

APPENDIX F

**Recreation Impact Assumptions**

The Okanogan-Wenatchee National Forest (OWNF) is in the midst of a revision to existing forest plans completed in 1989 (Okanagan NF) and 1990 (Wenatchee NF). In the June 2011 document “Proposed Action for Forest Plan Revision Okanogan-Wenatchee National Forest”, the Forest Service presented current recreation use on both forests. The information is derived from the National Visitor Use Monitoring (NVUM) which tracks recreational use for each forest. Given the Watershed Land Conservation Subcommittee proposed land acquisitions are closer in geography to the Wenatchee, figures from that portion of the Okanogan-Wenatchee forest are used here.

The June 2011 FS document presented visitor information based on 2005 use data. 2,130,800 visits were estimated for the Wenatchee NF. Of this total 129,900 or 6 percent of these were estimated to be users of the wilderness areas on the forest. For the overall 2.1 million visits, 57 percent were day users; overnight visits accounted for the other 43 percent (USDA Forest Service 2011). Table F-1 presents the distribution of the primary activity for those 2.1 million visitors.

**Table F-1: Visitation by Activity Type, Wenatchee National Forest, 2005**

| <b>Activity</b>                | <b>Percent of Total Visitors</b> | <b>Number of Visits in 2005</b> |
|--------------------------------|----------------------------------|---------------------------------|
| <b>Hunting</b>                 | 22.7%                            | 483,692                         |
| <b>Snowmobiling</b>            | 13.9%                            | 296,181                         |
| <b>Hiking/Walking</b>          | 11.7%                            | 249,304                         |
| <b>Developed Camping</b>       | 8.9%                             | 189,641                         |
| <b>Backpacking</b>             | 6.9%                             | 147,025                         |
| <b>Viewing natural feature</b> | 6.3%                             | 134,240                         |
| <b>Other activities</b>        | 29.6%                            | 630,717                         |

For purposes of estimating impacts on the proposed land acquisitions and management changes for the preferred alternatives in the Watershed Land Conservation Subcommittee Proposal, per unit measures were estimated using additional Forest Service data (Table F-2).

**Table F-2: Estimated Visitation Rates by Activity Type,  
Wenatchee National Forest, 2005**

| Activity                        | Visitors | Unit measure   | Per Unit  |
|---------------------------------|----------|--|---|
| <b>Hunting</b>                  | 483,692  | Acres of Wenatchee NF  | .28 visits per acre   |
| <b>Snowmobiling</b>             | 296,181  | Motorized miles  | 77 visits per motorized mile                                      |
| <b>Hiking/Walking</b>           | 249,304  | 2463 miles of trails (48% in Wilderness designation)                 | 101 visits per mile of trails                                     |
| <b>Developed Camping</b>        | 189,641  | 115 campgrounds, in the 1990 plan                                    | 1,649 visits per campground                                       |
| <b>Backpacking</b>              | 147,025  | 1,182 miles of trails in Wilderness. 841,034 acres are in Wilderness | 124 visits per mile of wilderness trails, or 0.17 visits per acre |
| <b>Viewing natural features</b> | 134,240  | Acres of Wenatchee NF  | .08 visits per acre   |
| <b>Other activities</b>         | 630,717  | Acres of Wenatchee NF  | .37 visits per acre   |

*Notes:*

*Trail mileage is from the 1990 Wenatchee Forest Plan. In this plan, the Forest Service noted, "Most of the high quality opportunities [for backpacking] are in the wilderness areas."*

*Snowmobile unit values are from "Winter Recreation on Western National Forest Lands" by Kathleen E. Rivers and Mark Menlove, Winter Wildlands Alliance, July 2006. Snowmobile visits per motorize mile based on the Okanogan-Wenatchee forest overall, not just the Wenatchee.*

**Spending Patterns for Recreation Users**

In addition to tracking visitor use for different kinds of recreation on the national forests, the NVUM survey process is also used to develop spending profiles for those same recreational activities. These profiles are then used by the Forest Service to estimate economic impacts associated with recreation on the national forests.

In 2006, Stynes and White published a report documenting these spending profiles. Their report was based on NVUM surveys conducted between 2000 and 2003. Spending profiles for nine recreation activity categories. Recreation oriented trips from local users were distinguished from visits from non-locals, where local was defined as being living within roughly a fifty mile distance from the recreation site.

Sample size limitations precluded the authors from yielding reliable spending profiles at an individual forest level so the profiles they compiled represent national averages rather than profiles for a specific forest. The original data was presented in 2003 dollars; figures used for the Kittitas economic impact analysis were updated to 2011 dollars used the consumer price index (CPI-U). These update values are shown in Table F-3.

**Table F-3: Visitor Spending by Recreation Type in National Forests,  
and Estimated Spending in Kittitas County, 2011 Dollars**

| Recreation Type and Expenditures | Non local day trip | Non local overnight | Local Day trip | Local overnight trip | Est. \$/visit spent in Kittitas Co. |
|----------------------------------|--------------------|---------------------|----------------|----------------------|-------------------------------------|
| <b>Nature Viewing</b>            |                    |                     |                |                      |                                     |
| \$ spent per party               | \$63.57            | \$273.17            | \$32.99        | \$157.98             | \$35.83                             |
| Average party size               | 2.5                | 2.7                 | 2.5            | 2.4                  |                                     |
| \$ spent per visitor             | \$25.43            | \$101.17            | \$13.20        | \$65.82              |                                     |
| <b>Cross Country Skiing</b>      |                    |                     |                |                      |                                     |
| \$ spent per party               | \$65.39            | \$409.91            | \$41.61        | \$245.94             | \$56.29                             |
| Average party size               | 2.8                | 2.8                 | 2.3            | 2.3                  |                                     |
| \$ spent per visitor             | \$23.35            | \$146.40            | \$18.09        | \$106.93             |                                     |
| <b>Snowmobiling</b>              |                    |                     |                |                      |                                     |
| \$ spent per party               | \$132.16           | \$394.02            | \$83.68        | \$236.41             | \$57.04                             |
| Average party size               | 2.2                | 2.5                 | 2.3            | 2.8                  |                                     |
| \$ spent per visitor             | \$60.07            | \$157.61            | \$36.38        | \$84.43              |                                     |
| <b>Off-Highway Vehicle Use</b>   |                    |                     |                |                      |                                     |
| \$ spent per party               | \$73.26            | \$197.77            | \$46.62        | \$118.66             | \$33.70                             |
| Average party size               | 2.1                | 2.5                 | 2.0            | 2.5                  |                                     |
| \$ spent per visitor             | \$34.89            | \$79.11             | \$23.31        | \$47.47              |                                     |
| <b>Hiking and Biking</b>         |                    |                     |                |                      |                                     |
| \$ spent per party               | \$44.81            | \$300.31            | \$24.63        | \$105.95             | \$28.51                             |
| Average party size               | 2.1                | 2.3                 | 1.8            | 2.2                  |                                     |
| \$ spent per visitor             | \$21.34            | \$130.57            | \$13.68        | \$48.16              |                                     |
| <b>Developed Camping</b>         |                    |                     |                |                      |                                     |
| \$ spent per party               | N/A                | \$172.72            | N/A            | \$156.31             | \$50.42                             |
| Average party size               | N/A                | 2.8                 | N/A            | 3.1                  |                                     |
| \$ spent per visitor             | N/A                | \$61.69             | N/A            | \$50.42              |                                     |

N/A – Not applicable

Source: Spending by trip type based on Stynes and White, 2006, updated to 2011 dollars using the Consumer Price Index (2003 data in original). Visits in Kittitas County assume 57 percent day use, 43 percent overnight; see text for explanation.

For the Wenatchee portion of the Okanagon-Wenatchee National Forest, day users represent 57% of the visitors (USDA Forest Service, June 2011). It was assumed the amount of dollars spent *within* Kittitas County was roughly equivalent to the amount a local user (i.e., a visitor from within 50 miles of the recreation site) spends. These figures were then weighted by the 57% day use, 43% overnight split found in the Wenatchee data.

### **Trends in Recreation Use for the Wenatchee NF Area**

By the time the Forest Service was planning their 2006 forest plan revisions, recreation demand already was well of ahead of anticipated levels, nearly twice the level projected in the 1990 plan. The Forest Service noted reductions in overnight hiking trips but an increase in day hikes, both in the wilderness area and areas outside the wilderness.

Because of budget restrictions almost no new trails were constructed in the 15 year period. These budget restrictions were expected to continue limiting both construction of new trails and maintenance of existing trails.

The 2006 revision documents also noted increased demand for off road vehicle (OHV) routes. Roads on the forest can only be used by vehicles licensed for highway use, limiting OHV use to designated routes.

The June 2011 plan revision included comments about the overuse of the Wenatchee NF, particularly areas closest to the Puget Sound population. They noted demand for snowmobiling is expected to triple by 2050 and hiking is expected to increase by 78 percent. According to the Forest Service, OHV use is only a small share of present use, but some trails systems (they specifically mention Manastash and Little Naches) are already overcrowded. (USDA Forest Service, June 2011). Several recent articles in The Wenatchee World address conflicts between snowmobilers and other winter recreationists, e.g., cross country skiers and snowshoe users.

Although the Forest Service plan revision does not explicitly propose changes to snowmobile use, it does propose adding 125,800 acres to wilderness status. Those lands would be off limits to snowmobiles, possibly increasing demand for snowmobiling in other areas.

The June report also noted increased demand for dispersed recreation including wildlife watching, rock climbing, boating and sightseeing.

### Estimates of Spending Patterns by Recreation Type

The following tables were derived from Stynes and White (2006), and were used to estimate spending patterns by recreationists. All estimates were converted to 2011 dollars.

**Table F-4: Snowmobiling**

| Expenditure Category        | Local Day Use  | Local Overnight | Non-Local Day Use | Non-Local Overnight |
|-----------------------------|----------------|-----------------|-------------------|---------------------|
| <b>Lodging</b>              | \$0.00         | \$64.40         | \$0.00            | \$107.33            |
| <b>Restaurants</b>          | \$13.79        | \$71.59         | \$28.02           | \$119.31            |
| <b>Groceries</b>            | \$8.58         | \$18.52         | \$14.06           | \$30.87             |
| <b>Gas and Oil</b>          | \$38.68        | \$47.25         | \$64.15           | \$78.75             |
| <b>Other Transportation</b> | \$0.32         | \$1.22          | \$0.92            | \$2.04              |
| <b>Activities/Supplies</b>  | \$2.62         | \$17.58         | \$13.10           | \$29.30             |
| <b>Equipment Rental</b>     | \$8.12         | \$5.87          | \$10.17           | \$9.79              |
| <b>Souvenirs/Other</b>      | \$11.59        | \$9.98          | \$1.74            | \$16.61             |
| <b>TOTAL</b>                | <b>\$83.69</b> | <b>\$236.40</b> | <b>\$132.16</b>   | <b>\$394.01</b>     |

**Table F-5: OHV Use**

| Expenditure Category        | Local Day Use  | Local Overnight | Non-Local Day Use | Non-Local Overnight |
|-----------------------------|----------------|-----------------|-------------------|---------------------|
| <b>Lodging</b>              | \$0.00         | \$16.75         | \$0.00            | \$27.91             |
| <b>Restaurants</b>          | \$8.54         | \$21.26         | \$13.43           | \$35.44             |
| <b>Groceries</b>            | \$7.65         | \$26.95         | \$12.03           | \$44.92             |
| <b>Gas and Oil</b>          | \$20.35        | \$31.91         | \$31.99           | \$53.16             |
| <b>Other Transportation</b> | \$0.00         | \$0.00          | \$0.00            | \$0.00              |
| <b>Activities/Supplies</b>  | \$2.80         | \$3.55          | \$4.40            | \$5.90              |
| <b>Equipment Rental</b>     | \$2.76         | \$4.69          | \$4.34            | \$7.84              |
| <b>Souvenirs/Other</b>      | \$4.50         | \$13.56         | \$7.08            | \$22.59             |
| <b>TOTAL</b>                | <b>\$46.61</b> | <b>\$118.66</b> | <b>\$73.27</b>    | <b>\$197.77</b>     |

**Table F-6: Camping/Backpacking**

| Expenditure Category        | Local Day Use   | Local Overnight | Non-Local Day Use | Non-Local Overnight |
|-----------------------------|-----------------|-----------------|-------------------|---------------------|
| <b>Lodging</b>              | \$10.40         | \$13.67         | \$10.71           | \$17.91             |
| <b>Restaurants</b>          | \$13.54         | \$15.26         | \$21.44           | \$25.46             |
| <b>Groceries</b>            | \$40.61         | \$56.57         | \$25.49           | \$46.20             |
| <b>Gas and Oil</b>          | \$25.23         | \$33.48         | \$30.77           | \$42.63             |
| <b>Other Transportation</b> | \$0.12          | \$0.39          | \$7.63            | \$1.81              |
| <b>Activities/Supplies</b>  | \$1.97          | \$4.66          | \$6.47            | \$8.57              |
| <b>Equipment Rental</b>     | \$9.54          | \$22.13         | \$8.26            | \$16.34             |
| <b>Souvenirs/Other</b>      | \$13.58         | \$10.16         | \$17.20           | \$13.80             |
| <b>TOTAL</b>                | <b>\$115.00</b> | <b>\$156.31</b> | <b>\$127.97</b>   | <b>\$172.72</b>     |

**Table F-7: Hiking/Biking**

| Expenditure Category        | Local Day Use  | Local Overnight | Non-Local Day Use | Non-Local Overnight |
|-----------------------------|----------------|-----------------|-------------------|---------------------|
| <b>Lodging</b>              | \$0.00         | \$18.62         | \$0.00            | \$90.31             |
| <b>Restaurants</b>          | \$5.18         | \$19.52         | \$15.18           | \$74.78             |
| <b>Groceries</b>            | \$3.85         | \$21.89         | \$6.30            | \$41.26             |
| <b>Gas and Oil</b>          | \$9.24         | \$22.44         | \$12.43           | \$37.74             |
| <b>Other Transportation</b> | \$0.17         | \$2.04          | \$3.26            | \$12.76             |
| <b>Activities/Supplies</b>  | \$0.77         | \$8.01          | \$1.15            | \$10.32             |
| <b>Equipment Rental</b>     | \$2.88         | \$5.20          | \$3.39            | \$6.17              |
| <b>Souvenirs/Other</b>      | \$2.53         | \$8.23          | \$3.11            | \$26.98             |
| <b>TOTAL</b>                | <b>\$24.63</b> | <b>\$105.95</b> | <b>\$44.81</b>    | <b>\$300.32</b>     |