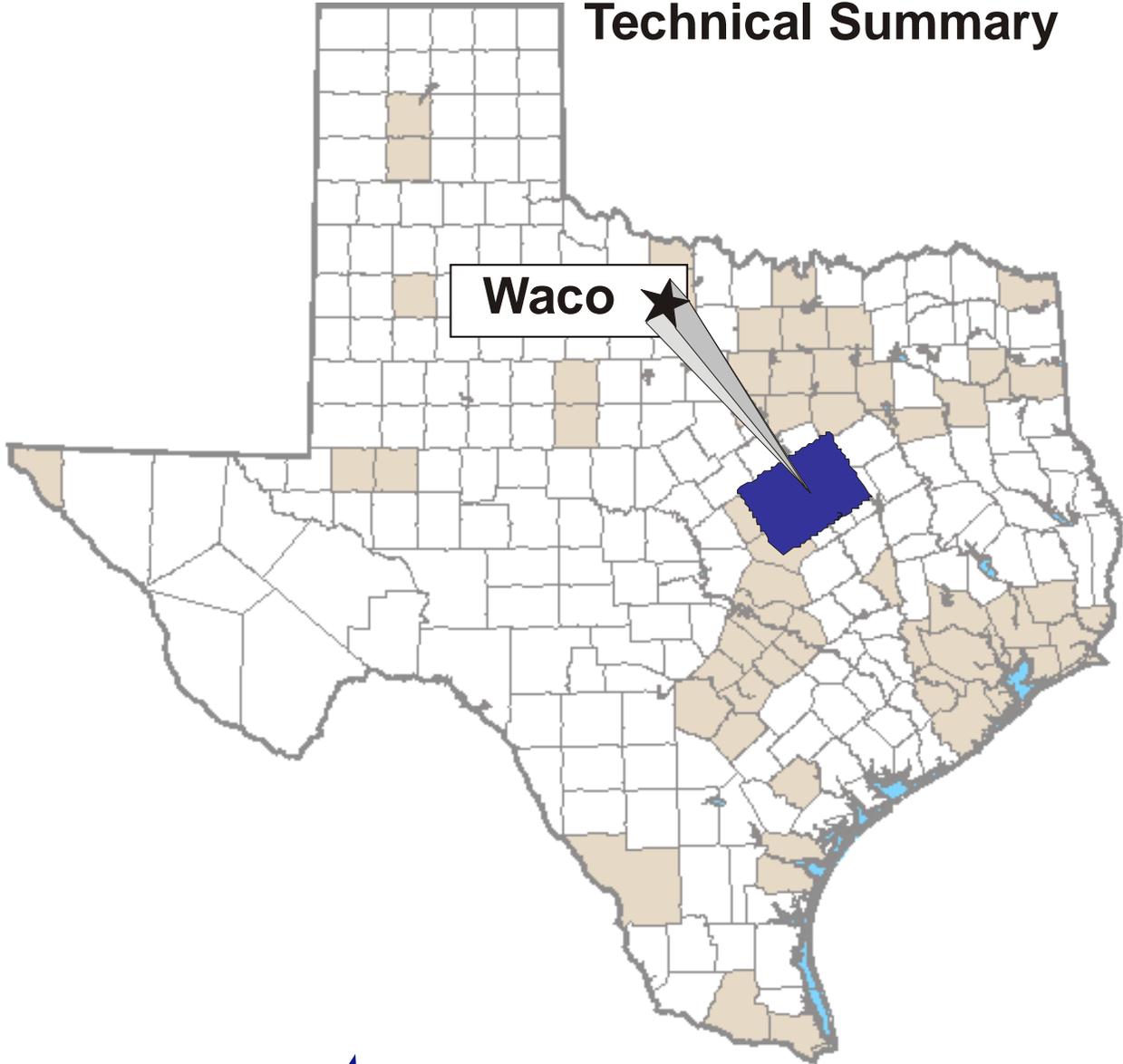


2007-2008 Waco MPO Household Travel Survey Technical Summary



Prepared by the
Texas Transportation Institute
May 2011

**2007-2008 Waco Metropolitan Planning Organization
Household Travel Survey
Technical Summary**

Texas Department of Transportation Travel Survey Program

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Performed in cooperation with the
Texas Department of Transportation
and the
Waco Metropolitan Planning Organization
and the
Federal Highway Administration

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INTRODUCTION

In 2007-2008, the Transportation Planning and Programming Division (TPP) of the Texas Department of Transportation (TxDOT) funded a household travel survey in the Waco Metropolitan Planning Area consisting of McLennan County. The purpose of this travel survey was to provide information on the characteristics of household travel within this area. The household survey was designed to measure the amount of household travel and the characteristics of this travel for a typical Monday through Friday weekday during the school year.

In addition to the household travel survey, TxDOT also conducted a commercial vehicle survey, an external station survey, and a work place survey in the Waco area. These surveys collected information on other components of travel and trip making.

This report summarizes the results of the household survey for the area. A variety of household summary information is presented in this report. The summary information is subject to modification as the survey data are further evaluated and analyzed within the context of all the travel surveys conducted.

The household survey sample design is based on obtaining travel information from a pre-determined number of households within certain ranges of household income and household size. The desired number of surveyed households in any household size/income range is not proportional to the estimated number of households in the cell. Rather, the number of households to be surveyed in each cell was based on the total estimated number of households in the area and the expected number of trips the households will make during a typical school-year weekday.

The survey design is based on a desired level of accuracy of +/- 10 percent with a confidence level of 90 percent for the total person trips in the survey area. Figure 1 shows the survey area. The number of households in McLennan County in 2007-2008 was estimated from the 2000 census and the Texas State Data Center (TSDC) population projections for McLennan County.

Table 1 shows the estimated number of households in the study area in 2006-2007, the number of households surveyed, and the distribution of the number of households surveyed stratified by household size and household income range.

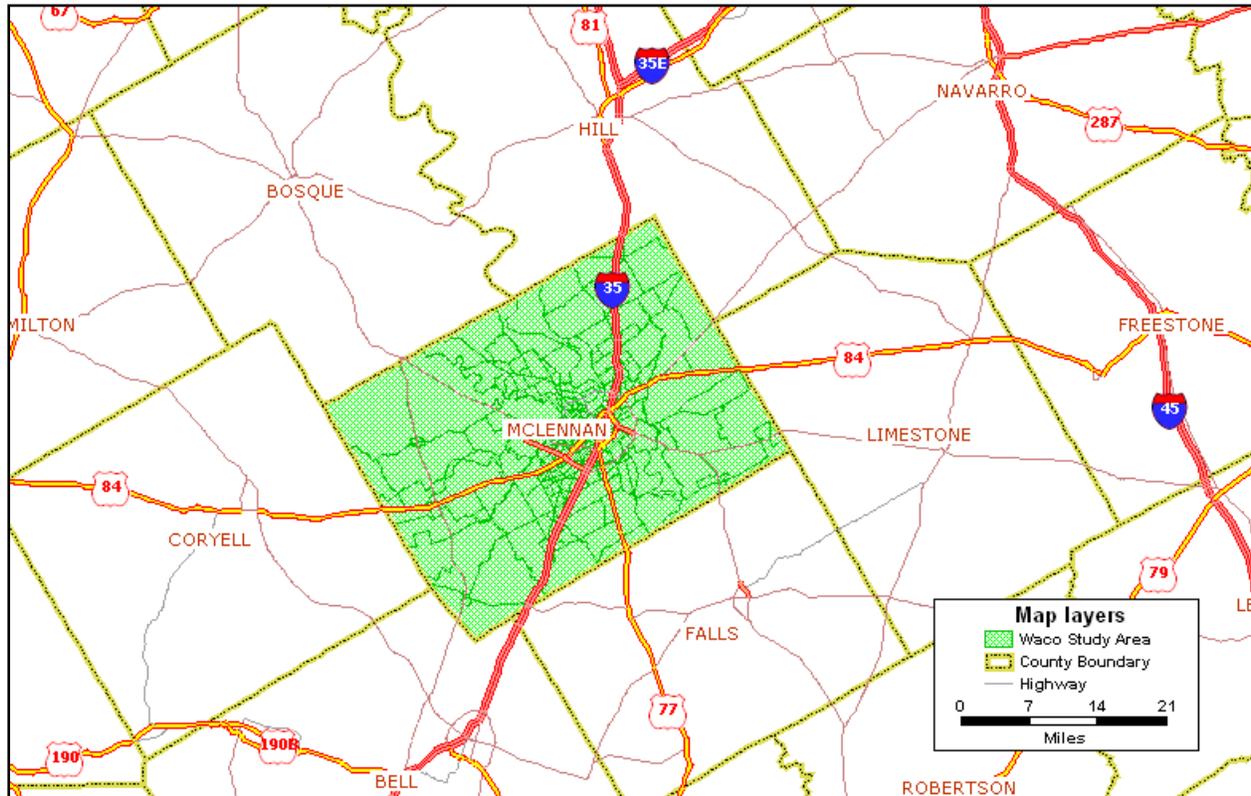


Figure 1. McLennan County Household Survey Area.

A total of 1,404 households were surveyed. The minimum number of households surveyed in any household size/income range cell was 12 and the maximum number surveyed was 141. The higher number of households surveyed in household sizes one and two is highly desirable due to the high number of households with one or two persons. Of the estimated 83,995 households in McLennan County, 26 percent are households with one person and 33 percent are households with two persons – 59 percent of the households are one- or two-person households.

Table 1. Estimated Number of 2006 Households, Number of Households Surveyed, and Percent of Surveyed Households, Stratified by Household Size and Income Range.

Income Range	Household Size					
	1	2	3	4	5+	Total
Estimated 2006-2007 Number of Households						
\$0 to \$17,499	10,004	4,956	2,184	1,335	1,042	19,521
\$17,500 to \$32,499	5,460	5,006	2,175	1,755	1,369	15,765
\$32,500 to \$49,999	3,360	6,577	3,419	2,486	1,940	17,782
\$50,000 to \$74,999	1,671	5,661	3,377	2,915	2,310	15,934
\$75,000 +	1,386	5,846	3,141	2,621	1,999	14,993
Totals	21,881	28,046	14,296	11,112	8,660	83,995
Number of Households Surveyed						
\$0 to \$17,499	54	69	17	12	13	167
\$17,500 to \$32,499	48	94	51	39	32	264
\$32,500 to \$49,999	30	116	59	44	56	305
\$50,000 to \$74,999	21	109	69	72	41	312
\$75,000 +	16	141	79	79	41	356
Totals	169	529	275	246	183	1,402
Percent of Households Surveyed						
\$0 to \$17,499	3.85	4.91	1.21	0.85	1.07	11.89
\$17,500 to \$32,499	3.42	6.70	3.63	2.78	2.28	18.81
\$32,500 to \$49,999	2.14	8.26	4.20	3.13	3.99	21.72
\$50,000 to \$74,999	1.50	7.76	4.91	5.13	2.92	22.22
\$75,000 +	1.14	10.04	5.63	5.63	2.92	25.36
Totals	12.05	37.67	19.58	17.52	13.18	100.00

Source: 2006-07 Waco Household Travel Survey and Texas Transportation Institute (TTI) Analysis.

HOUSEHOLD SURVEY RESULTS

This survey represents a sample of household demographic and travel characteristics for a Monday through Friday weekday during the school year in the fall of 2006 and the spring of 2007. The survey data was collected from travel diaries completed on a specified travel day for all occupants of 1,404 households located in the McLennan County area (Figure 1).

Key Points Regarding Household Survey Data

- The survey data is for an average weekday in the Fall of 2007 and the Spring of 2008.
- The survey data were tabulated only for persons who lived in the surveyed households. Persons living in group quarters, such as nursing homes, correctional facilities, or dormitories, or in households without phone service were not surveyed.
- The survey data are for persons of all ages unless otherwise noted.
- The survey data do not include non-household-based travel such as commercial vehicles or tourists or persons staying in hotels.
- The estimates for population and number of households are based on the expanded survey data and may differ from population and household estimates developed by other agencies.
- The survey data is for trips that began and ended within McLennan County. Trips that began inside the county area and ended outside the planning area or vice versa are summarized in the external station survey report.

Findings of the Survey

For the McLennan County area:

- 92 percent of the households had a vehicle available.
- 95 percent of the households had a licensed driver.
- Trip rates per household increased with household size, with household income, and with vehicle availability.
- The average vehicle occupancy was 1.5 persons per vehicle.
- Over 95 percent of all person trips were made in a personal-use vehicle.

- Of the household population that traveled, 64 percent drove a vehicle, 32 percent rode as a passenger in a vehicle, 2 percent walked, and less than 1 percent used public transportation.
- Just over 25 percent of the total household population did not make an internal trip within the planning area on their survey day.
- On average, each person made 3.2 person trips per day and each household made 8.5 person trips per day.
- The average person trip length was 5.8 miles and the average person trip duration was 8.8 minutes.
- The average vehicle trip length was 6.3 miles and the average vehicle trip duration was 9.4 minutes.
- The peak hour for household travel was from 7:01 a.m.-to-8:00 a.m. during which 13 percent of the trip starts occurred. The second highest hour for household trip starts was from 3:01 p.m.-to-4:00 p.m. when 11 percent of the daily trip starts occurred.
- Weekday school year household travel internal to the study area accounted for an estimated 4.49 million vehicle miles of travel (VMT).

HOUSEHOLD CHARACTERISTICS

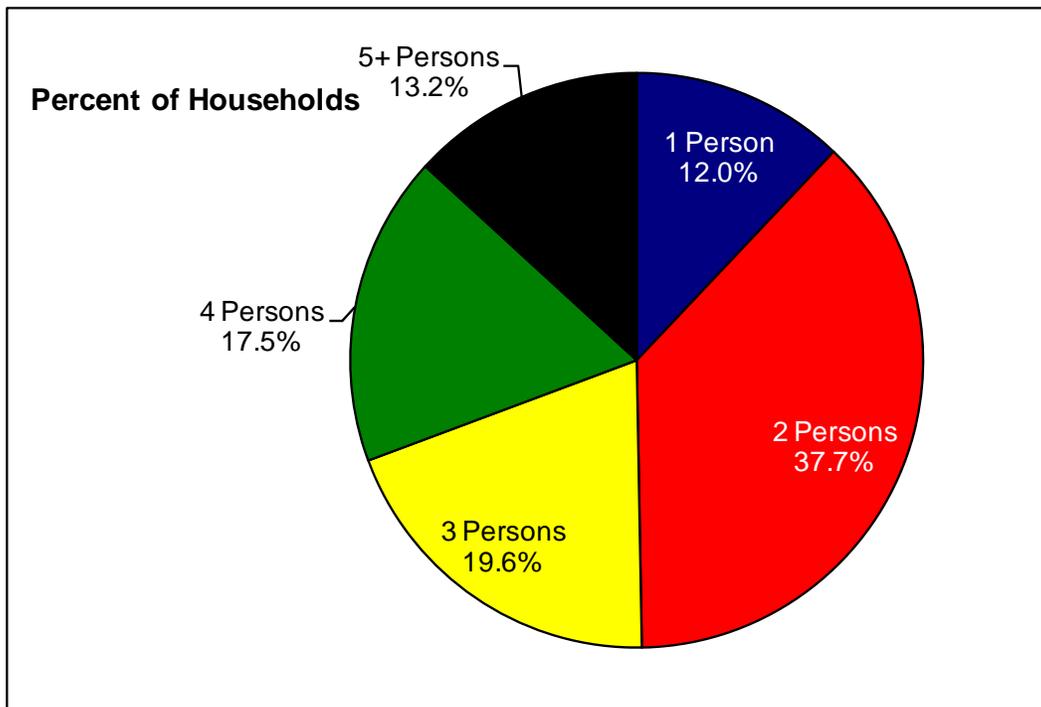
Characteristics of the household influence travel behavior. For example, household size, income, vehicles available, number of persons employed, and family life cycle affect the amount and the time-of-day that trips are made. For this survey, households include only those persons living in residences, and do not include persons living in group quarters. The figures in this section are for the expanded survey data.

Household Size

Figure 2 shows the distribution of households by household size for 2006-2007. Household size and household income range are the two household variables used to stratify the household trip rates calculated from the household travel survey. When forecasting future travel, the forecast population must be estimated by household size and household income range. Average household size in the McLennan County study area in 2006-2007 estimated from the survey was 2.7 persons per household, equal to the 2.7 persons per household in 1990. For the McLennan County travel model, three variables – household size, household income, and the number of

persons employed in the household – were used to stratify trip rates for the home-based work (HBW) trip purpose. For the home-based non-work (HBNW) and the non-home based (NHB) trip purposes, two variables – household size and household income – were used to stratify trip rates.

A typical household makes a certain number of trips on most days to meet household needs, for example, to purchase food and other necessities, to earn an income, to attend school, to visit friends and family, to receive medical care, and to attend events, etc. For this reason, the number of households is a better predictor of future travel than using the number of persons.

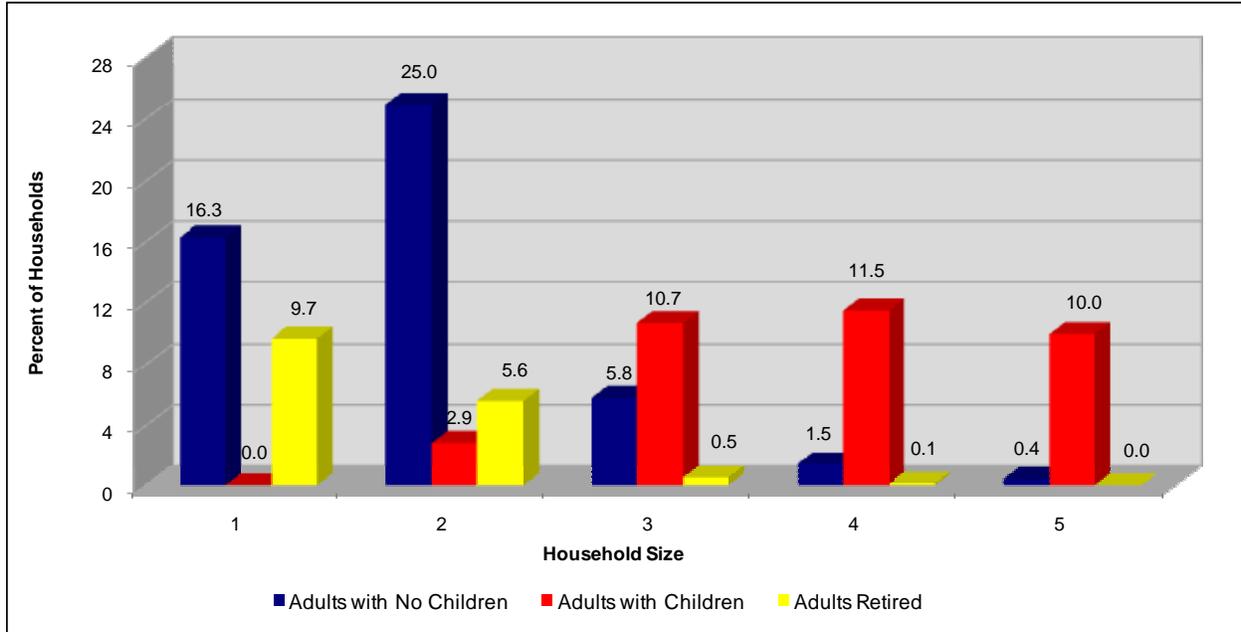


Source: McLennan County Household Travel Survey.

Figure 2. Distribution of Households by Household Size.

Household Life Cycle

Household life cycle influences the amount and time of travel. For example, households with children tend to make more trips than households without children. Households with working adults tend to make more trips than households with retired adults. There were an estimated 83,995 households in the McLennan County travel area in 2006-2007. Figure 3 shows the distribution of these 83,995 households by those with no children and not retired, those with children, and those with only retired persons. Over one third of the households (35 percent) have children, 49 percent of the households have no children, and 16 percent of the households were retired persons.

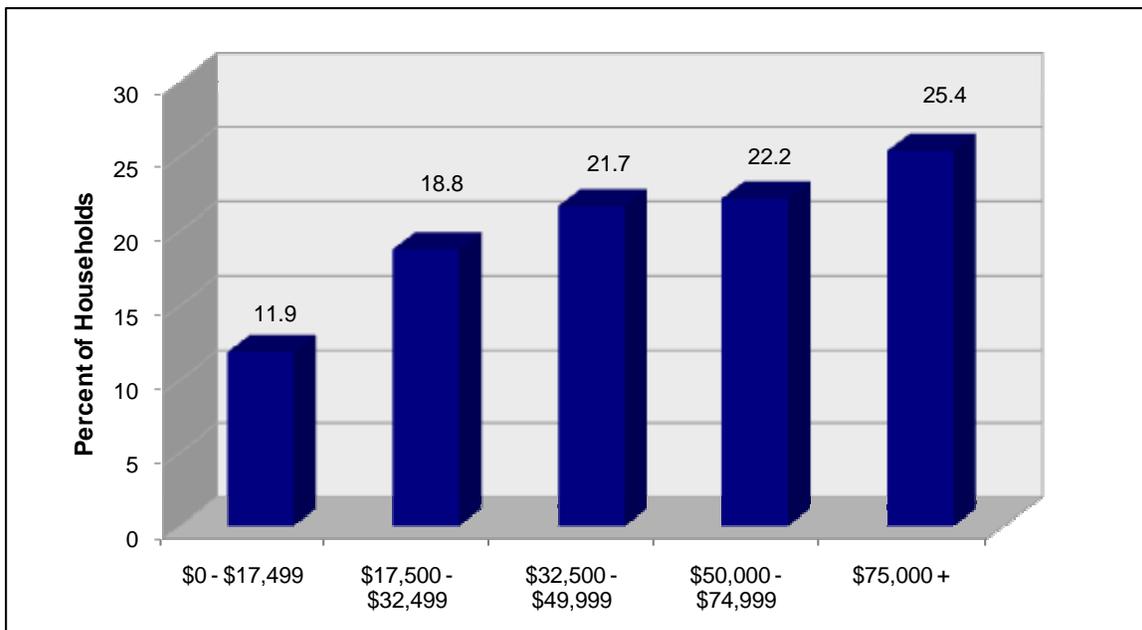


Source: McLennan County Household Travel Survey and TTI Analysis. Note: The data represents households within the travel survey area. The data does not include residents who did not report age. Adults are persons 18 years of age and older. Retired households have only retired persons. If one person in the household was retired and the other adult was employed, that household was not counted as a retired household.

Figure 3. Distribution of Households by Life Cycle.

Household Income

Household income and household size are the two primary variables used to estimate household trip rates. As household income increases, the amount of household travel tends to increase. Additionally, as income increases, vehicle ownership tends to increase and additional financial resources are available to the household to support increased travel. Figure 4 shows the distribution of the 83,995 expanded households in the survey by the combined annual household income range.

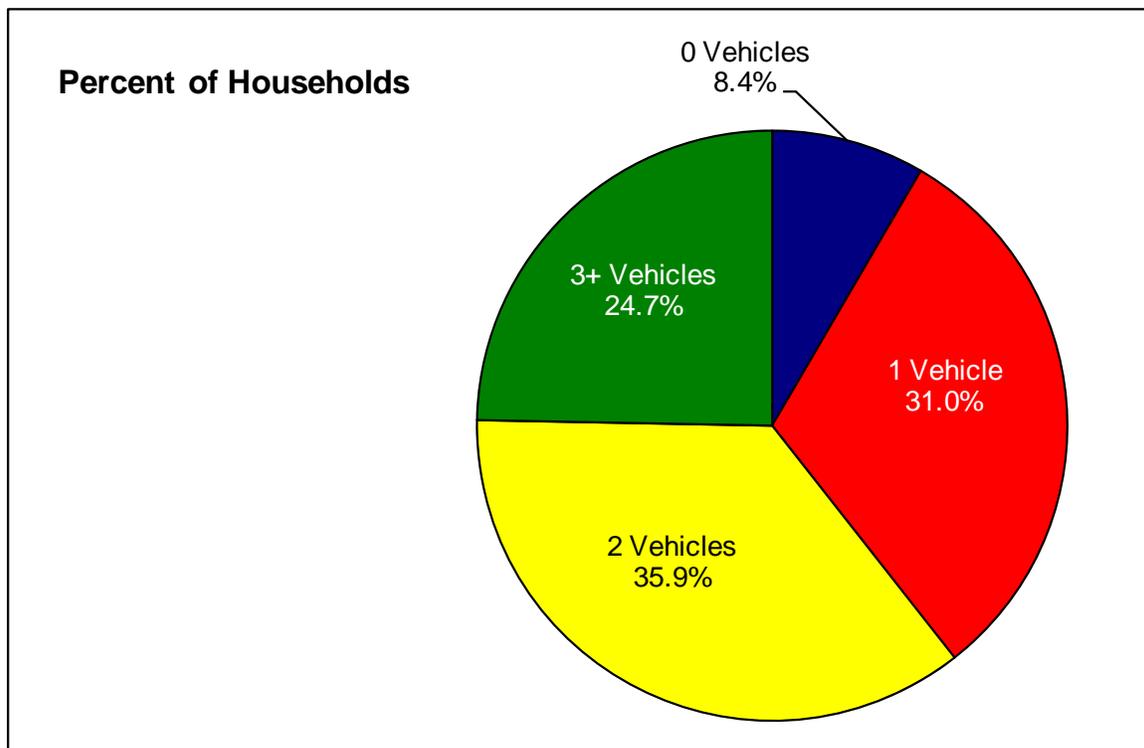


Source: McLennan County Household Travel Survey and TTI Analysis.

Figure 4. Distribution of Households by Household Income Range.

Household Vehicle Availability and Licensed Drivers

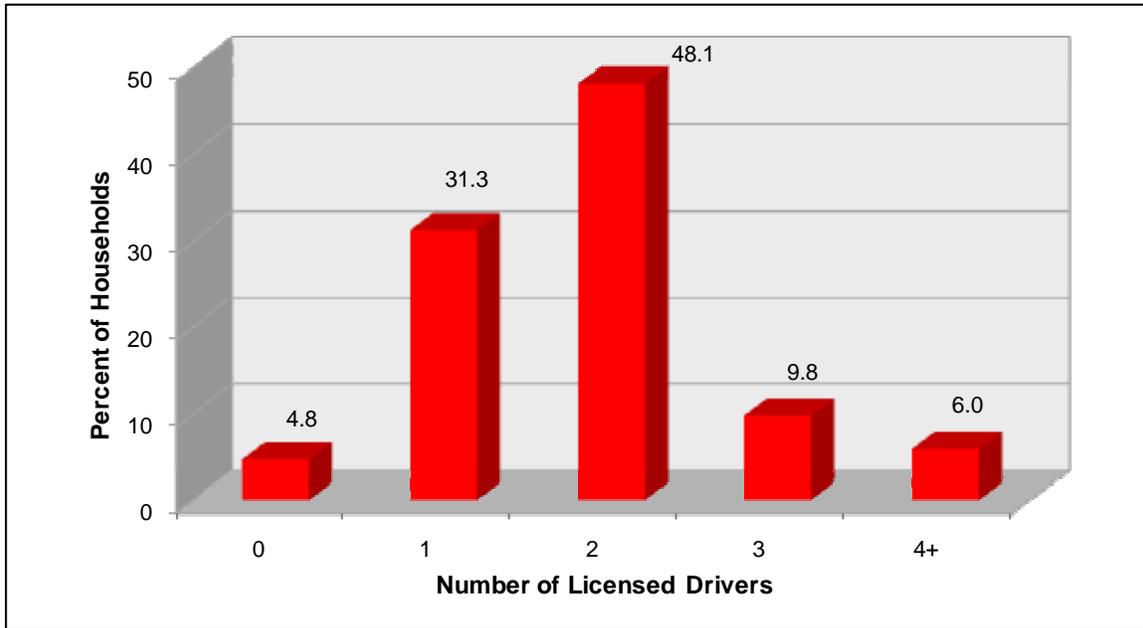
In general, as the number of vehicles available to the household increases, daily household travel increases. This household characteristic also impacts forecasting the demand for public transportation. As household vehicle availability increases, the household demand for public transportation tends to decrease. Figure 5 shows the distribution of the 83,995 expanded households in the survey by the number of vehicles available. Slightly more than 8 percent of the households did not have a vehicle available. The average number of vehicles available per household was 1.9.



Source: McLennan County Household Travel Survey and TTI Analysis. Note: A household vehicle is any motorized vehicle available to a household for travel including motorcycles, trucks, vans, automobiles, sport utility vehicles, etc.

Figure 5. Distribution of Households by Number of Vehicles Available.

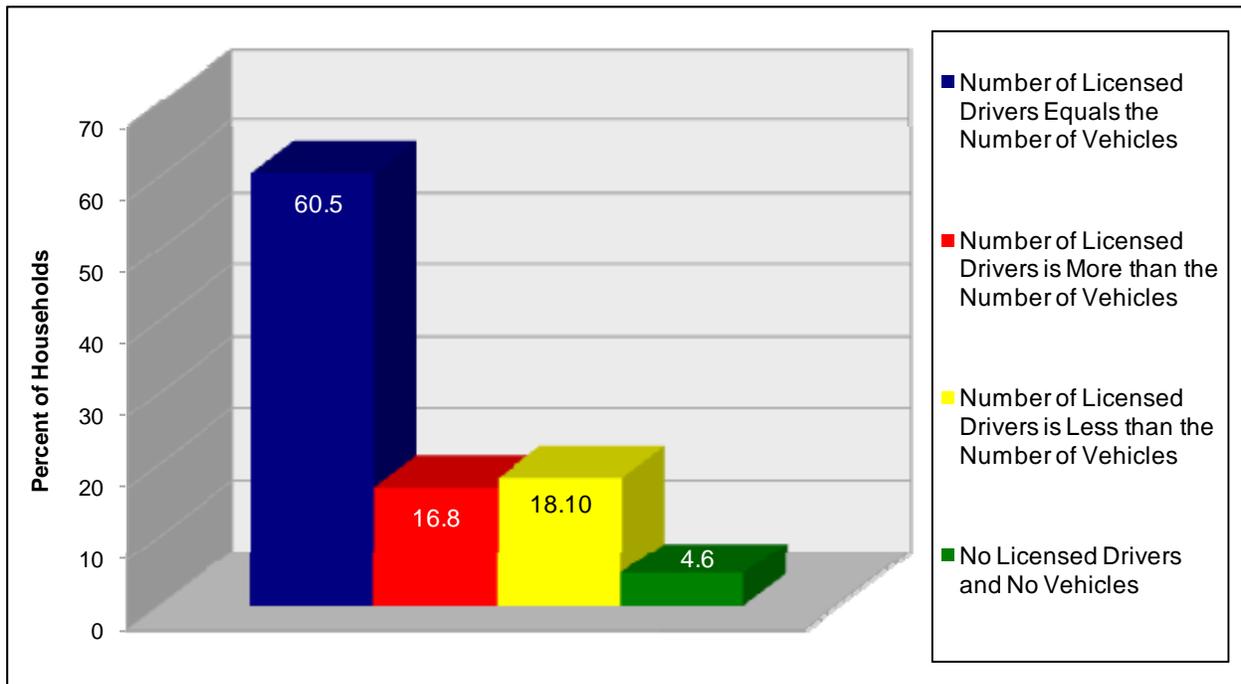
Figure 6 shows the distribution of the 83,995 expanded households by the number of licensed drivers per household. Less than 5 percent of the households did not have a licensed driver.



Source: McLennan County Household Travel Survey and TTI Analysis.

Figure 6. Distribution of Households by Number of Licensed Drivers.

Figure 7 shows the distribution of the 83,995 expanded households by the number of licensed drivers and the number of vehicles available. By far, for the majority of households (61 percent), the number of licensed drivers and the number of vehicles available is equal. For 18 percent of the households, the number of licensed drivers is less than the number of vehicles available, and for 17 percent of the households, the number of licensed drivers is greater than the number of vehicles available. Only 4 percent of the households have neither a licensed driver nor a vehicle available.

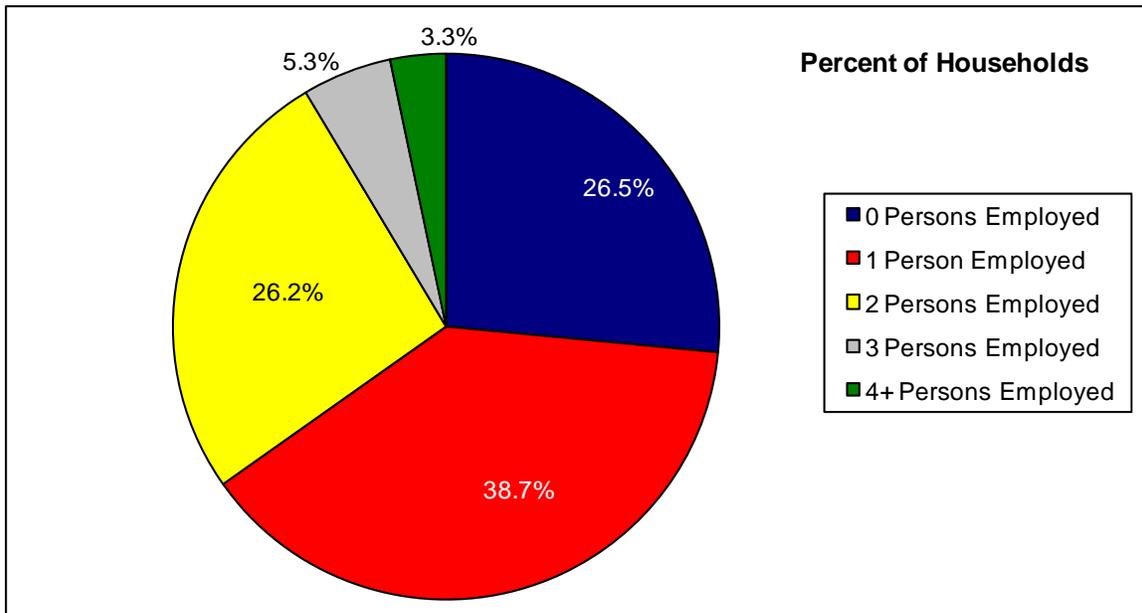


Source: McLennan County Household Travel Survey and TTI Analysis.

Figure 7. Distribution of Households by Licensed Drivers and Vehicle Availability.

Household Employment

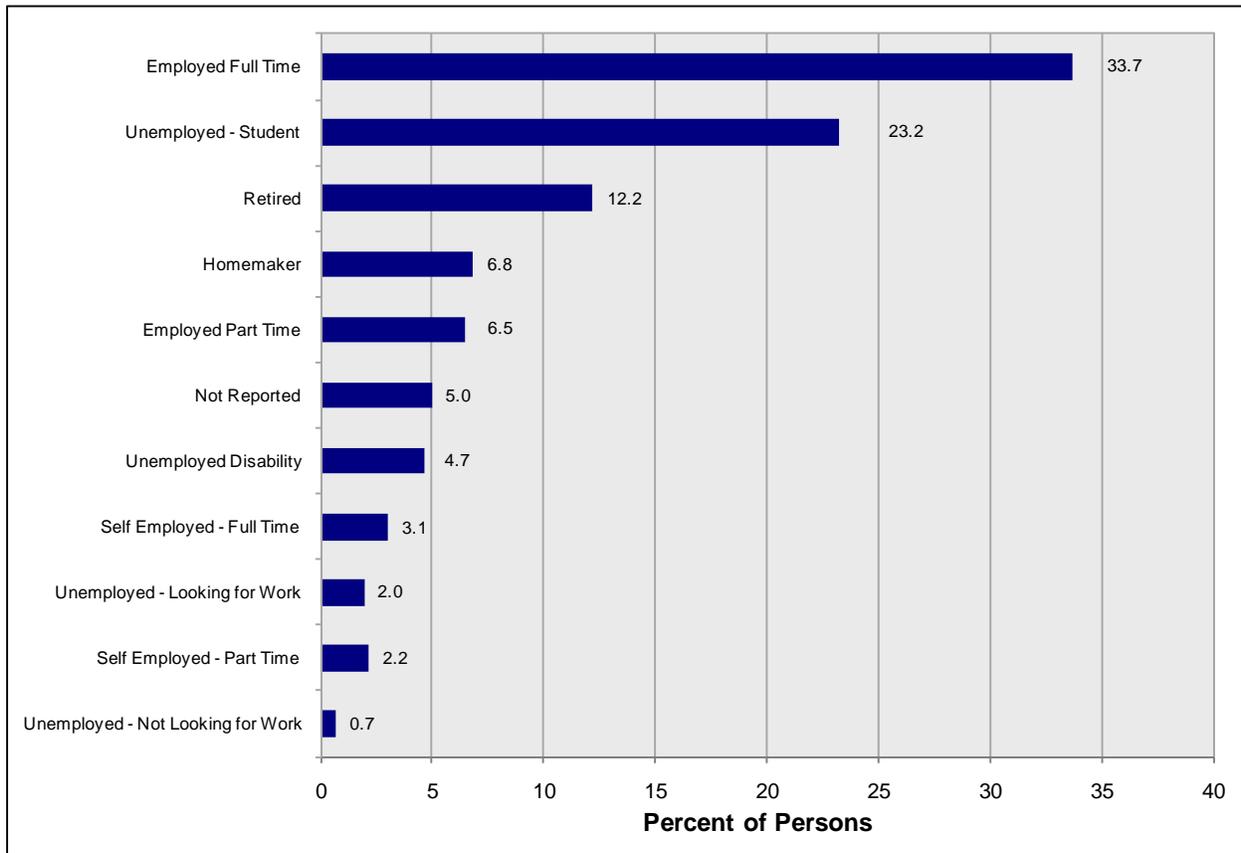
The 83,995 expanded households included 225,366 persons for an average of 2.7 persons per household. Figure 8 shows the distribution of the 83,995 expanded households by the number of persons employed.



Source: McLennan County Household Travel Survey and TTI Analysis.

Figure 8. Distribution of Households by Number of Persons Employed.

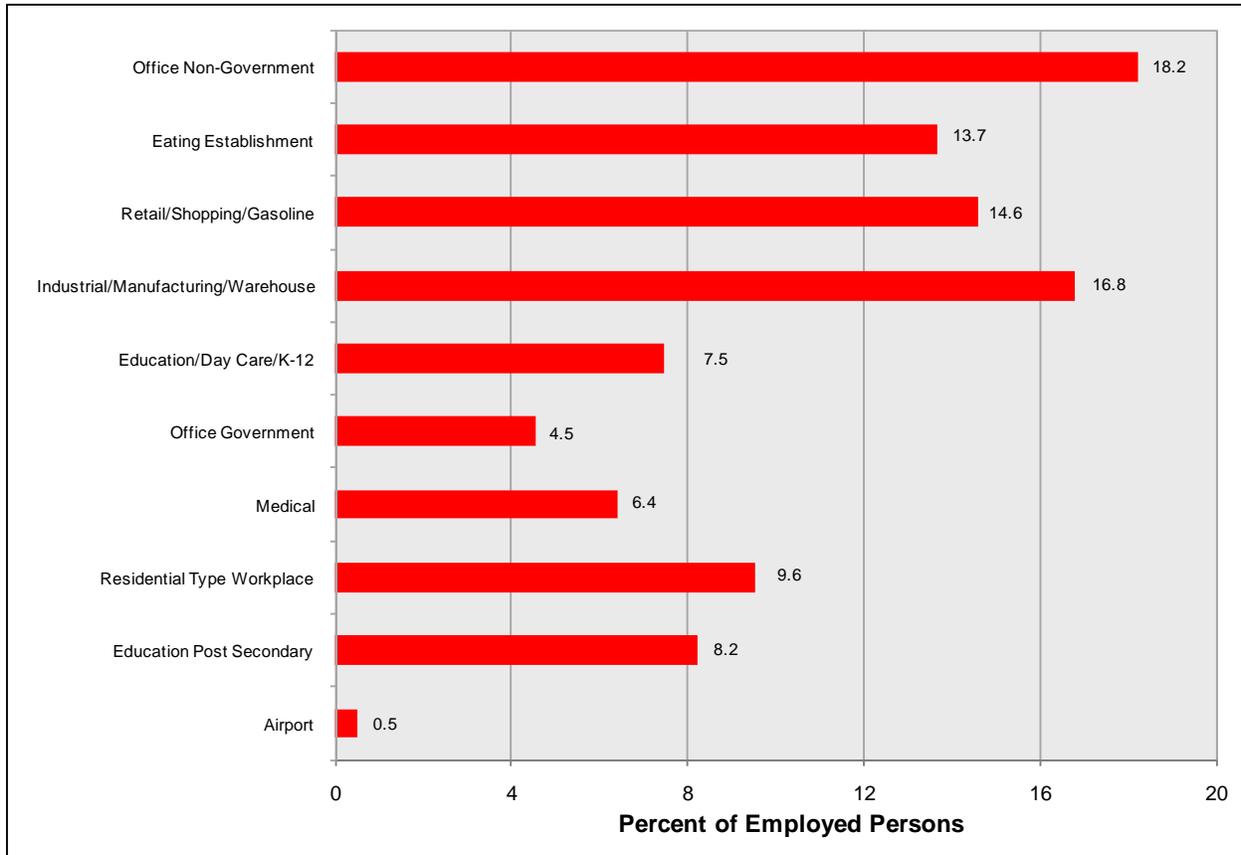
Figure 9 shows the distribution of all persons regardless of age by employment status. More than 33 percent of the population is employed full time and 23 percent of the population is students. More than 12 percent of the population is retired.



Source: McLennan County Household Travel Survey and TTI Analysis.

Figure 9. Distributions of Persons by Employment Status.

Figure 10 shows the distribution of the employed persons by the type of employer. The 83,993 households had 102,302 employed persons for an average of 1.22 employed persons per household. The employer-type “office non-government” includes the largest percentage of employed persons, having more than 18 percent of those employed. The “industrial/manufacturing/warehouse” employer-type accounted for the second largest percentage of employed persons, reporting over 16 percent.

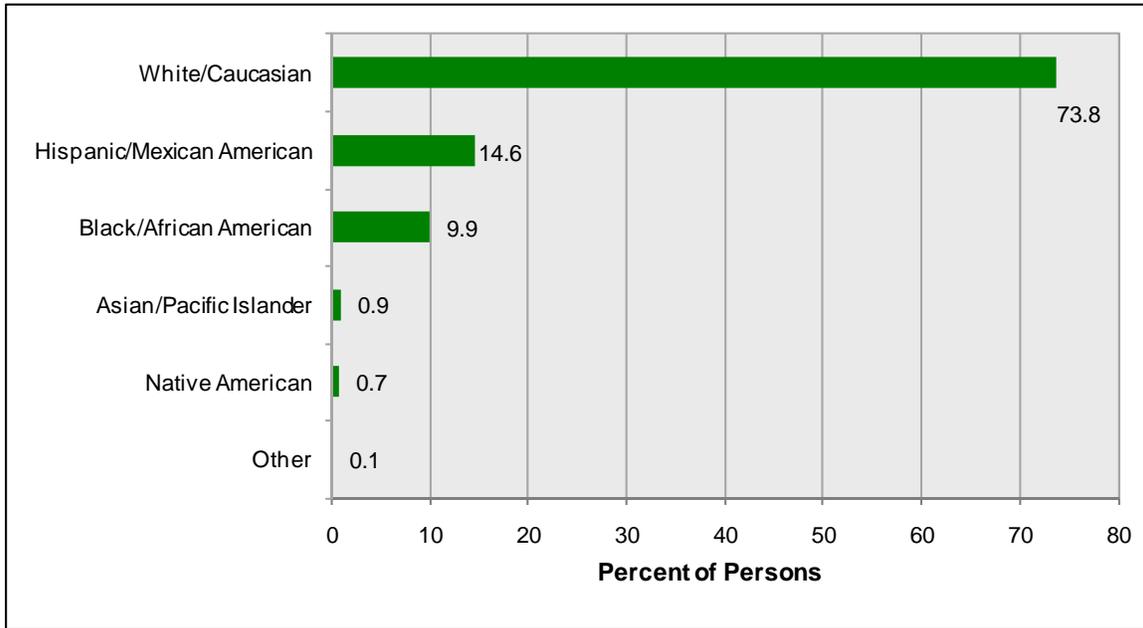


Source: McLennan County Household Travel Survey and TTI Analysis.

Figure 10. Distribution of Employed Persons by Employer Type.

Ethnicity

Figure 11 shows the distribution of the 225,366 persons by ethnicity.



Source: McLennan County Household Travel Survey and TTI Analysis.

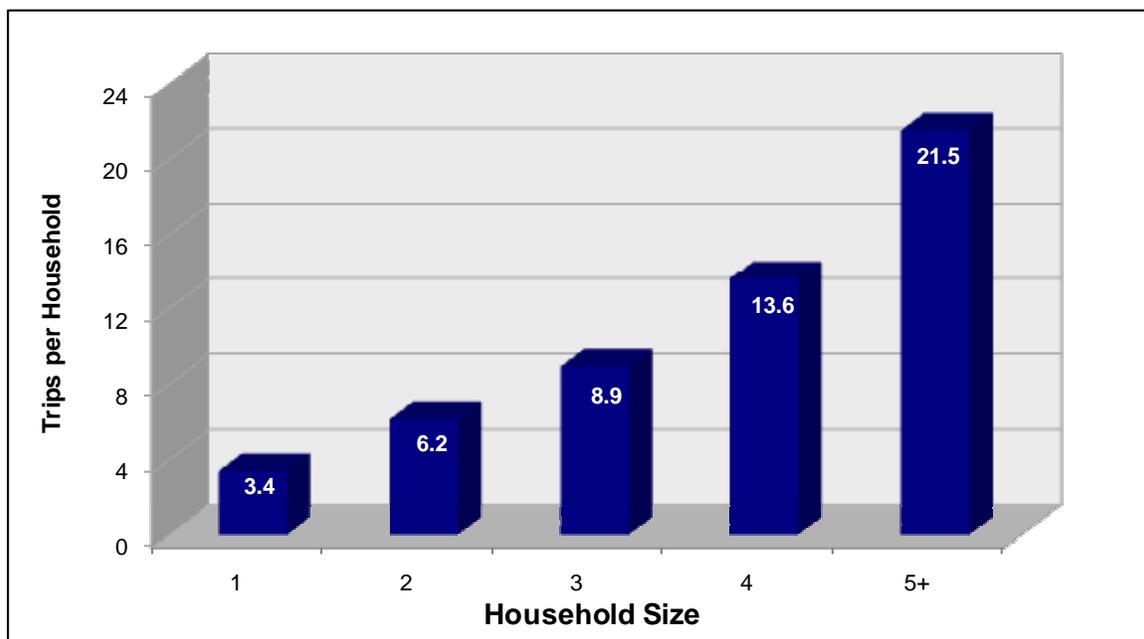
Figure 11. Distribution of Persons by Ethnicity.

TRAVELER CHARACTERISTICS

The previous section reported on a variety of household and person characteristics obtained from the household travel survey. In this section, these household and person characteristics are related to household travel characteristics. Household size, household income, household life cycle, household vehicle availability, household licensed drivers, and household employment all affect the amount of household travel.

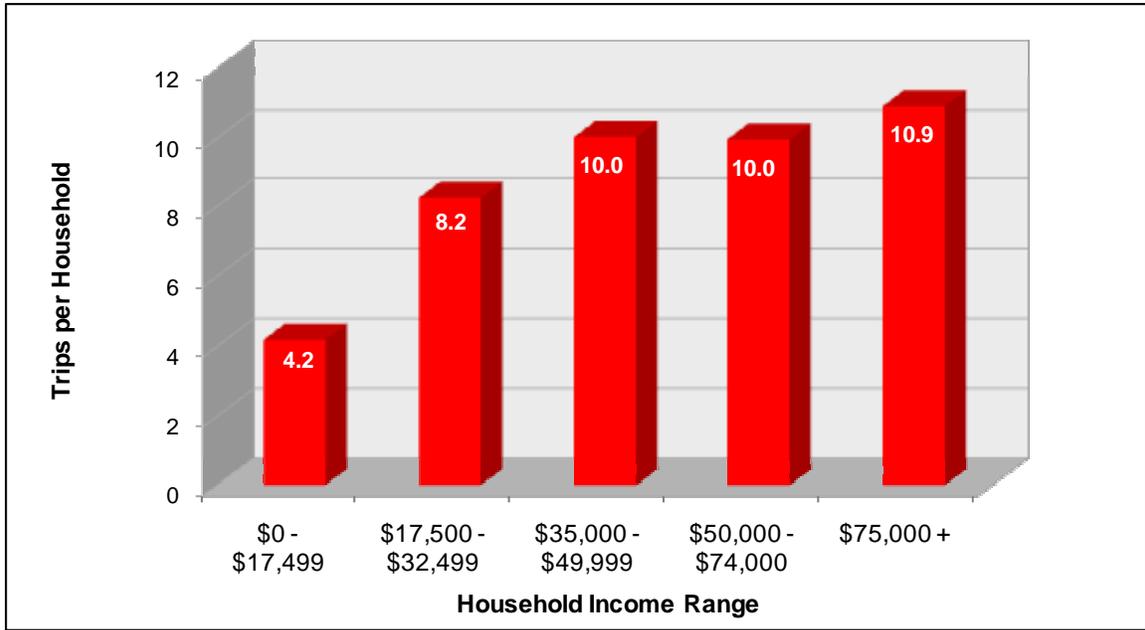
Household Trip Rates and Vehicle Occupancy

The household trip rates in this section are for person trips made in a vehicle either as the driver or as a passenger. Figure 12 shows household trip rates as a function of household size. As the household size increases, household trip rates increase and become large for large household sizes. For travel forecasting applications, households with five or more household members are grouped and an average trip rate is used for the group. Figure 13 shows the household trip rates as a function of the household income range. As expected, as household income increases, the household trip rate increases.



Source: McLennan County Household Travel Survey and TTI Analysis.

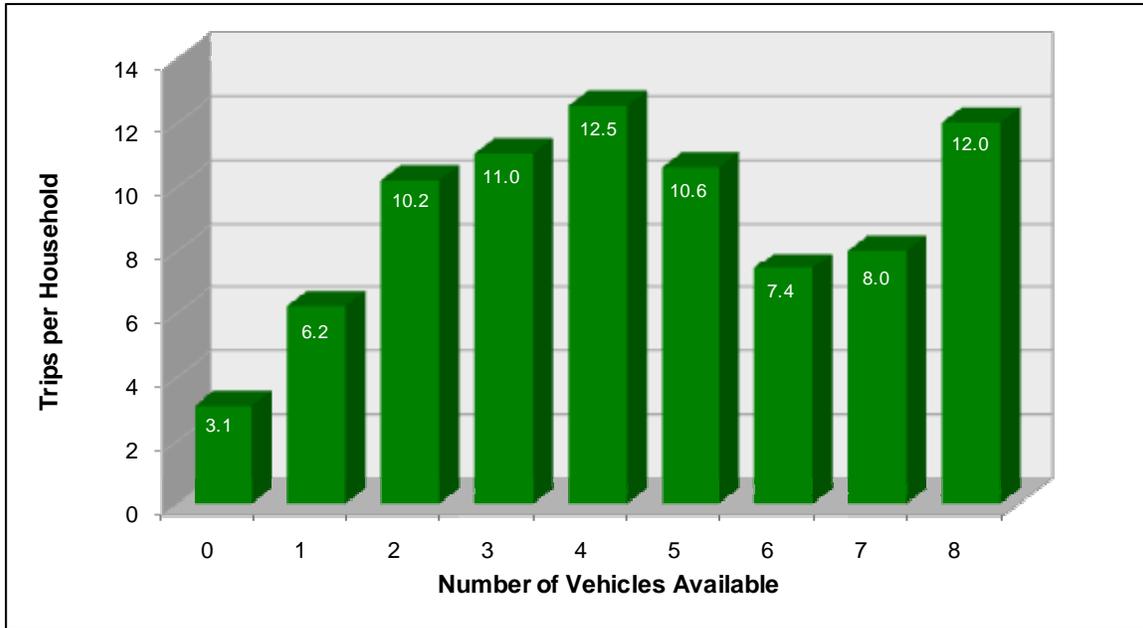
Figure 12. Household Trip Rates by Household Size.



Source: McLennan County Household Travel Survey and TTI Analysis.

Figure 13. Household Trip Rates by Household Income Range.

Figure 14 shows the household trip rates as a function of the number of vehicles available to household members for travel. Again, as expected, as the number of vehicles available to the household increases, the household trip rate increases, but the rate increases at a lower rate after two vehicles. Note that households with no vehicle available do make a meaningful number of trips.



Source: McLennan County Household Travel Survey and TTI Analysis.

Figure 14. Household Trip Rates by Number of Vehicles Available.

Table 2 shows the person trip rates cross classified by household size and household income for all internal trip purposes combined, that is, trips that begin and end inside the household travel survey area. These trip rates are for all trips by all modes including transit, bicycle, and walk trips. For travel forecasting applications, the cross-classified trip rates are disaggregated by trip purpose into HBW trips, HBNW trips, and NHB trips. (See the terminology section for the definitions of these terms.) As a part of the travel forecasting process, the person trips are divided among the modes during the mode split step. The average, internal to the McLennan County area, person trip rate for all households was 8.5 trips per household.

Table 2. Person Trip Rates by Household Size and Household Income.

Household Income Range	Household Size				
	1	2	3	4	5 +
\$0 - \$17,499	2.10	3.59	6.24	10.30	14.99
\$17,500 - \$32,499	3.26	5.60	11.19	14.85	24.77
\$32,500 - \$49,999	5.41	5.34	11.24	16.82	23.17
\$50,000 - \$74,999	5.56	7.14	6.81	12.69	21.28
\$75,000 +	5.93	8.78	9.12	12.49	21.38

Source: McLennan County Household Travel Survey.

Table 3 shows the average vehicle occupancy for person trips made in private vehicles by household size and by household income range. The average vehicle occupancy for all households was 1.5 persons per vehicle.

Table 3. Average Vehicle Occupancy by Household Size and Household Income.

Household Income Range	Household Size				
	1	2	3	4	5 +
\$0 - \$17,499	1.12	1.12	1.28	1.72	2.30
\$17,500 - \$32,499	1.19	1.25	1.63	2.26	2.49
\$32,500 - \$49,999	1.05	1.23	1.49	1.70	2.66
\$50,000 - \$74,999	1.19	1.47	1.18	1.52	1.82
\$75,000 +	1.18	1.18	1.23	1.34	1.70

Source: McLennan County Household Travel Survey.

Travel by Age Cohort

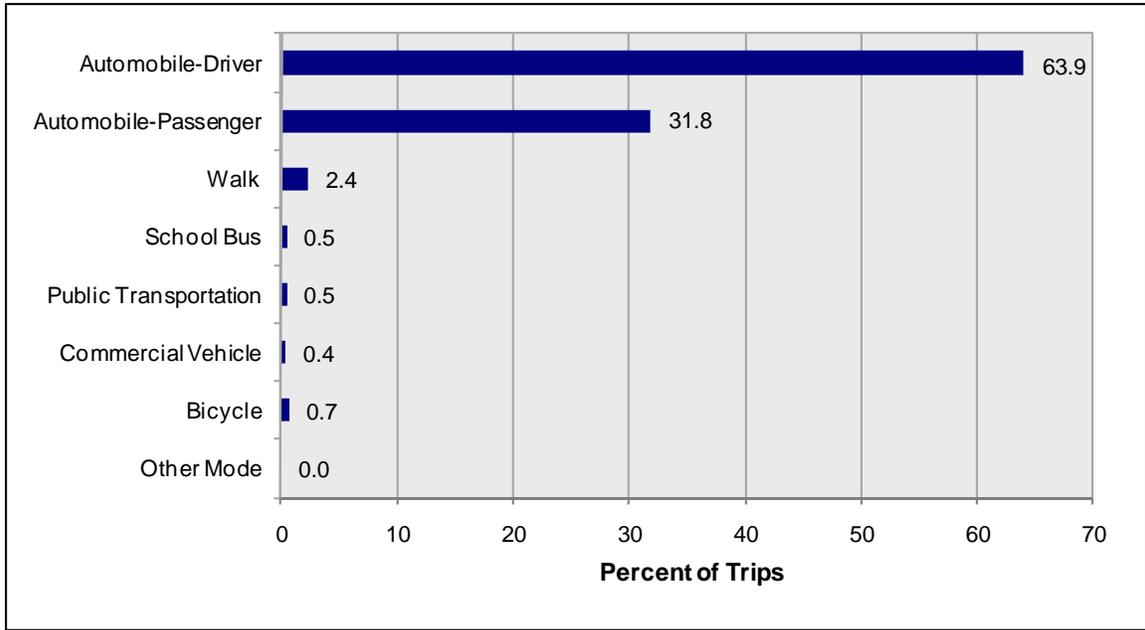
A total of 225,366 persons who reported their age were represented in the expanded household survey. Table 4 shows the number of persons and distribution of persons by age cohort that did not make any internal trips on their survey day. As expected, older persons are less likely to travel than are younger persons, but the older population is mobile and contribute significantly to the amount of household travel. The rather high percentage of persons making zero internal trips in the 35-39 and 50-54 age cohort probably is due to under reporting or not reporting of trips by this age cohort.

Table 4. Number of Persons, Percent of Persons, and Percent of Persons Making Zero Trips by Age Cohort.

Age Cohort	Number of Persons	Percent of Persons	Number of Persons Making Trips	Number of Persons Making Zero Internal Trips	Percent of Persons Making Zero Internal Trips
0-15	51,410	22.81	40,426	10,984	21.37
16-19	17,300	7.68	14,474	2,826	16.34
20-24	21,862	9.70	16,305	5,557	25.42
25-29	16,984	7.54	13,588	3,397	20.00
30-34	13,272	5.89	10,896	2,376	17.90
35-39	14,407	6.39	9,426	4,982	34.58
40-44	12,173	5.40	10,148	2,026	16.64
45-49	15,326	6.80	11,179	4,148	27.07
50-54	13,707	6.08	8,917	4,789	34.94
55-59	12,307	5.46	10,251	2,056	16.71
60-64	8,827	3.92	6,228	2,599	29.44
65-69	7,110	3.15	5,261	1,849	26.00
70-74	6,394	2.84	4,183	2,211	34.58
75-79	5,296	2.35	2,710	2,587	48.85
80 +	8,989	3.99	5,005	3,985	44.33
Total	225,364	100.00	168,997	56,372	25.01

MODE OF TRAVEL

The modes of travel were household automobile-driver, household automobile-passenger, school bus, walk, public transportation, bicycle, carpool/vanpool, and commercial vehicle. Figure 15 shows the distribution of person trips by mode. Automobile travel accounted for 95 percent of the person trips. Interestingly, commercial vehicle trips accounted for less than 1 percent of the person trips and the 'walk' mode accounted for slightly more than 2 percent of the person trips. The surveyed households made little use of public transportation, accounting for less than one percent of the person trips.



Source: McLennan County Household Travel Survey and TTI Analysis.

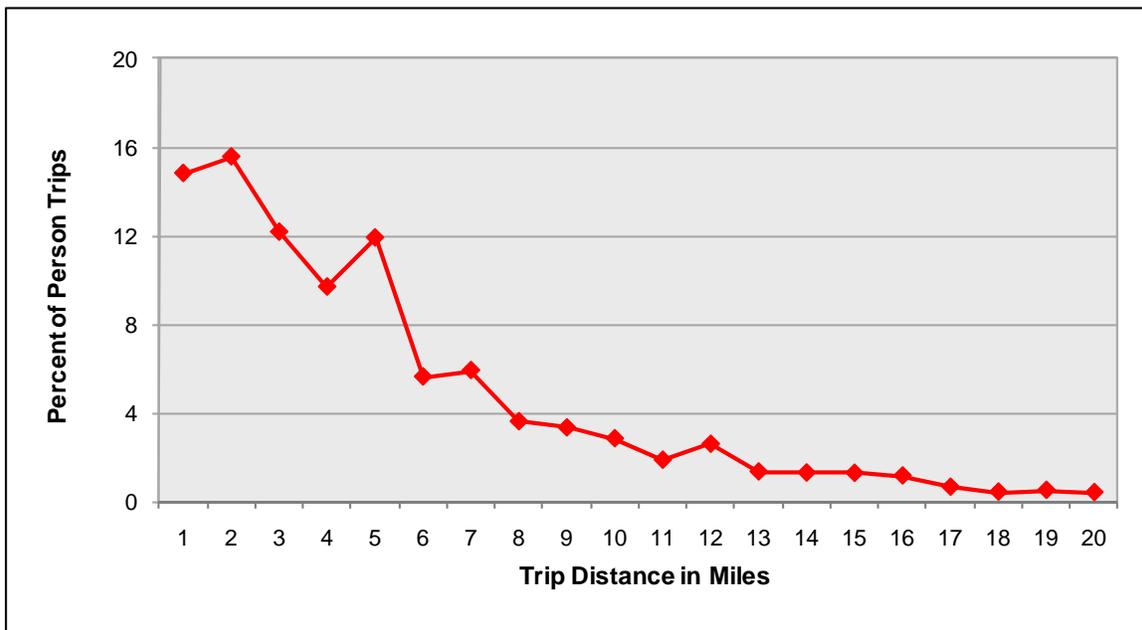
Figure 15. Distribution of Person Trips by Mode of Travel.

AMOUNT OF TRAVEL

Several measures are used to record the amount of travel – the number of person trips, the number of vehicle trips, the trip distances in miles, the trip durations or travel times in minutes, and the VMT.

Trip Distance

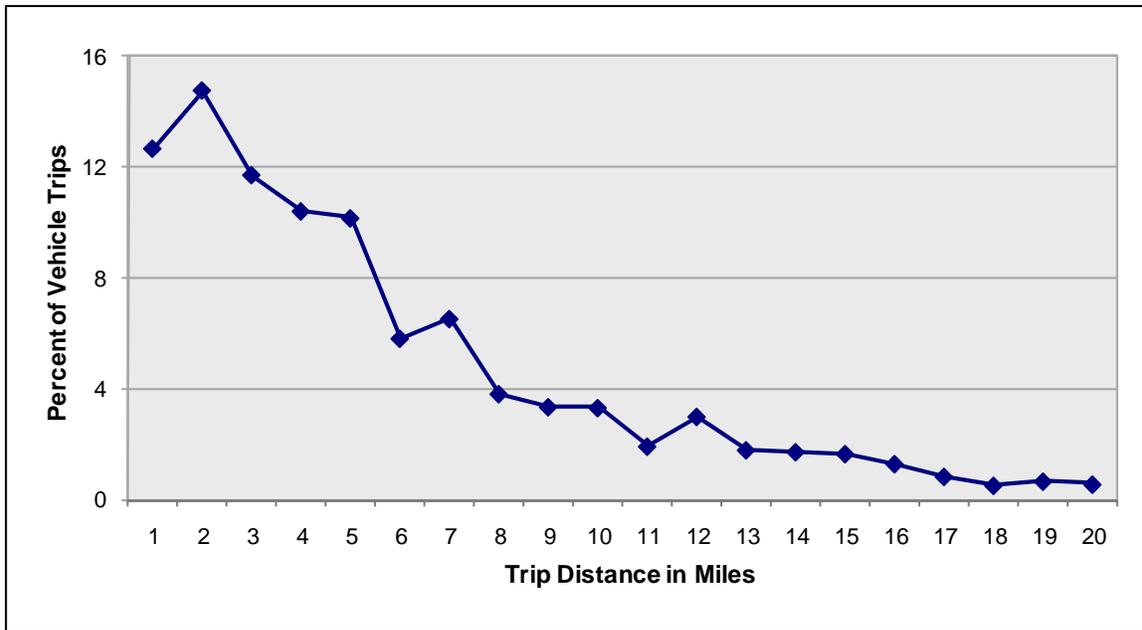
Figure 16 shows the distribution of person trips by the length of the trip in miles. The distribution is for internal person trips, trips beginning and ending inside the McLennan County study area. The average person trip length was 5.8 miles.



Source: McLennan County Household Travel Survey and TTI Analysis.

Figure 16. Distribution of Person Trips by Trip Distance in Miles.

Figure 17 shows the distribution of vehicle trips by the length of the trip in miles. The average vehicle trip length was 6.3 miles. For travel demand modeling purposes, the travel modeler needs data about the distribution of vehicle trips in miles and the average vehicle trip length in miles for each internal trip purpose. Distributions similar to Figure 17 are prepared for each internal trip purpose.

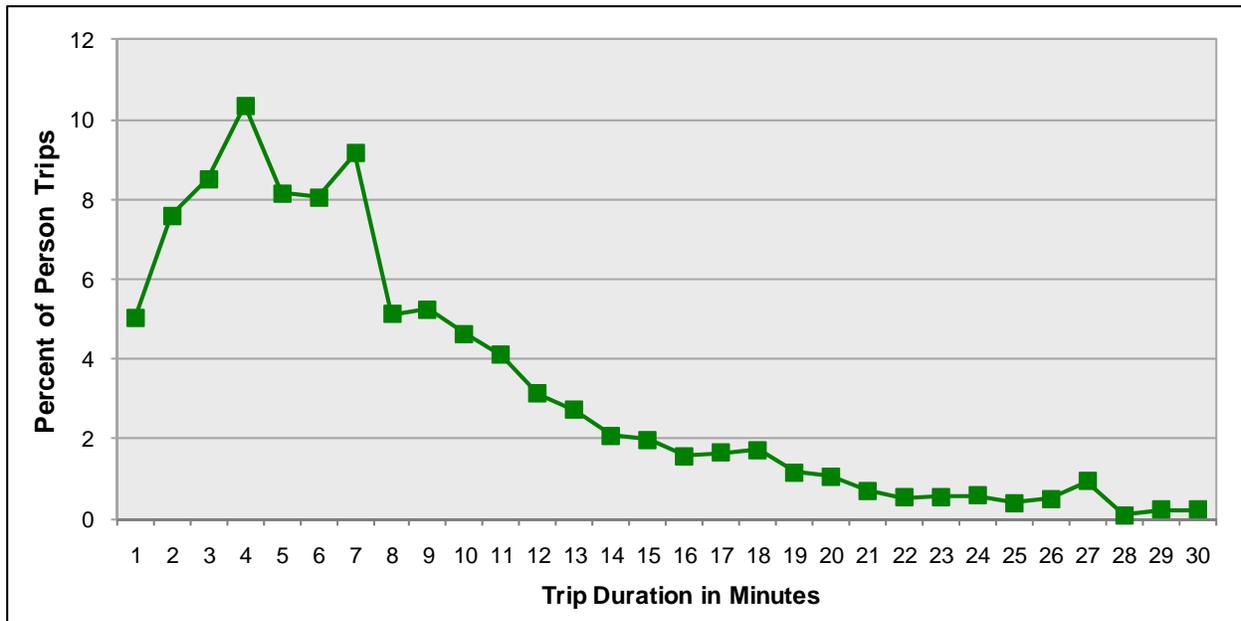


Source: McLennan County Household Travel Survey and TTI Analysis.

Figure 17. Distribution of Vehicle Trips by Trip Distance in Miles.

Trip Duration

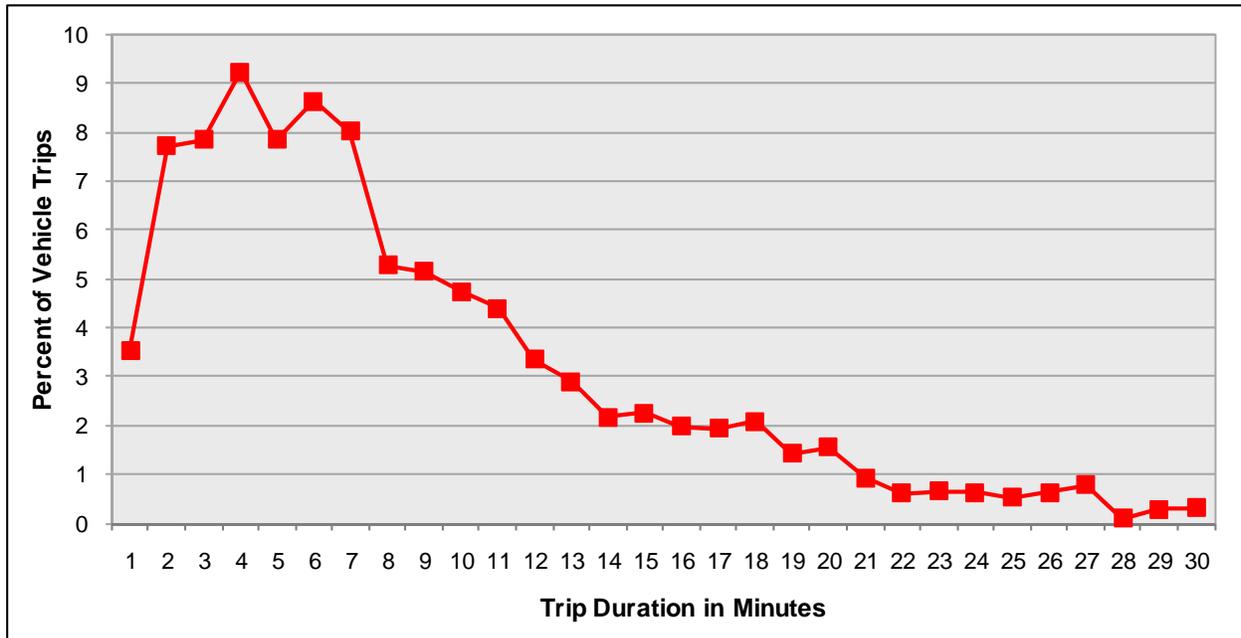
Figure 18 shows the distribution of person trips by the duration of the trip in minutes. The distribution is for internal person trips, trips beginning and ending inside the two-county study area. The average person trip duration was 8.8 minutes.



Source: McLennan County Household Travel Survey and TTI Analysis.

Figure 18. Distribution of Person Trips by Trip Duration in Minutes.

Figure 19 shows the distribution of vehicle trips by the duration of the trip in minutes. The average vehicle trip duration was 9.4 minutes.



Source: McLennan County Household Travel Survey and TTI Analysis.

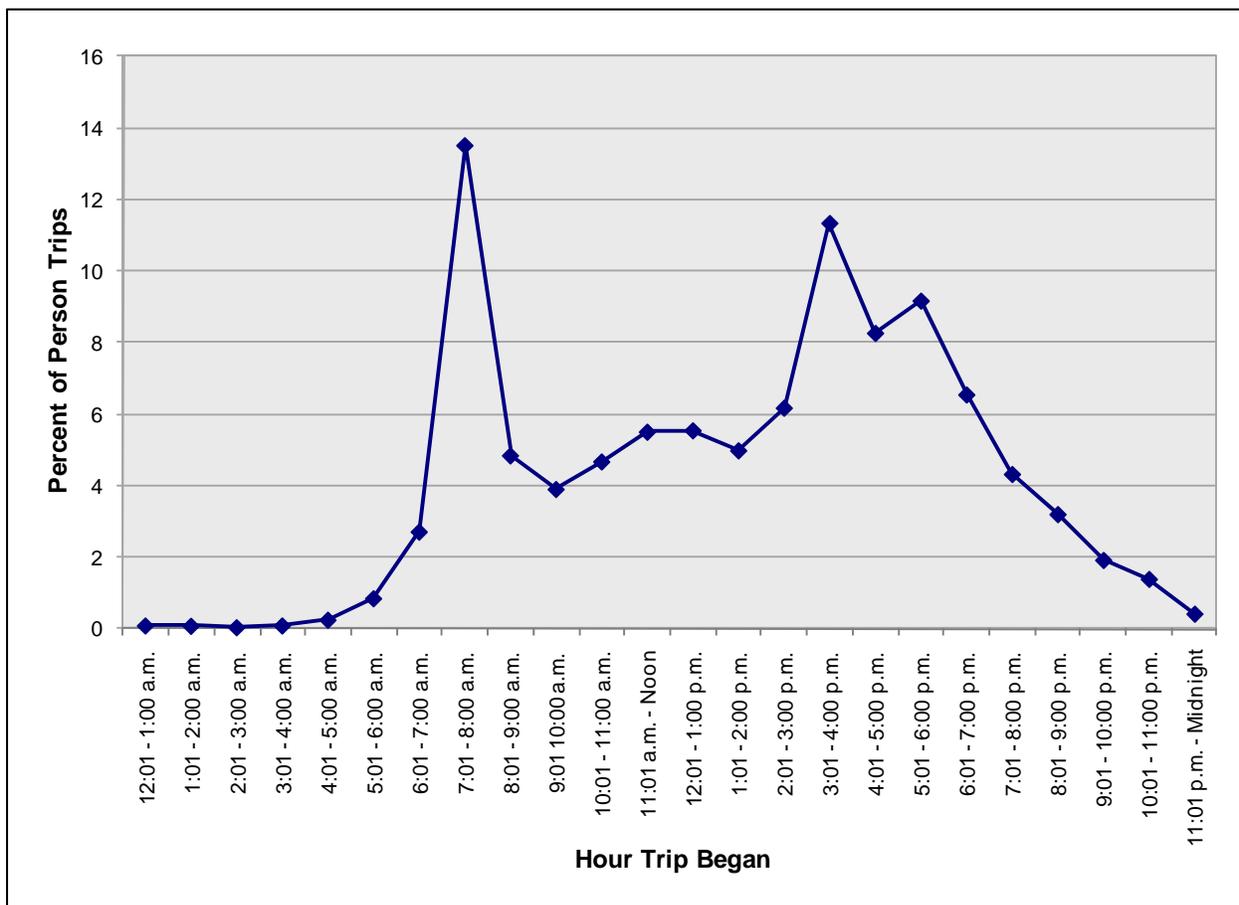
Figure 19. Distribution of Vehicle Trips by Trip Duration in Minutes.

Vehicle Miles of Travel

VMT is calculated as the product of the average vehicle trip length in miles and the number of vehicle trips. For household trips internal to the study area, the estimated VMT is 4,490,426 miles per school-year weekday. This is not the total VMT for the study area, as the VMT associated with external-local, external-through, commercial vehicle, visitor travel, and intrazonal trips are not included in the estimate.

TIME OF TRAVEL

The time of travel is a function of the activity to be accomplished. The start times for trips to work and to school are dictated by the time that work and school begin. For other activities, such as trips to shop or for recreation, the trip start times are flexible. As travel during peak periods becomes more congested, some drivers choose to make trips earlier or later to avoid the most congested travel time. Figure 20 shows the distribution of trip start times for a 24-hour weekday during the school year. The morning peak period, 7:01 a.m.-to-8:00 a.m., has the highest percentage (13.5) of daily trip starts. During the morning peak period, trips from home to work and from home to school are the primary destinations. The second highest percentage (11.3) of trip starts occur during the hour of 3:01 p.m.-to-4:01 p.m. During this hour, trips from school to home are the primary destinations. Trip starts during the hour from 5:01 p.m.-to-6:00 p.m., which are trips from work to home, has the third highest percentage (9.2) of daily trip starts.

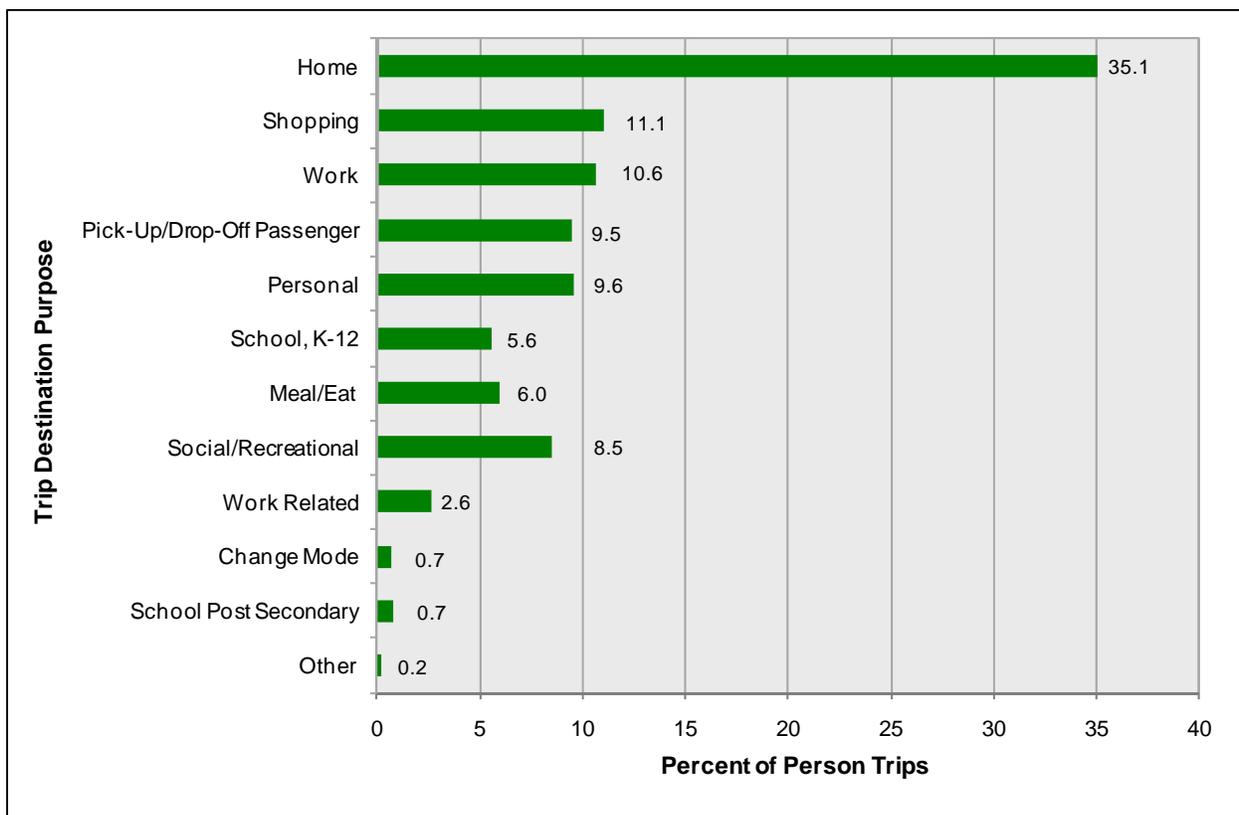


Source: McLennan County Household Travel Survey and TTI Analysis.

Figure 20. Distribution of Person Trip Start Times by Hour of the Day.

TRAVEL PURPOSE

As a part of their travel diary, each household member was asked to identify from a list of choices what they did at each trip destination. The information about the trip destination was used to categorize the trip by trip purpose. In travel demand modeling, typically there are three internal trip purposes – HBW, HBNW, and NHB trips. Figure 21 shows the distribution of person trips by the trip destination purposes used in the survey. As would be expected, the most frequent trip destination was the return home trip.



Source: McLennan County Household Travel Survey and TTI Analysis.

Figure 21. Distribution of Person Trips by Trip Destination Purpose.

Type of Place at Trip Destination

Closely related to the travel purpose and what the traveler did at the destination end of the trip is information on the type of place or business that was at the destination end of the trip. This information is used by the travel demand modeler to develop trip attraction rates for various types of land use. In travel demand modeling, attractions are typically grouped into three categories – basic, retail, and service. Table 5 shows the distribution of person trips by the types of places identified in the survey for the destination end of the trip.

Table 5. Number of Person Trips and Distribution of Person Trips by Type of Place at Trip Destination.

Type of Place	Person Trips	Percent of Person Trips
Residential	68,826	9.66
Residential Type Work Place	1,451	0.20
Construction Site	6,455	0.91
Transportation Stop	3,254	0.46
Automotive Dealer/Repair	8,439	1.18
Bank/Financial Institution	13,693	1.92
Barber/Beauty/Nail Salon	3,340	0.47
Bookstore/Newsstand	1,236	0.17
Convenience/Drug Store	18,450	2.59
Government Offices	15,267	2.14
Offices Non-Government	43,163	6.06
Grocery	43,872	6.16
Health Club	6,118	0.86
Medical Facility/Hospital	38,440	5.39
Movie Theater/Cinema	3,476	0.49
Restaurant/Fast Food, Bar and Grill	68,230	9.58
Educational – 12 th Grade or Lower	152,584	21.41
Educational – College, Trade, Etc.	27,585	3.87
Shopping Mall/Department Store	63,295	8.88
Gas Station	9,489	1.33
Airport	774	0.11
Other	115,117	16.16
Total	712,554	100.00

Source: McLennan County Travel Survey and TTI Analysis.

WHERE PEOPLE TRAVELED

The geographic distribution of internal person trips within the study area and within the sub-regions is shown in Figures 23-32.

Figure 22 shows McLennan County and the nine sub-regions. Figure 23 shows the number of person trip interchanges between Area 1 and Areas 2-9. Figure 24 shows the number of person trip interchanges between Area 2 and Area 1 and Areas 3-9. Figure 25 shows the number of person trip interchanges between Area 3 and Areas 1-2 and Areas 4-9. Figure 26 shows the number of person trip interchanges between Area 4 and Areas 1-3 and Areas 5-9. Figure 27 shows the number of person trip interchanges between Area 5 and Areas 1-4 and Areas 6-9. Figure 28 shows the number of person trip interchanges between Area 6 and Areas 1-5 and Areas 7-9. Figure 29 shows the number of person trip interchanges between Area 7 and Areas 1-6 and Areas 8-9. Figure 30 shows the number of person trip interchanges between Area 8 and Areas 1-7 and Area 9. Figure 31 shows the number of person trip interchanges between Area 9 and Areas 1-8. Figure 32 shows the percent of person trips that remain within each sub-area.

Following is a description of the McLennan Area Sub-Regions:

Area 1 – This section of The Central Business District is bounded by S. 18th Street on the north; LaSalle Ave. on the east; N. Valley Mills Dr. on the south, and US 84 on the west.

Area 2 – This section of the Central Business District is bounded by Loop 484 on the north, LaSalle Ave. on the east; S. 17th Street on the south; and US 84 on the west.

Area 3 – is bounded by Loop 340 on the east and on the south; IH-35 and LaSalle Ave. on the west; and Loop 484 and IH-35 on the north.

Area 4 – is bounded by N. Valley Mills Dr. on the north; IH-35 on the east; TX 6 on the south; and Lake Waco on the west.

Area 5 – is bounded by Lake Shore Dr. on the north and on the west; US 84 on the east; and N. Valley Mills Dr. on the south.

Area 6 – is bounded by both Hill County and Limestone County lines to the north and to the east; TX 6 on the south; and Loop 340 on the west.

Area 7 – is bounded by TX 6 on the north; Falls County line on the east and on the south; and IH-35 and Loop 340 on the west.

Area 8 – is bounded by TX 6 on the north; IH-35 on the east; Bell County line on the south; and Bosque County and Coryell County lines on the west.

Area 9 – is bounded by Bosque County and Hill County lines on the north; IH-35 on the east; Lake Shore Dr. on the south; and TX 6 on the west.

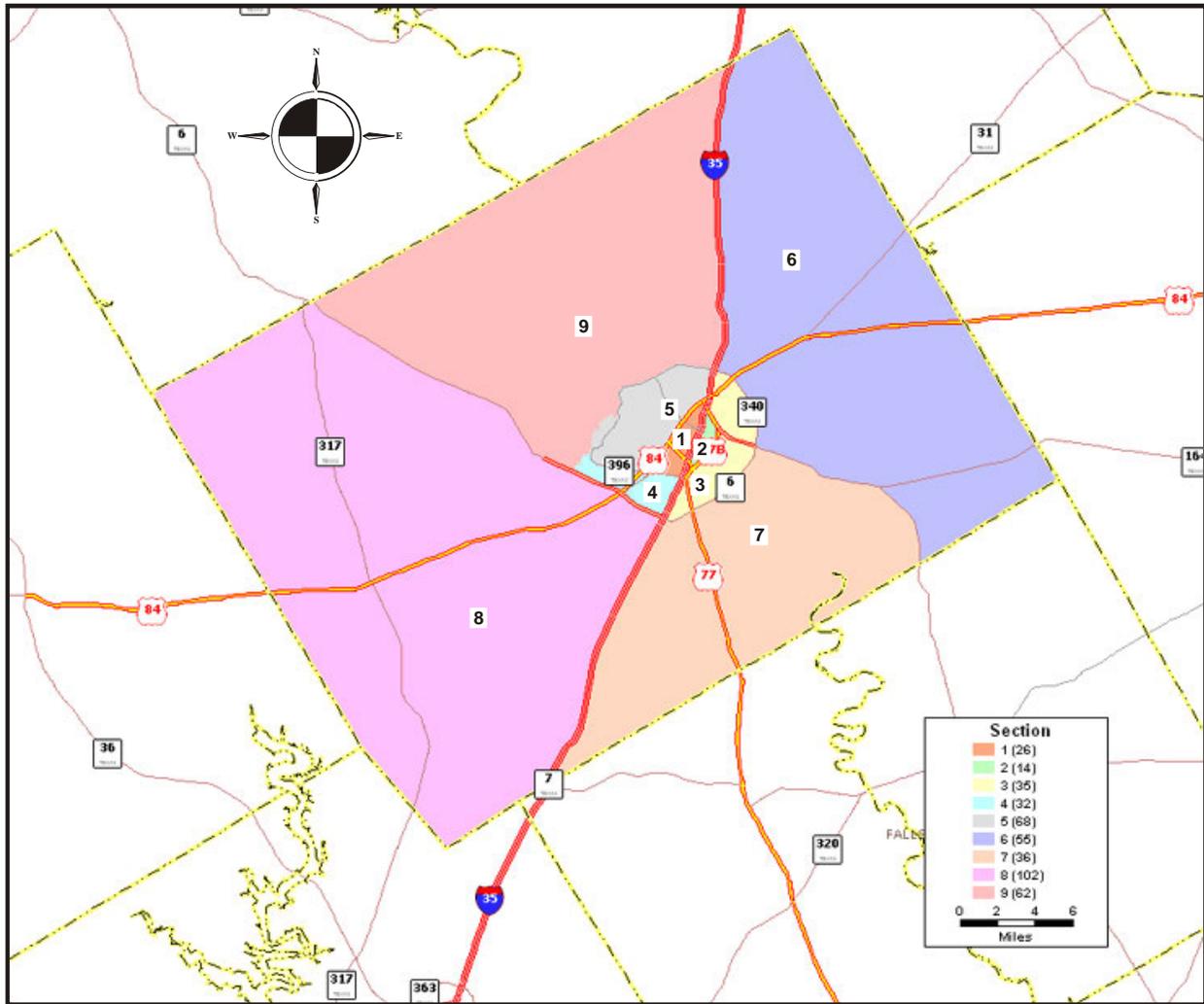


Figure 22. McLennan County Household Study Area (Including Sub-Regions).

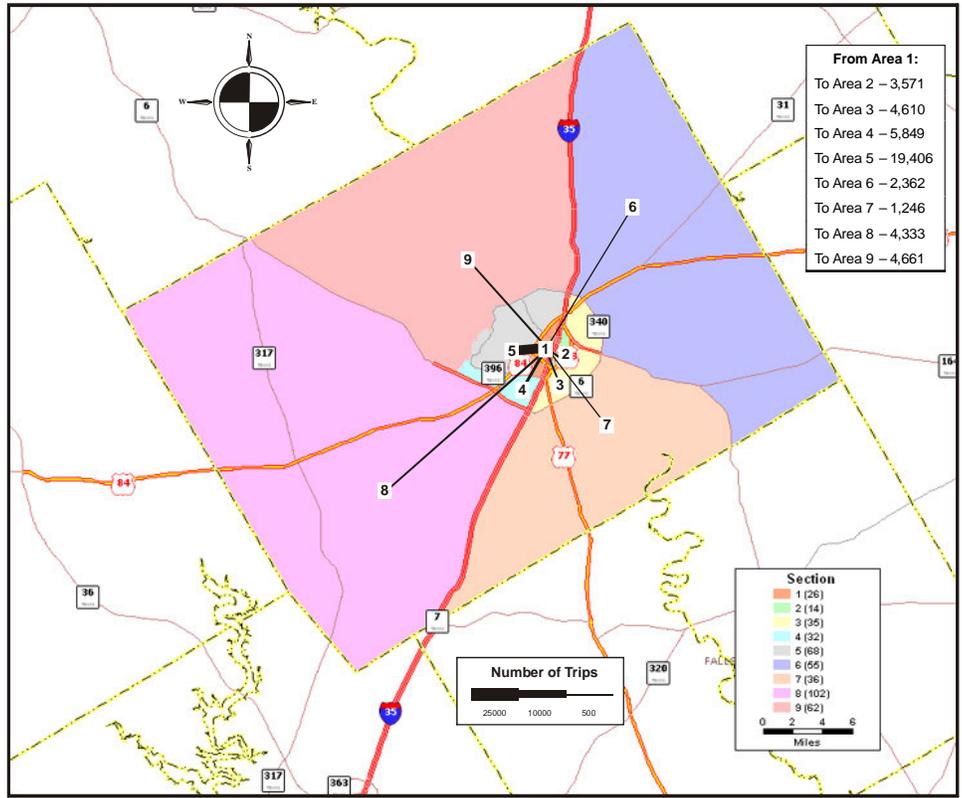


Figure 23. Person Trip Interchanges between Area 1 and Areas 2-9.

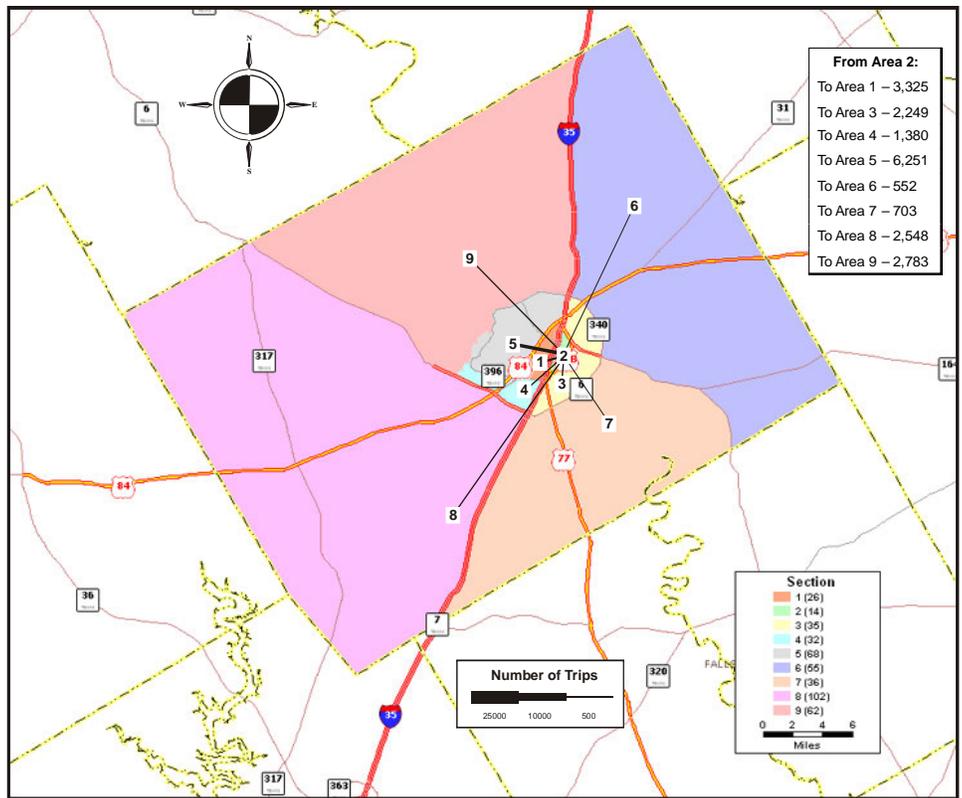


Figure 24. Person Trip Interchanges between Area 2 and Areas 1 and 3-9.

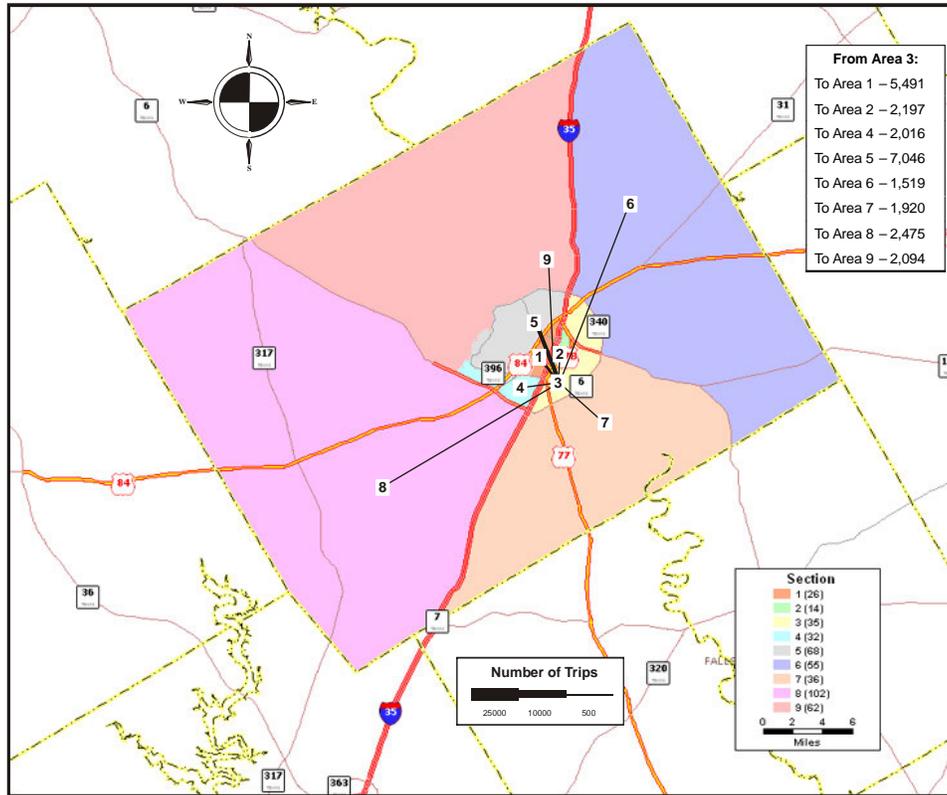


Figure 25. Person Trip Interchanges between Area 3 and Areas 1-2 and Areas 4-9.

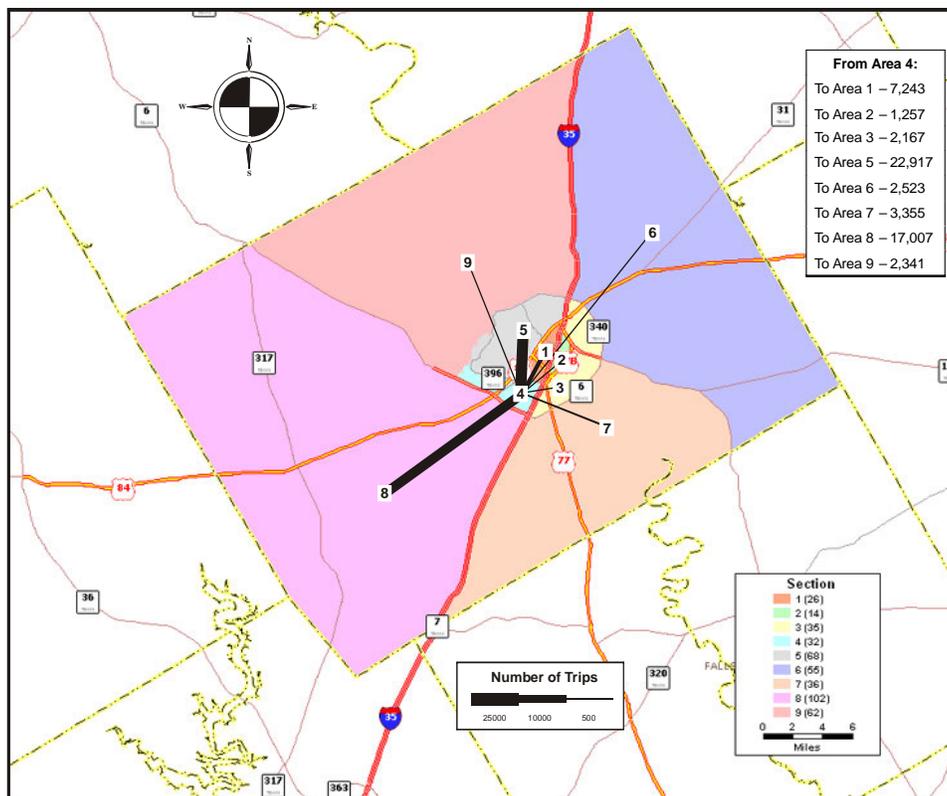


Figure 26. Person Trip Interchanges between Area 4 and Areas 1-3 and Areas 5-9.

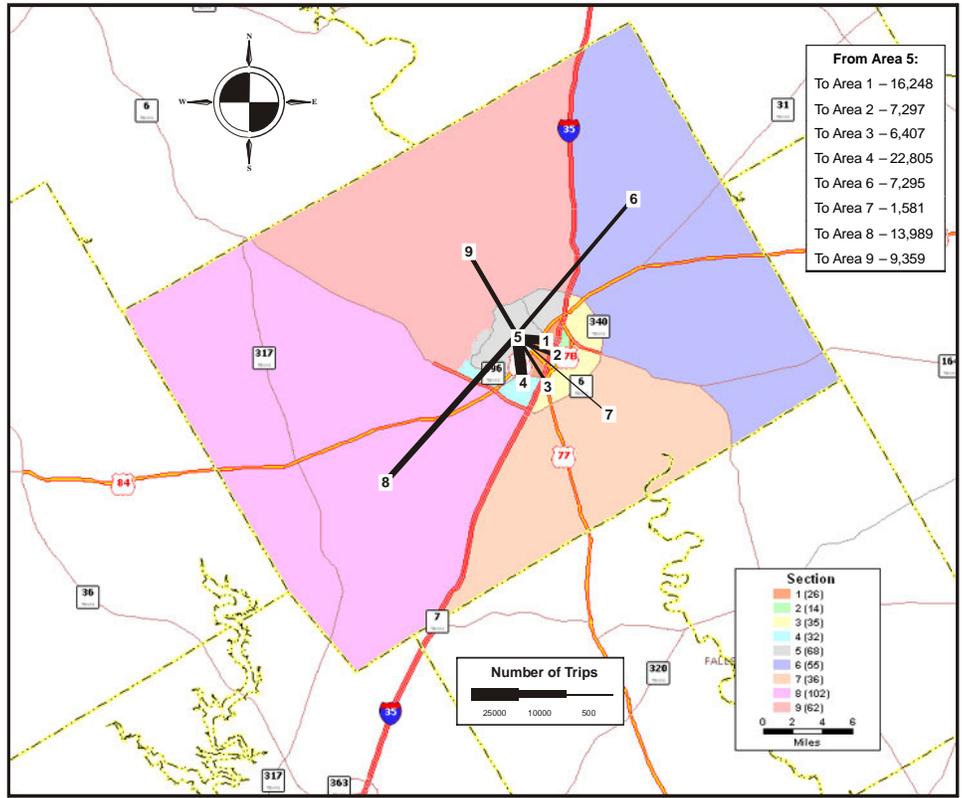


Figure 27. Person Trip Interchanges between Area 5 and Areas 1-4 and Areas 6-9.

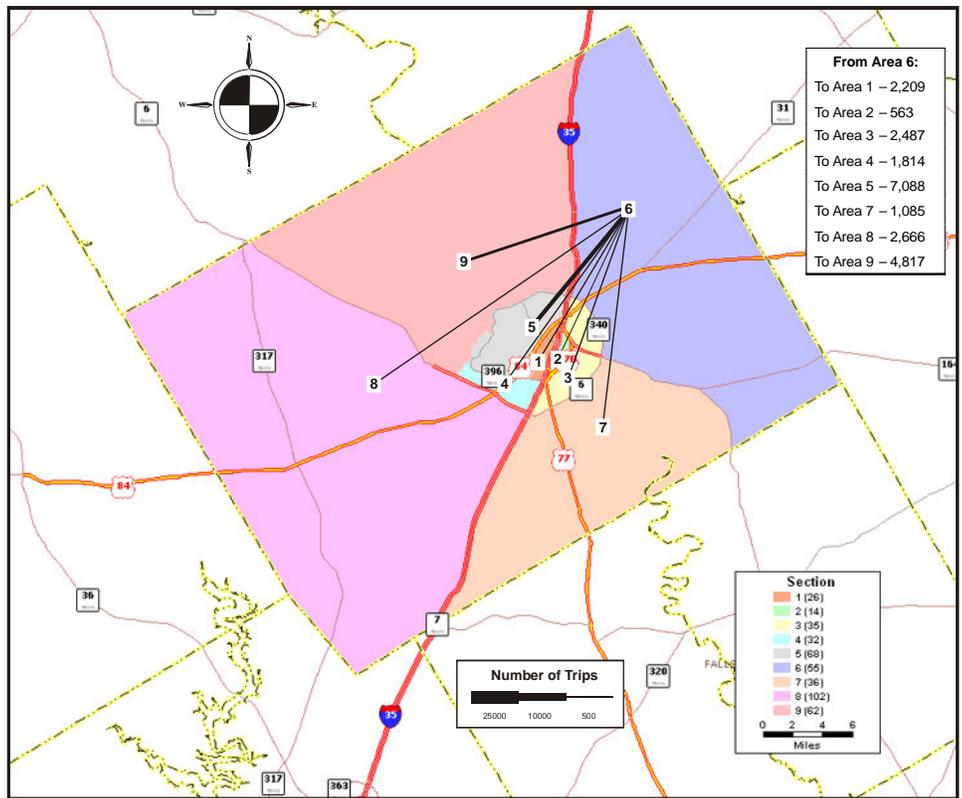


Figure 28. Person Trip Interchanges between Area 6 and Areas 1-5 and Areas 7-9.

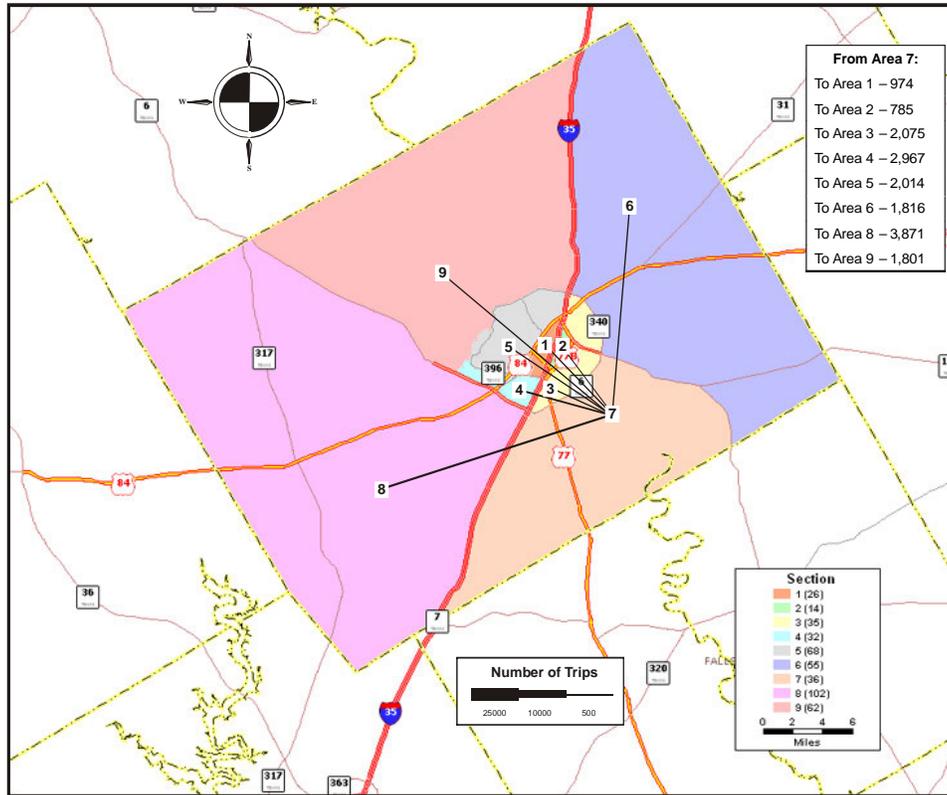


Figure 29. Person Trip Interchanges between Area 7 and Areas 1-6 and Areas 8-9.

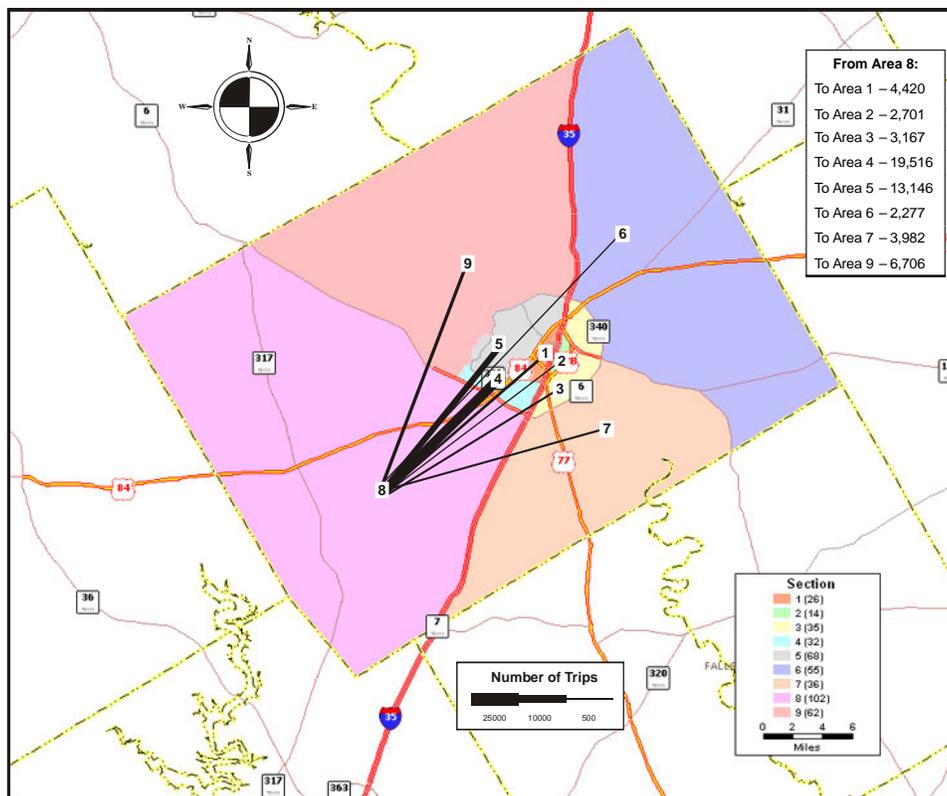


Figure 30. Person Trip Interchanges between Area 8 and Areas 1-7 and Area 9.

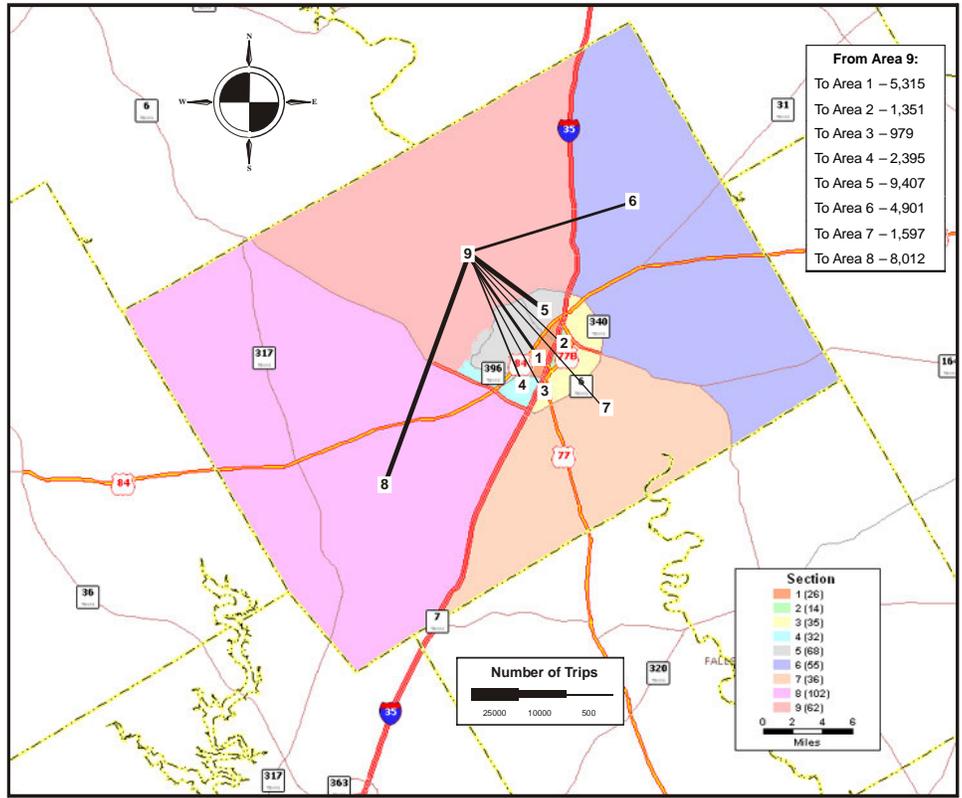


Figure 31. Person Trip Interchanges between Area 9 and Areas 1-8.

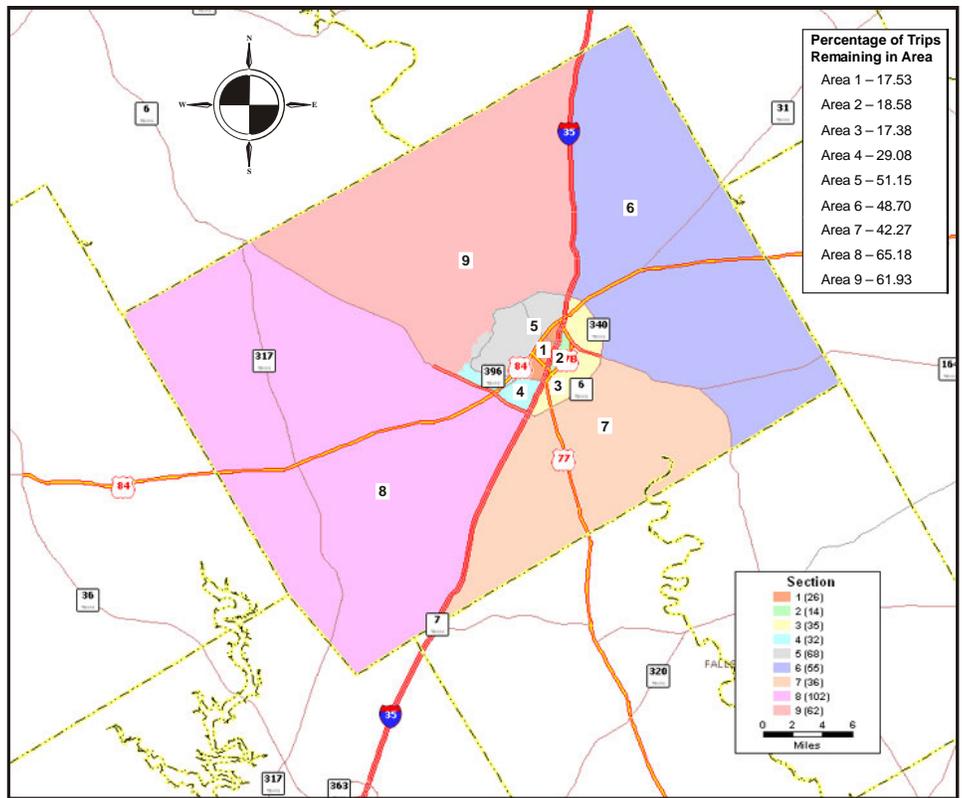


Figure 32. Percent of Person Trips that Remain within Each Sub-Region.

SUMMARY DATA

Table 6 provides household survey summary data for McLennan County and for travel surveys conducted in the Waco MPO planning area. Data, more detailed than that provided in this report, has been provided to TxDOT's TPP Division for their use in updating the study area travel demand model.

Table 6. Comparative Travel Survey Data for Selected Texas Urban Areas.

Urban Area	McLennan County	Potter and Randall Counties	Cameron and Hidalgo Counties	Bastrop, Caldwell, Hays, Travis, and Williamson Counties
Demographics				
Household Population	225,366	229,693	1,030,139	1,486,117
Licensed Drivers	151,191	164,001	585,035	1,060,436
Number of Households	83,995	88,507	294,825	574,225
Average Household Size	2.68	2.60	3.49	2.59
Number of Motor Vehicles	158,805	178,784	555,443	1,065,898
Motor Vehicles per Household	1.89	2.02	1.88	1.86
Number of Daily Trips by Mode				
Total Person Trips	712,766	830,583	3,583,480	5,093,023
Automobile-Driver Trips	450,637	523,635	2,023,295	3,353,404
Motor Vehicle Passenger Trips	223,990	265,544	1,243,681	1,292,793
School Bus Trips	3,201	7,872	188,781	138,951
Walk Trips	16,627	11,563	93,337	189,256
Public Transit Trips	3,201	7,872	9,889	43,475
Bicycle Trips	4,781	2,002	6,571	31,470
Commercial Vehicle Trips	2,856	9,583	14,250	37,962
Other Modes/Taxi	2	1,873	3,709	5,712
Number of Daily Trips by Destination/Purpose				
Trips to Home	254,084	300,993	1,322,199	1,866,466
Trips to Work	80,919	86,938	353,105	661,624
Trips Work Related	21,604	25,302	109,126	158,955
Trips to Shop	74,105	95,421	333,674	489,085
Trips to Pick-Up/Drop Off Passenger	65,744	77,014	410,936	434,359
Trips for Personal Business	59,229	73,011	228,654	356,953
Trips for Social/Recreation	69,543	68,556	276,680	359,071
Trips for School K-12	35,467	46,973	292,203	302,415
Trips for School Post Secondary	5,739	4,897	46,762	56,962
Trips for Meal/Eat	40,757	46,049	171,603	325,699
Trips to Change Mode	4,038	2,836	24,622	76,436
Other Trips	1,537	2,590	3,596	4,986
Daily Trip Rates				
Person Trips per Person	3.16	3.62	3.48	3.42
Person Trips per Household	8.48	9.38	12.15	8.87
Trip Lengths and Durations				
Average Person Trip Length in Miles	5.8	5.9	6.5	7.8
Average Vehicle Trip Length in Miles	6.3	6.1	7.0	8.4
Average Person Trip Duration in Minutes	8.8	4.7	9.2	12.8
Average Vehicle Trip Duration in Minutes	9.4	5.0	9.8	13.8
Vehicle Miles of Travel (VMT)				
VMT/Per Capita	12.6	11.4	13.8	17.8

Source: Selected Texas Travel Surveys and TTI Analysis.

TERMINOLOGY

Within the context of the household travel survey, a number of terms are used. These terms are defined in this section.

Person Trip – A person trip is the movement of an individual from one location to another location. In the household survey, trips were recorded for all persons in a surveyed household.

Automobile Driver Trip – An automobile driver trip is the movement of a vehicle from one location to another location. These trips are recorded for the person driving the vehicle. These are also referred to as vehicle trips.

Trip Purpose – The trip purpose is stated in terms of the purpose at the location the trip began and the purpose at the location the trip ended. For example, a trip that began at home and ended at work would be referred to as a home-based work (HBW) trip. There were 11 trip purposes used in the household survey.

Trip Activity – The trip activity is stated in terms of the activity at the location the trip began and/or the location the trip ended. There were 22 activities used in household survey. The activities were recorded in the survey and post processed to identify the trip purpose associated with each trip activity.

Vehicle Availability – Vehicle availability is the number of vehicles available to members of a household for making trips.

Vehicle Occupancy – Vehicle occupancy is the number of occupants in a vehicle during a vehicle trip including the driver of the vehicle.

Mode of Travel – Mode of travel is the physical means used by the household member to make a trip. The modes are walk, vehicle driver, vehicle passenger, carpool driver, carpool passenger, vanpool driver, vanpool passenger, commercial vehicle driver, commercial vehicle passenger, public transportation, school bus, taxi/paid limousine, bicycle, motorcycle/moped, and other.

Home-Based Work (HBW) Trip – An HBW trip is a trip that has one end of the trip at home and the other end of the trip at work. An HBW trip is non-directional in terms of the trip activity/trip purpose, i.e., a trip from home to work or from work to home is defined as an HBW trip.

Home-Based Non-Work (HBNW) Trip – An HBNW is a trip with one end of the trip at home and the other of the trip at a location other than the work location. An HBNW trip is non-directional in terms of the trip activity/trip purpose.

Non-Home-Based (NHB) Trip – An NHB trip is a trip with neither end of the trip at home.

Trip Productions – Trip productions are the number of trips produced by members of a household. Trip productions are calculated by trip purpose and mode of travel. Production rates are the number of trip productions divided by the number of households that produced those trips.

Trip Attractions – Trip attractions are the number of trips attracted to a particular category of land use. Trip attractions are calculated by trip purpose and mode of travel for different land use categories.

**APPENDIX A:
COMPARISON STATISTICS OF THE 1964 WACO O-D SURVEY, 1990
U.S. CENSUS DEMOGRAPHICS, AND 2006-2007 WACO HOUSEHOLD
TRAVEL SURVEY**

HOUSEHOLD CHARACTERISTICS

Characteristics of the household influence travel behavior. In this section, selected household characteristics from the 1960 and 1990 U.S. Census data are compared to the 2006-2007 household survey. Note that available comparison statistics are limited to data published in the 1966 Waco Transportation Plan report, including results of the 1964 Origin-Destination (O-D) Survey, and 1990 U.S. Census data.

Table 7 shows the estimated population, households, and persons per household for 1960 O-D Survey and 2006-2007 household survey. Travel demand is more closely correlated with the number of households than with the total population. The travel demand model uses household size and household income as the independent variables in the trip production models. Consequently, the travel demand forecasts are very sensitive to the independent forecast of these two household characteristics.

Table 7. Estimated Population, Households, and Persons per Household.

Geographic Area	Year	Population	Number of Households	Persons per Household
McLennan County	1960	150,091	33,864	4.4
McLennan County	2006-2007	225,366	83,995	2.7

Source: 1960 U.S. Census/1966 Waco Transportation Plan and TTI Analysis for 2006-07.

Household Size

Figure 33 shows the distribution of households by household size estimated from the 1990 U.S. Census and 2006-2007 household travel surveys. The percentage of households with four and five-plus persons per household decreased and the percentage of one-person households decreased by 50 percent from 1990 to 2007-2008. Despite these individual household size changes in 1990 and 2007-2008, the average persons per household for 1990 and 2007-2008 is the same, with 2.7 persons per household.

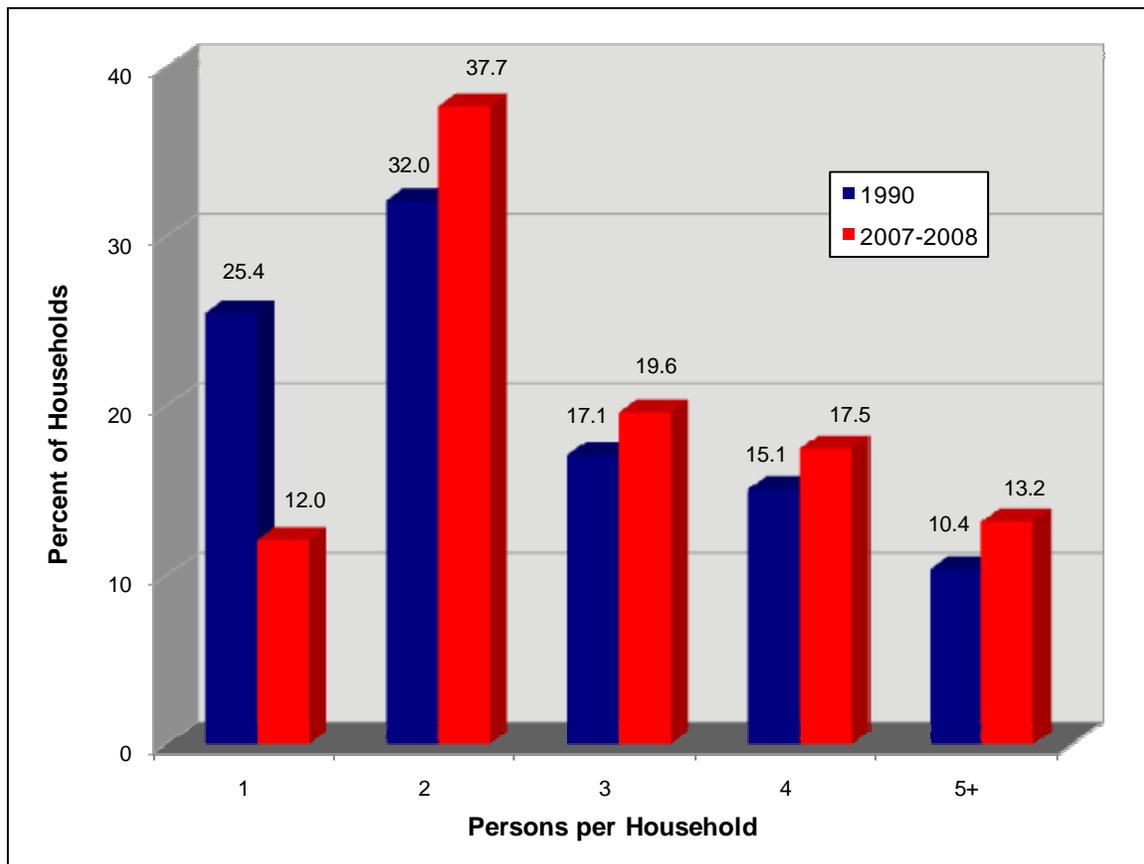


Figure 33. Distribution of Households by Household Size.

Household Vehicle Availability

Figure 34 shows the distribution of households by the number of vehicles available. On average, more vehicles were available to households each survey and/or census year, indicative of rising household incomes. The number of households with no vehicles available decreased by 50 percent between 1960 and 1990, but remained the same between 1990 and 2006. Note in the figure that the 1964 origin-destination survey data only included three categories of vehicles available (0, 1, and 2+), while later surveys included four categories.

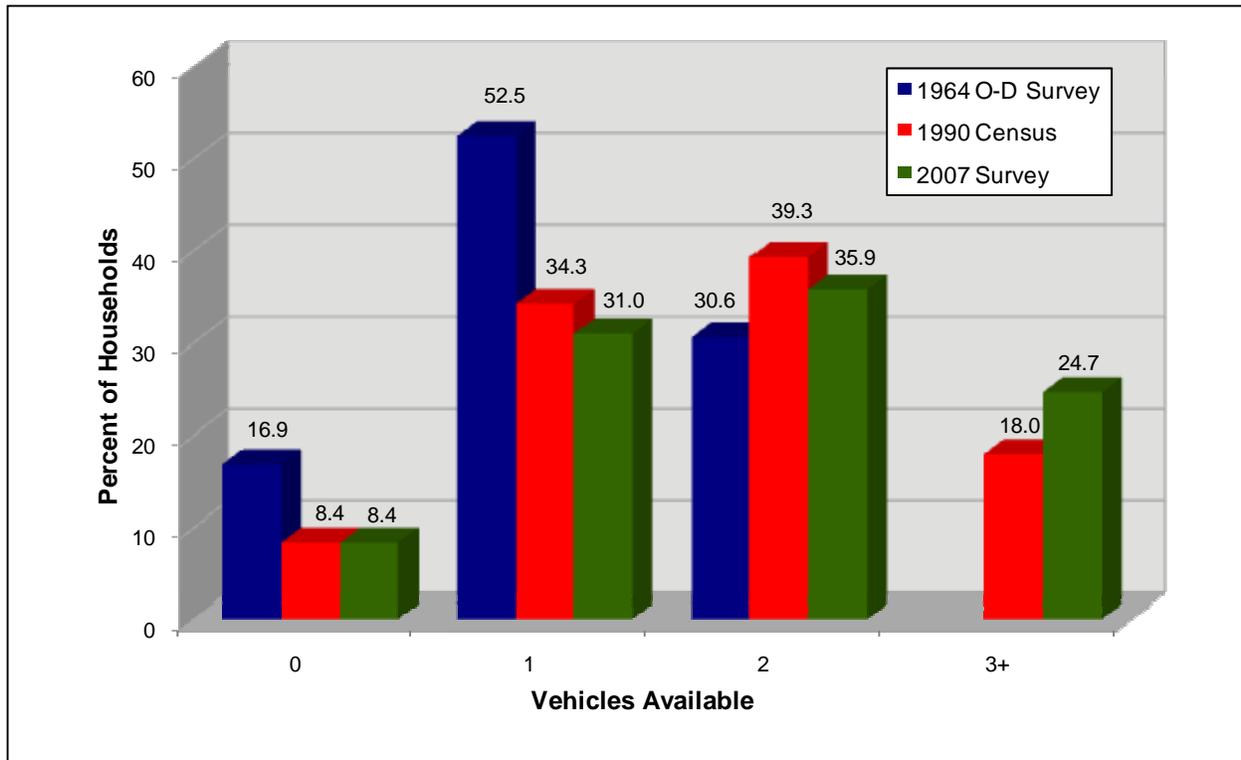


Figure 34. Distribution of Households by Number of Vehicles Available.

Vehicle Miles of Travel

The VMT for vehicle trips internal to the McLennan County study area increased 120 percent from the year 1964 and the forecast projection year 1985 (Table 8). Between the forecast year projection (1985) and the 2006-2007 household travel survey, VMT increased over sevenfold. It is worthwhile to note this is not the total VMT for the study area, as the VMT associated with external-local, external-through, commercial vehicle, visitor travel, and intrazonal trips are not included in the estimate.

Table 8. Vehicle Trip VMT Comparisons for McLennan County.

Survey Indicator	1964	1985 (Forecast)	2006-2007
Study Area Coverage	McLennan County	McLennan County	McLennan County
Total Internal VMT	288,270	633,667	4,490,426

SUMMARY

Historical trip rates for 1964 and 1990 were not available for comparison to the 2006-07 household travel survey trip rates, however, the travel demand model assumes that household trip rates by trip purpose do not change during the 20-year forecast. What does change over time is the number of households, the household size, the household income, vehicle availability, and the geographic location of the households.

Travel demand forecasts are very dependent on the accuracy of the household demographic and household location forecasts. In reality, there are some changes in trip rates over time even accounting for changes in household size and household income, thus the need to periodically update household travel surveys.

**APPENDIX B:
HOUSEHOLD SURVEY INSTRUMENT**

Location 4: Where did you go next?	How did you get to Location 4?	What did you do here?
When did you arrive at this location? ____ : ____ AM PM <hr/> What is the Name of this Location? <hr/> What Type of Place/Business Is This? <hr/> Street Address (be as specific as possible) _____ & _____ Nearest Intersecting Streets <hr/> City _____ County _____ State _____ <hr/> Zip Code (if known) _____ <hr/> <div style="border: 1px solid black; padding: 2px;"> Did you walk more than a block from a parking lot or bus stop to get to this location? <input type="checkbox"/> Yes If YES: where did you park? _____ <input type="checkbox"/> No _____ </div>	What was the primary type of transportation you used? <input type="checkbox"/> Car, van, truck <input type="checkbox"/> Motorcycle or moped <input type="checkbox"/> Bicycle <input type="checkbox"/> Taxi <input type="checkbox"/> Walk <input type="checkbox"/> School Bus <input type="checkbox"/> Service vehicle <input type="checkbox"/> Cargo transport vehicle <input type="checkbox"/> Transit Bus (Specify Route: _____) <input type="checkbox"/> Other _____ <div style="border: 1px solid black; padding: 2px; background-color: #e0e0e0;"> If you used a car, van, or truck for this trip . . . </div> Were you the . . .? <input type="checkbox"/> driver <input type="checkbox"/> passenger Including yourself, how many TOTAL people were in the vehicle? _____ Including yourself, how many people from YOUR HOUSEHOLD were in the vehicle? _____ Was this a . . .? Carpool Vanpool Neither Please indicate the following about the vehicle: Year _____ Make/Model _____ Was this your household's vehicle? Yes No How much did you pay to park? \$ _____	What did you do at this location? (check all that apply) <input type="checkbox"/> Return Home from your primary job <input type="checkbox"/> Return Home for another reason <input type="checkbox"/> Meal/Eat <input type="checkbox"/> Work <input type="checkbox"/> Work Related <input type="checkbox"/> School <input type="checkbox"/> Personal Business: _____ <input type="checkbox"/> Volunteer/Civic <input type="checkbox"/> Shop <input type="checkbox"/> Social/Recreation/Entertainment <input type="checkbox"/> Pick-Up/Drop-Off Passenger <input type="checkbox"/> Change Mode (e.g., car to bus): _____ <hr/> <div style="border: 1px solid black; padding: 2px;"> When did you leave this location? ____ : ____ AM PM ----- OR ----- This was the last place I went today </div>

If You *Forgot* a Stop *Anywhere* Between This Location and Location 5, Provide the Information Below:

For what reason did you stop between Location 4 and 5? _____ Number of minutes stopped: _____

Where did you stop? _____

Name of Stop Location Address or Nearest Intersection City, County, and State

Location 5: Where did you go next?	How did you get to Location 5?	What did you do here?
When did you arrive at this location? ____ : ____ AM PM <hr/> What is the Name of this Location? <hr/> What Type of Place/Business Is This? <hr/> Street Address (be as specific as possible) _____ & _____ Nearest Intersecting Streets <hr/> City _____ County _____ State _____ <hr/> Zip Code (if known) _____ <hr/> <div style="border: 1px solid black; padding: 2px;"> Did you walk more than a block from a parking lot or bus stop to get to this location? <input type="checkbox"/> Yes If YES: where did you park? _____ <input type="checkbox"/> No _____ </div>	What was the primary type of transportation you used? <input type="checkbox"/> Car, van, truck <input type="checkbox"/> Motorcycle or moped <input type="checkbox"/> Bicycle <input type="checkbox"/> Taxi <input type="checkbox"/> Walk <input type="checkbox"/> School Bus <input type="checkbox"/> Service vehicle <input type="checkbox"/> Cargo transport vehicle <input type="checkbox"/> Transit Bus (Specify Route: _____) <input type="checkbox"/> Other _____ <div style="border: 1px solid black; padding: 2px; background-color: #e0e0e0;"> If you used a car, van, or truck for this trip . . . </div> Were you the . . .? <input type="checkbox"/> driver <input type="checkbox"/> passenger Including yourself, how many TOTAL people were in the vehicle? _____ Including yourself, how many people from YOUR HOUSEHOLD were in the vehicle? _____ Was this a . . .? Carpool Vanpool Neither Please indicate the following about the vehicle: Year _____ Make/Model _____ Was this your household's vehicle? Yes No How much did you pay to park? \$ _____	What did you do at this location? (check all that apply) <input type="checkbox"/> Return Home from your primary job <input type="checkbox"/> Return Home for another reason <input type="checkbox"/> Meal/Eat <input type="checkbox"/> Work <input type="checkbox"/> Work Related <input type="checkbox"/> School <input type="checkbox"/> Personal Business: _____ <input type="checkbox"/> Volunteer/Civic <input type="checkbox"/> Shop <input type="checkbox"/> Social/Recreation/Entertainment <input type="checkbox"/> Pick-Up/Drop-Off Passenger <input type="checkbox"/> Change Mode (car to bus): _____ <hr/> <div style="border: 1px solid black; padding: 2px;"> When did you leave this location? ____ : ____ AM PM ----- OR ----- This was the last place I went today </div>

If You *Forgot* a Stop *Anywhere* Between This Location and Location 6, Provide the Information Below:

For what reason did you stop between Location 5 and 6? _____ Number of minutes stopped: _____

Where did you stop? _____

Name of Stop Location Address or Nearest Intersection City, County, and State

Location 6: Where did you go next?	How did you get to Location 6?	What did you do here?
When did you arrive at this location? ____ : ____ AM PM	What was the primary type of transportation you used? <input type="checkbox"/> Car, van, truck <input type="checkbox"/> Motorcycle or moped <input type="checkbox"/> Bicycle <input type="checkbox"/> Taxi <input type="checkbox"/> Walk <input type="checkbox"/> School Bus <input type="checkbox"/> Service vehicle <input type="checkbox"/> Cargo transport vehicle <input type="checkbox"/> Transit Bus (Specify Route: _____) <input type="checkbox"/> Other _____	What did you do at this location? (check all that apply) <input type="checkbox"/> Return Home from your primary job <input type="checkbox"/> Return Home for another reason <input type="checkbox"/> Meal/Eat <input type="checkbox"/> Work <input type="checkbox"/> Work Related <input type="checkbox"/> School <input type="checkbox"/> Personal Business: _____ <input type="checkbox"/> Volunteer/Civic <input type="checkbox"/> Shop <input type="checkbox"/> Social/Recreation/Entertainment <input type="checkbox"/> Pick-Up/Drop-Off Passenger <input type="checkbox"/> Change Mode (car to bus): _____
What is the Name of this Location? _____	If you used a car, van, or truck for this trip . . .	When did you leave this location? ____ : ____ AM PM
What Type of Place/Business Is This? _____	Were you the . . .? <input type="checkbox"/> driver <input type="checkbox"/> passenger	----- OR -----
Street Address (be as specific as possible) _____ & Nearest Intersecting Streets	Including yourself, how many TOTAL people were in the vehicle? _____	This was the last place I went today
City _____ County _____ State _____	Including yourself, how many people from YOUR HOUSEHOLD were in the vehicle? _____	
Zip Code (if known) _____	Was this a . . .? Carpool Vanpool Neither	
Did you walk more than a block from a parking lot or bus stop to get to this location? <input type="checkbox"/> Yes If YES: where did you park? <input type="checkbox"/> No	Please indicate the following about the vehicle: Year _____ Make/Model _____	
	Was this your household's vehicle? Yes No	
	How much did you pay to park? \$ _____	

If You Forgot a Stop Anywhere Between This Location and Location 7, Provide the Information Below:

For what reason did you stop between Location 6 and 7? _____ Number of minutes stopped: _____

Where did you stop? _____

Name of Stop Location Address or Nearest Intersection City, County, and State

Location 3: Where did you go next?	How did you get to Location 3?	What did you do here?
When did you arrive at this location? ____ : ____ AM PM	What was the primary type of transportation you used? <input type="checkbox"/> Car, van, truck <input type="checkbox"/> Motorcycle or moped <input type="checkbox"/> Bicycle <input type="checkbox"/> Taxi <input type="checkbox"/> Walk <input type="checkbox"/> School Bus <input type="checkbox"/> Service vehicle <input type="checkbox"/> Cargo transport vehicle <input type="checkbox"/> Transit Bus (Specify Route: _____) <input type="checkbox"/> Other _____	What did you do at this location? (check all that apply) <input type="checkbox"/> Return Home from your primary job <input type="checkbox"/> Return Home for another reason <input type="checkbox"/> Meal/Eat <input type="checkbox"/> Work <input type="checkbox"/> Work Related <input type="checkbox"/> School <input type="checkbox"/> Personal Business: _____ <input type="checkbox"/> Volunteer/Civic <input type="checkbox"/> Shop <input type="checkbox"/> Social/Recreation/Entertainment <input type="checkbox"/> Pick-Up/Drop-Off Passenger <input type="checkbox"/> Change Mode (car to bus): _____
What is the Name of this Location? _____	If you used a car, van, or truck for this trip . . .	When did you leave this location? ____ : ____ AM PM
What Type of Place/Business Is This? _____	Were you the . . .? <input type="checkbox"/> driver <input type="checkbox"/> passenger	----- OR -----
Street Address (be as specific as possible) _____ & Nearest Intersecting Streets	Including yourself, how many TOTAL people were in the vehicle? _____	This was the last place I went today
City _____ County _____ State _____	Including yourself, how many people from YOUR HOUSEHOLD were in the vehicle? _____	
Zip Code (if known) _____	Was this a . . .? Carpool Vanpool Neither	
Did you walk more than a block from a parking lot or bus stop to get to this location? <input type="checkbox"/> Yes If YES: where did you park? <input type="checkbox"/> No	Please indicate the following about the vehicle: Year _____ Make/Model _____	
	Was this your household's vehicle? Yes No	
	How much did you pay to park? \$ _____	

If You Forgot a Stop Anywhere Between This Location and Location 4, Provide the Information Below:

For what reason did you stop between Location 3 and 4? _____ Number of minutes stopped: _____

Where did you stop? _____

Name of Stop Location Address or Nearest Intersection City, County, and State

Location 2: Where did you go next?	How did you get to Location 2?	What did you do here?
When did you arrive at this location? ____ : ____ AM PM	What was the primary type of transportation you used? <input type="checkbox"/> Car, van, truck <input type="checkbox"/> Motorcycle or moped <input type="checkbox"/> Bicycle <input type="checkbox"/> Taxi <input type="checkbox"/> Walk <input type="checkbox"/> School Bus <input type="checkbox"/> Service vehicle <input type="checkbox"/> Cargo transport vehicle <input type="checkbox"/> Transit Bus (Specify Route: _____) <input type="checkbox"/> Other _____	What did you do at this location? (check all that apply) <input type="checkbox"/> Return Home from your primary job <input type="checkbox"/> Return Home for another reason <input type="checkbox"/> Meal/Eat <input type="checkbox"/> Work <input type="checkbox"/> Work Related <input type="checkbox"/> School <input type="checkbox"/> Personal Business: _____ <input type="checkbox"/> Volunteer/Civic <input type="checkbox"/> Shop <input type="checkbox"/> Social/Recreation/Entertainment <input type="checkbox"/> Pick-Up/Drop-Off Passenger <input type="checkbox"/> Change Mode (car to bus): _____
What is the Name of this Location? _____	If you used a car, van, or truck for this trip . . .	When did you leave this location? ____ : ____ AM PM
What Type of Place/Business Is This? _____	Were you the . . .? <input type="checkbox"/> driver <input type="checkbox"/> passenger	----- OR -----
Street Address (be as specific as possible) _____ & _____	Including yourself, how many TOTAL people were in the vehicle? _____	This was the last place I went today
Nearest Intersecting Streets _____	Including yourself, how many people from YOUR HOUSEHOLD were in the vehicle? _____	
City _____ County _____ State _____	Was this a . . .? <input type="checkbox"/> Carpool <input type="checkbox"/> Vanpool <input type="checkbox"/> Neither	
Zip Code (if known) _____	Please indicate the following about the vehicle: Year _____ Make/Model _____	
Did you walk more than a block from a parking lot or bus stop to get to this location? <input type="checkbox"/> Yes If YES: where did you park? <input type="checkbox"/> No	Was this your household's vehicle? Yes No	
	How much did you pay to park? \$ _____	

If You Forgot a Stop Anywhere Between This Location and Location 3, Provide the Information Below:

For what reason did you stop between Location 2 and 3? _____ Number of minutes stopped: _____

Where did you stop? _____

Name of Stop Location Address or Nearest Intersection City, County, and State

Location 7: Where did you go next?	How did you get to Location 7?	What did you do here?
When did you arrive at this location? ____ : ____ AM PM	What was the primary type of transportation you used? <input type="checkbox"/> Car, van, truck <input type="checkbox"/> Motorcycle or moped <input type="checkbox"/> Bicycle <input type="checkbox"/> Taxi <input type="checkbox"/> Walk <input type="checkbox"/> School Bus <input type="checkbox"/> Service vehicle <input type="checkbox"/> Cargo transport vehicle <input type="checkbox"/> Transit Bus (Specify Route: _____) <input type="checkbox"/> Other _____	What did you do at this location? (check all that apply) <input type="checkbox"/> Return Home from your primary job <input type="checkbox"/> Return Home for another reason <input type="checkbox"/> Meal/Eat <input type="checkbox"/> Work <input type="checkbox"/> Work Related <input type="checkbox"/> School <input type="checkbox"/> Personal Business: _____ <input type="checkbox"/> Volunteer/Civic <input type="checkbox"/> Shop <input type="checkbox"/> Social/Recreation/Entertainment <input type="checkbox"/> Pick-Up/Drop-Off Passenger <input type="checkbox"/> Change Mode (car to bus): _____
What is the Name of this Location? _____	If you used a car, van, or truck for this trip . . .	When did you leave this location? ____ : ____ AM PM
What Type of Place/Business Is This? _____	Were you the . . .? <input type="checkbox"/> driver <input type="checkbox"/> passenger	----- OR -----
Street Address (be as specific as possible) _____ & _____	Including yourself, how many TOTAL people were in the vehicle? _____	This was the last place I went today
Nearest Intersecting Streets _____	Including yourself, how many people from YOUR HOUSEHOLD were in the vehicle? _____	
City _____ County _____ State _____	Was this a . . .? <input type="checkbox"/> Carpool <input type="checkbox"/> Vanpool <input type="checkbox"/> Neither	
Zip Code (if known) _____	Please indicate the following about the vehicle: Year _____ Make/Model _____	
Did you walk more than a block from a parking lot or bus stop to get to this location? <input type="checkbox"/> Yes If YES: where did you park? <input type="checkbox"/> No	Was this your household's vehicle? Yes No	
	How much did you pay to park? \$ _____	

If You Forgot a Stop Anywhere Between This Location and Location 8, Provide the Information Below:

For what reason did you stop between Location 7 and 8? _____ Number of minutes stopped: _____

Where did you stop? _____

Name of Stop Location Address or Nearest Intersection City, County, and State

Location 8: Where did you go next?	How did you get to Location 8?	What did you do here?
When did you arrive at this location? ____ : ____ AM PM	What was the primary type of transportation you used? <input type="checkbox"/> Car, van, truck <input type="checkbox"/> Motorcycle or moped <input type="checkbox"/> Bicycle <input type="checkbox"/> Taxi <input type="checkbox"/> Walk <input type="checkbox"/> School Bus <input type="checkbox"/> Service vehicle <input type="checkbox"/> Cargo transport vehicle <input type="checkbox"/> Transit Bus (Specify Route: _____) <input type="checkbox"/> Other _____	What did you do at this location? (check all that apply) <input type="checkbox"/> Return Home from your primary job <input type="checkbox"/> Return Home for another reason <input type="checkbox"/> Meal/Eat <input type="checkbox"/> Work <input type="checkbox"/> Work Related <input type="checkbox"/> School <input type="checkbox"/> Personal Business: _____ <input type="checkbox"/> Volunteer/Civic <input type="checkbox"/> Shop <input type="checkbox"/> Social/Recreation/Entertainment <input type="checkbox"/> Pick-Up/Drop-Off Passenger <input type="checkbox"/> Change Mode (car to bus): _____
What is the Name of this Location? _____	If you used a car, van, or truck for this trip . . .	When did you leave this location? ____ : ____ AM PM
What Type of Place/Business Is This? _____	Were you the . . .? <input type="checkbox"/> driver <input type="checkbox"/> passenger	----- OR -----
Street Address (be as specific as possible) _____ & Nearest Intersecting Streets	Including yourself, how many TOTAL people were in the vehicle? _____	This was the last place I went today
City _____ County _____ State _____	Including yourself, how many people from YOUR HOUSEHOLD were in the vehicle? _____	
Zip Code (if known) _____	Was this a . . .? Carpool Vanpool Neither	
Did you walk more than a block from a parking lot or bus stop to get to this location? <input type="checkbox"/> Yes If YES: where did you park? _____ <input type="checkbox"/> No	Please indicate the following about the vehicle: Year _____ Make/Model _____	
	Was this your household's vehicle? Yes No	
	How much did you pay to park? \$ _____	

If You Forgot a Stop Anywhere Between This Location and Location 9, Provide the Information Below:

For what reason did you stop between Location 8 and 9? _____ Number of minutes stopped: _____

Where did you stop? _____

Name of Stop Location Address or Nearest Intersection City, County, and State

Location 1: Where did you go first?	How did you get to Location 1?	What did you do here?
When did you arrive at this location? ____ : ____ AM PM	What was the primary type of transportation you used? <input type="checkbox"/> Car, van, truck <input type="checkbox"/> Motorcycle or moped <input type="checkbox"/> Bicycle <input type="checkbox"/> Taxi <input type="checkbox"/> Walk <input type="checkbox"/> School Bus <input type="checkbox"/> Service vehicle <input type="checkbox"/> Cargo transport vehicle <input type="checkbox"/> Transit Bus (Specify Route: _____) <input type="checkbox"/> Other _____	What did you do at this location? (check all that apply) <input type="checkbox"/> Return Home from your primary job <input type="checkbox"/> Return Home for another reason <input type="checkbox"/> Meal/Eat <input type="checkbox"/> Work <input type="checkbox"/> Work Related <input type="checkbox"/> School <input type="checkbox"/> Personal Business: _____ <input type="checkbox"/> Volunteer/Civic <input type="checkbox"/> Shop <input type="checkbox"/> Social/Recreation/Entertainment <input type="checkbox"/> Pick-Up/Drop-Off Passenger <input type="checkbox"/> Change Mode (e.g., car to bus): _____
What is the Name of this Location? _____	If you used a car, van, or truck for this trip . . .	When did you leave this location? ____ : ____ AM PM
What Type of Place/Business Is This? _____	Were you the . . .? <input type="checkbox"/> driver <input type="checkbox"/> passenger	----- OR -----
Street Address (be as specific as possible) _____ & Nearest Intersecting Streets	Including yourself, how many TOTAL people were in the vehicle? _____	This was the last place I went today
City _____ County _____ State _____	Including yourself, how many people from YOUR HOUSEHOLD were in the vehicle? _____	
Zip Code (if known) _____	Was this a . . .? Carpool Vanpool Neither	
Did you walk more than a block from a parking lot or bus stop to get to this location? <input type="checkbox"/> Yes If YES: where did you park? _____ <input type="checkbox"/> No	Please indicate the following about the vehicle: Year _____ Make/Model _____	
	Was this your household's vehicle? Yes No	
	How much did you pay to park? \$ _____	

If You Forgot a Stop Anywhere Between This Location and Location 2, Provide the Information Below:

For what reason did you stop between Location 1 and 2? _____ Number of minutes stopped: _____

Where did you stop? _____

Name of Stop Location Address or Nearest Intersection City, County, and State

Start Location: At 3:00 am today, were you . . . ?

At Home

Please proceed to "Location 1" on the next page.

Traveling (you were driving or flying at 3:00 am today)

What type of transportation were you using?

- Car, van, truck Motorcycle or moped
 Bicycle Taxi
 Walk School Bus
 Service vehicle Cargo transport vehicle
 Transit Bus (Specify Route: _____)
 Other _____

Were you the . . . ? driver passenger

Including yourself, how many TOTAL people were in the vehicle? _____

Including yourself, how many people from YOUR HOUSEHOLD were in the vehicle? _____

Was this a . . . ? Carpool Vanpool Neither

Please indicate the following about the vehicle:

Year _____ Make/Model _____

Was this your household's vehicle? Yes No

At Work, or

At Another Location

What is the Name of this Location? _____

What Type of Place/Business Is This? _____

Street Address (be as specific as possible) _____

City _____ County _____ State _____

Zip Code (if known) _____

_____ & _____
Nearest Intersecting Streets

At what time did you leave your starting location? _____

Location 9: Where did you go next?

When did you arrive at this location?

____ : ____ AM PM

What is the Name of this Location? _____

What Type of Place/Business Is This? _____

Street Address (be as specific as possible) _____

_____ & _____
Nearest Intersecting Streets

City _____ County _____ State _____

Zip Code (if known) _____

Did you walk **more than a block** from a parking lot or bus stop to get to this location?

- Yes If YES: where did you park? _____
 No

How did you get to Location 9?

What was the primary type of transportation you used?

- Car, van, truck Motorcycle or moped
 Bicycle Taxi
 Walk School Bus
 Service vehicle Cargo transport vehicle
 Transit Bus (Specify Route: _____)
 Other _____

If you used a car, van, or truck for this trip . . .

Were you the . . . ? driver passenger

Including yourself, how many TOTAL people were in the vehicle? _____

Including yourself, how many people from YOUR HOUSEHOLD were in the vehicle? _____

Was this a . . . ? Carpool Vanpool Neither

Please indicate the following about the vehicle:

Year _____ Make/Model _____

Was this your household's vehicle? Yes No

How much did you pay to park? \$ _____

What did you do here?

What did you do at this location? (check all that apply)

- Return Home from your primary job
 Return Home for another reason
 Meal/Eat
 Work
 Work Related
 School
 Personal Business: _____
 Volunteer/Civic
 Shop
 Social/Recreation/Entertainment
 Pick-Up/Drop-Off Passenger
 Change Mode (car to bus): _____

When did you leave this location?

____ : ____ AM PM

.....OR.....

This was the last place I went today

If You Forgot a Stop *Anywhere* Between This Location and Location 10, Provide the Information Below:

For what reason did you stop between Location 9 and 10? _____

Number of minutes stopped: _____

Where did you stop? _____

Name of Stop Location

Address or Nearest Intersection

City, County, and State

Location 10: Where did you go next?

When did you arrive at this location?
 _____ : _____ AM PM

What is the Name of this Location?

What Type of Place/Business Is This?

Street Address (be as specific as possible)

&
 Nearest Intersecting Streets

City _____ County _____ State _____

Zip Code (if known) _____

Did you walk **more than a block** from a parking lot or bus stop to get to this location?
 Yes No

If YES: where did you park?

How did you get to Location 10?

What was the primary type of transportation you used?

- Car, van, truck Motorcycle or moped
 Bicycle Taxi
 Walk School Bus
 Service vehicle Cargo transport vehicle
 Transit Bus (Specify Route: _____)
 Other _____

If you used a car, van, or truck for this trip . . .

Were you the . . . ? driver passenger

Including yourself, how many TOTAL people were in the vehicle? _____

Including yourself, how many people from YOUR HOUSEHOLD were in the vehicle? _____

Was this a . . . ? Carpool Vanpool Neither

Please indicate the following about the vehicle:

Year _____ Make/Model _____

Was this your household's vehicle? Yes No

How much did you pay to park? \$ _____

What did you do here?

What did you do at this location? (check all that apply)

- Return Home from your primary job
 Return Home for another reason
 Meal/Eat
 Work
 Work Related
 School
 Personal Business: _____
 Volunteer/Civic
 Shop
 Social/Recreation/Entertainment
 Pick-Up/Drop-Off Passenger
 Change Mode (car to bus): _____

When did you leave this location?
 _____ : _____ AM PM

----- OR -----

This was the last place I went today

If You Forgot a Stop *Anywhere* Between This Location and the "Additional Locations" Provide the Information Below:

For what reason did you stop between Location 10 and 11? _____ Number of minutes stopped: _____

Where did you stop? _____
 Name of Stop Location Address or Nearest Intersection City, County, and State

Work Information

Do you currently work on a regular basis? Yes No

If you do not currently work, please go to the "Start Location" section.

How many different jobs do you have? _____

If you have more than one job, please refer to the job at which you spend the most hours for the following questions.

In which type of industry do you work?

- Agriculture, forestry, fishing and hunting, mining
- Construction
- Manufacturing
- Wholesale trade
- Retail Trade
- Transportation, warehousing, utilities
- Information
- Finance, insurance, real estate, rental, leasing
- Professional, scientific, management, administrative, and water management services
- Education, health, social services
- Arts, entertainment, recreation, accommodation, and food service
- Other services (except public administration)
- Public administration

Of the last seven days, how many did you work at home? _____ days

What is the location of your workplace?

 Name of Employer

 Type of Business

 Street Address

 City, County State

 Zip Code

&

 Nearest Intersecting Streets

Is this location an office in the home or a business operated out of the home? Yes No

Instructions

Please tell us about **ALL locations you traveled to, what you did, and how you got there**, beginning at 3 a.m. Include all changes in location you made whether you were traveling by vehicle, bus, bike, walking, or other means. Give us as much information as you can about each location or place you stopped, no matter how short. For example, if you stop to get gas on your way to work, please record both locations separately. Also, try to record as much detail about the address as possible. For example, write 123 N. Main Street instead of 123 Main.

If you have any questions, please call 1-888-801-5368

ETC Institute

School Information

Do you currently attend school? Yes No
(This includes all levels of school, from day care to college.)

If you do not currently attend school, please go to the "Work Information" section on the next page.

What type of school do you attend?

Day Care/Preschool

K-12 (Elementary – High School)

If your answer to the question is below this line, please also answer the question below.

Vocational or trade school

Post-secondary (College, professional school)

Other (Specify): _____

Are you enrolled for 12 or more hours? Yes No

Bike Use

Of the last seven days,
How many did you ride a bike? ____ days

What was the most common purpose for your bike trip(s)?

Work

School

Shopping

Visiting

Recreation/Exercise

Other (Specify): _____

Additional Locations

Use the additional sheets provided if you have more than 10 Locations where you made a stop.

Questions?

If you have any questions,
please call **1-800-801-5368** toll-free.

ETC Institute
725 W. Frontier Circle
Olathe, KS 66061

Comments

Thank you for your participation in this important survey.

**** **Example** ****

Location 2: Where did you go next?	How did you get to Location 2?	What did you do here?
When did you arrive at this location? ____ : ____ AM PM <hr/> What is the Name of this Location? <hr/> What Type of Place/Business Is This? <hr/> Street Address (be as specific as possible) <hr/> & Nearest Intersecting Streets <hr/> City County State <hr/> Zip Code (if known) _____ Did you walk more than a block from a parking lot or bus stop to get to this location? <input type="checkbox"/> Yes If YES: where did you park? <input type="checkbox"/> No _____	What was the primary type of transportation you used? <input type="checkbox"/> Car, van, truck <input type="checkbox"/> Motorcycle or moped <input type="checkbox"/> Bicycle <input type="checkbox"/> Taxi <input type="checkbox"/> Walk <input type="checkbox"/> School Bus <input type="checkbox"/> Commercial/Service vehicle <input type="checkbox"/> Transit Bus (Specify Route: _____) <input type="checkbox"/> Other _____ <hr/> If you used a car, van, or truck for this trip . . . Were you the . . .? <input type="checkbox"/> driver <input type="checkbox"/> passenger Including yourself, how many TOTAL people were in the vehicle? _____ Including yourself, how many people from YOUR HOUSEHOLD were in the vehicle? _____ Was this a . . .? <input type="checkbox"/> Carpool <input type="checkbox"/> Vanpool <input type="checkbox"/> Neither Please indicate the following about the vehicle: Year _____ Make/Model _____ Was this your household's vehicle? Yes No How much did you pay to park? \$ _____	What did you do at this location? (check all that apply) <input type="checkbox"/> Return Home from your primary job <input type="checkbox"/> Return Home for another reason <input type="checkbox"/> Meal/Eat <input type="checkbox"/> Work <input type="checkbox"/> Work Related <input type="checkbox"/> School <input type="checkbox"/> Personal Business: _____ <input type="checkbox"/> Volunteer/Civic <input type="checkbox"/> Shop <input type="checkbox"/> Social/Recreation/Entertainment <input type="checkbox"/> Pick-Up/Drop-Off Passenger <input type="checkbox"/> Change Mode (car to bus): _____ <hr/> When did you leave this location? ____ : ____ AM PM ----- OR ----- This was the last place I went today

If You Stopped **Anywhere** Between This Location and Location 3, Provide the Information Below:

For what reason did you stop between Location 2 and 3? _____ Number of minutes stopped: _____

Where did you stop? _____

Name of Stop Location Address or Nearest Intersection City, County, and State

Each person completes an activity/travel diary for **ONE** day

See Example on back page

Circle your travel date: Monday Tuesday Wednesday Thursday Friday

Write Travel Date: _____

Person's Age: _____ Gender: Male Female

2006 WACO HOUSEHOLD ACTIVITY/TRAVEL SURVEY



**APPENDIX C:
HOUSEHOLD SURVEY DATA FILE FORMATS**

DATA FILE FORMATS

Household / Activity Travel Survey	8 pages
- Record Type 1, Household Information Data	
- Record Type 2, Personal Information Data	
- Record Type 3, Vehicle Information Data	
- Record Type 4, Activity/Trip Data	
GPS Data	
- Part 1, GPS Administrative Data File Matrix	1 page
- Part 2, Matrix of GPS Data Items	1 page

HOUSEHOLD / ACTIVITY SURVEY
 DATA FILE FORMAT

This file will contain information collected for each household: Record Type 1 - Household Information, Record Type 2 – Person Information, Record Type 3 – Vehicle Information, and Record Type 4 – Trip/Activity Information

RECORD TYPE 1 – HOUSEHOLD INFORMATION

This file will contain the household information collected for each household on Part 1, Household Information in the Household Survey. The data should be in an ASCII data file.

<u>Item</u>	<u>Begin</u>	<u>End</u>	<u>Type</u>	<u>FIELD COLUMNS</u>	
				<u>Format</u>	<u>Description</u>
1. Record Type	1	2	Numeric RJ	I2	Code indicating type of record. Here it should be 1.
2. Sample Number	3	9	Numeric RJ	I7	Unique non-zero number assigned to each household participating in survey.
3. Phone	10	21	Alphanum. LJ	A12	Phone number of household.
4. Month	22	23	Numeric RJ	I2	Month of travel day.
5. Day	24	25	Numeric RJ	I2	Day of the month of travel.
6. Day of Week	26	26	Numeric RJ	I1	Day of the week travel was recorded; 1-Monday, 2-Tuesday, 3-Wednesday, 4-Thursday, 5-Friday.
7. Advance Letter	27	28	Numeric RJ	I2	Code indicating if household received advance letter; 1-Yes, 2-No, 98-Don't Know, 99-Refused.
8. Address	29	88	Alphanum. LJ	A60	Street address or nearest cross streets of household.
9. City	89	118	Alphanum. LJ	A30	City where household is located.
10. Zip Code	119	123	Numeric RJ	I5	Zip code of household address.
11. HH County	124	125	Numeric RJ	I2	Code indicating county/area in which household is located: 1- McLennan County, 2- Bell County, 3- Fort Hood, 4- Coryell County, 5-Lampasas County 98 – Unknown, 99- Refused
12. HH Study Area	126	126	Alphanum	I1	Code indicating study area in which household address/TAZ zone is located. Use 'W' if zone is in the Waco study area.
13. HH Zone	127	131	Numeric RJ	I5	TAZ number where household is located. The HH address must be coded to a zone in the area. Unknown zones should be coded 8888.
14. Longitude	132	141	Numeric RJ	F10.6	Longitude of household address. If unknown, it should be coded 888.8888.
15. Latitude	142	151	Numeric RJ	F10.6	Latitude of household address. If unknown, it should be coded 888.8888.
16. Number Persons	152	153	Numeric RJ	I2	Number of persons living in residence.
17. Number Employed	154	155	Numeric RJ	I2	Number of persons in household that are employed either full or part time.
18. Vehicles Available	156	157	Numeric RJ	I2	Number of cars, vans, light trucks, motorcycles available for use by the HH; 98-Don't Know, 99-Refused.
19. Vehicles Owned / Leased	158	159	Numeric RJ	I2	Combined number of cars, vans, light trucks, motorcycles owned or leased by members of the household, 98-Don't know 99-Refused.
20. Bikes	160	161	Numeric RJ	I2	Number of working bicycles available for use by members of household; 98-Don't know, 99-Refused.
21. Residence	162	163	Numeric RJ	I2	Code indicating the type of residence. See below for code definitions.
22. Other Residence	164	188	Alphanum. LJ	A25	If residence is coded as "other", this field contains a description of the type of residence.
23. Tenure	189	190	Numeric RJ	I2	Code indicating number of years at residence; 0-<1yr, 1-one year, 2-two years, 3-three years, 4-four years, 5-five or more years.
24. Previous Residence	191	191	Numeric RJ	I1	If tenure was less than five years, this code indicates if previous residence was in one of the 10 modeling area counties; 1-Yes, 2-No.
25. Previous Zip Code	192	196	Numeric RJ	I5	If tenure was less than five years, this is the zip code of the previous residence.

Record 1, FIELD COLUMNS – CONTINUED

<u>Item</u>	<u>Begin</u>	<u>End</u>	<u>Type</u>	<u>Format</u>	<u>Description</u>
26. HH Factors	197	216	Alphanumeric LJ	A20	Code indicating factors that influenced their decision to locate in their current household. If more than one, separate code numbers by comma. See code definitions.
27. Other Factors	217	246	Numeric RJ	A30	Other factors influencing their decision to locate in their current household.
28. Income	247	248	Numeric RJ	I2	Code indicating combined annual income of all household members. See codes below.
29. Sample HH Income	249	250	Numeric RJ	I2	Household income stratification for sampling quota. 1=<=18k, 2=>18k - 32k, 3=>32k - 48k, 4=>48k - 73k, 5=73k or more.
30. Day Visitors	251	252	Numeric RJ	I2	Number of non-family persons that stopped at this residence for any reason on the travel day; 98-Don't Know, 99-Refused.
31. Overnight Visitors	253	254	Numeric RJ	I2	Number of overnight visitors at this residence during their travel day. 98-Don't Know, 99-Refused.
32. Delivery Vehicle	255	255	Numeric RJ	I1	Code indicating if someone in household drives a form of delivery vehicle; 1-Yes, 2-No, 98-Don't Know, 99-Refused.
33. Number Delivery Driver	256	257	Numeric RJ	I2	Number of persons in household that are delivery drivers or travel within study area as part of their work.
34. Phone Service	258	259	Numeric RJ	I2	Number of times within past 12 months household was without telephone service.
35. Time Without	260	261	Numeric RJ	I2	Code indicating the average length of time household was without phone service. See code definitions below.
36. HH Vehicle Use by Non HH Number	262	263	Numeric RJ	I2	Code indicating if one or more of the HH vehicles were used by a non-household member on the travel day. 1-Yes, 2-No, 3 - Zero vehicle household, 98-Don't Know, 99-Refused.
37. Share Phone	264	265	Numeric RJ	I2	Number of households that share a phone line with this household.
38. GPS House	266	266	Numeric RJ	I1	Code indicating if household vehicles had GPS equipment installed for GPS survey.
39. Total HH Trips	267	269	Numeric RJ	I3	The total combined number of all trips made by all persons in the household on the assigned travel day.

21. RESIDENCE

- 1 – Unattached Single Family Home
- 2 – Condo
- 3 – Duplex
- 4 – Apartment
- 5 – Mobile Home
- 6 – Other
- 98 – Don't Know
- 99 – Refused

26. HH FACTORS

- 1 – Price of Property
- 2 – Taxes
- 3 – Proximity to Work
- 4 – School District
- 5 – Proximity to School
- 6 – Character of Neighborhood or Area
- 7 – Access to Public Transportation
- 8 – Security / Safety
- 9 – Other
- 98 – Don't Know
- 99 – Refused

35. TIME WITHOUT

- 1 – Less than one week
- 2 – one week to less than two weeks
- 3 – two weeks to less than three month
- 4 – one month to less than four months
- 5 – three months to less than six months
- 6 – six months to less than one year
- 7 – one year or more
- 98 – Don't know
- 99 – Refused

28. HOUSEHOLD INCOME CODES

- 1 – Less than \$5,000
- 2 - \$5,000 to \$9,999
- 3 - \$10,000 to \$14,999
- 4 - \$15,000 to \$19,999
- 5 - \$20,000 to \$24,999
- 6 - \$25,000 to \$29,999

- 7 - \$30,000 to \$34,999
- 8 - \$35,000 to \$39,999
- 9 - \$40,000 to \$49,999
- 10 - \$50,000 to \$59,999
- 11 - \$60,000 to \$74,999
- 12 - \$75,000 to \$99,999

- 13 - \$100,000 to \$124,999
- 14 - \$125,000 to \$149,999
- 15 - \$150,000 or more

- 98 – Don't Know
- 99 – Refused

RECORD TYPE 2 – PERSON INFORMATION

This file will contain the information on each person in the household in Part 2, Person Information. The data should be in an ASCII data file.

Item	FIELD COLUMNS				
	Begin	End	Type	Format	Description
1. Record Type	1	2	Numeric RJ	I2	Code indicating type of record, here it should be 2.
2. Sample Number	3	9	Numeric RJ	I7	Unique non-zero number assigned to each household participating in survey. This number should match the sample number of the above record.
3. Person Number	10	12	Numeric RJ	I3	Number assigned to each person in the household with 0 assigned to be the head of household.
4. Relationship	13	14	Numeric RJ	I2	Code indicating relationship of person to the head of household. See code definitions below.
5. Head of household	15	16	Numeric RJ	I2	Code indicating the person number in the household 0 should be assigned to be the head of household
6. Sex	17	18	Numeric RJ	I2	Sex of person; 1-Male, 2-Female, 98- Don't Know, 99 - Refused.
7. Ethnicity	19	20	Numeric RJ	I2	Race or ethnicity of person. See code definitions below.
8. Ethnicity Other	21	80	Alphanum RJ	A60	Description of other ethnicity, which is not included in code definitions.
9. Age	81	83	Numeric RJ	I3	Age of person. 998-Don't know, 999 - Refused.
10. Licensed Driver	84	85	Numeric RJ	I2	Code indicating if person is a licensed driver; 1-Yes, 2-No, 98 - Don't Know, 99-Refused.
11. Employment	86	87	Numeric RJ	I2	Code indicating if person is employed in a paying or volunteer job; 1-Yes, 2-No, 98 – Don't Know, 99-Refused.
12. Employment Status	88	89	Numeric RJ	I2	If person is employed, this is a code number indicating the person's employment status. See code definitions.
13. Hours	90	92	Numeric RJ	I3	On average, the number of hours worked per week. 998 – don't know, 999-varies from week to week.
14. Not Employed	93	94	Numeric RJ	I2	Code indicating current status if person is not employed. See code definitions below.
15. Not Employed Other	95	154	Alphanum LJ	A60	Description of employment status if none of the options in the employment status code is applicable.
16. Delivery	155	156	Numeric RJ	I2	Code indicating if person is a delivery driver or not; 1-Yes, 2-No, 98 – Don't Know, 99-Refused.
17. Flex Time	157	158	Numeric RJ	I2	Code indicating if person's employer allows them to work flexible hours or the hours are fixed; 1-Flexible / Variable, 2-Fixed / Unchanging, 98-Don't Know, 99-Refused.
18. Job	159	160	Numeric RJ	I2	Code indicating if person has more than one paying job; 1-Yes, 2-No, 98-Don't Know, 99-Refused.
19. Employer Name	161	220	Alphanum. LJ	A60	Name of person's primary employer.
20. Workplace Type	221	222	Numeric RJ	I2	Code indicating type of workplace where person is employed. See code definitions below.
21. Other Workplace	223	252	Alphanum. LJ	A30	Description of workplace type if "other" is coded.
22. Home Office	253	254	Numeric RJ	I2	Code indicating if workplace is a home office or business operated out of the home; 1 = Yes, 2-No, 98 – Don't Know, 99 – Refused.
23. Telecommute	255	256	Numeric RJ	I2	If employed 30 or more hours per week, code indicating if person works from home or telecommutes on a regular basis; 1 = Yes, 2-No, 98 – Don't Know, 99 – Refused.
24. Workplace Address	257	316	Alphanum. LJ	A60	Street address of workplace or nearest intersecting street names.
25. Workplace City	317	346	Alphanum. LJ	A30	City where workplace is located.
26. Workplace County	347	348	Numeric RJ	I2	Code indicating county/area in which work place is located: 1- McLennan County, 2- Bell County, 3- Fort Hood, 4- Coryell County, 5-Lampasas County 98 – Unknown, 99- Refused
27. Zip Code	349	353	Numeric RJ	I5	Zip code or workplace address.
28. Work Study Area	354	354	Alphanum	I1	Code indicating study area in which work address and TAZ zone is located. Use 'W' if zone is in the Waco study area, and 'K' if the zone is in the Killeen Temple study area. Field should be left blank if location is not within one of these two study areas.

FIELD COLUMNS

<u>Item</u>	<u>Begin</u>	<u>End</u>	<u>Type</u>	<u>Format</u>	<u>Description</u>
29. Work Zone	355	359	Numeric RJ	I5	Zone where workplace is located. This should be coded to a TAZ in one of the two study areas. If unknown but in one of the study areas it should be coded 8888. Locations outside of either of the two study areas but within Texas should be coded using the Statewide Zone System and preceded by the number 1 in column 355. Unknown locations outside of the study areas but within Texas should be coded 6666. Addresses in Mexico should be coded 7777. Addresses outside of Texas and Mexico should be coded using 9999.
30. Longitude	360	369	Numeric RJ	F10.6	Longitude of workplace location. If within either of the study areas, but unknown it should be coded 888.8888. If outside either of the study areas but within Texas and unknown it should be coded as 666.6666. Locations in Mexico should be coded 777.7777 and addresses outside of Texas and Mexico should be coded 999.9999.
31. Latitude	370	379	Numeric RJ	F10.6	Latitude of workplace location. If within either of the study areas, but unknown it should be coded 888.8888. If outside either of the study areas but within Texas and unknown it should be coded as 666.6666. Locations in Mexico should be coded 777.7777 and addresses outside of Texas and Mexico should be coded 999.9999.
32. Days Worked	380	381	Numeric RJ	I2	Number of days per week person typically works. 98-Don't Know, 99-Refused.
33. Work at Home	382	383	Numeric RJ	I2	Out of the last seven days, the number of days worked at home instead of going to work. Valid responses 0-7, 98-Don't Know, 99-Refused.
34. Second Job Type	384	385	Numeric RJ	I2	Code indicating type of workplace where person works at second job. See code definitions below.
35. Second Job Other	386	445	Alphanum. LJ	A60	Description of workplace type for second job if "other" is coded.
36. Second Job Employment Status	446	447	Numeric RJ	I2	If person is employed in a second job, this is a code number indicating the person's employment status related to the second job. See code definitions below.
37. Total Hours	448	450	Numeric RJ	I3	Total hours on average person works per week at all jobs. 888-Don't know, 999-Refused.
38. Primary Occupation	451	452	Numeric RJ	I2	Code indicating the type of occupation for primary job. See code definitions below
39. Primary Industry	453	454	Numeric RJ	I2	Code indicating the type of industry worked in for primary job. See code definition below.
40. Secondary Occupation	455	456	Numeric RJ	I2	Code indicating the type of occupation for secondary job. See code definitions below
41. Secondary Industry	457	458	Numeric RJ	I2	Code indicating the type of industry worked in for secondary job. See code definition below.
42. Student Status	459	460	Numeric RJ	I2	Code indicating if person is enrolled in any type of school; 1-Yes, 2-No, 98-Don't Know, 99-Refused.
43. School Type	461	462	Numeric RJ	I2	Code indicating type of school attended. See code definitions below.
44. School Type Other	463	522	Alphanum. LJ	A60	Description of 'other' if other is coded as school type.
45. Hours Enrolled	523	524	Numeric RJ	I2	If person is enrolled in a college, trade school, etc., code indicates if person is enrolled for 12 or more hours; 1-Yes, 2-No, 98-Don't know, 99-Refused.
46. Bike Use	525	526	Numeric RJ	I2	Number of days person rode bike in last seven days. 98-Don't Know, 99-Refused.
47. Bike Purpose	527	528	Numeric RJ	I2	Code indicating the most common trip purpose for person's bike trips. See code definitions below.
48. Disability	529	530	Numeric RJ	I2	Code indicating if person has transportation disability; 1-Yes, 2-No, 98-Don't Know, 99-Refused.
49. Travel	531	532	Numeric RJ	I2	Code indicating if person traveled on the designated travel day; 1-Yes, 2-No, 96-Indicates person was out of town or away from the residence for the entire day and night of their travel day.
50 Person trips	533	535	Numeric RJ	I3	The total number of trips the person made on his/her travel day.
51. Why No Travel	536	595	Alphanum LJ	A60	Description of why the person did not make any trips on the travel day.

FIELD COLUMNS

<u>Item</u>	<u>Begin</u>	<u>End</u>	<u>Type</u>	<u>Format</u>	<u>Description</u>
52. Diary Use	596	597	Numeric RJ	I2	Code indicating if person used diary or if information is based on memory. 1 – yes, used diary; 2 – no, did not use diary; 3 – Did not receive diary; 4 – Based on memory; 98 – Don't Know; 99 – Refused
53. Data Retrieval	598	599	Numeric RJ	I2	Code indicating how data was retrieved. 01 – from respondent, 02 – by proxy, 03 – mailed diary, 04 – internet, 98 – Don't know; 99 – Refused
54. Proxy ID	600	601	Numeric RJ	I2	This item identifies the person by person number who provided the information by proxy. 98 – Don't know; 99 – Refused
55. Date data was retrieved.	602	605	Numeric RJ	I4	The month and day the data was retrieved. Record all months as 2 digits and all days as 2 digits with the month preceding the day. Example: April 1 st should be coded as 0401.

4. RELATIONSHIP

- 1 – Husband / Wife / Unmarried Partner
- 2 – Mother / Father / In-law
- 3 – Brother / Sister / In-law
- 4 – Grandfather / Grandmother
- 5 – Grandson / Granddaughter
- 6 – Son / Daughter / In-law
- 7 – Aunt / Uncle
- 8 – Other Relative
- 9 – Other Non-Relative
- 10 – Household Help
- 98 – Don't Know / Refused
- 99 – Refused

7. ETHNICITY

- 1 – Black / African American
- 2 – Hispanic / Mexican American
- 3 – Asian / Pacific Islander
- 4 – Native American
- 5 – White / Caucasian
- 6 – Other Group
- 98 – Don't Know
- 99 – Refused

14. STATUS FOR NOT EMPLOYED

- 1 – Retired
- 2 – Disability Status
- 3 – Homemaker
- 4 – Looking for Work
- 5 – Not Looking for Work
- 6 – Student
- 7 – Other
- 98 – Don't Know
- 99 – Refused

20,34. TYPE OF WORK PLACE

- 1. Office (Non-government)
- 2. Office (Government)
- 3. Retail/Shopping/Gas
- 4. Industrial/Manufacturing/Warehouse
- 5. Medical
- 6. Education – Day Care/K-12
- 7. Education – College, trade school, other
- 8. Residential
- 9. Airport
- 10. Eating Establishment
- 996 – Other
- 998 – Don't Know
- 999 – Refused

43. SCHOOL TYPE

- 1 – Day Care / Pre-School
- 2 – K-12th
- 3 – Post Secondary, College, Trade
- 4 – Other
- 98 – Don't Know
- 99 – Refused

47. BIKE TRIP PURPOSE

- 1 – Work
- 2 – School
- 3 – Shopping
- 4 – Visiting
- 5 – Recreation / Exercise
- 6 – Other
- 98 – Don't Know
- 99 – Refused

12. 36 EMPLOYMENT STATUS

- 1 Employed full time 30 or more hours per week
- 2 Employed part time less than 30 hours per week
- 3 Self employed full time 30 or more hours per week
- 4 Self employed part time less than 30 hours per week
- 98. – Don't Know
- 99 – Refused

Record Type 2, cont.

38. 40. OCCUPATION

01 – Management, professional, and related occupations
02 – Service occupations
03 – Sales and office occupations
04 – Farming, fishing, and forestry occupations
05 – Construction, extraction, and maintenance occupations
06 – Production, transportation, and material moving occupations
96 – Not applicable (unemployed / student / retired)
98 – Don't know
99 – Refused

39. 41. INDUSTRY

01 – Agriculture, forestry, fishing and hunting, mining
02 – Construction
03 – Manufacturing
04 – Wholesale trade
05 – Retail trade
06 – Transportation, warehousing, utilities
07 – Information
08 – Finance, insurance, real estate, rental and leasing
09 – Professional, scientific, management, administrative, and waste management services
10 – Education, health, and social services
11 – Arts, entertainment, recreation, accommodation, and food services
12 – Other services (except public administration)
13 – Public Administration
96 – Not Applicable – (unemployed, student, retired)
98 – Don't Know
99 – Refused

RECORD TYPE 3 - VEHICLE INFORMATION

This file will contain the information on each vehicle available to members in each household. Each vehicle will have a data record. The data should be in an ASCII data file.

<u>Item</u>	Field Columns				
	<u>Begin</u>	<u>End</u>	<u>Type</u>	<u>Format</u>	<u>Description</u>
1. Record Type	1	2	Numeric RJ	I2	Code indicating type of record, here it should be 3.
2. Sample Number	3	9	Numeric RJ	I7	Unique non-zero number assigned to each household participating in survey.
3. Vehicle Number	10	11	Numeric RJ	I2	Unique non-zero number assigned to vehicle.
4. Type of Vehicle	12	13	Numeric RJ	I2	Code indicating type of vehicle. See code definitions below.
5. Other Vehicle Type	14	48	Alphanum LJ	A35	Other vehicle type not listed in vehicle code below.
6. Year	49	52	Numeric RJ	I4	Year vehicle was manufactured; 9998-Don't Know, 9999-Refused.
7. Make	53	54	Numeric RJ	I2	Make of vehicle. See vehicle make code below.
8. Other Make	55	114	Alphanum LJ	A60	Specify other make of vehicle if not included in vehicle make code below.
9. Model	115	174	Alphanum. LJ	A60	Model of vehicle.
10. Type of Fuel	175	175	Numeric RJ	I1	Type of fuel used by vehicle; 1-Gasoline, 2-Diesel, 3- Propane, 4- Natural Gas, 5- Electricity, 6 – Other, 8-Don't Know, 9-Refused.
11. Other Fuel Type	176	190	Alphanum. LJ	A15	Other type of fuel specified..
12. Commercial Use	191	192	Numeric RJ	I2	Code indicating if vehicle is used for commercial purposes; 1-Yes, 2-No, 98-Don't Know, 99-Refused.
13. Beginning Mileage	193	200	Numeric RJ	I8	Odometer reading on vehicle at beginning of travel day. Don't Know, 99999998. Refused, 99999999.
14. Ending Mileage	201	208	Numeric RJ	I8	Odometer reading on vehicle at end of travel day. Don't Know, 99999998. Refused, 99999999.
15. Ownership	209	210	Numeric RJ	I2	Code indicating ownership of this vehicle. 1 – Owned or leased by HH or member of HH, 2 – Owned or leased by another person, 98-Don't Know, 99-Refused
16. Non HH Vehicle Number	211	212	Numeric RJ	I2	If one or more household vehicles used by non-household member, this is the number of the vehicle that was used.
17. Non HH Use	213	213	Numeric RJ	I1	Code indicating if vehicle was used by a non-household member on the travel day. 1 – Yes, 2 – No, 8 – Don't Know, 9 – Refused.

4. Type of Vehicle Codes

1. Motorcycle (includes mopeds)
2. Car (includes station wagons)
3. Van (mini and passenger)
4. Sport Utility Vehicle
5. Pickup Truck
6. Cargo Van
- 7 Commercial Cargo Transport Vehicle
- 8 Commercial Service Vehicle
- 9 Other
- 98 – Don't Know
- 99 – Refused

Record Type 3, cont.

7. Vehicle Make Codes

01 – Acura	29 – Plymouth	57 – Gillig
02 – Audi	30 – Pontiac	58 – Grumman
03 – BMW	31 – Porsche	59 – Imperial
04 – Buick	32 – Range/Land Rover	60 – International Harvester / Navistar
05 – Cadillac	33 – Saab	61 – Iveco / Magirus
06 – Chevrolet	34 – Saturn	62 – Kenworth
07 – Chrysler	35 – Subaru	63 – Lancia
08 – Dodge	36 – Suzuki	64 – Mack
09 – Ford	37 – Toyota	65 – MCI
10 – Geo	38 – Volkswagen	66 – Merkur
11 – GMC	39 – Volvo	67 – MG
12 – Harley Davidson	40 – Yamaha	68 – Moto-Guzzi
13 – Honda	41 – Daewoo	69 – Norton
14 – Hyundai	42 – Alfa Romeo	70 – Peterbuilt
15 – Infiniti	43 – AM General	71 – Peugeot
16 – Isuzu	44 – AMC	72 – Renault
17 – Jaguar	45 – Austin / Austin Healey	73 – Sterling
18 – Jeep	46 – Bluebird	74 – Thomas Built
19 – Kawasaki	47 – Brockway	75 – Triumph
20 – KIA	48 – BSA	76 – White / Autocar-White GMC
21 – Lexus	49 – Daihatsu	77 – Yugo
22 – Lincoln	50 – Diamond Reo / Reo	78 – Other Make Moped
23 – Mazda	51 – Ducati	79 – Other Make Motorcycle
24 – Mercury	52 – Eagle	97 – Other (specify)
25 – Mercedes-Benz	53 – Eagle Coach	98 – Don't Know
26 – Mitsubishi	54 – Fiat	99 – Refused
27 – Nissan/Datsun	55 – Freightliner	
28 – Oldsmobile	56 – FWD	

RECORD TYPE 4 - TRIP INFORMATION

This file will contain the trip/activity information for each person in each household. The data should be in an ASCII data file.

<u>Item</u>	<u>Begin</u>	<u>End</u>	<u>Type</u>	<u>Field Columns</u>	
				<u>Format</u>	<u>Description</u>
1. Record Type	1	2	Numeric RJ	I2	Code indicating type of record. Here it should be 4.
2. Sample Number	3	9	Numeric RJ	I7	Unique non-zero number assigned to each household participating in survey. This number must match the number used for the same household and recorded in the Household Data File.
3. Month	10	11	Numeric RJ	I2	Month of survey day.
4. Day	12	13	Numeric RJ	I2	Day of the month of the survey.
5. Person Number	14	15	Numeric RJ	I2	Number assigned to the person doing this activity.
6. Activity/Trip Number	16	17	Numeric RJ	I2	The first trip/activity for each person will be recorded as 0 for where their day began. Each subsequent trip/activity should be numbered sequentially as 1, 2, 3, etc.
7. Activity Type Code	18	19	Numeric RJ	I2	Code indicating the type of activity. See activity codes below. This may be posted coded. For activity 0 (where day began), this should be coded as a 1 if it began at home, 4 if day began at work, or as 20 if it began at another location. If this is coded as 20, the activity description should be included in item 8.
8. Activity Description	20	79	Alphanum LJ	A60	Description of Activity.
9. Location	80	109	Alphanum. LJ	A30	Name of location where activity took place.
10. Location Address	110	169	Alphanum. LJ	A60	Street address of location or name of nearest intersecting streets.
11. Location City	170	199	Alphanum. LJ	A30	Name of city where location is.
12. Location County	200	201	Numeric RJ	I2	Code indicating county/area where location is; 1- McLennan County, 2- Bell County, 3- Fort Hood, 4- Coryell County, 5-Lampasas County 98 – Unknown, 99-Refused
13. Zip Code	202	206	Numeric RJ	I5	Zip code of location address.
14. Exit Route Name	207	256	Alphanum LJ	A50	If location is outside of the Waco or Killeen Temple study area, this is the name of the highway/route/road used to exit the applicable study area.
15. Study Area	260	260	Alphanum	I1	Code indicating study area in which activity address/TAZ zone is located. Use 'W' if zone is in the Waco study area, and 'K' if the zone is in the Killeen Temple study area. Field should be left blank if location is not within one of these two study areas.
16. Zone Number	261	265	Numeric RJ	I5	Zone number of location address. If in the Waco or Killeen Temple study area but location unknown, it should be coded 8888. Locations in Mexico should be coded 7777 and addresses outside of the Waco and Killeen Temple study areas counties, but within Texas should be coded using the Statewide Zone System and preceded by the number 1 in column 261. Unknown locations outside of the Waco and Killeen Temple study areas but within the state of Texas should be coded 6666. Addresses outside of Texas and Mexico should be coded using 9999.
17. Longitude	266	275	Numeric RJ	F10.6	Longitude of location. If within either of the study areas, but unknown it should be coded 888.8888. If outside either of the study areas but within Texas and unknown it should be coded as 666.6666. Locations in Mexico should be coded 777.7777 and addresses outside of Texas and Mexico should be coded 999.9999.
18. Latitude	276	285	Numeric RJ	F10.6	Latitude of location. If within either of the study areas, but unknown it should be coded 888.8888. If outside either of the study areas but within Texas and unknown it should be coded as 666.6666. Locations in Mexico should be coded 777.7777 and addresses outside of Texas and Mexico should be coded 999.9999.

FIELD COLUMNS

<u>Item</u>	<u>Begin</u>	<u>End</u>	<u>Type</u>	<u>Format</u>	<u>Description</u>
19. Type of Place	286	287	Numeric RJ	I2	Code indicating the type of place at this location. If coded as "other", specify in the next field. See code definitions below.
20. Other Place	288	307	Alphanum. LJ	A20	Description of "other" type of place where activity occurred.
21. Purpose	308	309	Numeric RJ	I2	Purpose of trip, developed based on the activity type in Item 7. See code definitions below.
22. Mode of Travel	310	311	Numeric RJ	I2	Code indicating mode of travel used in traveling to this location. See travel mode code definitions below.
23. Other Mode	312	341	Alphanum. LJ	A30	If "other" is coded in mode of travel, this is the description of the "other" mode.
24. Number of People	342	343	Numeric RJ	I2	If travel was by private vehicle, this is the number of persons in the vehicle, including the person driving. Non-private vehicle modes should be coded 96..
25. HH Members	344	345	Numeric RJ	I2	Of those in the vehicle, how many were household (HH) members.
26. Persons on Trip	346	355	Alphanum LJ	A10	Who was/were the HH members traveling with you? Code person numbers separated by commas.
27. Non HH Members	356	357	Numeric RJ	I2	Compute Non HH Members using information from items 24 and 25.
28.HH Vehicle	358	358	Numeric RJ	I1	Was a HH vehicle used to make this trip? 1=Yes, 2=No, 8-Don't Know, 9-Refused.
29. Vehicle Used	359	360	Numeric RJ	I2	If household vehicle was used for travel, this is the vehicle number (must correspond with vehicle number in household record). If other vehicle is used, this should be coded as 99.
30. Body Type	361	362	Numeric RJ	I2	See code set for body type.
31.Other Body Type	363	397	Alphanum LJ	A35	If body type is not in code set, describe body type.
32. Other Vehicle Year	398	401	Numeric RJ	I4	Year of "other" vehicle used for trip. 9998-Don't Know, 9999-Refused.
33. Other Vehicle Make	402	403	Numeric RJ	I2	Make of "other" vehicle used for trip. See code set.
34. Other Vehicle Make Description	404	463	Alphanum. LJ	A60	If make of other vehicle is coded as other, this field contains a description of the vehicle make
35.Other Vehicle Model	464	523	Alphanum. LJ	A60	Model of "other" vehicle used for trip.
36. Other Vehicle Fuel	524	525	Numeric RJ	I2	Code indicating type of fuel used by "other" vehicle; 1- Gasoline, 2-Diesel, 3- Propane, 4- Natural Gas, 5- Electricity, 6 – Other, 98-Don't Know, 99-Refused.
37. Other Fuel	526	540	Alphanum. LJ	A15	Description of "other" fuel for "other" vehicle, if not in fuel code above.
38. Other Vehicle Classification	541	542	Numeric RJ	I2	Code indicating EPA classification of other vehicle. See code definitions below.
39. Other Vehicle Commercial Use	543	544	Numeric RJ	I2	Code indicating if "other" vehicle used for commercial purposes; 1-Yes, 2-No, 98-Don't Know, 99-Refused.
40. To Bus Stop	545	546	Numeric RJ	I2	Code indicating if they walked more than one block to get to bus stop; 1-Yes, 2-No, 98-Don't Know, 98-Refused.
41. To Activity	547	548	Numeric RJ	I2	Code indicating if they parked or got off bus more than one block from this activity; 1-Yes, 2-No, 98-Don't Know, 99- Refused.
42. Off Bus Location	549	598	Alphanum. LJ	A50	Street address or nearest intersecting streets where person got off of bus.
43. Parking Location	599	648	Alphanum. LJ	A50	Street address of nearest intersecting streets where vehicle was parked.
44. Parking Cost	649	655	Numeric RJ	F7.2	Amount paid for parking.
45. Payment Method	656	657	Numeric RJ	I2	Time period for parking cost payment; 1-Hourly, 2-Daily, 3-Weekly, 4-Monthly, 5-Annually, 98-Other, 99-Don't Know / Refused.
46. Arrival Hour	658	659	Numeric RJ	I2	Hour that person arrived at this location. This hour should be in terms of military time. If this is activity 0, this should be blank since this is where they began their day.
47. Arrival Minute	660	661	Numeric RJ	I2	Minute that person arrived at this location. If this is activity 0, this should be blank since this is where they began their day.
48. Departure Hour	662	663	Numeric RJ	I2	Hour that person departed this location. This hour should be in terms of military time. If this is the last activity, this should be blank.
49. Departure Minute	664	665	Numeric RJ	I2	Minute that person departed this location. If this is the last activity for this person, this should be blank.

Record Type 4, continued.

TYPE OF PLACE CODES

- | | |
|--|--|
| <ul style="list-style-type: none"> 1. Residential 2. Residential Type Workplace 3. Construction Site 4. Transportation stop (Bus, Train) 5. Automotive Dealer/Repair 6. Bank / Financial Institution 7. Barber/Beauty/Nail Salon 8. Bookstore/Newstand 9. Convenience / Drug Store 10. Government/City/County/State/Federal Offices 11. Offices (Non-Government) 12. Grocery | <ul style="list-style-type: none"> 13. Health Club 14. Medical Facility/Hospital 15. Movie Theater/Cinema 16. Restaurant/Fast Food, Bar&Grill 17. Educational – 12th Grade or lower 18. Educational – college, trade, etc. 19. Shopping Mall/ Department Store. 20. Convenience Store/ Gas Station 21. Airport 22. Other 98. Don't Know 99. Refused |
|--|--|

Record Type 4, Continued.

ACTIVITY TYPES

- | | |
|---|---|
| <ul style="list-style-type: none"> 1 – At Home; primary job related 2 – At Home; other 3 – At Home; job and non-job related 4 – Work 5 – Work Related 6 – School; post secondary, college, trade 7 – School; secondary-day care, kindergarten, elementary, middle, high 8 – Incidental Shopping; gas, groceries, etc. 9 – Major Shopping; clothes, appliances, etc. 10 – Banking 11 – Personal Business; laundry, dry cleaning, barber, medical, etc | <ul style="list-style-type: none"> 12 – Other Services 13 – Social / Recreational 14 – Eat Out 15 – Civic Activities (including church) 16 – Pick-up / Drop-off Person at Work 17 – Pick-up / Drop-off Person at School / Day Care 18 – Pick-up / Drop-off Person at Other 19 – Change Mode of Travel 20 – Other Activity (specify) 98 – Don't Know 99 – Refused |
|---|---|

TRIP PURPOSE CODES

- 1 – Home (Act. Codes 1,2,3)
- 2 – Meal/Eat (14)
- 3 – Work (Act. Codes 4)
- 4 – Work Related (Act. Code 5)
- 5 – School; K thru 12 (Act. Codes 7)
- 6 – School; Post Secondary (Act. Code 6)
- 7 – Shopping (Act. Codes 8,9)
- 8 – Personal (Act. Codes 10,11,12,15)
- 9 – Social / Recreation (Act. Codes 13,)
- 10 – Pick-up Drop-off Other (Act. Code 16,17,18)
- 11 – Change Mode (Act. Code 19)
- 12 – Other (Act. Code 20)
- 98 – Don't Know
- 99 – Refused

MODE OF TRAVEL CODES

- 1 – Walk
- 2 – Auto / Van / Truck Driver
- 3 – Auto / Van / Truck Passenger
- 4 – Carpool Driver
- 5 – Carpool Passenger
- 6 – Vanpool Driver
- 7 – Vanpool Passenger
- 8 – Commercial Cargo Transport Vehicle Driver
- 9 – Commercial Cargo Transport Vehicle Passenger
- 10 – Commercial Service Vehicle Driver
- 11 – Commercial Service Vehicle Passenger
- 12 – Bus
- 13 – School Bus 13 – Bicycle
- 14 – Taxi / Paid Limo 14 – Motorcycle / Moped
- 15 – Bicycle 15 – Other
- 16 – Motorcycle / Moped 98 – Don't Know
- 17 – Other 99 – Refused
- 98 – Don't Know
- 99 – Refused

HOUSEHOLD/ACTIVITY SURVEY
 GPS DATA PART 1 – GPS ADMINISTRATIVE DATA FILE MATRIX

Item #	Variable Name	Variable Description	Data Type	Justificat	Field Width	Collectio n Stage	Values
GC-1	UNIT_ID	ID link to Admin File	I	RJ	3	GPS	Ordinal Variable
GC-2	HH_ID	Household ID Number	I	RJ	6	Admin	
GC-3	FILE	File Name	A	LJ	8	Admin	Travel Date_ Box#(e.g.,0511_b2)
GC-4	VEHNUM	Vehicle Number	I	RJ	2	REC	
GC-5	YEAR	Vehicle X – Year	I	RJ	4	REC	
GC-6	MAKE	Vehicle X – Make	A	LJ	20	REC	
GC-7	MODEL	Vehicle X – Model	A	LJ	20	REC	
GC-8	BEG_OD	Odometer Reading when GPS Installed	I	RJ	8	GPS	#####.#
GC-9	END_OD	Odometer Reading when GPS Unit Removed	I	RJ	8	GPS	#####.#
GC-10	INST_DATE	Date GPS Unit Installed	I	RJ	6	GPS	
GC-11	INS_TIME	Time GPS Unit Installed	I	RJ	4	GPS	HHMM (Military Time – include leading zero for single digit hour or minute)
GC-12	REM_DATE	Date GPS Unit Removed	I	RJ	6	GPS	
GC-13	REM_TIME	Time GPS Unit Removed	I	RJ	4	GPS	HHMM (Military time – include leading zero for single digit hour or minute)
GC-14	POWER	Power Source	I	RJ	1	GPS	1=Switched; 2=Continuous
GC-15		1 st Vehicle Start Time	I	RJ	4		HHMM (Military time – include leading zero for single digit hour or minute)
GC-16		1 st Vehicle Stop time	I	RJ	4		HHMM (Military time – include leading zero for single digit hour or minute)
GC-17		2 nd Vehicle Start Time	I	RJ	4		HHMM (Military time – include leading zero for single digit hour or minute)
GC-18		2 nd Vehicle Stop Time	I	RJ	4		HHMM (Military time – include leading zero for single digit hour or minute)
“		“	“	“	“	“	“
GC-N		Nth Vehicle Stop Time	I	RJ	4		HHMM (Military time – include leading zero for single digit hour or minute)

Household/Activity Travel Survey
GPS DATA Part 2 – Matrix of GPS Data Items

Item #	Variable Name	Variable Description	Data Type	Just.	Field Width	Coll. Stage	Verify Stage	Values	Formal and Full Text
GR-1	RECTYPE	Record Type	I	RJ	2	A	NA	GPS Record Type =5	CORRECTED DATA
GR-2	GPS_ID	GPS Receiver Unit ID Number	A	LJ	20	GPS	NA	AAA1234567	
GR-3	Unit_ID	ID Number Linked to Admin. ID File	I	RJ	3	A	NA		
GR-4	GMT_DATE	Greenwich Mean Time Date Stamp	I	RJ	10	GPS	NA	MM/DD/YYYY (include leading zero for sinel month or day)	
GR-5	GMT_TIME	Greenwich Mean Time Time Stamp	I	RJ	5	GPS	NA	HH:MM (Military Time – include leading zero for single hour or minute)	
GR-6	LOC_DATE	Local Date Stamp	I	RJ	10	GPS	NA	MM/DD/YYYY (include leading zero for sinel month or day)	
GR-7	LOC_TIME	Local Time Stamp	I	RJ	5	GPS	NA	HH:MM (Military Time – include leading zero for single hour or minute)	
GR-8	LAT_RAW	Latitude	F	RJ	16	GPS	NA	Degrees	XXX.XXXXXX deg
GR-9	LONG_RAW	Longitude	F	RJ	16	GPS	NA	Degrees	XXX.XXXXXX deg.
GR-10	ELEV_RAW	Elevation	F	RJ	16	GPS	NA	Meters	
GR-11	VELOCITY	Velocity	F	RJ	8	GPS	NA	Meters/second	0..514.00m/s
GR-12	HEADING	Direction of Vehicle	F	RJ	6	GPS	NA	True north	0.0 ..359.9 deg