 24-hour period. The travel details help us to understand how and when people travel. We will send you logs to use to record your trip information. In order to prepare those logs, I need to get some information about each person in your household. Again, I want to assure you that this information is for research purposes only and will be held in strict confidence.

Screeners

- S1 Did I reach you on your Household telephone line, a cell phone, or some other number?
- 1 Household Line - Continue
 - 2 Cell phone or some other number – “May I have a non-cell phone number to re-contact you”
SET AS CALLBACK
 - 9 REFUSED - Terminate
- S2 Do you consider yourself a permanent resident of Washoe County? [INTERVIEWER NOTE: IF NECESSARY, INDICATE THAT A PERMANENT RESIDENT LIVES IN THE COUNTY AT LEAST 9 MONTHS OUT OF THE YEAR, IF NOT MORE]
- 1 PERMANENT - Continue
 - 2 SEASONAL – NO LONGER TERMINATES – JUST TALLY AND CONTINUE
 - 9 REFUSED - NO LONGER TERMINATES – JUST TALLY AND CONTINUE

Household Data

- H2 How many people, including yourself, live in your household? [Includes all persons who sleep there at least 3 nights per week]
- ENTER NUMBER
- 98 DON'T KNOW – TERMINATE WITH BELOW TEXT
 - 99 REFUSED – terminate “Thank you but without this information, your household will not be eligible to participate in this study.” PAUSE AND GIVE FINAL OPPORTUNITY FOR RESPONDENT TO ANSWER BEFORE TERMINATING
- H3 How many vehicles are presently available to members of your household? This includes all cars, vans, trucks, SUVs, motorcycles and mopeds, whether owned or leased or provided by an employer and in working condition.
- ENTER NUMBER
- 98 DON'T KNOW – TERMINATE WITH BELOW TEXT
 - 99 REFUSED – terminate “Thank you but without this information, your household will not be eligible to participate in this study.” PAUSE AND GIVE FINAL OPPORTUNITY FOR RESPONDENT TO ANSWER BEFORE TERMINATING

H4 Do you live in a house, duplex, town home, apartment, or mobile home?

- 1 Single family house or duplex
- 2 Multiple family dwelling (4-plex, town home, apartment)
- 3 Mobile home
- 8 Other (Specify)
- 9 REFUSED

Vehicle Data [If TOTVEH>0]- ELSE SKIP TO 5

Now I need to get some information about each vehicle. Starting with the vehicle that is driven the most, what is the vehicle year, make, and model?

V1 What is the year of your vehicle?
ENTER NUMBER – [1900 – 2006]

V2 What is the Vehicle make?

- | | | | |
|----|-----------------|----|----------------|
| 1 | ACURA | | |
| 2 | AUDI | 24 | LINCOLN |
| 3 | BMW | 25 | MAZDA |
| 4 | BUICK | 26 | MERCURY |
| 5 | CADILLAC | 27 | MERCEDES |
| 6 | CHEVROLET | 28 | MITSUBISHI |
| 7 | CHRYSLER | 29 | NISSAN |
| 8 | DAEWOO | 30 | OLDSMOBILE |
| 9 | DODGE | 31 | PLYMOUTH |
| 10 | FORD | 32 | PONTIAC |
| 11 | GEO | 33 | PORSCHE |
| 12 | GMC | 34 | RANGE ROVER |
| 13 | HARLEY DAVIDSON | 35 | SAAB |
| 14 | HONDA | 36 | SATURN |
| 15 | HUMMER | 37 | SCION |
| 16 | HYUNDAI | 38 | SUBARU |
| 17 | INFINITI | 39 | SUZUKI |
| 18 | ISUZU | 40 | TOYOTA |
| 19 | JAGUAR | 41 | VOLKSWAGEN |
| 20 | JEEP | 42 | VOLVO |
| 21 | KAWASAKI | 43 | YAMAHA |
| 22 | KIA | 97 | OTHER, SPECIFY |
| 23 | LEXUS | 98 | DON'T KNOW |
| | | 99 | REFUSED |

V3 What is the model?

V4 And which of the following best describes this vehicle?

- 1 Auto/Car/Station wagon
- 2 Van (mini, cargo, and passenger)
- 3 SUV - sport utility vehicle
- 4 Pickup Truck
- 5 Other type of truck (work truck)
- 6 RV - recreational vehicle
- 7 Motorcycle
- 97 Other (specify)
- 99 DON'T KNOW/ REFUSED

V5 What is the fuel type?

- 1 Gas
- 2 Diesel
- 7 Other (specify)

V6 - Does this vehicle have a working cigarette lighter or power outlet?

- 1 Yes
- 2 No

Household Section (Cont'd)

H5 Do you own or rent your home?

- 1 Own
- 2 Rent
- 3 Caretaking/ House-sitting
- 9 Don't Know/ Refused

H6 Have there been times within the past 12 months when the home you were living in did not have telephone service for reasons other than brief service or equipment problems?

- 1 Yes
- 2 No
- 8 Don't Know
- 9 REFUSED

[If NOPHN=1]- ELSE SKIP TO H8

H7 How long were you without phone service?

- 1 LESS THAN 1 WEEK
- 2 1-2 WEEKS
- 3 2 WEEKS TO LESS THAN ONE MONTH
- 4 ONE MONTH TO LESS THAN THREE MONTHS
- 5 3 MONTHS TO LESS THAN 6 MONTHS
- 6 6 MONTHS TO LESS THAN 1 YEAR
- 7 ONE YEAR OR LONGER
- 8 DK
- 9 REFUSED

H8 Including all 2004 income sources before taxes was your household income above or below \$50,000?

- 1 ABOVE \$50K
- 2 BELOW \$50K
- 99 DON'T KNOW/ REFUSED

H9 More specifically, what range does your household income fall into, Stop me when I read the correct range.

- 11 Less than \$10,000
- 12 \$10-\$14,999
- 13 \$15-\$24,999
- 14 \$25-\$34,999
- 15 \$35-\$49,999
- 21 \$50-\$74,999
- 22 \$75-\$99,999
- 23 \$100-\$149,999
- 24 \$150,000 or more
- 99 DON'T KNOW/ REFUSED

Person Data

Now I need to get some information about each person in your household, so I can prepare individual travel logs. Again, I want to assure you that this information is for research purposes only and will be held in strict confidence. Earlier you indicated that there were<HHSIZE>persons in your household.

BEGIN SERIES OF QUESTIONS WITH RESPONDENT, THEN COLLECT FOR OTHER HOUSEHOLD MEMBERS

P1 What is person#'s/your first name?

P2 What is NAME's relationship to you? [DO NOT ASK FOR RESPONDENT]

- 1 SELF
- 2 Husband/wife/unmarried partner
- 3 Son/Daughter
- 4 Mother/Father/Mother In-law/Father In-law
- 5 Other relative
- 6 Non-relative
- 7 Household help
- 9 DON'T KNOW/ REFUSED

P3 And what is NAME's gender?

[RECORD BY OBSERVATION FROM RELATION or ASK RESPONDENT]

- 1 MALE
- 2 FEMALE
- 9 REFUSED

P4 How old is NAME?

ENTER IN YEARS

- 98 98 or older
- 99 DON'T KNOW/ REFUSED

P4a IF AGE = DK/RF: Many of our questions about this person are based on his/her age. Can you tell me if NAME is at least 16 years of age?

- 1 UNDER 16
- 2 AGE 16-64
- 9 DK/RF

P5A Are you Hispanic, Latino, or Spanish? [ASK FOR REFERENCE PERSON ONLY]

- 1 Yes
- 2 No
- 9 REFUSED

P5B What is your race? [ASK FOR REFERENCE PERSON ONLY]

INTERVIEWER NOTE: IF YES TO P4, PREFACE QUESTION WITH [IN ADDITION TO BEING HISPANIC, LATINO OR SPANISH.

- 1 White
- 2 African American, Black
- 3 Asian
- 4 American Indian, Alaskan Native
- 5 Native Hawaiian or other Pacific Islander?
- 6 MULTIRACIAL
- 7 HISPANIC/ MEXICAN
- 8 OTHER
- 9 REFUSED

P5C Does NAME have any type of disability that makes it difficult to travel outside the home?

- 1 YES
- 2 NO
- 9 DK/RF

P5D IF YES: What type of disability is that?

- 1 BLIND/VISUAL
- 2 TRANSFERABLE WHEELCHAIR
- 3 NON-TRANSFERABLE WHEELCHAIR
- 4 DEAF/HEARING IMPAIRED
- 5 MENTALLY DISABLED
- 6 CANE/WALKER
- 7 OTHER (SPECIFY)
- 8 DON'T KNOW
- 9 REFUSED

[If AGE>15]- ELSE SKIP TO P19

P6A Do(es) you/he/she have a valid driver's license?

- 1 Yes
- 2 No
- 8 Don't Know
- 9 REFUSED

P6B Which of the following best describes your/his/her current situation?

- 1 Employed full-time
- 2 Employed part-time
- 3 Regular Volunteer
- 4 Retired
- 5 Full-time homemaker
- 6 Full-time student, not working
- 7 Full-time student, working
- 8 Disabled
- 9 Unemployed, looking for work
- 10 Unemployed, not looking for work
- 97 Other – [O_PRMACT]
- 99 DON'T KNOW/ REFUSED

[If PRIMACT= (1,2,3,7)]- ELSE SKIP TO P19

P7 What kind of location do(es) you/he/she work out of? or volunteer at?

- 1 Home
- 2 Fixed location
- 3 No fixed address
- 9 DON'T KNOW/ REFUSED

P8 What is the name of [your/his/her] employer? IF SELF-EMPLOYED, OBTAIN NAME OF BUSINESS

[If JOBLOC=2]- ELSE SKIP TO P18

P9 – P17 Where is NAME's job located?
[WAD_NUM] - Address Number
[WAD_NAM] - Address Street Name
[WAD_TYP] - Address Street Type
[WAD_DIR] - Address Street Direction
[WCITY] - City
[WSTAT] - State:
[WZIP] - ZIP:
[WXSTR] - Cross Streets:
[WLAND] - Landmarks:

P18 Do you make multiple trips during your work shift for commercial purposes? (i.e., courier, real estate, plumbers, electricians, delivery person)?

- 1 Yes
- 2 No
- 8 Don't Know
- 9 REFUSED

P19 Does NAME attend school or take classes?

- 1 Yes
- 2 No
- 8 Don't Know
- 9 REFUSED

[If STUDENT=1]- ELSE SKIP TO H10

P20 What type of school is it?
1 Daycare/Pre-School
2 K-6th grade
3 7th-12th grade
4 College/University
5 Vocational/Trade
6 Post Graduate
7 OTHER, SPECIFY
9 DON'T KNOW/ REFUSED

P21 Where is the school located?

- 1 Home
- 2 Fixed location
- 9 DON'T KNOW/ REFUSED

P22 – What is the name of [your/his/her] school?

[If SLOC=2]- ELSE SKIP TO H10

P23 – P31 Where is this location?
[SAD_NUM] - Address Number
[SAD_NAM] - Address Street Name
[SAD_TYP] - Address Street Type
[SAD_DIR] - Address Street Direction
[SCITY] - City
[SSTAT] - State:
[SZIP] - ZIP:
[SXSTR] - Cross Streets:
[SLAND] - Landmarks:

Household Data (cont'd)

H10 Okay – we're almost finished. First, we'd like everyone in your household to keep track of their travel on [DAY and DATE]. Is this okay?
Enter assignment number

H11 – H15 And what is your address? [IF LISTED SAMPLE, CONFIRM ADDRESS, IF UNLISTED: OBTAIN]

****PHYSICAL ADDRESS. NO P.O. BOXES ALLOWED****

[HAD_NUM] - Address Number
[HAD_NAM] - Address Street Name
[HAD_TYP] - Address Street Type
[HAD_DIR] - Address Street Direction
[HCITY] - City
[HSTAT] - State:
[HZIP] - ZIP:
[HXSTR] - Cross Streets:
[HCNTY] - County:

H16 Is this also your mailing address? IF NOT, OBTAIN MAILING ADDRESS

H17 After you record your travel, we'll call you back to obtain your travel information. When would be the best time to reach you?

1 Morning
2 Afternoon
3 Evening

H18 And should we call you at this telephone number or is there a different phone number where you would prefer to be called?

1 This number
2 Different number ___ - ___ - ____

GPS Request

If totveh>0 AND 1st 3 vehicles all have functioning cigarette lighters:

G1 In addition to asking everyone to record their travel information, we're selecting a handful of households to help test the use of Global Positioning System, or GPS, technology, in conducting travel surveys. If selected, we would deliver the GPS devices to you, as well as pick them up. All you would need to do is plug the device into your car's cigarette lighter or power outlet. This does not harm your vehicle or affect its performance in any way. Once you plug it in, there's nothing else to do. The process is very simple and the results of this test can lead to improved travel studies in the future. If selected, will you help us with this?

1 YES
2 NO – GO TO THANK

G2 –May I have a **daytime** phone number where I can reach you if your household is selected to participate in the GPS portion of the project?

1 This number
2 Different number ___ - ___ - ____

G3 Is This number is your

1 Work number
2 Cell phone number
3 Other (specify)

Thank you for participating in this study. Please tell the other members of your household how important their participation is. We'll call you on [DAY PRIOR TO TRAVEL DAY] to make sure you've received your travel logs and to answer any questions you might have. If you have any questions or comments, you can reach us at 1-877-261-4621. Thank you and have a good day/night.



APPENDIX C: TRAVEL LOG

Regional Transportation Commission

Administration Office: 2050 Villanova Drive, Reno, Nevada, 89502 — Phone: 775-348-0400 — FAX: 775-324-3503

John R. Mayer, Chair
Dwight Dortch, Commissioner

David E. Humke, Vice Chair
Bob Larkin, Commissioner

David Aiazzi, Commissioner
Gregory H. Krause, Executive Director

John Smith
1234 Main Street
Reno, NV 89502

DATE

Dear John,

Thank you for participating in the **Washoe County Regional Household Travel Survey!**

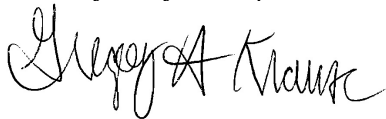
Your assigned travel day is:
<<assigned day>>

What are we asking of you?

- **First, record your travel for 24 hours.** This package contains personalized travel logs. Your family should use the logs to record all the places they visit, or stops they make, whether it's around town or out of town, on <<assigned day>>. Please ensure that all persons age 12 and older fill out the travel logs completely and accurately. Parents should fill out the logs of children under age 12.
- **Last, provide your travel information in a follow-up phone call.** An interviewer from NuStats/DataSource will call after <<assigned day>> to collect the information from each person's travel log. The interviewer must speak directly with each person age 16 and older. Use the logs to record exactly where you travel, and this interview will be quick!

Remember, all information will be held in strict confidence. If you have questions about anything related to this survey, please contact Stacey Bricka of NuStats by phone (toll-free) at 1-800-447-8287, ext. 2240 or email sbricka@nustats.com.

Thank you – your help with this important survey will make a difference!



Gregory H. Krause, *Executive Director*
RTC

To begin your Log:

1. **Read the Instructions / Example sheet first.** Use it to help you correctly fill out your travel log.
2. **Record each place you go, when you arrived, how you got there, what you did there, and what time you left.** Your travel day begins at 3 a.m. (or when you wake up). Carry your log with you during your travel day - this will help you remember to record ALL your trips and the EXACT times. *Be sure to refer back to the Instructions and Example sheet as needed.*
3. **Remember to record all trips, not just driving trips.** This includes short walks, quick stops like for gas, coffee and other personal errands, and loop trips that begin and end at the same place (e.g., walking the dog, biking, jogging).



DID YOU REMEMBER TO RECORD . . .

- ✓ Each stop you made, even quick stops for food, to get gas, or cash from an ATM?
- ✓ All trips you made even those after 6pm or after work?
- ✓ Exact place names and complete addresses?
- ✓ Accurate arrival and departure times?

WHAT DO I DO WITH MY COMPLETED LOGS?



Keep your completed logs by the phone – We will call you to collect the information. Or, you can call our toll-free survey hotline (877-261-4621) to provide your information.



Mail – After we collect your information by phone, return your completed logs in the postage paid envelope provided in your packet.

**For assistance, call
NuStats toll free at 877-261-4621**

THANK YOU FOR YOUR PARTICIPATION!

If you need help filling out your Travel Log,
please call toll free at:

877-261-4621

For more information about the survey,
please call:

Stacey Bricka, NuStats
800-447-8287, ext 2240
sbricka@nustats.com

or

Bobbi Coulter, Project Representative for RTC
775-771-7320
bjcoulter@charter.net

or

visit the project web page:
www.nustats.com/rtcwashoe

SURVEY CONDUCTED BY NUSTATS ON BEHALF OF:

RTC

Regional Transportation Commission
2050 Villanova Drive
Reno, NV 89502



NuStats

WASHOE COUNTY REGIONAL HOUSEHOLD TRAVEL SURVEY

SPONSORED BY:

RTC

**Regional Transportation Commission
of Washoe County, Nevada**

PERSONAL ONE-DAY TRAVEL AND ACTIVITY LOG FOR:

Record each PLACE you go to and the ACTIVITIES you do there beginning at 3 a.m. (or when you wake up) on your assigned travel day and ending at 2:59 a.m. the following day (or when you go to sleep on your travel day).



Carry this log with you on your assigned travel day and record your activities and trips as you go - *this helps you record all the places you visit, the activities you do there, and to provide accurate arrival/departure times and complete addresses.*

LISTS 1 & 2 are inside flap

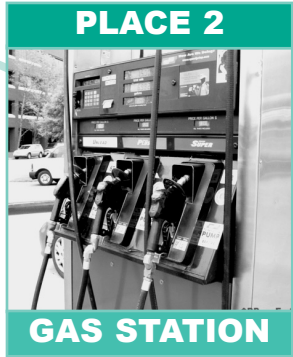
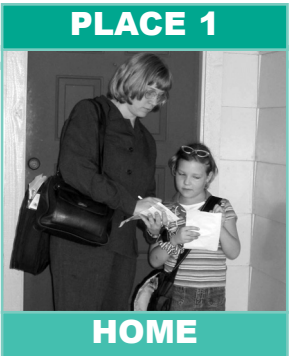
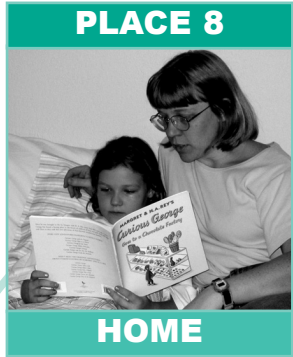
Follow the easy to use example inside!

Instructions & Example Sheet

- 1 Begin your Log wherever you are at 3 a.m. on your Travel Day. Record every PLACE you go, even quick stops on the way to work/school, or after you get home, including walking the dog, biking, or jogging.
- 2 Record the PLACE NAME and COMPLETE ADDRESS (including a cross street & landmark).
- 3 Record the EXACT TIME you ARRIVE at each place.
- 4 Record the code from **LIST 1 CODES** (located on the flap in Log) for "HOW did you get there?"
- 5 Record the code from **LIST 2 CODES** (located on the flap in Log) for "WHAT did you do there?"
- 6 Record the EXACT TIME you LEAVE each place.

	1 What is the NAME OF THE PLACE?	2 What is the ADDRESS? <i>Address City, State Zip Nearest Cross street & Landmark</i>	3 What TIME did you ARRIVE? <i>(record exact times)</i>	4 HOW did you get there? <i>(use LIST 1 CODES)</i>	5 WHAT did you do there? <i>(use LIST 2 CODES)</i>	6 What TIME did you LEAVE? <i>(record exact times)</i>
PLACE 1	WHERE were you at 3 a.m. <input checked="" type="checkbox"/> Home <input type="checkbox"/> Work <input type="checkbox"/> Other: _____	Home address was provided in first telephone interview.	7:16 am/pm	1 🚗	1	6:58 am/pm
PLACE 2	Next PLACE NAME: Fairground Shell	1755 Sutro Street Reno, NV 89512 Oddie Blvd.	7:16 am/pm	1 🚗	20	7:21 am/pm
PLACE 3	Next PLACE NAME: My Work	Work address was provided in first telephone interview.	7:52 am/pm	1 🚗	3	12:01 am/pm
PLACE 4	Next PLACE NAME: Albitas Mexican Restaurant	1280 Terminal Way #17 Reno, NV 89502 Condor Way	12:10 am/pm	7 🚶	13	12:52 am/pm
PLACE 5	Next PLACE NAME: My Work	Work address was provided in first telephone interview.	1:01 am/pm	7 🚶	3	5:11 am/pm
PLACE 6	Next PLACE NAME: My Home	Home address was provided in first telephone interview.	6:02 am/pm	1 🚗	1	7:05 am/pm
PLACE 7	Next PLACE NAME: Walk around neighborhood	No address needed for walk, jog or bike trips that start & end at the same address.	7:05 am/pm	7 🚶	17, 14	7:45 am/pm
PLACE 8	Next PLACE NAME: My Home	Home address was provided in first telephone interview.	7:45 am/pm	7 🚶	1	Last PLACE of the day for this person.

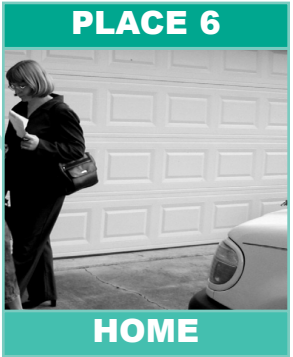
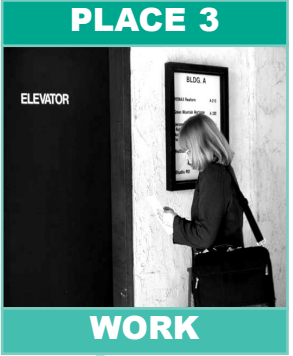
- 7 Loop trips are trips that begin and end at the same address - like walking the dog, going for a jog or bike ride - without stopping at another PLACE. Record code 17 and any other code that applies from **LIST 2 CODES**.



Example Travel Day

These photos correspond to the written example on the other side.

Your day will have different types of trips and you may have more or fewer PLACES to record.





APPENDIX D: RETRIEVAL QUESTIONNAIRE

Household Survey, Washoe County Travel Characteristics Study, Trip Retrieval Questionnaire

Introduction

Hi – my name is _____ and I'm calling on behalf of the Regional Transportation Commission, regarding the Transportation Travel Study your household recently completed. May I please speak with [RESPONDENT] or someone over the age of 18? I'm calling to collect your travel information. Our records show that you recorded travel on [ASSN].

CONTINUE TO VERIFY, PERSON, VEHICLE, AND INCOME DATA

Activity Data

DATA IS GATHERED FOR EACH HOUSEHOLD MEMBER

P1 Note to Interviewer: WAS THIS PERSON INTERVIEWED

- 1 Yes
- 2 No

[If INTERVWD=1]- ELSE SKIP TO PTYPE

P1a In general would you say that ASSN was a typical day for you?

- 1 Yes
- 2 No – Why not?(Enter Why)

P1b Was most of your travel for this day planned in advance or did you change your plans as the day progressed?

- 1 Planned
- 2 Changed – What happened that caused the change in plans? (Enter Reason)

P2 IF PLACE 1: Okay, let's start at the beginning of your travel day. Where were you at 3 am on [ASSN]?
OTHERWISE: Where did you go next?

- 01 HOME
- 02 MY PRIMARY WORKPLACE PROVIDED IN RECRUITMENT
- 12 CORRECTED / NEW PRIMARY WORK ADDRESS
- 03 MY SCHOOL
- 13 CORRECTED / NEW SCHOOL ADDRESS
- 77 PREVIOUSLY ENTERED PLACE > ROW NUMBER
- 88 NEW PLACE
- 99 OUT OF THE TRAVEL STUDY AREA

[If PLANO > 1]- ELSE SKIP

P2A Did you/NAME make any stops along your travel to [ptype] (this place), such as a quick errand, to stop for gas, grab some food, or to pick up drop off a friend or family member?

- 1 Yes – Flag a counter variable ADDCHEK1 then take interviewer back to collect unreported trip info at the front of this roster.
- 2 No – CONTINUE COLLECTING CURRENT TRIP

[If PTYPE=12,13,88 or 99]- ELSE SKIP TO ARR_TIME

P3 – P12 OBTAIN NAME AND ADDRESS INFORMATION FOR PLACE

[PNAME] - Location:
[PAD_NUM] - Address Number
[PAD_NAM] - Address Street Name
[PAD_TYP] - Address Street Type
[PAD_DIR] - Address Street Direction
[PCITY] - City
[PSTAT] - State:
[PZIP] - ZIP:
[PXSTR] - Cross Streets:
[PLAND] - Landmarks:

P13 IF PLACE 1: ENTER 0300. What time did you arrive at this location?
[ENTER IN MILITARY TIME]

P14 How did you get to this place? MULTIPLE CHOICE

1 Personal auto driver
2 Personal auto passenger
3 Motorcycle/Moped
4 Public Transit (Citifare, Sierra Spirit, Citilift)
5 School Bus
6 Taxi/Limousine service
7 Walk
8 Bicycle
97 Other, specify
99 DK/RF

[If MODE=4]- ELSE SKIP TO PARTY

P15 Which bus route was used? [ENTER ROUTE]

P16 How many people, including yourself, were on this activity?

[If PARTY > 0]- ELSE SKIP TO PAYPARK

P17 How many other household members were on this activity with you?

[If HH_MEM > 0]- ELSE SKIP TO PAYPARK

P18 Which household members where these? [ENTER PERSON NUMBERS]

[If MODE 1-3]- ELSE SKIP TO FAREAMNT

P19A Which vehicle did<YOU >use?
ENTER HH VEH NUMBER OR 99 FOR NON-HH VEHICLE

P19B How much did you pay for parking? \$[##.##] and unit

P20 Where did you park?
0 DIDN'T PARK
1 Parking garage
2 Parking lot
3 On-street parking
7 OTHER SPECIFY
9 DK/RF

[If MODE (4,6,7)]- ELSE SKIP TO VEHAVAIL

P22 Was a personal automobile available for this activity?

- 1 Yes
- 2 No
- 8 Don't Know
- 9 REFUSED

[If INTERVWD=1]- ELSE SKIP TO PTYPE

P22a - Was your travel to this location part of your general travel plan for the day, or was it an unexpected trip that resulted from other things that occurred that day?

- 1 Planned general travel
- 2 Unexpected trip

P23 What was your MAIN activity you did at this location?

- 1 At home activities (sleeping, watching TV, eating, personal care, housework, etc.)
- 2 Working at home (job related-for pay)
- 3 Work (including regular volunteer work)
- 4 Work-related (meeting, errand, etc.)
- 5 Minor Shopping (frequent, grocery, clothes)
- 6 Major Shopping (occasional, COSTCO, appliance, car, etc.)
- 7 Medical
- 8 Personal business (bank, pay bill, dry cleaning, errands, etc.)
- 9 Visiting friends or relatives
- 10 Religious
- 11 Community/Political meeting
- 12 Attend school or classes / daycare
- 13 Eating or drinking at restaurant/bar
- 14 Outdoor recreation participation (skiing, snowmobiling, fishing, hiking, etc.)
- 15 Indoor recreation participation (bowling, ice skating, etc.)
- 16 Entertainment (movie, sports event, show, etc.)
- 17 Loop trip beginning and ending at home (walking dog, jogging, biking, etc.)
- 18 Picking up someone
- 19 Dropping off someone
- 20 Quick stop (gas, ATM, coffee, newspaper)
- 22 Change Mode of Travel
- 97 OTHER SPECIFY
- 99 DON'T KNOW/ REFUSED

P24 Where there any other activities you did at this location? [ALLOW 2 MORE]
[SAME CODESET AS ACTIV1]

P25 IF LAST PLACE: ENTER 0259. What time did you leave this location?
[ENTER IN MILITARY TIME]

[If DEP_TIME = 259] ELSE SKIP

P26 Did you/NAME make any additional trips after you were settled in for the evening, such as to run a quick errand, grocery shopping, video rental, grab a bite to eat, or to pick up drop off another person?

- 1 Yes – Flag a counter variable ADDCHEK2 - GO BACK TO CHANGE DEPARTURE TIME AND COLLECT UNREPORTED TRIPS
- 2 No – CONTINUE TO NEXT PERSON

P27 IF NO TRAVEL: Why did you not travel on this day? [ENTER REASON]

LOOP BACK TO OBTAIN NEXT PLACE OR ADDITIONAL PEOPLE

Great, those are all the questions I have for you today. We appreciate you for taking the time to help us with this important study. Thank you and good day/evening.