HOUSEHOLD TRAVEL SURVEY
FOR
JACKSON AND LAKEWAY TENNESSEE

BY

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INTRODUCTION

Travel information for Tennessee households residing in smaller communities has not been collected since the 1970's. A household survey was conducted in 2006/07 for the Morristown area (Lakeway Area Planning Commission) and Jackson (Jackson Municipal Regional Planning Commission). Lakeway including Hamblin County and the northeastern part of Jefferson County had a 2000 population of 102,800 persons. Jackson by comparison had a 2000 population of 92,010 and included all of Madison County. The household surveys were conducted between November 2006 and April 2007. The survey forms, telephone procedures coding procedures, etc are described in a comparison report. In Jackson there were 474 completed household surveys representing 1084 persons or 2.3 person per household. The Lakeway survey included 498 households and 1089 persons or 2.2 persons per households. Lakeway was chosen to participate in the household survey because it is a new MPO being created after the 2000 census. It lies within commuting distance of the larger Knoxville metropolitan area. Jackson by comparison is in West Tennessee and represents a major regional center for a large geographical area, being somewhat isolated from other metropolitan areas. It was hypothesized the communities of similar sizes in different geographic area would make for an interesting comparison of travel behavior.

CHARACTERICSTICS OF HOUSEHOLDS PARTICIPATING IN THE SURVEY

One question that must be addressed is how representative was the sample of respondents to the general population? As noted in Table 1, the demographic characteristics of the two communities are generally comparable. Based on the 2000 census data Lakeway has a lower household size but higher number of vehicles per household than Jackson at 2.34

Table 1. Comparison of Survey Households vs. Census

Survey	Jackson, TN 11/06-4/07		Lakeway, TN 11/06-4/07	
Number of Households (HH)	474		498	
Household sizes	Survey	Census*	Survey	Census*
1	23.2%	23.5%	30.7%	31.4%
2	36.3	42.8	35.1	38.2
3	20.3	18.4	16.1	16.8
4+	20.2	15.3	18.1	13.7
Number of Persons	1088		1085	
Number of Vehicles	1001		1024	
Vehicle Owned by Household				
0	2.7%	2.1%	6.0%	5.2%
1	27.4	28.4	29.9	29.0
2	43.3	43.3	37.2	37.9
3	16.5	17.1	16.3	16.3
4+	10.1	9.1	10.6	11.6

*2000 census data for Madison county and Hamblen County

persons/HH vs. 2.45 persons/HH and 1.83 vehicles/HH vs. 1.72 vehicles/HH. The survey respondents in both communities have a lower household size than the general population as presented by census data, but both communities have a higher vehicle ownership rate than the general population. In general the survey includes a lower response rate for household sizes of two persons, but higher or equal rate for households of three or more members.

One area of discrepancy between the households interviewed and the general population was the age of participates (Table 2).

Table 2. Survey Respondents by Age

Age	Jackson		Census	Lakeway		Census*
	Number	Percentage	Percentage	Number	Percentage	
<5	2	.2	7.0	2	.2	6.6
5-12	114	32.6	42.4	106	30.3	38.7
13-17	81			78		
18-34	150			143		
35-54	345	32.5	28.5	321	29.7	28.1
55-64	152	14.3	10.1	177	16.4	12.4
65+	216	20.4	12.0	253	23.4	14.2
Na	24	---	---	9	---	
Total	1084	100%	100%	1089	100	
Medium age		35.41 yrs		38.23 yrs		

The participation in the survey by persons 55 years or older was higher than their presence in the population. For example, 20.4 percent of the individual participants in Jackson and 23.4 percent of the household in Lakeway were over the age of 65 vs. only 12 percent and 14 percent respectively in the general community as reported in the 2000 census.

TRAVEL CHARACTERISTICS

A total of 4252 trips were reported for Jackson which translates into 8.97 person trips/HH or 3.91 trips/person. By comparison Lakeway had 4388 trips or 8.83 person trips/HH or 4.04 trips/person. These are "raw" trips that were not adjusted to reflect the relative trip making rates of various cohorts of the cross-classification table that were represented in the survey. The adjusted trip rates were 8.4 trips/HH for Jackson and 9.2 trips/HH for Lakeway. The adjustment process will be discussed in another section of the report. Figures 1 and 2 note the geographical distribution of households in both communities. The results indicate a reasonable distribution throughout the community.

In both communities about 15 percent of the trips were classified as home based work, 6 percent home based school, 10 percent home based shop, 32 percent home based other and 37 percent non-home based (Table 3). The comparison between the two communities is within a range of +/- one percent of each other.

Table 3. Trip Purposes

	Jackson		Lakeway	
	Number	Percentage	Number	Percentage
Home-based work (HBW)	661	15.6%	643	14.7%
Home-based School (HBS)	293	6.9	262	6.0
Home-based shop (HBSh)	418	9.8	450	10.2
Home-based Other (HBO)	1339	31.5	1405	32.0
Non-home based (NHB)	1541	36.2	1626	37.1

Trips were defined from activities reported in the household surveys (Table 4). The most common activity was returning home, followed by paid work, shopping and then personal business. Interesting, picking up or dropping off passengers represented about 8 percent of all activities in both communities. Again a reasonably close comparison exists between the two communities, generally of the range of +/- one percent.

Table 4. Activities by Households

	Jackson		Lakeway	
	Number	Percent	Number	Percent
1-Return Home	1347	31.7%	1374	31.3%
2-Paid Work	638	15.0	592	13.5
3-School	187	4.4	182	4.1
4-Vounteer Work	28	.7	53	1.2
5-Pick up/Drop off	338	8.0	339	7.7
6-Social,Rec.	353	8.3	384	8.8
7-Catch Bus or Airplane	6	.0	3	.0
8-Shop	565	13.3	586	13.4
9-Personal Bus.	465	10.9	490	11.2
10-External	311	7.3	324	7.4
11-Other	14	.3	61	1.4

Trip Making by Gender. Over half of the respondents in both communities were females as noted in Table 5. Males in Jackson had a slightly higher per capita trip rate, but the reverse is true for Lakeway.

Table 5. Survey Respondents and Trip Rates by Gender

	Jackson		Per capita trip rate per day	Lakeway		Per capita trip rate per day
	Number	Percent		Number	Percent	
Male	494	45.8	4.00	506	44.3	3.69
Female	585	54.2	3.89	635	55.7	3.96
NA	5	---	---	5	---	---
Total	1084	100	3.94	1146	100	3.83

Trip Making by Age. Trips per person increases until the age of 35-54 and then begins to decline. Only the age brackets of 35-54 and 55-64 exceeds the average trip rates for the community. The observed pattern is valid for both communities (Table 6).

Table 6. Trip Making by Age Category

Age	Jackson		Trip Rate	Lakeway		Trip Rate
	Number	Trips		Number	Trips	
<17	197	591	3.0	186	648	3.5
18-34	150	555	3.7	143	552	3.9
35-54	345	1592	4.6	321	1426	4.4
55-64	152	641	4.2	177	759	4.3
65+	216	799	3.7	253	1003	4.0
Total	1060	4178	3.9	1080	4388	4.1

Trip Making by Household Size and Vehicle Ownership. Household trip rates vary by household size and automobile ownership. In both communities as the household size increases so does the household trip rate (Table 7).

Table 7. Survey Respondents and Trip Rate by Household Size

Household Size	Jackson		Lakeway	
	Number of HH's	HH Trip Rate	Number of HH's	Trip Rate
1	110	3.86	153	3.73
2	172	8.24	175	8.27
3	96	9.64	80	12.18
4+	96	15.46	90	15.52
N/avg.	474	8.97	498	8.81

The household size data provides an interesting distortion in the survey results. For households with a household size of three the household trip rate for Lakeway is 25 percent higher than for Jackson.

As with household size, a similar trend is noted in that the trip rate increases with the number of vehicles per household (Table 8).

Table 8. Survey Respondents and trip Rate by Household Vehicle Ownership

Vehicles/HH	Number of HH's	HH Trip Rate	Number of HH's	HH Trip Rate
0	13	3.46	30	3.00
1	130	5.10	149	6.30
2	205	10.03	185	9.48
3+	126	11.80	134	11.99
N/avg.	474	8.97	498	8.81

It is interesting to note that households with three or more vehicles per household make three times the number of daily trips as households without a vehicle.

Trip Making by Employment and Student Status. Of the survey respondents in Jackson, 48 percent of the persons had a paying job outside the home. For Lakeway the results are a little lower indicating only 44 percent had a job outside the house. The average job per person are 1.1 for both Jackson and Lakeway. This equates to 1.09 persons per household employed outside the house in Jackson and .97 in Lakeway. As the number of persons employed in a household increases so does the number of trips in the household (Table 9).

Table 9. Survey Respondents and Trip Rate by Jobs for Members of Household

Jobs Per Household	Number of HH's	Trip Rate	Number of HH's	Trip Rate
0	147	6.25	191	5.77
1	148	8.46	155	8.74
2+	177	11.75	151	12.78
Total	472	8.47	497	8.81

In Jackson, 33 percent of the households had a student in residence. Similarly, the number of students for Lakeway is 28 percent. The trip rates increase for households with more students, probably a reflection of larger household sizes (Table 10).

Table 10. Survey Respondents and Trip Rate by Number of Students in Household

Number of Students in Household	Number of Jackson		Number of Lakeway	
	HH's	Trip Rate/HH	HH's	Trip Rate/HH
0	317	7.02	355	6.67
1	83	10.19	74	11.54
2	51	16.04	44	15.27
3+	21	17.33	24	20.54
Total	472	8.97	497	8.81

The classification of students is noted in Table 11.

Table 11. Classification of Students

School Level	Jackson		Lakeway	
	Number	Percent	Number	Percent
Elementary/Middle & High School	187	73.9	181	73.3
College/University	47	18.6	45	18.2
Trade or vocation	3	1.2	6	2.4
Other or NA	16	6.3	15	6.1
Total	253	100.0	247	100.0

Trip Making by Children in Household. Children were present in over 39 percent of the Jackson and 29 percent of the Lakeway households that responded to the survey. A child was defined as an individual of 18 years or less. The number of children in households are noted in Table 12.

Table 12. Survey Respondents and Trip Rate by Children in Households

Children in HH	Number of Jackson		Number of Lakeway	
	HH's	Trip Rate/HH	HH's	Trip Rate/HH
0	286	7.01	355	6.67
1	98	10.19	71	11.54
2	65	16.03	44	15.27
3	23	17.33	24	20.54
Total	472	8.97	494	8.81

In both communities the number of household trips increases with the number of children, in part because of a higher household size. For 60 percent of the Jackson and 71 percent of the Lakeway households no child was present. The presence of a child will put that household over the average household trip rate for the community.

Trip Making by Retired or Unemployed Status. In other categories individuals could be classified as retired or unemployed, but actively looking for work (Table 13).

Table 13. Survey Respondents and Trip Rate by Employment Status

Status	Jackson		Lakeway	
	Persons	Trip Rate/Person	Persons	Trip Rate/Person
Retired	229	3.68	242	3.95
Unemployed	17	4.06	14	1.79
Employed Full or Part-Time	513	4.48	482	4.52

Again similarities are noted between the two communities for retired and unemployed persons. A distortion is noted for the unemployed persons, who are seeking employment. The person trip rate in Jackson is twice that of the Lakeway group, but the sample sizes were low. Employed persons have a 15 to 20 percent higher trip rate than retired persons.

Trip Making by Life Status. Life status also affect trip making. Households were grouped into older (defined as the head of the household being 35 years or greater) or younger (the head of the household less than 35 years) and secondly with or without the presence of children and the results are noted in Table 14.

Table 14. Survey Respondents and Trip Rate by Life Status

Life Status	Number of Jackson		Number of Lakeway	
	HH's	HH Trip Rate	HH's	HH Trip Rate
Younger Without Children	28	6.82	35	5.00
Older Without Children	309	7.13	312	7.03
With Children	128	14.15	143	13.88

Households with children have twice the trip rate than those households without children in the household. Older households have a higher trip rate.

TRAVEL BY MODE

In both Jackson and Lakeway personal transportation is highly dependent on the personal mobility provided by the private vehicle (Table 15). In fact, over 95 percent of the trips in both communities were made by private vehicle, either as a driver or passenger. Also in both communities, trips made by school bus exceeded those made by regular public transportation. When investigating the purpose of travel on public transportation systems, a great majority of them were made for the purpose of traveling to and from school. Interestingly, in Jackson one percent of the trips were made by public transportation bus vs. .7 percent in Lakeway. However Jackson has a fixed route-fixed schedule bus system which is not available in Morristown. In both communities walking and bicycle riding represent less than two percent of all trips.

Table 15. Mode of Transportation By Survey Respondents

Mode of Transportation	Jackson		Lakeway	
	Number	Percent	Number	Percent
Auto Driver	3185	74.9%	3154	71.9%
Auto Passenger	898	21.1	1048	23.9
Motorcycle	2	--	3	--
Bus	43	1.0	28	.7
School Bus	79	1.9	71	1.6
Taxi, etc	0	--	5	.1
Walk,[x] Bike & Other	45	1.1	79	1.8

Trip Purpose for Bus Riders		
HBO	16.3%	10.7%
HBShop	7.0	--
HBSchool	69.7	89.3
HBW	---	--
NHB	7.0	--
	n = 43	n = 28

Modal travel characteristics also varies with the number of vehicles owned by the household. Households that did not own a private vehicle had over 38 percent of trips

made by a mode other than a private vehicle. Generally as vehicle ownership increases the dependence on the private vehicle increases. Households with 3+ private vehicles in both communities made over 97 percent of all trips by private vehicles (Table 16).

Table 16. Percent of Trips by Vehicles in Household

Private Vehicle Owned in HH	Jackson			Lakeway		
	Private Veh. Driver	Private Veh. Rider	Other	Private Veh. Driver	Private Veh. Rider	Other
0	17.5	45.0	37.5	0	61.1	38.9
1	74.6	18.2	7.2	71.7	23.7	4.6
2	72.5	24.0	2.9	72.7	24.6	3.5
3+	80.1	17.0	2.9	75.4	21.9	2.7

DID NOT TRAVEL ON SURVEY DAY

One interesting fact from the survey is the number of respondents that did not travel on the survey day. Sixteen percent of the respondents did not travel on the survey day in Jackson vs. 13 percent in Lakeway. This translates into over 25 percent of the households in both communities having at least one member not traveling on the survey day (Table 17). By comparison six percent of the households in Jackson and nine percent of the households in Lakeway had no member of the household travel on the survey day (Table 17). These households were dominated by families not owning a private vehicle.

Table 17. Number of Household Not Traveling on the Survey Day

Number of Households	Jackson		Lakeway	
	Number	Percent	Number	Percent
Number One in Household Traveling on Survey Day	28	5.9%	44	8.8%
• 0 Vehicle	3	25.0	11	36.6%
• 1 Vehicle	15	11.1	21	14.1
• 2^+ Vehicle	10	12	12	3.8
Number of Households Having at Least One Member Not Traveling on Survey Day	137	28.9%	122	24.5%
• 0 Vehicle	7		12	
• 1 Vehicle	35		36	
• 2^+ Vehicle	55		41	
• 3^+ Vehicle	40		33	
Number of Person Not Traveling on Survey Day	15.9%		13.2%	

CROSS CLASSIFICATION TABLES

The raw unadjusted survey indicated 8.97 trips/HH for Jackson and 8.83 trips/HH for Lakeway. The rates per person was 3.91 for Jackson and 4.40 for Lakeway. When the data is adjusted to reflect the percent of population in each cell the weighted trip rate was 8.4 and 9.2 trips/HH for Jackson and Lakeway respectively. The weighted adjusted tables are noted in Appendix A.

Cross-Classifications (Table 18) were developed based on household size and vehicle ownership for total trips. Because of the small samples in some cells, the cross-classification tables were simplified based on research conducted by the Ohio Department of Transportation (Table 19). Even after extensive efforts in Jackson the number of households participating in the survey with zero vehicles was only 13 observations, seventeen less than the desired minimum sample of 30 established for each cell. In general the trip rates between the two communities are comparable; however, one issue is households with one vehicle and 3+ household members where the Lakeway trip

rate was 13.6 trips per household vs. only 6.8 for Jackson. The percent of households of 10 and five respectively in this cell can serve to distort the results. Cross-classification tables were also developed by trip purpose and are presented in Appendix B.

Table 18. Total Person Trip Cross Classification

Jackson HH Sample Size					
	HH SIZE				
HHVEH	1	2	3	4+	Total
0	7	2	4	0	13
1	80	27	18	5	130
2	21	107	30	47	205
3+	2	36	44	44	126
Total	110	172	96	96	474

Total Jackson HH Trips					
	HH SIZE				
HHVEH	1	2	3	4+	Total
0	17	12	16	0	45
1	312	179	138	34	663
2	88	920	332	717	2057
3+	8	307	439	733	1487
Total	425	1418	925	1484	4252

Jackson HH Trip Rate					
	HHSIZE				
HHVEH	1	2	3	4+	Total
0	2.4	6.0	4.0	.00	3.4
1	3.9	6.6	7.7	6.8	5.1
2	4.2	8.6	11.1	15.3	10.0
3+	4.0	8.5	10.0	16.7	11.8
Total	3.9	8.2	9.6	15.5	9.0

Lakeway HH Sample Size					
	HH SIZE				
HHVEH	1	2	3	4+	Total
0	27	1	1	1	30
1	87	38	14	10	149
2	31	84	32	38	185
3+	8	52	33	41	134
Total	153	175	80	90	490

Table 18. Total Person Trip Cross Classification (Cont.)

Total Lakeway HH Trips					
	HH SIZE				
HHVEH	1	2	3	4+	Total
0	67	0	12	11	90
1	359	275	168	136	938
2	124	741	342	547	1754
3+	20	431	452	703	1606
Total	570	1447	974	1397	4388

Lakeway HH Trip Rate					
	HHSIZE				
HHVEH	1	2	3	4+	Total
0	2.5	0.0	12.0	11.0	3.0
1	4.1	7.2	12.0	13.6	6.3
2	4.0	8.8	10.7	14.4	9.5
3+	2.5	8.3	13.7	17.1	12.0
Total	3.7	8.3	12.2	15.5	8.8

Table 19. Total Person Trip Cross Classification Simplified Tables

# of HH	Lakeway Household Size			
HHVEH	1	2	3	4+
0				30
1		38	14	10
2			32	38
3+	125	136	33	41

Mean	Lakeway Household Size			
HHVEH	1	2	3	4+
0				3.0
1		7.2	12.0	13.6
2			10.6	14.3
3+	4.0	8.6	13.6	17.1

Table 19. Total Person Trip Cross Classification Simplified Tables (Cont.)

Std. Dev.	Lakeway Household Size			
HHVEH	1	2	3	4+
0				3.3
1		5.3	7.2	7.8
2			5.4	8.7
3+	2.8	5.1	5.3	7.5

# of HH	Jackson Household Size			
HHVEH	1	2	3	4+
0				13
1		27	18	5
2			29	47
3+	103	143	43	44

Mean	Jackson Household Size			
HHVEH	1	2	3	4+
0				3.4
1		6.6	7.6	6.8
2			11.4	15.2
3+	3.9	8.5	10.2	16.6

Std. Dev.	Jackson Household Size			
HHVEH	1	2	3	4+
0				2.5
1		4.5	4.4	5.5
2			5.7	9.5
3+	2.5	5.0	6.3	8.0

# of HH – Number of Households in Cell
Mean – Average Trip Rate/Household
Std. Dev. – Standard Deviation in Household Trip Rate
HHVEH – Number of Vehicles in Household

FINDINGS

Ultimately the question is raised if the travel characteristics of households residing in Jackson are similar to residents residing in Lakeway. While this question requires a statistical analysis, a cursory review indicates many similarities in the travel characteristics of the communities, but there remain some issues. Both surveys were plagued by obtaining a minimum sample size of 30 households in each household size and vehicle ownership cell. Special attempts to recruit households of one member with three or more vehicles or households with three or more members and one vehicle did not meet with success. A special issue was reaching persons without a vehicle at any household size. Because of the small sample size households with three or more household members and one vehicle has a relatively large difference in the trip rate between the two communities. This cell represents approximately seven percent of the households in both Jackson and Lakeway. While less than 10 percent of households in both communities did not own a vehicle, the survey data is also very limited for this cell. A simplified cross classification table was utilized to increase the sample sizes. Table 20 provides comparable data for Knoxville and Nashville, Tennessee where household travel data was collected in 2000-01. In broad categories there are again similarities between the four communities. These relationships will be tested with formal statistical analyses.

Table 20. Comparison of Household Surveys with Knoxville and Nashville, TN

Survey	Jackson, TN 11/06-4/07		Lakeway, TN 11/06-4/07		Knoxville, TN 11/00-2/01		Nashville, TN 11/00-2/01	
Number of households (HH)	474		498		1530		2204 (2183)	
Household sizes	Survey	Census*	Survey	Census*	Survey	Census°°	Survey	Census°
1	23.2%	23.5%	30.7%	31.4%	26%	27%	23%	25%
2	36.3	42.8	35.1	38.2	34	34	38	33
3	20.3	18.1	16.1	16.6	19	19	18	19
4+	20.2	15.3	18.1	13.7	21	20	21	23
Persons/HH	2.30	2.45*	2.18	2.35*	2.42		2.25	
Vehicles/HH	2.11	1.72*	2.06	1.83*	1.82		1.95	
Number of Trips	4252		4388		12631			
Trips/HH	9.2		8.5		8.21		8.20	
Trips/Person	3.91		4.04		3.84		3.50	
Trip Purpose								
Home-based Work (HBW)	661	15.6%	643	14.7%		15.1%		16.6%
Home-based School HBS)	293	6.9	262	6.0		8.5		6.0
Home-based Shop (HBSh)	418	9.8	450	10.2		42.7		44.00
Home-based Other (HBO)	1339	31.5	1405	32.0				
Non-home Based (NHB)	1541	36.2	1626	37.1		33.7		33.4

Table 20. Comparison of Household Surveys with Knoxville and Nashville, TN (Cont.)

Mode of Transportation	Jackson	Lakeway	Knoxville	Nashville
Auto Driver	74.9%	71.9%	74%	
Auto Passenger	21.1	23.9	21	93.3%
Motorcycle	--	--	--	--
Bus	1.0	.7	<1	<1
School Bus	1.9	1.6	3	4.0
Taxi, etc	--	.1	--	--
Walk, Bike & Other	1.1	1.0	<1	1.9
Number of Households				
No member in Household Traveling on Survey Day	5.9%	8.8%	13%	NA
Number of Person Not Traveling on Survey Day	15.9%	13.2%	15%	17%

Trips by Vehicles Owned/HH	Jackson		Lakeway		Knoxville	Nashville	
0	1.1%		2.1%		9%		
1	15.6		21.4		32		
2	48.3		40.0		39		
3	22.0		20.6		21		
4^+	13.0		15.9				
Vehicle Owned by HH	Survey	Census*	Survey	Census*		Survey	Census°
0	2.7%	2.1%	6.0%	5,2%	NA	3.4	7.5
1	27.4	28.4	29.9	29.0		29.6	32.8
2	43.3	43.3	37.2	37.8		43.7	40.6
3	16.5	17.1	16.3	16.3		16.1	13.3
4^+	10.1	9.1	10.6	11.6		7.3	4.9

Table 20. Comparison of Household Surveys with Knoxville and Nashville, TN (Cont.)

Trips by Activity					
1-Return Home	31.7%	31.3%	33%	NA	
2-Paid Work	15.0	13.5	16		
3-School	4.4	4.1	7		
4-Vounteer Work	.7	1.2	NA		
5-Pick up/Drop off	8.0	7.7	9		
6-Social,Rec.	8.3	8.8	7		
7-Catch Bus. Airplane	.0	--	NA		
8-Shop	13.3	13.4	11		
9-Personal Bus.	10.9	11.2	11		
10-External	7.3	7.4	5		
11-Other	.3	1.4	1		

**2000Census refers to Madison and Hamblen County*
***Final Report Prepared by NuStats – Knoxville 7/15/01, and technical report by NuStats, July 1989*
°1997 Estimate
weighted

APPENDIX A

Adjustment of Trip Rates
Based on Population Distributions

Lakeway Adjusted Trip Rate

Household Size				
HHVEH	1	2	3	4+
0				6.5 x 3.0
1	20.5 x 4.00	8.6 x 7.2	3.6 x 120	2.9 x 13.6
2		26.0 x 8.0	6.5 x 13.7	9.7 x 14.4
3+				8.0 x 17.1

xx.x – Percent population in cell
yy.y – Trip rate for cell,
9.2 adjusted person trip rate

Jackson Adjusted Trip Rate

Household Size				
HHVEH	1	2	3	4+
0				9.6 x 3.5
1	21.0 x 4.0	8.0 x 6.0	4.1 x 7.7	3.7 x 6.8
2		22.9 x 8.6	7.6 x 11.4	10.0 x 15.3
3+			5.6 x 10.2	7.5 x 16.7

xx.x – Percent population in cell
yy.y – Trip rate for cell,
8.5 adjusted person trip rate

APPENDIX B

Cross-Classification tables

By Trip Purpose

For Jackson and Lakeway MPO's.

Cross Classification Tables
TOTAL PERSON TRIP'S

Jackson HH Sample Size					
	Jackson HH SIZE				
HHVEH	1	2	3	4+	Total
0	7	2	4	0	13
1	80	27	18	5	130
2	21	107	30	47	205
3+	2	36	44	44	126
Total	110	172	96	96	474

Total Jackson HH Trips					
	HH SIZE (HHSIZE				
HHVEH	1	2	3	4+	Total
0	17	12	16	0	45
1	312	179	138	34	663
2	88	920	332	717	2057
3+	8	307	439	733	1487
Total	425	1418	925	1484	4252

Jackson HH Trip Rate					
	HHSIZE				
HHVEH	1	2	3	4+	Total
0	2.4	6.0	4.0	.00	3.4
1	3.9	6.6	7.7	6.8	5.1
2	4.2	8.6	11.1	15.3	10.0
3+	4.0	8.5	10.0	16.7	11.8
Total	3.9	8.2	9.6	15.5	9.0

HH - Household
HHVEH - Vehicles in Household
HHSIZE – Household Size
Trip Rate – Person trips per day

Cross Classification Tables
TOTAL PERSON TRIP'S

Lakeway HH Sample Size					
	Lakeway HH SIZE				
HHVEH	1	2	3	4+	Total
0	27	1	1	1	30
1	87	38	14	10	149
2	31	84	32	38	185
3+	8	52	33	41	134
Total	153	175	80	90	490

Total Lakeway HH Trips					
	HH SIZE (HHSIZE				
HHVEH	1	2	3	4+	Total
0	67	0	12	11	90
1	359	275	168	136	938
2	124	741	342	547	1754
3+	20	431	452	703	1606
Total	570	1447	974	1397	4388

Lakeway HH Trip Rate					
	HHSIZE				
HHVEH	1	2	3	4+	Total
0	2.5	0.0	12.0	11.0	3.0
1	4.1	7.2	12.0	13.6	6.3
2	4.0	8.8	10.7	14.4	9.5
3+	2.5	8.3	13.7	17.1	12.0
Total	3.7	8.3	12.2	15.5	8.8

# of HH	Jackson Household Size			
HHVEH	1	2	3	4+
0				13
1		27	18	5
2			29	47
3+	103	143	43	44

HH - Household
HHVEH - Vehicles in Household
HHSIZE – Household Size
Trip Rate – Person trips per day

MEAN (TOTAL)	Jackson Household Size			
HHVEH	1	2	3	4+
0				3.5
1		6.6	7.7	6.8
2			11.4	15.3
3+	4.0	8.6	10.2	16.7

MEAN (HBO)	Jackson Household Size			
HHVEH	1	2	3	4+
0				1.4
1		2.6	3.1	1.0
2			4.1	5.1
3+	1.2	2.5	2.5	5.6

MEAN (HBP)	Jackson Household Size			
HHVEH	1	2	3	4+
0				0.5
1		1.0	0.7	0.4
2			0.9	1.0
3+	0.5	1.1	0.7	1.3

MEAN (HBS)	Jackson Household Size			
HHVEH	1	2	3	4+
0				0.5
1		0.3	1.4	3.4
2			0.7	2.2
3+	0.0	0.0	0.5	2.1

MEAN (HBW)	Jackson Household Size			
HHVEH	1	2	3	4+
0				0.3
1		0.6	0.6	0.6
2			2.1	1.8
3+	0.8	1.3	2.4	2.4

MEAN (NHB)	Jackson Household Size			
HHVEH	1	2	3	4+
0				0.9
1		2.2	1.9	1.4
2			3.6	5.2
3+	1.5	3.7	4.1	5.3

Std. Dev. (TOTAL)	Jackson Household Size			
HHVEH	1	2	3	4+
0				2.5
1		4.5	4.4	5.6
2			5.7	9.5
3+	2.6	5.1	6.3	8.1

Std. Dev. (HBO)	Jackson Household Size			
HHVEH	1	2	3	4+
0				1.5
1		2.7	3.1	1.4
2			3.2	4.5
3+	0.8	1.6	2.6	3.7

Std. Dev. (HBP)	Jackson Household Size			
HHVEH	1	2	3	4+
0				1.0
1		1.3	1.6	0.9
2			1.4	1.7
3+	0.8	1.6	1.0	1.8

HH - Household
HHVEH - Vehicles in Household
HHSIZE – Household Size
Trip Rate – Person trips per day

Std. Dev (HBS)	Jackson Household Size			
HHVEH	1	2	3	4+
0				0.9
1		0.9	1.6	3.3
2			1.0	1.9
3+	0.1	1.6	0.8	1.6

Std. Dev (HBW)	Jackson Household Size			
HHVEH	1	2	3	4+
0				0.8
1		1.1	0.7	0.9
2			1.4	1.3
3+	1.2	0.7	1.9	1.9

Std. Dev (NHB)	Jackson Household Size			
HHVEH	1	2	3	4+
0				1.3
1		2.7	1.9	2.6
2			2.8	5.7
3+	1.7	1.9	4.4	4.8

# of HH	Lakeway Household Size			
HHVEH	1	2	3	4+
0				30
1		38	14	10
2			32	38
3+	125	136	33	41

HH - Household
HHVEH - Vehicles in Household
HHSIZE – Household Size
Trip Rate – Person trips per day

MEAN (Total)	Lakeway Household Size			
HHVEH	1	2	3	4+
0				3.0
1		7.2	12.0	13.6
2			10.7	14.4
3+	4.0	8.6	13.6	17.1

MEAN (HBO)	Lakeway Household Size			
HHVEH	1	2	3	4+
0				1.1
1		2.5	3.7	4.3
2			3.4	5.2
3+	1.4	2.6	4.1	5.2

MEAN (HBP)	Lakeway Household Size			
HHVEH	1	2	3	4+
0	0.6			
1		1.2	1.3	2.0
2			0.8	0.9
3+	1.4	1.2	1.3	0.9

MEAN (HBW)	Lakeway Household Size			
HHVEH	1	2	3	4+
0				0.1
1		0.8	1.3	1.6
2			1.9	1.8
3+	0.5	1.4	2.3	3.0

HH - Household
HHVEH - Vehicles in Household
HHSIZE – Household Size
Trip Rate – Person trips per day

MEAN (NHB)	Lakeway Household Size			
HHVEH	1	2	3	4+
0				1.1
1		2.5	3.6	3.5
2			4.3	4.8
3+	1.7	3.5	5.3	5.9

Std. Dev. (TOTAL)	Lakeway Household Size			
HHVEH	1	2	3	4+
0				3.4
1		5.3	7.2	7.8
2			5.5	8.8
3+	2.9	5.2	5.3	7.5

Std. Dev (HBO)	Lakeway Household Size			
HHVEH	1	2	3	4+
0				1.8
1		2.2	3.0	4.1
2			2.7	4.7
3+	1.6	2.6	2.8	3.3

Std. Dev. (HBP)	Lakeway Household Size			
HHVEH	1	2	3	4+
0				1.1
1		1.7	1.3	2.5
2			1.1	1.3
3+	0.7	1.5	1.4	1.2

HH - Household
HHVEH - Vehicles in Household
HHSIZE – Household Size
Trip Rate – Person trips per day

Std. Dev. (HBS)	Lakeway Household Size			
HHVEH	1	2	3	4+
0				0.4
1		0.6	1.9	2.2
2			0.7	1.9
3+	0.2	0.3	0.9	2.1

Std. Dev. (HBW)	Lakeway Household Size			
HHVEH	1	2	3	4+
0				0.4
1		1.2	1.6	1.4
2			1.6	1.4
3+	0.8	1.7	1.5	1.9

Std. Dev. (NHB)	Lakeway Household Size			
HHVEH	1	2	3	4+
0				1.9
1		3.3	3.6	3.8
2			3.8	5.2
3+	2.0	3.7	3.5	6.0

HH - Household
HHVEH - Vehicles in Household
HHSIZE – Household Size
Trip Rate – Person trips per day

Weighted Trip Rate

Lakeway
Jackson

INTRODUCTION

This section provides details regarding the design, implementation, and results of the Travel Study conducted for the Lakeway Area MPO. The study was completed between October, 2006 and May, 2007 to determine travel patterns for households in this geographic area. The Lakeway Area includes all of Hamblen County and specific zip codes in Jefferson County: 37890, 37877, and 37760. The study was conducted by the Center for Transportation Research at the University of Tennessee.

Data needed for analysis for this project was collected in two stages. Separate survey instruments were designed for recruiting participants and for retrieving their travel information. The data were collecting utilizing a Computer Assisted Telephone Interviewing (CATI) system.

Participants for this study were recruited utilizing a random digit dialing (RDD) sample from the study area. The sample was purchased from the Market Systems Group. Letters introducing the study were mailed to the households whose addresses could be secured. For those households who did not receive a letter, the study was introduced during the recruiting interview. Households who agreed to participate were assigned a travel date and were asked to record their travel for a 24 hour period. Travel days included all weekdays and travel dates were randomly assigned. Travel dates were generally assigned no less than four days and no more than seven days from the recruiting date. Study quotas were assigned so that households with larger numbers and/or fewer vehicles were included.

Efforts to retrieve the travel information from the households began the day after their assigned travel date. A total of 849 households were recruited to participate in this study. Of these, travel information was retrieved from household for all household members over the age of four. Results from this analysis can be found at the end of this report.

SURVEY INSTRUMENTS AND MATERIALS

All data collection for the household travel study was completed by the Social Science Research Institute (SSRI) utilizing a Computer Assisted Telephone Interviewing (CATI) system. Two survey instruments were developed to collect data at two separate stages of the study. Information from the first stage, the recruitment stage, was saved and imported for use in the retrieval stage.

The survey followed a seven step process.

1) A letter was mailed to households with known addresses to identify the study and prepare the household for a recruitment call.
2) A recruitment call solicited participation in the travel study to gather household demographic information, and to assign a travel date.
3) A packet was assembled for households that contained personalized diaries and additional information regarding the purpose of the study.
4) A reminder call was made the night before the scheduled travel date. Messages were left on answering machines as needed.
5) Retrieval interview to secure travel information for the household was made.
6) Incentives were mailed to the households who had been recruited after the use of incentives had been implemented.
7) Data were compiled and checked for accuracy. Addresses that had not been previously assigned an X/Y coordinates were submitted for geocoding.

Pre-Notification Letter: A pre-notification letter was mailed to all households with a known address. The purpose of this letter was to introduce the study and to increase the cooperation rate. Official letterhead and envelopes with the University of Tennessee's symbol were used for the mailing. It is the experience of SSRI that these letters provide legitimacy to the study and assist the interviewer in building rapport with the household. Receipt of this letter will dispel suspicions that household information is being gathered for unethical reasons. The template for the Pre-notification Letter can be found in Appendix ?.

Recruitment Interview: The purpose of the recruitment interview was to introduce the travel study to each household contacted and to encourage participation in the study. Once the household had agreed to participate, an interview was completed to obtain household demographic information. This information included gender and age of each member of the household, employment status for each member, number of vehicles in the household, and household income. The recruitment survey instrument can be found in Appendix ??

Travel Packet: A travel packet was mailed to each household the day following recruitment. The outer envelope had the official University of Tennessee logo on it and the message "Survey Materials Enclosed" was stamped on the outside with orange ink. The packet included a cover letter further explaining the study, identifying the sponsoring agency, and providing phone numbers for members of the research team in the event participants had any questions. A pamphlet was included that had been designed to provide further information about the goals of the study. Personalized diaries were also

included for each household member over the age of four. The diaries were designed for participants to record their travel or trip information to improve recall during the retrieval interview. A label was attached to the front of each diary that included the first name of the household member, the last name of the household member, the Household Identification Number, and the travel date. A business reply envelope was enclosed in the packet for participants to return their diaries after their travel information had been retrieved.

Reminder Call: A reminder call was placed the day before the scheduled travel date. The purpose of the call was threefold: to confirm the travel packet had been received; to confirm that the travel date was acceptable; to remind the participant of their travel date and to answer any questions about how to record the travel information. If the travel packet had not been received, the travel date was assigned for the same day of the following week and a new packet was mailed the following morning. If the participant indicated an unwillingness to participate on their schedule date, efforts were made by the interviewers to reschedule the interview date and diaries with the new date were mailed out.

Retrieval Interview: Attempts to retrieve the travel information from members of the household began on the day following the assigned travel date. The interviews were completed utilizing the CATI system that had been programmed to prompt the interviewers to probe for additional trips or stops that might not have been recorded in the diaries. An electronic list of businesses and addresses was available for ease in the retrieval process. The retrieval questionnaire can be found in Appendix ??

SAMPLE DESIGN AND RESPONSE RATE

The sample for this study was purchased from Marketing Systems Group (MSG). The sample was a random digit dialing (RDD) sample – a sampling process which provides known, or directly determinable probabilities of selection. MSG has created a database of phone numbers, or sampling frame, in which the numbers have a known and equal probability of selection. The database was constructed using the logic that the incidence of any the ten digit telephone number (Area Code/Prefix/Two digit bank/Two digit suffix i.e. (865) 974-2200 viewed as 865/974/22/00) can be determined. Phone numbers are assigned in "working banks" – the first two digits of the last four digits constitute a working bank and the last two digits are randomly assigned. This results in telephone numbers being created in series of 100 numbers (i.e. 865-974-2200 through 865-974-2299). If two more numbers from this series is associated with a listed telephone household, then it is considered a "working bank". By compiling information from several different databases, the incidence of a prefix and working bank can be determined for any defined geographic region.

A variety of sources are used to develop the database. One of these sources is the Bellcore Tape which contains all dialable combinations of area codes and prefixes. In addition, the Donnelly Quality Index Database (DQID) is incorporated to supplement

information from the Bellcore Tape. The DQID contains all information from all residential directories and is used to create a two digit working bank and the geographic distribution of area codes and prefixes. A third source is Claritas/NPDC (National Planning Data Corporation) Update File for its current zip code level household and population demographic estimates. A fourth source is the US Postal Service Tape to determine the geographic correspondence of valid 5 digit zip codes.

The sampling frame for this study is all zip codes in Hamblen County and three zip codes from Jefferson County. These zip codes are 37890 in White Pine and 37877 and 37760 in Jefferson City. All "working banks" for this geographic were included in the frame. Business numbers were included and were screened out during the recruiting stage. The sample was run against the "listed sample" database so that addresses could be provided for mailing the pre-notification letters but all numbers were attempted regardless of whether or not an address was found.

To ensure that the information gathered is reflective of the overall population; quotas were established for combinations of household members and the number of vehicles available for use. Households with fewer vehicles than the number of household members have historically been difficult to recruit for travel studies. Households with no vehicles have been particularly difficult to recruit for participation. To combat this difficulty, a decision was made during the course of the study to offer an incentive to potential participants. A $5 Wal-Mart gift card was initially offered and was eventually increased to a gift card worth $10.

RESPONSE RATES

The response rate is of importance to researchers in their attempt to avoid non-response bias. Because the travel study was completed in two distinct stages, the recruiting stage and the retrieval stage, response rates will be calculated for each stage.

COMPONENT RESPONSE RATES

The overall response rate for the recruiting component is calculated using the formula prescribed by the Council of American Survey Research Organizations (CASRO). In order to calculate the response rate, it is first necessary to calculate the number of eligible unknown numbers to allocate to the response rate calculation. This can be determined by first calculating the eligibility rate by dividing the eligible units (5,714) by the sum of the total eligible units and the total ineligible units (5,714 + 6,666 = 12,380). The rate is 46.2% so the allocation for the eligibility unknown numbers is 1,041 (.42 x 2,254).

The recruitment response rate is calculated using the following formula:

Recruitment Response Rate = Recruits/(Recruits+Refusals+46.2% of Eligibility Unknown Units)
Recruitment Response Rate = 848/(848+4,866+1,041) = 848 / 6,755
Recruitment Response Rate = 13%

CALL OUTCOME	
Eligible Units	
Recruited	848
Refused to participate	4,866
Sub-Total Eligible	5,714
Ineligible Units	
Disconnected/non-working	3,705
Business/Government	1,513
Over Quota/Not Qualified	1,448
Sub-Total Ineligible Units	6,666
Eligibility Unknown Units	
No answer	1,334
Call Back	22
Answering machine	775
Busy	123
Sub-Total Eligibility Unknown Units	2,254
TOTAL:	14,634

RETRIEVAL COMPONENT RESPONSE RATE

The retrieval component rate is calculated using the same formula as used above. Because the recruited households are de facto eligible, the response rate for the retrieval component is simply the number of completed interviews divided by the total number of recruits or 498 / 848 = 59% response rate.

CALL OUTCOME	
Eligible Units	
Completed	498
Refused to participate	172
Pending	151
Disconnected	27
TOTAL:	848

OVERALL RESPONSE RATE

The overall response rate is calculated by multiplying the response rates from both of the components. The result is 8% (.13 x .59). Response rates continue to be a concern for researchers because low response rates may result in non-response bias. However, because this phenomenon is widespread, extensive research has been done to determine the effects of low response rates on the quality of the data. According to AAPOR, the American Association of Public Opinion Research, "…consumers of survey results should treat all response rates with skepticism, since these rates do not necessarily differentiate reliably between accurate and inaccurate data. Instead consumers should pay attention to other indicators of quality… low levels of missing data, and conformity with other research findings" (http://www.aapor.org/responseratesanoverview/4-27-08).

INTERVIEWER TRAINING

All telephone interviewers at the Social Science Research Institute (SSRI) have undergone extensive training in proper telephone interviewing techniques, refusal conversions, and quality data entry. The use of the Computer Assisted Telephone Interviewing (CATI) system minimizes data entry error by programming the interviewing screens to only accept appropriate responses for individual questions. Training also involves the completion of mock interviews with other interviewers and supervisors before the interviewer is allowed to complete "live" interviews. Supervisors monitor interviews in progress, utilizing a virtual feature in the software program, to further ensure the quality of data entry. This virtual feature allows the supervisor see the interviewers screen and the information being recorded while listening to the interview.

Telephone interviewers are chosen to work on specific projects based upon their longevity with the institute, the quality of their work, and their comfort level with a particular project. An overview of the household travel project was presented to all interviewers and a list of those that were interested in working on this project was compiled. The project manager and supervisors chose interviewers from this list after careful consideration of their qualifications. These interviewers were required to complete further training on the specifics of the household travel survey.

The project specific training included a thorough explanation of the purpose of the study and the components required to complete an interview. A deeper understanding of the purpose of the study would enable the interviewer to be better equipped to answer questions posed by the respondents. A thorough discussion of the process from recruiting through travel retrieval was provided along with explanations of how the data would be used. Interviewers were provided with detailed information regarding the number of households needed for the project and the household makeup of the target populations. Interviewers were also trained in proper methods to prompt for additional information during the interview. For instance, the importance of asking respondents if they had made any additional stops between reported trips was stressed in the training.

Refusals by potential participants are inevitable in survey research. However, the goal is to keep these refusals as low as possible to minimize non-response bias. Research and experience has shown that some interviewers are more capable of converting refusals than others. The more experienced interviewers were specially trained in tactics to convert refusals and were the only interviewers allowed to make contact with households who had previously refused.

SURVEY METHODS

The seven-step process used for this project was previously detailed in the "Survey Instruments and Materials" section. CAN WE ELIMINATE THIS SECTION?

1) A letter was mailed to households introducing the household travel study and informing them that a call from SSRI would be coming in the next few days.

2) An initial call was made to recruit households to participate in the study. Demographic information was obtained for all household members during this interview. A travel date was randomly assigned during this interview; however a change in the travel date was made upon the request of the participant.

3) A travel packet was prepared and mailed to the household on the following day. The packet included a cover letter, a pamphlet providing additional information about the sponsors of the project, personalized travel diaries for all household members over the age of four, and a postage paid return envelope.

4) A reminder phone call was made the day preceding the assigned travel day. The purpose of the call was to confirm receipt of the travel packet and to answer any questions posed by the participant. Changes in travel dates could be made at this time.

5) Retrieval calls were made starting the day after the assigned travel date. Follow-up calls were scheduled if all household members were not available during the initial retrieval call. Interviewers were trained and prompted on their computer screens to probe for additional trips/stops that were not recorded and the address information for these stops. Interviewers were also trained to input the number assigned to business addresses that had been geocoded. Participants were instructed to return their diaries in the reply envelope included in the travel packet.

6) Due to the difficulty in recruiting households with certain demographics, i.e. no vehicles, larger households with fewer vehicles, a $5 Wal-Mart gift card and eventually a $10 Wal-Mart gift card was used as an incentive. When the travel diaries were returned, the gift card was mailed. A thank you letter and receipt of payment form was enclosed with the gift card.

7) Data were reviewed for accuracy. Addresses that had not been geocoded previously were submitted for geocoding.

Additional steps are required in order to complete a travel study and are outlined in the following table. These steps – geocoding address for X/Y coordinates and data quality checks -are ongoing and are done in conjunction with the data collection. Data collected by the interviewers are submitted to staff responsible for geocoding and any data requiring more information is submitted back to the interviewing staff.

DATA FLOW PROCESS

STAGE	STAGE DESCRIPTION	PROGRESSION CRITERIA
1	Geocoding of businesses and school address to begin a master list. Addresses assigned a LOCID with associated X/Y coordinate	• None
2	Generate sample	• None
3	Household address match for sample	• If address could be assigned, go to Stage 4 • If address could not be assigned, go to Stage 5
4	Pre-notification letter mailed	• None
5	Recruitment Interview – Households are recruited to participate in travel study. Demographic information for all household members is gathered and travel date is assigned.	• If interview is completed, goes to stage 6 and stage 7 • If interview is not completed, sample management rules are applied and number may be reattempted
6	Household, employment, and school data submitted for geocoding	• If employment and school address information geocodes, LOCID assigned and master list of businesses and schools is updated • If household address geocodes, LOCID assigned • If household does not geocode, record is flagged for verification during retrieval interview
7	Travel diary packet is prepared and mailed	• Goes to Stage 8
8	Reminder call – Recruited households are contacted to confirm receipt of travel diaries, to be reminded of travel date, and to answer any questions	• If diaries have been received, go to stage 9 • If diaries have not been received, confirm address information and reassign travel date to following week, go to stage 7 • If household refuses, household is assigned to specialized interviewer for an attempted conversion
9	Travel Day – Household members record travel on assigned day	• None

10	Retrieval interview – The first retrieval call is placed the day following travel day.	• If all information is retrieved for household, go to stage 11 and stage 13 • If partial information is retrieved, call backs are scheduled and does not progress • If travel was not completed on assigned day, go to stage 5 • If household refuses, household is reassigned to specialize interviewer for an attempted conversion
11	Travel diaries returned – Request is made for household to return diaries. Incentives are mailed when the diaries are returned.	• If diaries are returned, go to stage 12 • If diaries are not returned, no progression
12	Incentives mailed – Wal-Mart gift cards are mailed with a receipt of payment form and return envelope. Households are requested to sign the receipt of payment form and return in the provided business reply envelope.	• None
13	Data Processing – data is reviewed and prepared for geocoding	• If data meets criteria for completeness, goes to Stage 14 • If data does not meet criteria for completeness, requests for callbacks/verifications are made
14	Geocoding of Trip Ends – all new address information is geocoded	• If address geocodes, LOCID is assigned and Master list is updated • If address does not geocode, callbacks/verifications are scheduled
15	Data Quality checks – data is reviewed to ensure quality standards	• If passes, goes to Stage 16 • If data does not pass, household assigned for callback/verification
16	Process complete	• None

HOUSEHOLD VARIABLES

Variable	Description	# Missing/Total Eligible	Completion Rate
HHVEH	Number of household vehicles	0 / 498	100%
HHSIZE	Number of household members	0 / 498	100%
RESTYPE	Type of residences	0 / 498	100%
OWN	Ownership of home	9 / 498	99.6%
INCLV	Income Level	59 / 498	88.2%
INCOME	Income category	85 / 498	82.9%
NWORK	Number of workers in household	0 / 498	100%
NSTUD	Number of students in household	0 / 498	100%

PERSON VARIABLES

Variable	Description	# Missing/Total Eligible	Completion Rate
RELAT	Relation to respondent from recruiting respondent	3/1187	99.3%
GEND	Person X – Gender	5/1147	99.6%
AGE	Person X – Age	11/1147	99.0%
LIC	Person X – Valid drivers license	3/933	99.7%
DISAB	Person X – Disability	5/933	99.5%
EMPLY	Person X – Employment status	5/949	99.5%
PRIMA	Person X – Primary Economic Activity	6/466	98.7%
JOBS	Person X – Number of jobs	0/483	100%
HOURS	Person X – Number of hours worked at primary job	17/483	96.5%
HOURS2	Person X – Number of hours worked at second job	7/38	81.6%
DAYS	Person X – Number of weekly work hours	0/480	100%

Variable	Description	# Missing/Total Eligible	Completion Rate
EMPLR	Person X – Name of employer	6/443	98.6%
WMODE	Person X – Travel mode to work	0/464	100%
EDUC	Person X – Level of education	15/1084	98.6%
SCHOL	Person X – Student status	6/1084	99.4%
ENROL	Person X – Type of school	0/247	100%
SMODE	Person X – Travel mode to school	4/247	98.4%