

## DESCHUTES 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 for Deschutes County was conducted from April to December 1996. Data collection resulted in 1,208 recruited households. Of these, 775 provided the necessary information to result in completed surveys. The total number of activities reported was 50,439, and the total number of trips was 11,445. These totals translate into an average of about 65 activities and about 15 trips per household for the two-day period.

#### Average Person Trips Per Day

- One-person households averaged 3.40 trips per day,
- Two-person households averaged 5.84 trips per day,
- Three-person households averaged 8.80 trips per day,
- Four-person households averaged 13.11 trips per day,
- Five-person households averaged 17.23 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 Bend, Redmond, Sisters, and Terrebonne in Deschutes County. The household count for the study area was 29,400 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 Deschutes 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 Deschutes County sample included the cities of Bend (zip codes 97701, 97702, 97707), Redmond (zip code 97756), Sisters (zip code 97759), and Terrebonne (zip code 97760). These zip codes account for 94% of the total 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 - 1,208 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 (61%) to the total number of recruited households. The recruitment rate for households in Deschutes County was 50% of all eligible households.

| Recruitment Rate Calculation                   |               |                   |
|--|---------------|-------------------|
|  | Calculation   | Total/<br>Percent |
| Number of Recruited Households                 | 1,208         |                   |
| Total Number of Eligible and Ineligible Sample | 1,684 + 1,097 | 2,781             |
| Proportion of Eligible Sample                  | 1,684 / 2,781 | 61%               |
| Proportion of Ineligible Sample                | 1,097 / 2,781 | 39%               |
| Number of Eligible Households                  | 1,684 + 729   | 2,416             |
| Recruitment Rate                               | 1,208 / 2,416 | 50%               |

**Table II-1**

**Final Sample Dispositions (n=3,976)**

| Dispositions                      | Frequency    | Percent       | Total Number and Percent |
|-----------------------------------|--------------|---------------|--------------------------|
| <b>Eligible Sample</b>            |              |               | 42.4%                    |
| Recruited                         | 1,208        | 30.1%         |                          |
| Second Refusal                    | 396          | 10.0%         |                          |
| Terminated in middle of interview | 22           | 0.6%          |                          |
| Over Quota                        | 58           | 1.5%          |                          |
|                                   |              |               | 1,684                    |
| <b>Ineligible Sample</b>          |              |               | 27.6%                    |
| Disconnected Number               | 589          | 14.8%         |                          |
| Deaf/Language                     | 15           | 0.4%          |                          |
| Business/Government               | 344          | 8.7%          |                          |
| Computer/Fax                      | 116          | 2.9%          |                          |
| Non-Qualified                     | 25           | 0.6%          |                          |
| Non-Resident                      | 8            | 0.2%          |                          |
|                                   |              |               | 1,097                    |
| <b>Eligibility Unknown Sample</b> |              |               | 30.0%                    |
| First Refusal                     | 419          | 10.5%         |                          |
| No Answer                         | 278          | 7.0%          |                          |
| Busy                              | 44           | 1.1%          |                          |
| Answering Machines                | 354          | 9.0%          |                          |
| Call Back Appointments/Requests   | 100          | 2.5%          |                          |
|                                   |              |               | 1,195                    |
| <b>Total Sample Pieces</b>        | <b>3,976</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 (775) by the total number of recruited households (1,208). A completion rate of 64% was obtained. The **Overall Response Rate** is calculated by multiplying the recruitment rate (50%) by the completion rate (64%) for a rate of 32%.

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=775)**

| Travel Day Pairs   | Percent |
|--------------------|---------|
| Monday/Tuesday     | 36.4%   |
| Tuesday/Wednesday  | 21.2%   |
| Wednesday/Thursday | 20.3%   |
| Thursday/Friday    | 22.2%   |
| Friday/Saturday    | 0.0%    |
| Sunday/Monday      | 0.0%    |

## 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 Deschutes County for reasonableness. In 1990 Deschutes County had 74,958 residents in 29,400 households; the total number of housing units was 35,928 while the number of occupied housing units was 29,217. During the study, 1,208 households were recruited, and 775 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 (Table II-4). The factors underlying this discrepancy 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 also diverges from the Census data (Table II-5). The sample contains disproportionately fewer zero, one, and two-vehicle households than the population.

**Table II-3  
Household Income**

| <b>Income</b>      | <b>Recruited Households (n=1208)</b> | <b>Completed Households (n=775)</b> | <b>Census Data (n=29,400)</b> |
|--------------------|--------------------------------------|-------------------------------------|-------------------------------|
| \$0-\$4,999        | 1.3%                                 | 1.5%                                | 4.5%                          |
| \$5,000-\$9,999    | 2.9%                                 | 3.4%                                | 8.0%                          |
| \$10,000-\$14,999  | 5.5%                                 | 5.0%                                | 10.7%                         |
| \$15,000-\$19,999  | 7.4%                                 | 7.0%                                | 11.0%                         |
| \$20,000-\$24,999  | 9.2%                                 | 9.3%                                | 10.4%                         |
| \$25,000-\$29,999  | 8.2%                                 | 9.2%                                | 10.4%                         |
| \$30,000-\$34,999  | 5.5%                                 | 5.3%                                | 9.2%                          |
| \$35,000-\$39,999  | 6.9%                                 | 8.3%                                | 7.1%                          |
| \$40,000-\$44,999  | 8.4%                                 | 9.5%                                | 6.2%                          |
| \$45,000-\$49,999  | 7.8%                                 | 8.3%                                | 4.7%                          |
| \$50,000-\$54,999  | 5.7%                                 | 5.7%                                | 4.2%                          |
| \$55,000-\$59,999  | 4.1%                                 | 5.2%                                | 3.0%                          |
| \$60,000-\$100,000 | 10.5%                                | 11.0%                               | 7.3%                          |
| \$100,000 or more  | 3.8%                                 | 3.9%                                | 3.2%                          |
| Refused            | 12.8%                                | 7.6%                                | --                            |

**Table II-4  
Household Size**

| <b>Persons per Household</b> | <b>Recruited Households (n=1208)</b> | <b>Completed Households (n=775)</b> | <b>Census Data (n=29,400)</b> |
|------------------------------|--------------------------------------|-------------------------------------|-------------------------------|
| 1 Person                     | 20.1%                                | 22.1%                               | 21.0%                         |
| 2 Persons                    | 42.9%                                | 44.4%                               | 39.5%                         |
| 3 Persons                    | 14.6%                                | 14.3%                               | 16.0%                         |
| 4 Persons                    | 14.7%                                | 12.9%                               | 14.9%                         |
| 5 Persons                    | 6.0%                                 | 5.4%                                | 5.9%                          |
| 6 Persons                    | 1.2%                                 | 0.5%                                | 1.8%                          |
| 7 or More Persons            | 0.5%                                 | 0.4%                                | 0.9%                          |
| Refused                      | 0.0%                                 | 0.0%                                | --                            |

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

| <b>Vehicles Available</b> | <b>Recruited Households (n=1208)</b> | <b>Completed Households (n=775)</b> | <b>Census Data (n=29,217)</b> |
|---------------------------|--------------------------------------|-------------------------------------|-------------------------------|
| None                      | 2.6%                                 | 2.7%                                | 3.9%                          |
| One                       | 20.9%                                | 23.1%                               | 26.6%                         |
| Two                       | 40.6%                                | 39.9%                               | 43.3%                         |
| Three                     | 20.4%                                | 20.3%                               | 18.1%                         |
| Four                      | 9.4%                                 | 8.8%                                | 5.4%                          |
| Five or More              | 6.0%                                 | 5.2%                                | 2.7%                          |
| 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=775)**

| Income                      |          | HH Size |       |       |       |      |       | Row Total   |
|-----------------------------|----------|---------|-------|-------|-------|------|-------|-------------|
|                             |          | 1       | 2     | 3     | 4     | 5    | 6+    |             |
| <b>less than \$4,999</b>    | Count    | 8       | 3     | 1     | 0     | 0    | 0     | <b>12</b>   |
|                             | Row %    | 66.7%   | 25.0% | 8.3%  | 0.0%  | 0.0% | 0.0%  |             |
|                             | Column % | 4.7%    | 0.9%  | 0.9%  | 0.0%  | 0.0% | 0.0%  | <b>1.5%</b> |
| <b>\$5,000 to \$9,999</b>   | Count    | 16      | 7     | 2     | 1     | 0    | 0     | <b>26</b>   |
|                             | Row %    | 61.5%   | 26.9% | 7.7%  | 3.8%  | 0.0% | 0.0%  |             |
|                             | Column % | 9.4%    | 2.0%  | 1.8%  | 1.0%  | 0.0% | 0.0%  | <b>3.4%</b> |
| <b>\$10,000 to \$14,999</b> | Count    | 24      | 14    | 0     | 1     | 0    | 0     | <b>39</b>   |
|                             | Row %    | 61.5%   | 35.9% | 0.0%  | 2.6%  | 0.0% | 0.0%  |             |
|                             | Column % | 14.0%   | 4.1%  | 0.0%  | 1.0%  | 0.0% | 0.0%  | <b>5.0%</b> |
| <b>\$15,000 to \$19,999</b> | Count    | 16      | 27    | 6     | 2     | 2    | 1     | <b>54</b>   |
|                             | Row %    | 22.5%   | 47.9% | 11.1% | 3.7%  | 3.7% | 1.9%  |             |
|                             | Column % | 9.4%    | 7.8%  | 5.4%  | 2.0%  | 4.8% | 14.3% | <b>7.0%</b> |
| <b>\$20,000 to \$24,999</b> | Count    | 24      | 27    | 9     | 8     | 3    | 1     | <b>72</b>   |
|                             | Row %    | 33.3%   | 37.5% | 12.5% | 11.1% | 4.2% | 1.4%  |             |
|                             | Column % | 14.0%   | 7.8%  | 8.1%  | 8.0%  | 7.1% | 14.3% | <b>9.3%</b> |
| <b>\$25,000 to \$29,999</b> | Count    | 16      | 34    | 11    | 7     | 3    | 0     | <b>71</b>   |
|                             | Row %    | 22.5%   | 47.9% | 15.5% | 9.9%  | 4.2% | 0.0%  |             |
|                             | Column % | 9.4%    | 9.9%  | 9.9%  | 7.0%  | 7.1% | 0.0%  | <b>9.2%</b> |
| <b>\$30,000 to \$34,999</b> | Count    | 13      | 13    | 5     | 8     | 2    | 0     | <b>41</b>   |
|                             | Row %    | 31.7%   | 31.7% | 12.2% | 19.5% | 4.9% | 0.0%  |             |
|                             | Column % | 7.6%    | 3.8%  | 4.5%  | 8.0%  | 4.8% | 0.0%  | <b>5.3%</b> |
| <b>\$35,000 to \$39,999</b> | Count    | 14      | 31    | 5     | 11    | 3    | 0     | <b>64</b>   |
|                             | Row %    | 21.9%   | 48.4% | 7.8%  | 17.2% | 4.7% | 0.0%  |             |
|                             | Column % | 8.2%    | 9.0%  | 4.5%  | 11.0% | 7.1% | 0.0%  | <b>8.3%</b> |

(Table continues on next page)

**Table III-1 (Continued)  
Household Size by Income (Completed Households=775)**

| Income   |              | HH Size      |              |              |              |             |             | Total         |
|--|--------------|--------------|--------------|--------------|--------------|-------------|-------------|---------------|
|  |              | 1            | 2            | 3            | 4            | 5           | 6+          |               |
| <b>\$40,000</b><br><b>to</b><br><b>\$44,999</b>  | Count        | 9            | 32           | 15           | 10           | 8           | 0           | <b>74</b>     |
|  | Row %        | 12.2%        | 43.2%        | 20.3%        | 13.5%        | 10.8%       | 0.0%        |               |
|  | Column %     | 5.3%         | 9.3%         | 13.5%        | 10.0%        | 19.0%       | 0.0%        | <b>9.5%</b>   |
| <b>\$45,000</b><br><b>to</b><br><b>\$49,999</b>  | Count        | 6            | 30           | 12           | 12           | 1           | 3           | <b>64</b>     |
|  | Row %        | 9.4%         | 46.9%        | 18.8%        | 18.8%        | 1.6%        | 4.7%        |               |
|  | Column %     | 3.5%         | 8.7%         | 10.8%        | 12.0%        | 2.4%        | 42.9%       | <b>8.3%</b>   |
| <b>\$50,000</b><br><b>to</b><br><b>\$54,999</b>  | Count        | 7            | 12           | 4            | 14           | 7           | 0           | <b>44</b>     |
|  | Row %        | 15.9%        | 27.3%        | 9.1%         | 31.8%        | 15.9%       | 0.0%        |               |
|  | Column %     | 4.1%         | 3.5%         | 3.6%         | 14.0%        | 16.7%       | 0.0%        | <b>5.7%</b>   |
| <b>\$55,000</b><br><b>to</b><br><b>\$59,999</b>  | Count        | 4            | 16           | 10           | 4            | 5           | 1           | <b>40</b>     |
|  | Row %        | 10.0%        | 40.0%        | 25.0%        | 10.0%        | 12.5%       | 2.5%        |               |
|  | Column %     | 2.3%         | 4.7%         | 9.0%         | 4.0%         | 11.9%       | 14.3%       | <b>5.2%</b>   |
| <b>\$60,000</b><br><b>to</b><br><b>\$100,000</b> | Count        | 2            | 46           | 20           | 12           | 5           | 0           | <b>85</b>     |
|  | Row %        | 2.4%         | 54.1%        | 23.5%        | 14.1%        | 5.9%        | 0.0%        |               |
|  | Column %     | 1.2%         | 13.4%        | 18.0%        | 12.0%        | 11.9%       | 0.0%        | <b>11.0%</b>  |
| <b>more</b><br><b>than</b><br><b>\$100,000</b>   | Count        | 0            | 20           | 8            | 2            | 0           | 1           | <b>30</b>     |
|  | Row %        | 0.0%         | 66.7%        | 23.3%        | 6.7%         | 0.0%        | 3.3%        |               |
|  | Column %     | 0.0%         | 5.8%         | 6.3%         | 2.0%         | 0.0%        | 14.3%       | <b>3.9%</b>   |
| <b>Refused</b>                                   | Count        | 12           | 32           | 4            | 8            | 3           | 0           | <b>59</b>     |
|  | Row %        | 20.3%        | 54.2%        | 6.8%         | 13.6%        | 5.1%        | 0.0%        |               |
|  | Column %     | 7.0%         | 9.3%         | 3.6%         | 8.0%         | 7.1%        | 0.0%        | <b>7.6%</b>   |
| <b>Column</b>                                    | <b>Count</b> | <b>171</b>   | <b>344</b>   | <b>111</b>   | <b>100</b>   | <b>42</b>   | <b>7</b>    | <b>775</b>    |
| <b>Total</b>                                     | <b>%</b>     | <b>22.1%</b> | <b>44.4%</b> | <b>14.3%</b> | <b>12.9%</b> | <b>5.4%</b> | <b>0.9%</b> | <b>100.0%</b> |

**Table III-2  
Household Size by Number of Vehicles Available  
(Completed Households=775)**

| Vehicles         |              | HH Size      |              |              |              |             |             | Row           |
|------------------|--------------|--------------|--------------|--------------|--------------|-------------|-------------|---------------|
|                  |              | 1            | 2            | 3            | 4            | 5           | 6+          | Total         |
| <b>None</b>      | Count        | 19           | 2            | 0            | 0            | 0           | 0           | <b>21</b>     |
|                  | Row %        | 90.5%        | 9.5%         | 0.0%         | 0.0%         | 0.0%        | 0.0%        |               |
|                  | Column %     | 11.1%        | 0.6%         | 0.0%         | 0.0%         | 0.0%        | 0.0%        | <b>2.7%</b>   |
| <b>1</b>         | Count        | 102          | 55           | 14           | 4            | 3           | 1           | <b>179</b>    |
|                  | Row %        | 57.0%        | 30.7%        | 7.8%         | 2.2%         | 1.7%        | 0.6%        |               |
|                  | Column %     | 59.6%        | 16.0%        | 12.6%        | 4.0%         | 7.1%        | 14.3%       | <b>23.1%</b>  |
| <b>2</b>         | Count        | 34           | 169          | 44           | 42           | 18          | 2           | <b>309</b>    |
|                  | Row %        | 11.0%        | 54.7%        | 14.2%        | 13.6%        | 5.8%        | 0.6%        |               |
|                  | Column %     | 19.9%        | 49.1%        | 39.6%        | 42.0%        | 42.9%       | 28.6%       | <b>39.9%</b>  |
| <b>3</b>         | Count        | 11           | 70           | 30           | 30           | 17          | 2           | <b>157</b>    |
|                  | Row %        | 7.0%         | 44.6%        | 19.1%        | 19.1%        | 8.9%        | 1.3%        |               |
|                  | Column %     | 6.4%         | 20.3%        | 27.0%        | 30.0%        | 33.3%       | 28.6%       | <b>20.3%</b>  |
| <b>4</b>         | Count        | 2            | 30           | 16           | 14           | 5           | 1           | <b>68</b>     |
|                  | Row %        | 2.9%         | 44.1%        | 23.5%        | 20.6%        | 7.4%        | 1.5%        |               |
|                  | Column %     | 1.2%         | 8.7%         | 14.4%        | 14.0%        | 11.9%       | 14.3%       | <b>8.8</b>    |
| <b>5 or more</b> | Count        | 3            | 18           | 7            | 10           | 2           | 1           | <b>41</b>     |
|                  | Row %        | 7.3%         | 43.9%        | 17.1%        | 24.4%        | 4.9%        | 2.4%        |               |
|                  | Column %     | 1.8%         | 5.2%         | 6.3%         | 10.0%        | 7.2%        | 14.3%       | <b>5.3%</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>171</b>   | <b>344</b>   | <b>111</b>   | <b>100</b>   | <b>42</b>   | <b>7</b>    | <b>775</b>    |
| <b>Total</b>     | <b>%</b>     | <b>22.1%</b> | <b>44.4%</b> | <b>14.3%</b> | <b>12.9%</b> | <b>5.4%</b> | <b>0.9%</b> | <b>100.0%</b> |

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

| Type of Dwelling       | Recruited Households (n=1208) | Completed Households (n=775) | Census Data (n=35,928) |
|------------------------|-------------------------------|------------------------------|------------------------|
| Single, Detached       | 78.1%                         | 78.1%                        | 66.0%                  |
| Multi Unit             | 8.0%                          | 8.1%                         | 12.9%                  |
| Mobile Home or Trailer | 11.8%                         | 11.6%                        | 20.6%                  |
| Other                  | 2.0%                          | 2.1%                         | 0.5%                   |
| Refused                | 0.1%                          | 0.1%                         | --                     |

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

| Ownership Status | Recruited Households (n=1208) | Completed Households (n=775) | Census Data (n=29,217) |
|------------------|-------------------------------|------------------------------|------------------------|
| Own              | 76.7%                         | 77.7%                        | 71.0%                  |
| Rent             | 22.9%                         | 22.1%                        | 29.0%                  |
| Other            | 0.1%                          | 0.1%                         | --                     |
| Refused          | 0.3%                          | 0.1%                         | --                     |

## 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<br>(n=3,013) | Completed Percentage<br>(n=1,848) | Census Data<br>(n=74,958) |
|---------|-----------------------------------|-----------------------------------|---------------------------|
| Male    | 50.6%                             | 50.6%                             | 50.0%                     |
| Female  | 49.3%                             | 49.4%                             | 50.0%                     |
| Refused | 0.1%                              | 0.0%                              | --                        |

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

| Age     | Recruited Percentage<br>(n=3,013) | Completed Percentage<br>(n=1,848) | Census Data<br>(n=74,958) |
|---------|-----------------------------------|-----------------------------------|---------------------------|
| 0-4     | 6.1%                              | 6.4%                              | 6.9%                      |
| 5-9     | 7.5%                              | 7.2%                              | 7.5%                      |
| 10-14   | 7.4%                              | 6.3%                              | 7.3%                      |
| 15-19   | 6.0%                              | 5.1%                              | 6.3%                      |
| 20-24   | 5.3%                              | 5.0%                              | 5.0%                      |
| 25-34   | 13.5%                             | 14.3%                             | 15.1%                     |
| 35-44   | 16.4%                             | 15.1%                             | 17.7%                     |
| 45-54   | 14.8%                             | 16.0%                             | 11.1%                     |
| 55-64   | 10.2%                             | 11.1%                             | 9.0%                      |
| 65-74   | 8.2%                              | 8.9%                              | 8.8%                      |
| 75+     | 4.0%                              | 4.4%                              | 5.1%                      |
| Refused | 0.6%                              | 0.2%                              | --                        |

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

| License Status                         | Recruited Percentage (n=3,013) | Completed Percentage (n=1,848) | Census Data |
|--|--------------------------------|--------------------------------|-------------|
| Licensed                               | 74.0%                          | 75.9%                          | --          |
| Non-Licensed                           | 4.9%                           | 4.1%                           | --          |
| Not Applicable (under 15 years of age) | 21.1%                          | 20.0%                          | --          |
| Refused                                | 0.0%                           | 0.0%                           | --          |

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

| Employment Status  | Recruited Percentage (n=2,334) | Completed Percentage (n=1,455) | Census Data (n=57,230) |
|--------------------|--------------------------------|--------------------------------|------------------------|
| Employed           | 67.0%                          | 66.9%                          | 62.7%                  |
| Unemployed         | 6.8%                           | 5.5%                           | 3.2%                   |
| Not in Labor Force | 26.1%                          | 27.5%                          | 34.1%                  |
| Refused            | 0.1%                           | 0.1%                           | --                     |

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

| Telecommute to Work? | Recruited Percentage (n=1,563) | Completed Percentage (n=972) | Census Data |
|----------------------|--------------------------------|------------------------------|-------------|
| Yes                  | 7.9%                           | 8.0%                         | --          |
| No                   | 91.9%                          | 91.9%                        | --          |
| Refused              | 0.2%                           | 0.1%                         | --          |

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

| Shift or Flexible Work Schedule | Recruited Percentage (n=1,563) | Completed Percentage (n=972) | Census Data |
|---------------------------------|--------------------------------|------------------------------|-------------|
| Yes                             | 32.0%                          | 31.9%                        | --          |
| No                              | 28.9%                          | 28.0%                        | --          |
| Refused                         | 39.1%                          | 40.1%                        | --          |

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

| <b>Length of Employment</b> | <b>Recruited Percentage<br/>(n=1,563)</b> | <b>Completed Percentage<br/>(n=972)</b> | <b>Census Data</b> |
|-----------------------------|---|---|--------------------|
| Less than 1 year            | 17.3%                                     | 17.5%                                   | --                 |
| 1 - 1.9 years               | 12.2%                                     | 10.7%                                   | --                 |
| 2 - 2.9 years               | 11.2%                                     | 10.8%                                   | --                 |
| 3 - 3.9 years               | 6.5%                                      | 6.5%                                    | --                 |
| 4 - 4.9 years               | 5.6%                                      | 6.2%                                    | --                 |
| 5 or more years             | 42.7%                                     | 41.9%                                   | --                 |
| Refused                     | 4.4%                                      | 6.5%                                    | --                 |

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

| <b>Student Status</b> | <b>Recruited Percentage<br/>(n=2,902)</b> | <b>Completed Percentage<br/>(n=1,778)</b> | <b>Census Data<br/>(n=71,764)</b> |
|-----------------------|---|---|-----------------------------------|
| Not Enrolled          | 74.0%                                     | 75.8%                                     | 74.7%                             |
| Part-Time Student     | 5.8%                                      | 6.1%                                      | 25.3%                             |
| Full-Time Student     | 20.1%                                     | 17.9%                                     |                                   |
| Refused               | 0.1%                                      | 0.2%                                      | --                                |

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

| <b>Educational Attainment</b> | <b>Recruited Percentage<br/>(n=2,020)</b> | <b>Completed Percentage<br/>(n=1,291)</b> | <b>Census Data</b> |
|-------------------------------|---|---|--------------------|
| None through 4th Grade        | 0.0%                                      | 0.0%                                      | -                  |
| 5th through 7th Grade         | 0.3%                                      | 0.3%                                      |                    |
| 8th Grade                     | 0.8%                                      | 0.7%                                      |                    |
| 9th through 11th Grade        | 4.4%                                      | 3.8%                                      | -                  |
| 12th Grade                    | 29.5%                                     | 27.8%                                     | -                  |
| College Freshman to Junior    | 29.4%                                     | 29.9%                                     | -                  |
| College Senior                | 19.8%                                     | 20.9%                                     | -                  |
| Post Graduate Work            | 13.9%                                     | 14.7%                                     | -                  |
| Refused                       | 1.9%                                      | 1.9%                                      | --                 |

**Table IV-10  
Ethnicity by Person**

| <b>Ethnicity</b>                                  | <b>Recruited Percentage<br/>(n=3,013)</b> | <b>Completed Percentage<br/>(n=1,848)</b> | <b>Census Data<br/>(n=74,958)</b> |
|---|---|---|-----------------------------------|
| White, Not Hispanic                               | 95.6%                                     | 94.7%                                     | 96.1%                             |
| Black, Not Hispanic                               | 0.1%                                      | 0.2%                                      | 0.2%                              |
| American Indian, Eskimo or Aleutian, Not Hispanic | 1.1%                                      | 1.3%                                      | 1.1%                              |
| Asian or Pacific Islander, Not Hispanic           | 0.5%                                      | 0.7%                                      | 0.6%                              |
| Other Race, Not Hispanic                          | 0.8%                                      | 1.0%                                      | 0.0%                              |
| Hispanic (Any Race)                               | 1.2%                                      | 1.2%                                      | 2.0%                              |
| Refused   | 0.7%                                      | 0.9%                                      | --                                |

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

| <b>Disability Status</b>                   | <b>Recruited Percentage<br/>(n=2,334)</b> | <b>Completed Percentage<br/>(n=57,584)</b> | <b>Census Data<br/>(n=57,230)</b> |
|--|---|--|-----------------------------------|
| With a mobility or self-care limitation    | 4.0%                                      | 3.8%                                       | 4.1%                              |
| Without a mobility or self-care limitation | 95.8%                                     | 96.0%                                      | 95.9%                             |
| Refused                                    | 0.2%                                      | 0.2%                                       | --                                |

## V Travel Characteristics

Respondents were asked to record all activities over a two-day period. In this report, activity data is reported for the 775 households in the Deschutes County study. An average of 65.08 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 32.68 and for Day 2 is 32.42. 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 14.77 for the two-day period. The mean number of trips for Day 1 was 7.41, and similarly an average of 7.37 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 households with fewer than four members that had 50 or more trips. This data is shown in Table V-4.

Respondents were asked to record mode usage for each trip taken. Of the 50,439 activities reported by respondents (shown in Table V-1), 38,994 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. Private vehicle trips were, on average, the shortest. Walking trips and bicycle trips were similar in length, averaging about 18 minutes each. Trips recorded as "other", often out of the area, took the longest and were approximately 156 minutes in length. School bus trips were approximately 26 minutes long. Public bus trips lasted approximately 33 minutes.

**Table V-1  
Activities by Type (n=50,439)**

| <b>Activity</b>                    | <b>Frequency</b> | <b>Percent</b> |
|------------------------------------|------------------|----------------|
| Trip                               | 11,445           | 22.69%         |
| Meals                              | 8,418            | 16.69%         |
| Sleep                              | 7,221            | 14.32%         |
| Personal Hygiene                   | 4,074            | 8.08%          |
| Work/Work-related activities       | 2,994            | 5.94%          |
| Rest and Relaxation                | 1,240            | 2.46%          |
| School                             | 1,519            | 3.01%          |
| Shopping                           | 1,065            | 2.11%          |
| Visiting                           | 649              | 1.29%          |
| Pick-up/Drop-off Passengers        | 927              | 1.84%          |
| Household Obligations/Childrearing | 639              | 1.27%          |
| Exercise/Athletics                 | 374              | 0.74%          |
| Hobbies                            | 268              | 0.53%          |
| Tag-along                          | 101              | 0.20%          |
| Pet Care                           | 122              | 0.24%          |
| Amusements (at home)               | 5,254            | 10.42%         |
| Amusements (out of home)           | 312              | 0.62%          |
| Religion/Civil Services            | 87               | 0.17%          |
| Out of area                        | 127              | 0.25%          |
| Civic                              | 106              | 0.21%          |

**Table V-1 (Continued)  
Activities by Type (n=50,439)**

| Activity                     | Frequency | Percent |
|------------------------------|-----------|---------|
| Medical Care                 | 133       | 0.26%   |
| Personal Services            | 31        | 0.06%   |
| Casual Entertaining          | 16        | 0.03%   |
| Culture                      | 4         | 0.01%   |
| Household/Personal Business  | 1,176     | 2.33%   |
| Professional Services        | 4         | 0.01%   |
| Household Maintenance        | 1,938     | 3.84%   |
| Spectator at Athletic Events | 15        | 0.03%   |
| Incidental                   | 51        | 0.10%   |
| Wait on Plane                | 10        | 0.02%   |
| Wait on Bus                  | 113       | 0.22%   |
| Formal Entertaining          | 6         | 0.01%   |

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

| Household Size | Average Daily Trips |
|----------------|---------------------|
| One            | 3.40                |
| Two            | 5.84                |
| Three          | 8.80                |
| Four           | 13.11               |
| Five           | 17.23               |
| Six or more    | 17.72               |

**Table V-3  
2-Day Household Trips by Household Income (n=775)**

| Number of Trips     |              | Income         |               |             | Total         |
|---------------------|--------------|----------------|---------------|-------------|---------------|
|                     |              | Under \$40,000 | Over \$40,000 | Refused     |               |
| <b>none</b>         | Count        | 30             | 15            | 5           | <b>50</b>     |
|                     | Row %        | 60.0%          | 30.0%         | 10.0%       |               |
|                     | Column %     | 7.9%           | 4.5%          | 8.5%        | <b>6.5%</b>   |
| <b>1 to 9</b>       | Count        | 146            | 80            | 18          | <b>244</b>    |
|                     | Row %        | 59.8%          | 32.8%         | 7.4%        |               |
|                     | Column %     | 38.5%          | 23.7%         | 30.5%       | <b>31.5%</b>  |
| <b>10 to 19</b>     | Count        | 133            | 123           | 25          | <b>281</b>    |
|                     | Row %        | 47.3%          | 43.8%         | 8.9%        |               |
|                     | Column %     | 35.1%          | 36.5%         | 42.4%       | <b>36.3%</b>  |
| <b>20 to 29</b>     | Count        | 49             | 64            | 6           | <b>119</b>    |
|                     | Row %        | 41.2%          | 53.8%         | 5.0%        |               |
|                     | Column %     | 12.9%          | 19.0%         | 10.2%       | <b>15.4%</b>  |
| <b>30 to 39</b>     | Count        | 13             | 29            | 5           | <b>47</b>     |
|                     | Row %        | 27.7%          | 61.7%         | 10.6%       |               |
|                     | Column %     | 3.4%           | 8.6%          | 8.5%        | <b>6.1%</b>   |
| <b>40 to 49</b>     | Count        | 6              | 16            | 0           | <b>22</b>     |
|                     | Row %        | 27.3%          | 72.7%         | 0.0%        |               |
|                     | Column %     | 1.6%           | 4.7%          | 0.0%        | <b>2.8%</b>   |
| <b>50 to 59</b>     | Count        | 1              | 7             | 0           | <b>8</b>      |
|                     | Row %        | 12.5%          | 87.5%         | 0.0%        |               |
|                     | Column %     | 0.3%           | 2.1%          | 0.0%        | <b>1.0%</b>   |
| <b>60 to 69</b>     | Count        | 0              | 1             | 0           | <b>1</b>      |
|                     | Row %        | 0.0%           | 100.0%        | 0.0%        |               |
|                     | Column %     | 0.0%           | 0.3%          | 0.0%        | <b>0.1%</b>   |
| <b>more than 70</b> | Count        | 1              | 2             | 0           | <b>3</b>      |
|                     | Row %        | 33.3%          | 66.7%         | 0.0%        |               |
|                     | Column %     | 0.3%           | 0.6%          | 0.0%        | <b>0.4%</b>   |
| <b>Total</b>        | <b>Count</b> | <b>379</b>     | <b>337</b>    | <b>59</b>   | <b>775</b>    |
|                     | <b>Row %</b> | <b>48.9%</b>   | <b>43.5%</b>  | <b>7.6%</b> | <b>100.0%</b> |

**Table V-4  
2-Day Household Trips by Household Size (n=775)**

| Number of Trips             |              | HH Size      |              |              |              |             |             | Total         |
|-----------------------------|--------------|--------------|--------------|--------------|--------------|-------------|-------------|---------------|
|                             |              | 1            | 2            | 3            | 4            | 5           | 6+          |               |
| <b>none</b>                 | Count        | 19           | 25           | 5            | 0            | 1           | 0           | <b>50</b>     |
|                             | Row %        | 38.0%        | 50.0%        | 10.0%        | 0.0%         | 2.0%        | 0.0%        |               |
|                             | Column %     | 11.1%        | 7.3%         | 4.5%         | 0.0%         | 2.4%        | 0.0%        | <b>6.5%</b>   |
| <b>1<br/>to<br/>9</b>       | Count        | 110          | 112          | 12           | 8            | 2           | 0           | <b>244</b>    |
|                             | Row %        | 45.1%        | 45.9%        | 4.9%         | 3.3%         | 0.8%        | 0.0%        |               |
|                             | Column %     | 64.3%        | 32.6%        | 10.8%        | 8.0%         | 4.8%        | 0.0%        | <b>31.5 %</b> |
| <b>10<br/>to<br/>19</b>     | Count        | 39           | 161          | 52           | 23           | 6           | 0           | <b>281</b>    |
|                             | Row %        | 13.9%        | 57.3%        | 18.5%        | 8.2%         | 2.1%        | 0.0%        |               |
|                             | Column %     | 22.8%        | 46.8%        | 46.8%        | 23.0%        | 14.3%       | 0.0%        | <b>36.3%</b>  |
| <b>20<br/>to<br/>29</b>     | Count        | 3            | 42           | 31           | 30           | 11          | 2           | <b>119</b>    |
|                             | Row %        | 2.5%         | 35.3%        | 26.1%        | 25.2%        | 9.2%        | 1.6%        |               |
|                             | Column %     | 1.8%         | 12.2%        | 27.9%        | 30.0%        | 26.2%       | 28.6%       | <b>15.4%</b>  |
| <b>30<br/>to<br/>39</b>     | Count        | 0            | 3            | 9            | 24           | 8           | 3           | <b>47</b>     |
|                             | Row %        | 0.0%         | 6.4%         | 19.1%        | 51.1%        | 17.0%       | 6.3%        |               |
|                             | Column %     | 0.0%         | 0.9%         | 8.1%         | 24.0%        | 19.0%       | 42.9%       | <b>6.1%</b>   |
| <b>40<br/>to<br/>49</b>     | Count        | 0            | 1            | 2            | 12           | 6           | 1           | <b>22</b>     |
|                             | Row %        | 0.0%         | 4.5%         | 9.1%         | 54.5%        | 27.3%       | 4.5%        |               |
|                             | Column %     | 0.0%         | 0.3%         | 1.8%         | 12.0%        | 14.3%       | 14.3%       | <b>2.8%</b>   |
| <b>50<br/>to<br/>59</b>     | Count        | 0            | 0            | 0            | 3            | 4           | 1           | <b>8</b>      |
|                             | Row %        | 0.0%         | 0.0%         | 0.0%         | 37.5%        | 50.0%       | 12.5%       |               |
|                             | Column %     | 0.0%         | 0.0%         | 0.0%         | 3.0%         | 9.5%        | 14.3%       | <b>1.0%</b>   |
| <b>60<br/>to<br/>69</b>     | Count        | 0            | 0            | 0            | 0            | 1           | 0           | <b>1</b>      |
|                             | Row %        | 0.0%         | 0.0%         | 0.0%         | 0.0%         | 100.0%      | 0.0%        |               |
|                             | Column %     | 0.0%         | 0.0%         | 0.0%         | 0.0%         | 2.4%        | 0.0%        | <b>0.1%</b>   |
| <b>more<br/>than<br/>70</b> | Count        | 0            | 0            | 0            | 0            | 3           | 0           | <b>3</b>      |
|                             | Row %        | 0.0%         | 0.0%         | 0.0%         | 0.0%         | 100.0%      | 0.0%        |               |
|                             | Column %     | 0.0%         | 0.0%         | 0.0%         | 0.0%         | 7.1%        | 0.0%        | <b>0.4%</b>   |
| <b>Total</b>                | <b>Count</b> | <b>171</b>   | <b>344</b>   | <b>111</b>   | <b>100</b>   | <b>42</b>   | <b>7</b>    | <b>775</b>    |
|                             | <b>Row %</b> | <b>22.1%</b> | <b>44.4%</b> | <b>14.3%</b> | <b>12.9%</b> | <b>5.4%</b> | <b>0.9%</b> | <b>100.0%</b> |

**Table V-5  
Trip Mode (n=11,445)**

| <b>Mode</b>     | <b>Percent</b> |
|-----------------|----------------|
| Private Vehicle | 88.3%          |
| Walk            | 6.5%           |
| Bicycle         | 0.8%           |
| School Bus      | 4.0%           |
| Public Bus      | 0.2%           |
| Other           | 0.2%           |

**Table V-6  
Average “Reported” Household Trip Times by Mode (n=11,445)**

| <b>Mode</b>            | <b>Mean Trip Length (min.)</b> |
|------------------------|--------------------------------|
| Private Vehicle        | 16.50                          |
| Walk                   | 17.78                          |
| Bicycle                | 17.90                          |
| School Bus             | 26.35                          |
| Public Bus             | 32.80                          |
| Other (Airplane, etc.) | 155.96                         |

## 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=1,208)**

| Household Variables | Percent Non-Response |
|---------------------|----------------------|
| Household Size      | 0.0%                 |
| Household Vehicles  | 0.0%                 |
| Home Ownership      | 0.3%                 |
| Dwelling Type       | 0.1%                 |
| Household Income    | 12.8%                |

**Table VI-2  
Percent Item Non-Response - Person Questions (n=3,013)**

| Household Variables           | Percent Non-Response |
|-------------------------------|----------------------|
| Relation to Head of House     | 0.0%                 |
| Age                           | 0.6%                 |
| Race                          | 0.7%                 |
| Drivers License Status        | 0.0%                 |
| Employment Status             | 0.1%                 |
| Occupation                    | 3.4%                 |
| Industry                      | 1.8%                 |
| Shiftwork                     | 39.1%                |
| Years at Work Site            | 4.4%                 |
| Student Status                | 0.1%                 |
| Student Level - Head of House | 1.2%                 |
| Student Level - Others        | 0.3%                 |
| Disability                    | 0.1%                 |