

## UMATILLA COUNTY SUMMARY OF FINDINGS

### I Executive Summary

#### Introduction

The purpose of the 1996 Oregon Travel Behavior Survey is to provide information suitable for gaining an in-depth understanding of the activity and travel behavior of both households in non-metropolitan areas and the individuals within those households. The sampling approach used was designed to ensure that representative statewide data were obtained.

The 1996 Oregon Travel Behavior Survey was conducted under the auspices of the Oregon Department of Transportation. This survey relied on the willingness of area residents to complete diary records of their daily travel. Recruitment of households was conducted through a "recruitment interview" in which respondents were informed of the survey, its purpose and the respondent's obligation to complete diaries. Data on households and household members were also collected during the recruitment interview.

Participating households were assigned a "2-day travel period", which typically occurred 10 days after recruitment. Household members were asked to record travel information in their diaries for the specified 48-hour period. Immediately after the assigned date, households were contacted to retrieve the diary information.

The survey consisted of a scientifically formulated sample design, appropriate instruments for data collection, a package of written materials to communicate with survey respondents, a toll-free survey hotline, and data collection, processing and reporting procedures that comported to standards of the Council of American Survey Research Organizations (CASRO).

Data collection of Umatilla County was conducted from April to November 1996. Data collection resulted in 468 recruited households. Of these, 328 provided the necessary information to result in completed surveys. The total number of activities reported was 22,583, and the total number of trips was 5,305. These totals translate into an average of about 68.85 activities and about 16.17 trips per household for the two-day period. There were too few 6+ person households to make reliable estimates of trips per day.

#### Average Person Trips Per Day

- One-person households averaged 3.62 trips per day,
- Two-person households averaged 6.56 trips per day,
- Three-person households averaged 9.75 trips per day,
- Four-person households averaged 13.40 trips per day,
- Five-person households averaged 16.20 trips per day.

The average rate for all households was roughly eight (8) trips per day.

#### Summary of Methods

The accompanying "Technical Memorandum" describes the sampling methodology in detail.

## II Sampling and Response

### Sample Design

The universe consists of households in the cities of Hermiston and Pendleton in Umatilla County. The household count for the study area was 14,729 households. It was determined using projections of annual growth rates from 1994 and/or 1995 commercial estimates. For purposes of the survey, a household was defined as “all persons currently living in the same dwelling who typically share meals together as well as share at least a part of their income.”

The Oregon Travel Behavior Survey used a random sample of telephone numbers in the study area. A random sample is one in which the probability, or relative chance, that any given household will be included in the sample is the same for all households in the universe. The sampling frame for the Oregon Travel Behavior Survey consisted of listed and unlisted telephone numbers for Umatilla County drawn in proportion to their distribution within the county. Due to the nature of the sampling frame requested in the survey proposal, households without telephones were excluded from the sample.

The Umatilla County sample included the cities of Hermiston (zip code 97838) and Pendleton (zip code 97801). These zip codes cover 60% of the households in the county.

### Response Rate

The Oregon Travel Behavior Survey used a two-stage sampling process (household recruitment and household retrieval). In such a case, response rates for recruitment and retrieval stages are reported independently, and then an overall response rate is reported by multiplying the two rates.

The **recruitment rate** is calculated using the following formula:

$$\text{Recruitment rate} = \frac{\text{Number of Recruited Households}}{\text{Number of Eligible Households in Sample}}$$

The number of recruited households is known - 468 households. The number of eligible households in the sample is calculated from the dispositions recorded for each sample piece. Contact attempts yielded three types of sample dispositions: (1) Eligible Sample, (2) Ineligible Sample, and (3) Eligibility Unknown Sample (see Table II-1). In estimating the eligible households, the number of eligible sample units is combined with a pro-rated number of eligibility unknown sample units. The pro-rated number is determined by totaling the number of eligible and ineligible sample, and then identifying the portion of the total comprised by eligible or ineligible sample. The number of eligible households is then calculated by adding the proportion of unknown sample (65%) to the total number of recruited households. The recruitment rate for households in Umatilla County was 43% of all eligible households.

Recruitment Rate Calculation		
	Calculation	Total/ Percent
Number of Recruited Households	468	
Total Number of Eligible and Ineligible Sample	737 + 401	1,138
Proportion of Eligible Sample	737 / 1,138	65%
Proportion of Ineligible Sample	401 / 1,138	36%
Number of Eligible Households	737 + 350	1,087
Recruitment Rate	468 / 1,087	43%

**Table II-1**

**Final Sample Dispositions (n=1,676)**

Dispositions	Frequency	Percent	Total Number and Percent
<b>Eligible Sample</b>			44.0%
Recruited	468	63.5	
Second Refusal	129	17.5	
Terminated in middle of interview	33	4.48	
Over Quota	107	14.5	
			737
<b>Ineligible Sample</b>			23.9%
Disconnected Number	204	50.8	
Deaf/Language	22	5.69	
Business/Government	115	15.6	
Computer/Fax	51	12.7	
Non-Qualified	6	1.50	
Non-Resident	3	.7	
			401
<b>Eligibility Unknown Sample</b>			32.1%
First Refusal	207	38.5	
No Answer	117	21.7	
Busy	11	2.0	
Answering Machines	125	23.2	
Call Back Appointments/Requests	78	14.5	
			538
<b>Total Sample Pieces</b>	<b>1,676</b>	<b>100.0</b>	

The **completion rate** is the rate at which recruited households complete the survey process. It is a measure of sample attrition, which is one determinant of sample bias. This rate is calculated by dividing the total number of completed surveys (328) by the total number of recruited households (468). A completion rate of 70% was obtained. The **Overall Response Rate** is calculated by multiplying the recruitment rate (43%) by the completion rate (70%) for a rate of 30%.

The final day-of-week distribution is displayed in Table II-2. It shows a greater number of interviews completed for the beginning of the week, which should be taken into consideration during analysis.

**Table II-2  
Travel Day of Week Distribution  
(n=328)**

Travel Day Pairs	Percent
Monday/Tuesday	25.0%
Tuesday/Wednesday	22.3%
Wednesday/Thursday	18.0%
Thursday/Friday	20.1%
Friday/Saturday	11.3%
Sunday/Monday	3.4%

## Survey Validation

The objective of validation was to estimate the precision of the survey results and evaluate the reasonableness of the survey results. The survey validation involved comparing regional population and housing characteristics with the 1990 STF-3A Census data for Umatilla County for reasonableness. In 1990 Umatilla County had 59,249 residents in 22,047 households; the total number of housing units was 24,333 while the number of occupied housing units was 22,020. During the study, 468 households were recruited, and 328 actually completed the survey. A completed household is one in which all members of the household completed a travel and activity diary. The following three tables (II-3, II-4, and II-5) compare survey data to Census parameters to identify potential biased estimates.

Low-income households (under \$10,000) are under-represented in the survey sample as compared to Census data (Table II-3). Several factors account for this discrepancy. First, it is likely that many of the households that refused to answer the income question fell into this category. Second, the survey contacted only telephone households, while the Census reached every household. Non-telephone households tend to have lower incomes than telephone households, and this bias is reflected in the data. Third, many low income households are hourly workers who are also multiple job holders. These people are difficult to reach via telephone because they are not home during regular calling hours. Fourth, many low income households also report low educational levels. Persons with low education are often intimidated by the survey diary package.

When compared to Census data, two-person households are over-represented in the sample, whereas 5+ person households are under-represented (Table II-4). The factors underlying these discrepancies include the following. Two person households typically do not have a large number of activities and travel to report. Therefore, the burden in terms of participation is relatively light. Large households, on the other hand, usually must report a greater number of trips. Therefore, the perceived burden of the survey is greater. In addition, to be "complete" all members of the household must have provided data. It is more difficult to retrieve activity and travel data from all members of large households. The sample distribution in terms of number of vehicles owned diverges from the Census data in terms of no-vehicle and one-vehicle households (Table II-5). These households are typically low-income households, and thus, are subject to the factors noted above concerning low-income households.

**Table II-3  
Household Income**

<b>Income</b>	<b>Recruited Households (n=468)</b>	<b>Completed Households (n=328)</b>	<b>Census Data (n=22,047)</b>
\$0-\$4,999	1.1%	0.9%	7.3%
\$5,000-\$9,999	3.4%	3.0%	11.7%
\$10,000-\$14,999	9.0%	9.8%	12.1%
\$15,000-\$19,999	7.3%	6.7%	12.1%
\$20,000-\$24,999	7.1%	6.4%	11.2%
\$25,000-\$29,999	7.9%	9.5%	8.9%
\$30,000-\$34,999	5.8%	6.4%	9.0%
\$35,000-\$39,999	6.2%	6.4%	6.5%
\$40,000-\$44,999	7.9%	8.8%	5.2%
\$45,000-\$49,999	7.7%	8.2%	3.7%
\$50,000-\$54,999	8.1%	8.5%	3.0%
\$55,000-\$59,999	5.8%	6.1%	2.4%
\$60,000-\$100,000	10.3%	9.5%	5.3%
\$100,000 or more	3.0%	2.1%	1.6%
Refused	9.6%	7.6%	--

**Table II-4  
Household Size**

<b>Persons per Household</b>	<b>Recruited Households (n=468)</b>	<b>Completed Households (n=328)</b>	<b>Census Data (n=22,047)</b>
1 Person	20.5%	21.0%	24.2%
2 Persons	39.5%	43.0%	34.8%
3 Persons	15.2%	15.5%	15.5%
4 Persons	15.0%	13.7%	14.1%
5 Persons	6.2%	4.6%	7.0%
6 Persons	3.0%	1.5%	3.2%
7 or More Persons	0.6%	0.6%	1.1%
Refused	0.0%	0.0%	--

**Table II-5  
Vehicles available per Occupied Housing Unit**

<b>Vehicles Available</b>	<b>Recruited Households (n=468)</b>	<b>Completed Households (n=328)</b>	<b>Census Data (n=22,020)</b>
None	2.6%	3.0%	7.0%
One	20.9%	23.2%	31.8%
Two	39.7%	41.2%	39.9%
Three	21.6%	19.8%	15.2%
Four	8.5%	7.6%	4.4%
Five or More	6.6%	5.2%	1.8%
Refused	0.0%	0.0%	--

### III Household Characteristics

The following tables provide information about respondents' households. Where available, collected data is compared to Census Data.

**Table III-1  
Household Size by Income (Completed Households=328)**

Income		HH Size						Row Total
		1	2	3	4	5	6+	
<b>less than \$4,999</b>	Count	1	1	1	0	0	0	<b>3</b>
	Row %	33.3%	33.3%	33.3%	0.0%	0.0%	0.0%	
	Column %	1.4%	0.7%	2.0%	0.0%	0.0%	0.0%	<b>0.9</b>
<b>\$5,000 to \$9,999</b>	Count	7	1	2	0	0	0	<b>10</b>
	Row %	70.0%	10.0%	20.0%	0.0%	0.0%	0.0%	
	Column %	10.1%	0.7%	3.9%	0.0%	0.0%	0.0%	<b>3.0%</b>
<b>\$10,000 to \$14,999</b>	Count	18	6	4	2	1	1	<b>32</b>
	Row %	56.3%	18.8%	12.5%	6.3%	3.1%	3.1%	
	Column %	26.1%	4.3%	7.8%	4.4%	6.7%	14.3%	<b>9.8%</b>
<b>\$15,000 to \$19,999</b>	Count	10	7	2	0	2	1	<b>22</b>
	Row %	45.5%	31.8%	9.1%	0.0%	9.1%	4.5%	
	Column %	14.5%	5.0%	3.9%	0.0%	13.3%	14.3%	<b>6.7%</b>
<b>\$20,000 to \$24,999</b>	Count	3	12	2	4	0	0	<b>21</b>
	Row %	14.3%	57.1%	9.5%	19.0%	0.0%	0.0%	
	Column %	4.3%	8.5%	3.9%	8.9%	0.0%	0.0%	<b>6.4%</b>
<b>\$25,000 to \$29,999</b>	Count	7	14	3	5	2	0	<b>31</b>
	Row %	22.6%	45.2%	9.7%	16.1%	6.5%	0.0%	
	Column %	10.1%	9.9%	5.9%	11.1%	13.3%	0.0%	<b>9.5%</b>
<b>\$30,000 to \$34,999</b>	Count	5	10	2	3	0	1	<b>21</b>
	Row %	23.8%	47.6%	9.5%	14.3%	0.0%	4.8%	
	Column %	7.2%	7.1%	3.9%	6.7%	0.0%	14.3%	<b>6.4</b>
<b>\$35,000 to \$39,999</b>	Count	3	11	3	2	1	1	<b>21</b>
	Row %	14.3%	52.4%	14.3%	9.5%	4.8%	4.8%	
	Column %	4.3%	7.8%	5.9%	4.4%	6.7%	14.3%	<b>6.4</b>

(Table continues on next page)

**Table III-1 (Continued)  
Household Size by Income (Completed Households=328)**

Income		HH Size						Total
		1	2	3	4	5	6+	
<b>\$40,000</b> to <b>\$44,999</b>	Count	2	12	4	6	5	0	<b>29</b>
	Row %	6.9%	41.4%	13.8%	20.7%	17.2%	0.0%	
	Column %	2.9%	8.5%	7.8%	13.3%	33.3%	0.0%	<b>8.8%</b>
<b>\$45,000</b> to <b>\$49,999</b>	Count	1	13	6	5	0	2	<b>27</b>
	Row %	3.7%	48.1%	22.2%	18.5%	0.0%	7.4%	
	Column %	1.4%	9.2%	11.8%	11.1%	0.0%	28.6%	<b>8.2%</b>
<b>\$50,000</b> to <b>\$54,999</b>	Count	4	13	3	7	1	0	<b>28</b>
	Row %	14.3%	46.4%	10.7%	25.0%	3.6%	0.0%	
	Column %	5.8%	9.2%	5.9%	15.6%	6.7%	0.0%	<b>8.5%</b>
<b>\$55,000</b> to <b>\$59,999</b>	Count	0	9	6	4	1	0	<b>20</b>
	Row %	0.0%	45.0%	30.0%	20.0%	5.0%	0.0%	
	Column %	0.0%	6.4%	11.8%	8.9%	6.7%	0.0%	<b>6.1%</b>
<b>\$60,000</b> to <b>\$100,000</b>	Count	2	14	6	6	2	1	<b>31</b>
	Row %	6.5%	45.2%	19.4%	19.4%	6.5%	3.2%	
	Column %	2.9%	9.9%	11.8%	13.3%	13.3%	14.3%	<b>9.5%</b>
<b>more than \$100,000</b>	Count	0	6	1	0	0	0	<b>7</b>
	Row %	0.0%	85.7%	14.3%	0.0%	0.0%	0.0%	
	Column %	0.0%	4.3%	2.0%	0.0%	0.0%	0.0%	<b>2.1</b>
<b>Refused</b>	Count	6	12	6	1	0	0	<b>25</b>
	Row %	24.0%	48.0%	24.0%	4.0%	0.0%	0.0%	
	Column %	8.7%	8.5%	11.8%	2.2%	0.0%	0.0%	<b>7.6</b>
<b>Column Total</b>	<b>Count</b>	<b>69</b>	<b>141</b>	<b>51</b>	<b>45</b>	<b>15</b>	<b>7</b>	<b>328</b>
	<b>%</b>	<b>21.0%</b>	<b>43.0%</b>	<b>15.5%</b>	<b>13.7%</b>	<b>4.6%</b>	<b>2.1%</b>	<b>100.0%</b>

**Table III-2  
Household Size by Number of Vehicles Available  
(Completed Households=328)**

Vehicles		HH Size						Row
		1	2	3	4	5	6+	Total
<b>None</b>	Count	9	1	0	0	0	0	<b>10</b>
	Row %	90.0%	10.0%	0.0%	0.0%	0.0%	0.0%	
	Column %	13.0%	0.7%	0.0%	0.0%	0.0%	0.0%	<b>3.0</b>
<b>1</b>	Count	42	15	11	5	3	0	<b>76</b>
	Row %	55.3%	19.7%	14.5%	6.6%	3.9%	0.0%	
	Column %	60.9%	10.6%	21.6%	11.1%	20.0%	0.0%	<b>23.2%</b>
<b>2</b>	Count	12	77	14	21	7	4	<b>135</b>
	Row %	8.9%	57.0%	10.4%	15.6%	5.2%	2.9%	
	Column %	17.4%	54.6%	27.5%	46.7%	46.7%	57.1%	<b>41.2</b>
<b>3</b>	Count	5	32	15	10	2	1	<b>65</b>
	Row %	7.7%	49.2%	23.1%	15.4%	3.1%	1.5%	
	Column %	7.2%	22.7%	29.4%	22.2%	13.3%	14.3%	<b>19.8</b>
<b>4</b>	Count	1	11	3	6	2	2	<b>25</b>
	Row %	4.0%	44.0%	12.0%	24.0%	8.0%	8.0%	
	Column %	1.4%	7.8%	5.9%	13.3%	13.3%	28.6%	<b>7.6</b>
<b>5 or more</b>	Count	0	5	8	3	1	0	<b>17</b>
	Row %	0.0%	29.4%	47.1%	17.6%	5.9%	0.0%	
	Column %	0.0%	3.5%	15.7%	6.7%	6.7%	0.0%	<b>5.2%</b>
<b>Refused</b>	Count	0	0	0	0	0	0	<b>0</b>
	Row %	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
	Column %	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	<b>0.00%</b>
<b>Column</b>	<b>Count</b>	<b>69</b>	<b>141</b>	<b>51</b>	<b>45</b>	<b>15</b>	<b>7</b>	<b>328</b>
<b>Total</b>	<b>%</b>	<b>21.0%</b>	<b>43.0%</b>	<b>15.5%</b>	<b>13.7%</b>	<b>4.6%</b>	<b>2.1%</b>	<b>100.0%</b>

**Table III-3  
Dwelling Type (All Housing Units)**

Type of Dwelling	Recruited Households (n=468)	Completed Households (n=328)	Census Data (n=24,333)
Single, Detached	82.1%	80.8%	60.9%
Multi Unit	6.6%	7.0%	19.9%
Mobile Home or Trailer	8.5%	9.1%	18.2%
Other	2.6%	2.7%	1.0%
Refused	0.2%	0.3%	--

**Table III-4  
Owner/Renter Status (Occupied Housing Units)**

Ownership Status	Recruited Households (n=468)	Completed Households (n=328)	Census Data (n=22,020)
Own	82.9%	81.4%	62.0%
Rent	16.7%	18.0%	38.0%
Other	0.2%	0.3%	--
Refused	0.2%	0.3%	--

## IV Person Characteristics

The following tables provide information about the respondents themselves. Where available, collected data is compared to Census Data.

**Table IV-1  
Gender**

Gender	Recruited Percentage (n=1,210)	Completed Percentage (n=804)	Census Data (n=59,249)
Male	48.5%	48.0%	50.7%
Female	51.5%	52.0%	49.3%
Refused	0.00%	0.00%	--

**Table IV-2  
Age of Household Members**

Age	Recruited Percentage (n=1,210)	Completed Percentage (n=804)	Census Data (n=59,249)
0-4	3.6%	4.0%	7.7%
5-9	5.1%	4.7%	8.1%
10-14	9.7%	8.6%	7.5%
15-19	9.1%	7.5%	7.2%
20-24	3.9%	3.9%	6.4%
25-34	7.4%	7.7%	15.8%
35-44	15.3%	15.0%	15.1%
45-54	14.7%	14.8%	9.8%
55-64	11.9%	13.2%	8.4%
65-74	12.4%	13.6%	8.0%
75+	6.0%	6.1%	5.8%
Refused	0.8%	1.0%	--

**Table IV-3  
Licensed Drivers by Persons**

License Status	Recruited Percentage (n=1,210)	Completed Percentage (n=804)	Census Data
Licensed	71.5%	73.1%	--
Non-Licensed	9.8%	9.5%	--
Not Applicable (under 15 years of age)	18.6%	17.4%	--
Refused	0.1%	0.0%	--

**Table IV-4  
Employment Status by Persons 16 and older**

Employment Status	Recruited Percentage (n=967)	Completed Percentage (n=652)	Census Data (n=44,531)
Employed	59.1%	59.7%	57.6%
Unemployed	9.0%	6.9%	5.3%
Not in Labor Force	31.9%	33.4%	37.1%
Refused	0.0%	0.0%	--

**Table IV-5  
Telecommute Status by Employed Persons**

Telecommute to Work?	Recruited Percentage (n=572)	Completed Percentage (n=389)	Census Data
Yes	11.9%	11.8%	--
No	88.1%	88.2%	--
Refused	0.0%	0.0%	--

**Table IV-6  
Shift or Flexible Work Schedule by Employed Persons**

Shift or Flexible Work Schedule	Recruited Percentage (n=572)	Completed Percentage (n=389)	Census Data
Yes	36.4%	37.0%	--
No	18.4%	16.5%	--
Refused	45.3%	46.5%	--

**Table IV-7  
Length of Employment by Employed Persons**

Length of Employment	Recruited Percentage (n=572)	Completed Percentage (n=389)	Census Data
Less than 1 year	13.5%	10.8%	--
1 - 1.9 years	9.1%	9.0%	--
2 - 2.9 years	8.4%	8.7%	--
3 - 3.9 years	6.6%	6.7%	--
4 - 4.9 years	3.5%	3.1%	--
5 or more years	55.4%	56.8%	--
Refused	3.5%	4.9%	--

**Table IV-8  
Student Status by Full- or Part-Time Schedule  
Persons 3 years and older**

Student Status	Recruited Percentage (n=1,181)	Completed Percentage (n=783)	Census Data (n=56,457)
Not Enrolled	73.7%	76.5%	73.6%
Part-Time Student	3.0%	3.1%	26.4%
Full-Time Student	23.3%	20.4%	
Refused	0.0%	0.0%	--

**Table IV-9  
Educational Attainment by Persons 25 years and older**

Educational Attainment	Recruited Percentage (n=820)	Completed Percentage (n=566)	Census Data
None through 4th Grade	0.5%	0.5%	-
5th through 7th Grade	0.9%	0.7%	
8th Grade	2.0%	1.6%	
9th through 11th Grade	5.2%	5.7%	-
12th Grade	32.4%	32.2%	-
College Freshman to Junior	26.7%	25.6%	-
College Senior	18.5%	20.0%	-
Post Graduate Work	11.2%	10.8%	-
Refused	2.6%	3.0%	--

**Table IV-10  
Ethnicity by Person**

<b>Ethnicity</b>	<b>Recruited Percentage (n=1,210)</b>	<b>Completed Percentage (n=804)</b>	<b>Census Data (n=59,259)</b>
White, Not Hispanic	91.0%	94.3%	88.9%
Black, Not Hispanic	0.6%	0.9%	0.6%
American Indian, Eskimo or Aleutian, Not Hispanic	1.7%	1.1%	3.3%
Asian or Pacific Islander, Not Hispanic	0.6%	0.5%	0.8%
Other Race, Not Hispanic	1.3%	0.6%	.6%
Hispanic (Any Race)	4.8%	2.5%	8.8%
Refused	0.1%	0.1%	--

**Table IV-11  
Disability Status of Persons 16 years and Older**

<b>Disability Status</b>	<b>Recruited Percentage (n=967)</b>	<b>Completed Percentage (n=652)</b>
With a mobility or self-care limitation	5.3%	5.5%
Without a mobility or self-care limitation	94.7%	94.5%
Refused	0.0%	0.0%

## V Travel Characteristics

Respondents were asked to record all activities over a two-day period. In this report, activity data is reported for the 328 households in the Umatilla County study. An average of 68.85 activities were reported by these households for the two-day period. As shown in Table V-1, the most frequently named activities are trips, meals, sleep, amusements (at home), personal hygiene, and work.

The mean number of activities per household for Day 1 is 34.44 and for Day 2 is 34.43. The relatively small difference between the number of activities reported for each day indicates that the two-day diary worked as planned.

While the diaries focused on respondent activities, information on person trips made in conjunction with those activities was also gathered. The mean number of person trips per household was 16.18 for the two-day period. The mean number of trips for Day 1 was 8.09, and similarly an average of 8.09 trips were made per household on Day 2. The average daily trip rate by household size is shown in Table V-2.

The majority of zero-trip households and households with only one to nine trips had an average income of less than \$40,000. Households with incomes over \$40,000 had higher trip rates. These data are shown in Table V-3.

Table V-4 compares household size and trip rates. Smaller households generated fewer trips than larger households. For example, the majority of zero-trip households are households with less than three members, and there are no 60-69 trip households with fewer than five members. This data is shown in Table V-4.

Respondents were asked to record mode usage for each trip taken. Of the 22,583 activities reported by respondents (shown in Table V-1), 18,278 took place at home or had no travel associated with them. For the remaining activities, the travel modes used in accessing the activities are shown in Table V-5.

Table V-6 shows average reported trip times by mode. Walking trips were, on average, the shortest. Private vehicle trips and bicycle trips were next, averaging about 17 and 20 minutes respectively. Trips recorded as "other", often out of the area, took the longest and were approximately 37 minutes in length. School bus trips were approximately 25 minutes long. Public bus trips lasted approximately 24 minutes.

**Table V-1  
Activities by Type (n=22,583)**

<b>Activity</b>	<b>Frequency</b>	<b>Percent</b>
Trip	5305	23.5%
Meals	3606	16.0%
Sleep	3190	14.1%
Personal Hygiene	1860	8.2%
Work/Work-related activities	1105	4.9%
Rest and Relaxation	732	3.2%
School	636	2.8%
Shopping	443	2.0%
Visiting	343	1.5%
Pick-up/Drop-off Passengers	374	1.7%
Household Obligations/Childrearing	253	1.1%
Exercise/Athletics	183	0.8%
Hobbies	160	0.7%
Tag-along	38	0.2%
Pet Care	32	0.1%
Amusements (at home)	2372	10.5%
Amusements (out of home)	188	0.8%
Religion/Civil Services	32	0.1%
Out of area	86	0.4%
Civic	53	0.2%

**Table V-1 (Continued)  
Activities by Type (n=22,583)**

Activity	Frequency	Percent
Medical Care	41	0.2%
Personal Services	23	0.1%
Casual Entertaining	0	0.0%
Culture	5	0.0%
Household/Personal Business	477	2.1%
Professional Services	1	0.0%
Household Maintenance	991	4.4%
Spectator at Athletic Events	13	0.1%
Incidental	8	0.0%
Wait on Plane	0	0.0%
Wait on Bus	32	0.1%
Formal Entertaining	1	0.0%

**Table V-2  
Average 1-Day Household Trip Rate  
by Household Size**

Household Size	Average Daily Trips
One	3.62
Two	6.56
Three	9.75
Four	13.40
Five	16.20
Six or more	19.43

**Table V-3  
2-Day Household Trips by Household Income (n=328)**

Number of Trips		Income			Total
		Under \$40,000	Over \$40,000	Refused	
<b>none</b>	Count	12	1	2	<b>15</b>
	Row %	80.0%	6.7%	13.3%	
	Column %	7.5%	0.7%	8.0%	<b>4.6%</b>
<b>1 to 9</b>	Count	65	23	7	<b>95</b>
	Row %	68.4%	24.2%	7.4%	
	Column %	40.4%	16.2%	28.0%	<b>29.0%</b>
<b>10 to 19</b>	Count	43	50	14	<b>107</b>
	Row %	40.2%	46.7%	13.1%	
	Column %	26.7%	35.2%	56.0%	<b>32.6%</b>
<b>20 to 29</b>	Count	27	39	1	<b>67</b>
	Row %	40.3%	58.2%	1.5%	
	Column %	16.8%	27.5%	4.0%	<b>20.4%</b>
<b>30 to 39</b>	Count	8	18	1	<b>27</b>
	Row %	29.6%	66.7%	3.7%	
	Column %	5.0%	12.7%	4.0%	<b>8.2%</b>
<b>40 to 49</b>	Count	3	8	0	<b>11</b>
	Row %	27.3%	72.7%	0.0%	
	Column %	1.9%	5.6%	0.0%	<b>3.4%</b>
<b>50 to 59</b>	Count	1	3	0	<b>4</b>
	Row %	25.0%	75.0%	0.0%	
	Column %	0.6%	2.1%	0.0%	<b>1.2%</b>
<b>60 to 69</b>	Count	2	0	0	<b>2</b>
	Row %	100.0%	0.0%	0.0%	
	Column %	1.2%	0.0%	0.0%	<b>0.6%</b>
<b>more than 70</b>	Count	0	0	0	<b>0</b>
	Row %	0.0%	0.0%	0.0%	
	Column %	0.0%	0.0%	0.0%	<b>0.0%</b>
<b>Total</b>	<b>Count</b>	<b>161</b>	<b>142</b>	<b>25</b>	<b>328</b>
	<b>Row %</b>	<b>49.1%</b>	<b>43.3%</b>	<b>7.6%</b>	<b>100.0%</b>

**Table V-4  
2-Day Household Trips by Household Size (n=328)**

Number of Trips		HH Size						Total
		1	2	3	4	5	6+	
<b>none</b>	Count	3	12	0	0	0	0	<b>15</b>
	Row %	20.0%	80.0%	0.0%	0.0%	0.0%	0.0%	
	Column %	4.3%	8.5%	0.0%	0.0%	0.0%	0.0%	<b>4.6%</b>
<b>1 to 9</b>	Count	49	37	7	2	0	0	<b>95</b>
	Row %	51.6%	38.9%	7.4%	2.1%	0.0%	0.0%	
	Column %	71.0%	26.2%	13.7%	4.4%	0.0%	0.0%	<b>29.0 %</b>
<b>10 to 19</b>	Count	14	61	22	7	2	1	<b>107</b>
	Row %	13.1%	57.0%	20.6%	6.5%	1.9%	0.9%	
	Column %	20.3%	43.3%	43.1%	15.6%	13.3%	14.3%	<b>32.6%</b>
<b>20 to 29</b>	Count	3	26	12	19	5	2	<b>67</b>
	Row %	4.5%	38.8%	17.9%	28.4%	7.5%	3.0%	
	Column %	4.3%	18.4%	23.5%	42.2%	33.3%	28.6%	<b>20.4</b>
<b>30 to 39</b>	Count	0	4	8	10	5	0	<b>27</b>
	Row %	0.0%	14.8%	29.6%	37.0%	18.5%	0.0%	
	Column %	0.0%	2.8%	15.7%	22.2%	33.3%	0.0%	<b>8.2%</b>
<b>40 to 49</b>	Count	0	1	2	5	2	1	<b>11</b>
	Row %	0.0%	9.1%	18.2%	45.5%	18.2%	9.1%	
	Column %	0.0%	0.7%	3.9%	11.1%	13.3%	14.3%	<b>3.4%</b>
<b>50 to 59</b>	Count	0	0	0	2	0	2	<b>4</b>
	Row %	0.0%	0.0%	0.0%	50.0%	0.0%	50.0%	
	Column %	0.0%	0.0%	0.0%	4.4%	0.0%	28.6%	<b>1.2%</b>
<b>60 to 69</b>	Count	0	0	0	0	1	1	<b>2</b>
	Row %	0.0%	0.0%	0.0%	0.0%	50.0%	50.0%	
	Column %	0.0%	0.0%	0.0%	0.0%	6.7%	14.3%	<b>0.6%</b>
<b>more than 70</b>	Count	0	0	0	0	0	0	<b>0</b>
	Row %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
	Column %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	<b>0.0%</b>
<b>Total</b>	<b>Count</b>	<b>69</b>	<b>141</b>	<b>51</b>	<b>45</b>	<b>15</b>	<b>7</b>	<b>328</b>
	<b>Row %</b>	<b>21.0%</b>	<b>43.0%</b>	<b>15.5%</b>	<b>13.7%</b>	<b>4.6%</b>	<b>2.1%</b>	<b>100.0%</b>

**Table V-5  
Trip Mode (n=5,305)**

<b>Mode</b>	<b>Percent</b>
Private Vehicle	85.4%
Walk	10.5%
Bicycle	0.5%
School Bus	3.2%
Public Bus	0.1%
Other	0.3%

**Table V-6  
Average “Reported” Household Trip Times by Mode (n=5,305)**

<b>Mode</b>	<b>Mean Trip Length (min.)</b>
Private Vehicle	16.83
Walk	14.62
Bicycle	19.77
School Bus	25.46
Public Bus	23.57
Other (Airplane)	36.86

## VI Item Non-Response

The following tables show the item non-response for questions contained on the recruitment instrument. The non-response rate is the percentage of respondents who did not provide an answer to the item. As indicated in the tables below, all efforts were to minimize non-response.

**Table VI-1  
Percent Item Non-Response - Household Questions (n=468)**

Household Variables	Percent Non-Response
Household Size	0.0%
Household Vehicles	0.0%
Home Ownership	0.2%
Dwelling Type	0.2%
Household Income	9.6%

**Table VI-2  
Percent Item Non-Response - Person Questions (n=1,210)**

Household Variables	Percent Non-Response
Relation to Head of House	0.0%
Age	0.8%
Race	0.1%
Drivers License Status	0.1%
Employment Status	0.0%
Occupation	1.2%
Industry	1.1%
Shiftwork	45.3%
Years at Work Site	3.5%
Student Status	0.1%
Student Level - Head of House	5.6%
Student Level - Others	0.3%
Disability	0.0%