

# **Appendix I:**

## **The Summit-at-Snoqualmie**

### **Master Development Plan Proposal FEIS**

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## Rationale for DPC Analysis Parameters for 7th Field Watersheds for the Summit at Snoqualmie EIS

| Parameter Name   | Parameter Objective   | Applicable Sections | Threshold            | Threshold Rationale  |
|--|---|---------------------|----------------------|--|
| Riparian Buffers not in a Non-Natural Condition (% of total) | Thermal influences; sediment filtration and retention; LWD limiting; does include shrubs and sapling forest that provide some bank stability and soil protection; evaluated on areal basis  | Water/Fish          | 30%                  | Table B1-1 of the Northwest Forest Plan FEIS Appendix B (USDA 1994) rates habitat quality as high with regard to Coarse Woody Debris (CWD) recruitment where CWD is maintained at 100% of natural level, 90% is given a “moderate” habitat condition, and 50% CWD recruitment as “low” habitat quality. Therefore, with regard to CWD recruitment, the threshold at which habitat quality would be “low” is where for CWD recruitment is somewhere between 50 and 90% of naturally occurring levels. As the actual percentage of CWD recruitment at a site depends on unknown variables such as tree species, growing conditions, gradient and channel morphology, the median value between 50% and 90% (70%) would be a reasonable estimate of CWD recruitment that would result in poor habitat quality. If we assume an approximately 1:1 relationship between riparian forest loss and CWD recruitment, then riparian reserves with > 30% of land cover in a modified non-forested condition would be above the threshold for concern. |
| Stream Length w/ Management Concerns (% of total)            | Same as above, except does not include shrub or sapling vegetation, so potential for bank instability, thermal impacts and sediment production are maximized; evaluated on basis of length in the channel network   | Water/Fish          | 10%                  | Using professional judgment, visual inspection of plotted data suggest, conservatively, 10% of the riparian corridor along the channel network may be in a modified condition without incurring significant in-channel impacts. No additional documentation was found in the literature to corroborate this conclusion or suggest alternative threshold values.  |
| Road Density (miles/sq. mi.)                                 | Sediment & runoff production  | Soils/Water/Fish    | 3 mi/mi <sup>2</sup> | USFWS (1998) guidance rates 5 <sup>th</sup> field watersheds with >2 mi/mi <sup>2</sup> as not properly functioning (NPF) for bull trout; NMFS (1996) uses >3 mi/mi <sup>2</sup> for salmon. Using 2 mi/mi <sup>2</sup> would identify a number of 7th field drainages that are felt to be in generally good condition, so 3 mi/mi <sup>2</sup> is proposed. A standard of 3 mi/mi <sup>2</sup> is also consistent with values used for high risk ratings for 6th field subwatersheds on the Medicine Bow National Forest for both infrequently and frequently maintained roads of all service levels (USFS 2003). USFS (1993) indicates of 3 mi/mi <sup>2</sup> is within the range for a moderate risk rating where watershed relief exceeds 30%.  |
| Road Crossing Density (number/sq. mi.)                       | Sediment delivery [to perennial streams]; does not consider culverted channel types (not culverts) where sediment delivery is precluded   | Soils/Water/Fish    | 6 #/mi <sup>2</sup>  | The Medicine Bow National Forest established a range of risk ratings for the road-stream crossing density using the entire range of road types (highways to mountain roads) but limited to the first order streams approximately as shown on USGS maps. Because we have more detailed stream mapping, we queried the intersection of all roads with perennial streams (no justification for using perennial only) and divided by basin area. These values were related to manually calculated density of mainstem only crossings for Mill Creek, Stream A, Beaver Creek, and International Creek, and a simple linear regression generated an empirical relationship by which to apply (increase) the Medicine Bow thresholds for use with our data. The moderate risk level with a crossing density of 6 per square mile was selected.  |
| Impervious Cover (% of total)                                | Runoff production; channel erosion  | Soils/Water         | 8%                   | Center for Watershed Protection (2003), extensive literature review examined relationships between watershed impervious surface and many features of ecosystem function. Effects are first observed between 5 to 10% of basin area and become severe at >15%. At 8% changes in biological community can be expected.   |
| Bare Soils (acres)   | Degraded conditions resulting from topsoil loss; risk of poor revegetation success in adjacent areas; hillslope sediment production; does not include roads; based on mapping with a minimum area of about 1 to 2 acres   | Soils               | 0                    | No bare areas are considered acceptable (that is, soils in violation of soil quality standards as result of topsoil loss through severe erosion). Since the scale of our mapping limited minimum mapping size to 1 to 2 acres, we assumed any areas of this size were not acceptable. We did not consider smaller areas observed and noted during field reviews.   |
| Modified Channel Length (% of total)                         | Channel erosion, reduced channel complexity, potential for gulling; (not inclusive of all downcut channels, however); modified channel types include jurisdictional waters conveyed in ditches, water bars and straightened channels  | Water/Fish          | 8%                   | With no other supporting documentation in the literature, we calculated the percent of each drainage's channel network in modified channel types. This range of percentages for all drainages was used to calculate the quartile values. We assumed that drainages in the upper quartile (greater than or equal to about 8% of the channel network in modified channel type) were most likely to contain the widespread and cumulative effects of multiple channel modifications.  |
| Culverted Channel Length (% of total)                        | Downstream channel erosion; loss of aquatic habitat and riparian functions; (reduced opportunities for erosion and sediment inputs and skier safety are benefits to ski area facilities); culverted channel types are extended culverts (>100 ft) with objectives of channelization as well as conveyance | Water               | 8%                   | With no other supporting documentation in the literature, we calculated the percent of each drainage's channel network in a culverted channel type. This range of percentages for all drainages was used to calculate the quartile values. We assumed that drainages in the upper quartile were most likely to contain the widespread and cumulative effects of these channelized, contained segments (actually the 67th percentile was selected to be more conservative and obtain a value of about 8% for consistency with modified channel types). Caution should be used in interpreting this parameter since in some areas the placement of culverts not only supported ski area infrastructure but also reduced sediment recruitment and entrainment. Also, this parameter does not consider the appropriateness of culvert placement (location) and design.   |
| Activities on High Erosion Soils (% of total)                | Increased potential for hillslope erosion by intensive management   | Soils               | 1.5%                 | With no other supporting documentation in the literature, we calculated the percent of higher hazard soils (class 3 and 4 together) that contained roads and bare areas. This range of percentages for all drainages was used to calculate quartile values. We assumed that drainages in the upper quartile (greater than or equal to about 1.5% of the higher hazard soils) had the greatest potential for further soil degradation, including mass movements and severe surface erosion in areas already observed to have problems with topsoil loss.  |

### Rationale for DPC Screening Parameters for 7th Field Watersheds for the Summit EIS

| Parameter Name   | Parameter Objective   | Applicable Sections | Threshold | Threshold Rationale   |
|--|---|---------------------|-----------|---|
| Percent of erosion classes 3 & 4 soils in Watershed      | Supporting information used in above row for % with bare soil   | Soils               | NA        | NA  |
| Pfankuch Lower Bank Cutting                              | Quasi-quantitative approach to process-based bank morphology; indicates location along a stability-degradation continuum based on field study; useful for historic impacts and existing conditions related primarily to stream energy (and channel structure, etc); less useful as a predictor of impacts | Water/Fish          | NA        | Lower bank cutting scores obtained for individual segments in a drainage during field surveys were averaged to obtain a single score for the drainage. Averages are not weighted by segment length, and there is a range in the number of values behind each average. Averages were graphed by drainage, and individual segment scores were also observed in a table that presented the count of various scores (0 through 16) by drainage. Using Pfankuch's bank process descriptions that were the basis of the scores, and observing the individual data using professional judgment, a threshold of 8.5 was estimated--just above the midpoint of the Pfankuch scale and the beginning point for marked bank steepening. When this value was plotted against the drainage averages, there was generally good agreement with the understood condition of streams in the various drainages. |
| Pfankuch Streambed Scour & Deposition                    | Quasi-quantitative approach to process-based bed morphology; indicates location along a stability-degradation continuum based on field study; useful for historic impacts and existing conditions related to stream energy and sediment loads; less useful as a predictor of impacts                      | Water/Fish          | NA        | Rationale is the same as above, except the range of bed scour and deposition scores (0 through 24) was used. The midpoint of 12 was agreeable for both the point along the continuum of physical bed processes, but also for the condition of the various drainages.  |
| Length of fish habitat (miles)                           | Measure of habitat present in drainage; increased length relates to increased risk of impacts   | Fish                | NA        | This measure is not exactly a threshold of concern, but is used to put the other parameters in context.   |
| Length of fish habitat blocked by human barriers (miles) | Measure of habitat precluded from downstream access; modifies interpretation of habitat quantity  | Fish                | NA        | This measure is not exactly a threshold of concern, but is used to put the other parameters in context.   |
| Human-caused fish barriers                               | Limitations to upstream access by fish  | Fish                | NA        | Any man-made barriers that impede fish passage indicate a condition that is contrary to management guidance from the USFS and WDFW (USFS 1994, USFS and WDFW 1997, and WAC 220-110).  |
| Overall habitat quality                                  | Value/quality of habitat that may be affected in the future; quality modifier for interpreting habitat quantity and quality   | Fish                | NA        | USFWS (1998) matrix of indicators and pathways criteria. Sediment criteria altered to include available data based on visual estimates.   |
| Areas of particular concern                              | Observed point and areal features that were identified during an interdisciplinary group review of watershed conditions. These are generally indicators of the negative effects of past management practices, or of the potential for effects of MDP alternatives on resources.                           | Soils/Water/Fish    | NA        | Neither the presence or absence of APCs are necessarily justification that the entire drainage in which they (it) reside is of "particular concern"-. However, the identification of APCs can be used to confirm the violation of other parameter thresholds, and may be used to justify/document problems not detected by the other parameters..   |

## Analysis of Parameters Used to Determine Drainages of Particular Concern for Alternative 1

| Parameter   | Applicable Sections | Threshold | Upper Yakima River Watershed |                  |           |              |          |          |           |          |          |                | South Fork Snoqualmie River Watershed |              |               |                |              |          |                |          |
|---|---------------------|-----------|------------------------------|------------------|-----------|--------------|----------|----------|-----------|----------|----------|----------------|---------------------------------------|--------------|---------------|----------------|--------------|----------|----------------|----------|
|   |                     |           | Lower Mill Creek             | Upper Mill Creek | Creek Run | Summit South | Hyak     | Tunnel   | Ski Acres | Beaver   | Other    | Subtotal       | Northside                             | Summit North | International | Upper Alpental | Nacrinomical | Other    | Subtotal       |          |
| Area (acres)  |                     |           | 395.67                       | 33.22            | 220.24    | 223.89       | 192.70   | 134.41   | 358.08    | 171.38   | 155.63   | <b>1885.21</b> | 49.04                                 | 72.11        | 270.19        | 89.37          | 318.76       | 214.67   | <b>1014.15</b> |          |
| Area (sq mile)  |                     |           | 0.62                         | 0.05             | 0.34      | 0.35         | 0.30     | 0.21     | 0.56      | 0.27     | 0.24     | <b>2.95</b>    | 0.08                                  | 0.11         | 0.42          | 0.14           | 0.50         | 0.34     | <b>1.58</b>    |          |
| Riparian Buffer (acres)                                       |                     |           | 84.09                        | 22.37            | 95.15     | 32.42        | 77.21    | 37.50    | 112.74    | 55.83    | 6.19     | <b>523.49</b>  | 7.45                                  | 34.22        | 70.63         | 19.08          | 91.38        | 54.59    | <b>277.35</b>  |          |
| Stream Length (miles)   |                     |           | 4.54                         | 0.45             | 2.86      | 0.87         | 1.93     | 2.01     | 4.85      | 1.38     | 0.33     | <b>19.21</b>   | 0.16                                  | 0.85         | 2.97          | 0.54           | 2.94         | 2.82     | <b>10.26</b>   |          |
| Riparian Buffers in a Developed or Modified Condition (acres) |                     |           | 69.93                        | 22.37            | 17.95     | 14.61        | 21.13    | 15.75    | 59.50     | 31.48    | 2.75     | <b>255.47</b>  | 6.07                                  | 28.71        | 29.05         | 5.19           | 35.61        | 6.18     | <b>110.82</b>  |          |
| Riparian Buffers in a Non-Natural Condition (% of total)      | Water/Fish          | 30.0      | 83.16                        | 100.00           | 18.87     | 45.06        | 27.37    | 42.00    | 52.78     | 56.38    | 44.52    | <b>48.80</b>   | 81.47                                 | 83.90        | 41.12         | 27.22          | 38.97        | 11.32    | <b>39.95</b>   |          |
| <b>Stream Length with Management Concerns</b>                 |                     |           |                              |                  |           |              |          |          |           |          |          |                |                                       |              |               |                |              |          |                |          |
| Modified Herbaceous (miles)                                   |                     |           | 0.29                         | 0.08             | 0.04      | 0.04         | 0.10     | 0.43     | 1.78      | 0.59     | 0.00     | <b>3.35</b>    | 0.00                                  | 0.34         | 0.06          | 0.00           | 0.51         | 0.00     | <b>0.92</b>    |          |
| Developed (miles)   |                     |           | 0.06                         | 0.00             | 0.02      | 0.01         | 0.01     | 0.12     | 0.37      | 0.08     | 0.11     | <b>0.79</b>    | 0.00                                  | 0.08         | 0.01          | 0.02           | 0.11         | 0.11     | <b>0.34</b>    |          |
| Bare Area Soil (miles)  |                     |           | 0                            | 0                | 0         | 0            | 0        | 0        | 0         | 0        | 0        | <b>0</b>       | 0                                     | 0            | 0             | 0              | 0            | 0        | <b>0</b>       |          |
| Total Length (miles)  |                     |           | 0.35                         | 0.08             | 0.05      | 0.06         | 0.11     | 0.55     | 2.16      | 0.67     | 0.11     | <b>4.14</b>    | 0.00                                  | 0.42         | 0.07          | 0.02           | 0.63         | 0.11     | <b>1.26</b>    |          |
| Stream Length w/ Management Concerns (% of total)             | Water/Fish          | 10.0      | 7.78                         | 18.33            | 1.89      | 6.60         | 5.81     | 27.23    | 44.48     | 48.63    | 32.40    | <b>21.56</b>   | 0.00                                  | 49.76        | 2.44          | 3.89           | 21.40        | 3.98     | <b>12.23</b>   |          |
| Road Length (miles)   |                     |           | 4.59                         | 0.15             | 0.87      | 1.98         | 0.84     | 2.59     | 5.19      | 2.32     | 0.40     | <b>18.93</b>   | 0.37                                  | 0.79         | 0.21          | 0.10           | 0.85         | 0.79     | <b>3.10</b>    |          |
| Road Density (miles/sq. mi.)                                  | Soils/Water/Fish    | 3.0       | 7.42                         | 2.90             | 2.52      | 5.66         | 2.78     | 12.34    | 9.28      | 8.65     | 1.66     | <b>6.43</b>    | 4.88                                  | 7.02         | 0.50          | 0.68           | 1.70         | 2.34     | <b>1.96</b>    |          |
| Road Crossings (Number of Crossings)                          |                     |           | 17                           | 0                | 7         | 5            | 3        | 18       | 28        | 9        | 1        | <b>88</b>      | 0                                     | 3            | 2             | 1              | 6            | 4        | <b>16</b>      |          |
| Road Crossing Density (number/sq. mi.)                        | Soils/Water/Fish    | 6.0       | 27.50                        | 0.00             | 20.34     | 14.29        | 9.96     | 85.71    | 50.04     | 33.61    | 4.11     | <b>29.87</b>   | 0.00                                  | 26.62        | 4.76          | 7.16           | 12.05        | 11.93    | <b>10.11</b>   |          |
| <b>Impervious Cover</b>                                       |                     |           |                              |                  |           |              |          |          |           |          |          |                |                                       |              |               |                |              |          |                |          |
| Impervious Cover (acres)                                      |                     |           | 8.89                         | 0.29             | 1.68      | 9.70         | 2.46     | 9.45     | 29.22     | 7.34     | 1.80     | <b>70.83</b>   | 0.81                                  | 10.28        | 0.58          | 0.21           | 6.14         | 5.74     | <b>23.76</b>   |          |
| Impervious Cover (% of total)                                 | Soils/Water         | 8.0       | 2.25                         | 0.88             | 0.76      | 4.33         | 1.28     | 7.03     | 8.16      | 4.29     | 1.16     | <b>3.76</b>    | 1.65                                  | 14.26        | 0.21          | 0.23           | 1.93         | 2.68     | <b>2.34</b>    |          |
| Bare Soils (acres)  | Soils               | 0.0       | 1.46                         | 0.00             | 0.00      | 2.14         | 0.00     | 0.00     | 9.39      | 0.00     | 0.31     | <b>13.30</b>   | 0.00                                  | 0.00         | 0.00          | 0.00           | 0.00         | 0.22     | <b>0.22</b>    |          |
| Channel Length in Modified Condition (miles)                  |                     |           | 0.00                         | 0.00             | 0.00      | 0.01         | 0.00     | 0.11     | 0.61      | 0.14     | 0.00     | <b>0.89</b>    | 0.00                                  | 0.75         | 0.06          | 0.00           | 0.74         | 0.15     | <b>1.70</b>    |          |
| Modified Channel Length (% of total)                          | Water/Fish          | 8.0       | 0.00                         | 0.00             | 0.00      | 1.69         | 0.00     | 5.60     | 12.68     | 10.45    | 0.00     | <b>4.61</b>    | 0.00                                  | 88.43        | 1.96          | 0.00           | 25.17        | 5.49     | <b>16.57</b>   |          |
| Culverted Channel Length (miles)                              |                     |           | 0.00                         | 0.00             | 0.00      | 0.00         | 0.11     | 0.52     | 0.78      | 0.30     | 0.13     | <b>1.84</b>    | 0.00                                  | 0.10         | 0.00          | 0.00           | 0.11         | 0.01     | <b>0.22</b>    |          |
| Culverted Channel Length (% of total)                         | Water               | 8.0       | 0.00                         | 0.00             | 0.00      | 0.00         | 5.76     | 26.07    | 16.09     | 21.96    | 38.46    | <b>9.60</b>    | 0.00                                  | 11.57        | 0.00          | 0.00           | 3.84         | 0.36     | <b>2.15</b>    |          |
| <b>Activities on High Erosion Soils</b>                       |                     |           |                              |                  |           |              |          |          |           |          |          |                |                                       |              |               |                |              |          |                |          |
| Roads (acres)   |                     |           | 3.92                         | 0.00             | 0.00      | 0.77         | 0.54     | 0.65     | 0.87      | 1.53     | 0.52     | <b>8.79</b>    | 0.17                                  | 0.03         | 0.09          | 0.00           | 0.19         | 0.00     | <b>0.49</b>    |          |
| Bare Soils (acres)  |                     |           | 0.11                         | 0.00             | 0.00      | 1.04         | 0.00     | 0.00     | 7.53      | 0.00     | 0.00     | <b>8.68</b>    | 0.00                                  | 0.00         | 0.00          | 0.00           | 0.00         | 0.00     | <b>0.00</b>    |          |
| Total Roads and Bare Soils (acres)                            |                     |           | 4.02                         | 0.00             | 0.00      | 1.81         | 0.54     | 0.65     | 8.40      | 1.53     | 0.52     | <b>17.47</b>   | 0.17                                  | 0.03         | 0.09          | 0.00           | 0.19         | 0.00     | <b>0.49</b>    |          |
| Total Hazcal 3 and 4 Soils (acres)                            |                     |           | 202.53                       | 5.60             | 21.41     | 127.38       | 37.04    | 41.10    | 106.02    | 63.39    | 95.81    | <b>700.28</b>  | 31.56                                 | 9.39         | 133.75        | 35.92          | 174.94       | 103.00   | <b>488.57</b>  |          |
| Activities on High Erosion Soils (% of total)                 | Soils               | 1.5       | 1.99                         | 0.00             | 0.00      | 1.42         | 1.45     | 1.58     | 7.93      | 2.41     | 0.54     | <b>2.49</b>    | 0.55                                  | 0.36         | 0.07          | 0.00           | 0.11         | 0.00     | <b>0.10</b>    |          |
| <b>Parameters Over Threshold</b>                              |                     |           |                              |                  |           |              |          |          |           |          |          |                |                                       |              |               |                |              |          |                |          |
| Total:  |                     | <b>9</b>  |                              | <b>5</b>         | <b>2</b>  | <b>1</b>     | <b>4</b> | <b>1</b> | <b>6</b>  | <b>9</b> | <b>7</b> | <b>4</b>       | <b>7</b>                              | <b>2</b>     | <b>7</b>      | <b>1</b>       | <b>1</b>     | <b>4</b> | <b>2</b>       | <b>5</b> |
| Soils:  |                     | <b>5</b>  |                              | <b>4</b>         | <b>0</b>  | <b>1</b>     | <b>3</b> | <b>1</b> | <b>3</b>  | <b>5</b> | <b>3</b> | <b>1</b>       | <b>4</b>                              | <b>1</b>     | <b>3</b>      | <b>0</b>       | <b>1</b>     | <b>1</b> | <b>2</b>       | <b>2</b> |
| Water:  |                     | <b>7</b>  |                              | <b>3</b>         | <b>2</b>  | <b>1</b>     | <b>3</b> | <b>1</b> | <b>5</b>  | <b>7</b> | <b>6</b> | <b>3</b>       | <b>5</b>                              | <b>2</b>     | <b>7</b>      | <b>1</b>       | <b>1</b>     | <b>4</b> | <b>1</b>       | <b>4</b> |
| Fish:   |                     | <b>5</b>  |                              | <b>3</b>         | <b>2</b>  | <b>1</b>     | <b>3</b> | <b>1</b> | <b>4</b>  | <b>5</b> | <b>5</b> | <b>2</b>       | <b>4</b>                              | <b>2</b>     | <b>5</b>      | <b>1</b>       | <b>1</b>     | <b>4</b> | <b>1</b>       | <b>4</b> |
| <b>Fish Habitat</b>   |                     |           |                              |                  |           |              |          |          |           |          |          |                |                                       |              |               |                |              |          |                |          |
| Length of Fish Bearing Streams (miles)                        |                     |           |                              |                  |           |              |          |          |           |          |          |                |                                       |              |               |                |              |          |                |          |

## Analysis of Parameters Used to Determine Drainages of Particular Concern for Alternative 2

| Parameter   | Applicable Sections | Threshold | Upper Yakima River Watershed |                  |           |              |          |          |           |              |               |             | South Fork Snoqualmie River Watershed |              |               |                |              |             |                |             |
|---|---------------------|-----------|------------------------------|------------------|-----------|--------------|----------|----------|-----------|--------------|---------------|-------------|---------------------------------------|--------------|---------------|----------------|--------------|-------------|----------------|-------------|
|   |                     |           | Lower Mill Creek             | Upper Mill Creek | Creek Run | Summit South | Hyak     | Tunnel   | Ski Acres | Beaver       | Other         | Subtotal    | Northside                             | Summit North | International | Upper Alpental | Nacrinomical | Other       | Subtotal       |             |
| Area (acres)  |                     |           | 395.50                       | 33.21            | 220.15    | 223.79       | 192.61   | 134.35   | 357.93    | 171.30       | <b>155.56</b> | 1884.41     | 49.02                                 | 72.08        | 270.07        | 89.34          | 318.62       | 214.58      | <b>1013.72</b> |             |
| Area (sq mile)  |                     |           | 0.62                         | 0.05             | 0.34      | 0.35         | 0.30     | 0.21     | 0.56      | 0.27         | <b>0.24</b>   | 2.94        | 0.08                                  | 0.11         | 0.42          | 0.14           | 0.50         | 0.34        | <b>1.58</b>    |             |
| Riparian Buffer (acres)                                       |                     |           | 84.05                        | 22.36            | 95.11     | 32.43        | 77.17    | 37.49    | 112.28    | 57.59        | <b>6.18</b>   | 524.66      | 7.45                                  | 32.82        | 70.46         | 19.07          | 89.81        | 54.57       | <b>274.18</b>  |             |
| Stream Length (miles)   |                     |           | 4.54                         | 0.45             | 2.86      | 0.87         | 1.93     | 2.01     | 4.86      | 1.38         | <b>0.33</b>   | 19.21       | 0.16                                  | 0.70         | 2.97          | 0.54           | 2.84         | 2.81        | <b>10.01</b>   |             |
| Riparian Buffers in a Developed or Modified Condition (acres) |                     |           | 70.40                        | 22.36            | 27.05     | 21.94        | 22.06    | 19.21    | 62.08     | 34.15        | <b>2.75</b>   | 282.00      | 6.19                                  | 30.90        | 30.81         | 6.09           | 36.22        | 6.20        | <b>116.42</b>  |             |
| Riparian Buffers in a Non-Natural Condition (% of total)      | Water/Fish          | 30.0      | 83.76                        | 100.00           | 28.44     | 67.67        | 28.58    | 51.26    | 55.29     | 59.30        | <b>44.52</b>  | 53.75       | 83.13                                 | 94.17        | 43.72         | 31.96          | 40.33        | 11.36       | <b>42.46</b>   |             |
| <b>Stream Length with Management Concerns</b>                 |                     |           |                              |                  |           |              |          |          |           |              |               |             |                                       |              |               |                |              |             |                |             |
| Modified Herbaceous (miles)                                   |                     |           | 0.32                         | 0.08             | 0.10      | 0.10         | 0.08     | 0.59     | 1.72      | 0.27         | <b>0.00</b>   | 3.27        | 0.09                                  | 0.38         | 0.12          | 0.00           | 0.55         | 0.00        | <b>1.14</b>    |             |
| Developed (miles)   |                     |           | 0.06                         | 0.00             | 0.04      | 0.01         | 0.02     | 0.17     | 0.39      | 0.11         | <b>0.11</b>   | 0.91        | 0.00                                  | 0.15         | 0.01          | 0.02           | 0.11         | 0.11        | <b>0.40</b>    |             |
| Bare Area Soil (miles)  |                     |           | 0                            | 0                | 0         | 0            | 0        | 0        | 0.08      | 0            | <b>0</b>      | 0.08        | 0                                     | 0            | 0             | 0              | 0            | 0           | <b>0</b>       |             |
| Total Length (miles)  |                     |           | 0.38                         | 0.08             | 0.14      | 0.12         | 0.10     | 0.76     | 2.19      | 0.39         | <b>0.11</b>   | 4.26        | 0.09                                  | 0.53         | 0.13          | 0.02           | 0.66         | 0.11        | <b>1.54</b>    |             |
| Stream Length w/ Management Concerns (% of total)             | Water/Fish          | 10.0      | 8.37                         | 18.33            | 4.88      | 13.50        | 5.34     | 37.77    | 45.11     | 27.98        | <b>32.40</b>  | 22.19       | 58.79                                 | 75.40        | 4.44          | 3.89           | 23.19        | 3.99        | <b>15.39</b>   |             |
| Road Length (miles)   |                     |           | 4.62                         | 0.15             | 0.77      | 1.96         | 0.84     | 2.47     | 4.92      | 2.06         | <b>0.40</b>   | 18.20       | 0.42                                  | 0.79         | 0.21          | 0.10           | 0.85         | 0.79        | <b>3.15</b>    |             |
| Road Density (miles/sq. mi.)                                  | Soils/Water/Fish    | 3.0       | 7.47                         | 2.90             | 2.25      | 5.61         | 2.78     | 11.77    | 8.80      | 7.68         | <b>1.66</b>   | 6.18        | 5.48                                  | 7.02         | 0.50          | 0.68           | 1.70         | 2.35        | <b>1.99</b>    |             |
| Road Crossings (Number of Crossings)                          |                     |           | 18                           | 0                | 7         | 4            | 4        | 19       | 28        | 8            | <b>1</b>      | 89          | 0                                     | 3            | 2             | 1              | 7            | 4           | <b>17</b>      |             |
| Road Crossing Density (number/sq. mi.)                        | Soils/Water/Fish    | 6.0       | 29.13                        | 0.00             | 20.35     | 11.44        | 13.29    | 90.51    | 50.07     | 29.89        | <b>4.11</b>   | 30.23       | 0.00                                  | 26.64        | 4.76          | 7.16           | 14.06        | 11.93       | <b>10.75</b>   |             |
| Impervious Cover (acres)                                      |                     |           | 8.98                         | 0.29             | 1.84      | 9.72         | 2.55     | 10.89    | 33.83     | 7.45         | <b>1.81</b>   | 77.36       | 0.93                                  | 13.10        | 0.70          | 2.11           | 6.23         | 5.75        | <b>28.81</b>   |             |
| Impervious Cover (% of total)                                 | Soils/Water         | 8.0       | 2.27                         | 0.88             | 0.84      | 4.34         | 1.32     | 8.11     | 9.45      | 4.35         | <b>1.16</b>   | 4.11        | 1.89                                  | 18.18        | 0.26          | 2.36           | 1.95         | 2.68        | <b>2.84</b>    |             |
| Bare Soils (acres)  | Soils               | 0.0       | 0.32                         | 0.00             | 0.00      | 2.02         | 0.00     | 0.00     | 6.29      | 0.00         | <b>0.31</b>   | 8.94        | 0.00                                  | 0.00         | 0.00          | 0.00           | 0.00         | 0.17        | <b>0.17</b>    |             |
| Channel Length in a Modified Condition (miles)                |                     |           | 0.00                         | 0.00             | 0.00      | 0.01         | 0.00     | 0.11     | 0.61      | 0.08         | <b>0.00</b>   | 0.82        | 0.00                                  | 0.53         | 0.06          | 0.00           | 0.63         | 0.15        | <b>1.37</b>    |             |
| Modified Channel Length (% of total)                          | Water/Fish          | 8.0       | 0.00                         | 0.00             | 0.00      | 1.69         | 0.00     | 5.61     | 12.65     | 5.48         | <b>0.00</b>   | 4.25        | 0.00                                  | 76.25        | 1.96          | 0.00           | 22.20        | 5.50        | <b>13.73</b>   |             |
| Culverted Channel Length (miles)                              |                     |           | 0.07                         | 0.00             | 0.00      | 0.00         | 0.11     | 0.54     | 0.83      | 0.22         | <b>0.13</b>   | 1.90        | 0.00                                  | 0.17         | 0.00          | 0.00           | 0.11         | 0.01        | <b>0.29</b>    |             |
| Culverted Channel Length (% of total)                         | Water               | 8.0       | 1.56                         | 0.00             | 0.00      | 5.76         | 26.82    | 17.16    | 15.70     | <b>38.46</b> | 9.87          | 0.00        | 23.75                                 | 0.00         | 0.00          | 3.97           | 0.36         | <b>2.88</b> |                |             |
| <b>Activities on High Erosion Soils</b>                       |                     |           |                              |                  |           |              |          |          |           |              |               |             |                                       |              |               |                |              |             |                |             |
| Roads (acres)   |                     |           | 3.92                         | 0.00             | 0.00      | 0.73         | 0.54     | 0.65     | 0.87      | 1.52         | <b>0.51</b>   | 8.73        | 0.23                                  | 0.03         | 0.09          | 0.00           | 0.19         | 0.00        | <b>0.54</b>    |             |
| Bare Soils (acres)  |                     |           | 0.32                         | 0.00             | 0.00      | 2.02         | 0.00     | 0.00     | 6.29      | 0.00         | <b>0.31</b>   | 8.94        | 0.00                                  | 0.00         | 0.00          | 0.00           | 0.00         | 0.17        | <b>0.17</b>    |             |
| Total Roads and Bare Soils (acres)                            |                     |           | 4.23                         | 0.00             | 0.00      | 2.74         | 0.54     | 0.65     | 7.16      | 1.52         | <b>0.83</b>   | 17.67       | 0.23                                  | 0.03         | 0.09          | 0.00           | 0.19         | 0.17        | <b>0.72</b>    |             |
| Total Hazcal 3 and 4 Soils (acres)                            |                     |           | 202.53                       | 5.60             | 21.41     | 127.38       | 37.04    | 41.10    | 106.02    | 63.39        | <b>95.81</b>  | 700.28      | 31.56                                 | 9.39         | 133.75        | 35.92          | 174.94       | 103.00      | <b>488.57</b>  |             |
| Activities on High Erosion Soils (% of total)                 | Soils               | 1.5       | 2.09                         | 0.00             | 0.00      | 2.15         | 1.45     | 1.58     | 6.75      | 2.41         | <b>0.86</b>   | 2.52        | 0.73                                  | 0.36         | 0.07          | 0.00           | 0.11         | 0.17        | <b>0.15</b>    |             |
| <b>Parameters Over Threshold</b>                              |                     |           |                              |                  |           |              |          |          |           |              |               |             |                                       |              |               |                |              |             |                |             |
| <b>Total:</b>   |                     | <b>9</b>  |                              | <b>5</b>         | <b>2</b>  | <b>1</b>     | <b>6</b> | <b>1</b> | <b>7</b>  | <b>9</b>     | <b>6</b>      | <b>4</b>    | <b>7</b>                              | <b>3</b>     | <b>7</b>      | <b>1</b>       | <b>2</b>     | <b>4</b>    | <b>2</b>       | <b>5</b>    |
| <b>Soils:</b>   |                     | <b>5</b>  |                              | <b>4</b>         | <b>0</b>  | <b>1</b>     | <b>4</b> | <b>1</b> | <b>4</b>  | <b>5</b>     | <b>3</b>      | <b>1</b>    | <b>4</b>                              | <b>1</b>     | <b>3</b>      | <b>0</b>       | <b>1</b>     | <b>1</b>    | <b>2</b>       | <b>2</b>    |
| <b>Water:</b>   |                     | <b>7</b>  |                              | <b>3</b>         | <b>2</b>  | <b>1</b>     | <b>4</b> | <b>1</b> | <b>6</b>  | <b>7</b>     | <b>5</b>      | <b>3</b>    | <b>5</b>                              | <b>3</b>     | <b>7</b>      | <b>1</b>       | <b>2</b>     | <b>4</b>    | <b>1</b>       | <b>4</b>    |
| <b>Fish:</b>  |                     | <b>5</b>  |                              | <b>3</b>         | <b>2</b>  | <b>1</b>     | <b>4</b> | <b>1</b> | <b>4</b>  | <b>5</b>     | <b>4</b>      | <b>2</b>    | <b>4</b>                              | <b>3</b>     | <b>5</b>      | <b>1</b>       | <b>2</b>     | <b>4</b>    | <b>1</b>       | <b>4</b>    |
| <b>Fish Habitat</b>   |                     |           |                              |                  |           |              |          |          |           |              |               |             |                                       |              |               |                |              |             |                |             |
| Length of Fish Bearing Streams (miles)                        |                     |           | NA                           | 1.78             | 0.60      | 0.00         | 0.00     | 0.12     | 0.12      | 0.00         | 0.25          | <b>0.33</b> | 3.20                                  | 0.42         | 0.38          | 0.00           | 0.00         | 0.00        | 1.42           | <b>2.23</b> |
| Length of Presumed Fish Bearing Stream (miles)                |                     |           | NA                           | 0.00             | 0.00      | 0.00         | 0.10     | 0.96     | 0.00      | 1.14         | 0.19          | <b>0.00</b> | 2.39                                  | 0.00         | 0.00          | 0.00           | 0.00         | 0.00        | 1.60           | <b>1.60</b> |
| Blocked by Human Barriers (miles)                             |                     |           | NA                           | 0.96             | 0.00      | 0.00         | 0.00     | 0.00     | 0.00      | 1.60         | 0.00</td      |             |                                       |              |               |                |              |             |                |             |

## Analysis of Parameters Used to Determine Drainages of Particular Concern for Alternative 3

| Parameter   | Applicable Sections | Threshold | Upper Yakima River Watershed |                  |           |              |          |          |           |          |          |                |           | South Fork Snoqualmie River Watershed |               |                |              |             |                |  |  |
|---|---------------------|-----------|------------------------------|------------------|-----------|--------------|----------|----------|-----------|----------|----------|----------------|-----------|---------------------------------------|---------------|----------------|--------------|-------------|----------------|--|--|
|   |                     |           | Lower Mill Creek             | Upper Mill Creek | Creek Run | Summit South | Hyak     | Tunnel   | Ski Acres | Beaver   | Other    | Subtotal       | Northside | Summit North                          | International | Upper Alpental | Nacrinomical | Other       | Subtotal       |  |  |
| Area (acres)  |                     |           | 395.50                       | 33.21            | 220.15    | 223.79       | 192.61   | 134.35   | 357.93    | 171.30   | 155.56   | <b>1884.41</b> | 49.02     | 72.08                                 | 270.07        | 89.34          | 318.62       | 214.58      | <b>1013.72</b> |  |  |
| Area (sq mile)  |                     |           | 0.62                         | 0.05             | 0.34      | 0.35         | 0.30     | 0.21     | 0.56      | 0.27     | 0.24     | <b>2.94</b>    | 0.08      | 0.11                                  | 0.42          | 0.14           | 0.50         | 0.34        | <b>1.58</b>    |  |  |
| Riparian Buffer (acres)                                       |                     |           | 162.24                       | 25.66            | 95.11     | 32.42        | 77.17    | 37.49    | 112.28    | 57.59    | 6.18     | <b>606.14</b>  | 7.45      | 32.82                                 | 70.46         | 19.07          | 89.81        | 54.57       | <b>274.18</b>  |  |  |
| Stream Length (miles)   |                     |           | 4.54                         | 0.45             | 2.86      | 0.87         | 1.93     | 2.01     | 4.86      | 1.38     | 0.33     | <b>19.21</b>   | 0.16      | 0.70                                  | 2.97          | 0.54           | 2.84         | 2.81        | <b>10.01</b>   |  |  |
| Riparian Buffers in a Developed or Modified Condition (acres) |                     |           | 130.33                       | 25.62            | 19.79     | 21.69        | 21.45    | 19.22    | 62.08     | 34.18    | 2.75     | <b>337.10</b>  | 6.19      | 30.90                                 | 30.52         | 5.20           | 36.09        | 6.20        | <b>115.11</b>  |  |  |
| Riparian Buffers in a Non-Natural Condition (% of total)      | Water/Fish          | 30.0      | 80.34                        | 99.86            | 20.81     | 66.88        | 27.79    | 51.26    | 55.29     | 59.34    | 44.52    | <b>55.61</b>   | 83.13     | 94.17                                 | 43.31         | 27.26          | 40.19        | 11.36       | <b>41.98</b>   |  |  |
| <b>Stream Length with Management Concerns</b>                 |                     |           |                              |                  |           |              |          |          |           |          |          |                |           |                                       |               |                |              |             |                |  |  |
| Modified Herbaceous (miles)                                   |                     |           | 0.32                         | 0.08             | 0.02      | 0.10         | 0.10     | 0.59     | 1.72      | 0.27     | 0.00     | <b>3.22</b>    | 0.05      | 0.38                                  | 0.10          | 0.00           | 0.55         | 0.00        | <b>1.08</b>    |  |  |
| Developed (miles)   |                     |           | 0.06                         | 0.00             | 0.02      | 0.01         | 0.02     | 0.17     | 0.39      | 0.11     | 0.11     | <b>0.89</b>    | 0.00      | 0.15                                  | 0.01          | 0.02           | 0.11         | 0.11        | <b>0.40</b>    |  |  |
| Bare Area Soil (miles)  |                     |           | 0                            | 0                | 0         | 0            | 0        | 0        | 0.08      | 0        | 0        | <b>0.08</b>    | 0         | 0                                     | 0             | 0              | 0            | 0           | <b>0</b>       |  |  |
| Total Length (miles)  |                     |           | 0.38                         | 0.08             | 0.04      | 0.12         | 0.12     | 0.76     | 2.20      | 0.39     | 0.11     | <b>4.19</b>    | 0.05      | 0.53                                  | 0.11          | 0.02           | 0.66         | 0.11        | <b>1.48</b>    |  |  |
| Stream Length w/ Management Concerns (% of total)             | Water/Fish          | 10.0      | 8.37                         | 18.33            | 1.40      | 13.50        | 6.45     | 37.77    | 45.19     | 27.98    | 32.40    | <b>21.81</b>   | 33.68     | 75.50                                 | 3.75          | 3.89           | 23.19        | 3.99        | <b>14.82</b>   |  |  |
| Road Length (miles)   |                     |           | 4.62                         | 0.15             | 0.77      | 1.96         | 0.84     | 2.47     | 4.92      | 2.06     | 0.40     | <b>18.20</b>   | 0.42      | 0.79                                  | 0.21          | 0.10           | 0.85         | 0.79        | <b>3.15</b>    |  |  |
| Road Density (miles/sq. mi.)                                  | Soils/Water/Fish    | 3.0       | 7.47                         | 2.90             | 2.25      | 5.61         | 2.78     | 11.77    | 8.80      | 7.68     | 1.66     | <b>6.18</b>    | 5.48      | 7.02                                  | 0.50          | 0.68           | 1.70         | 2.35        | <b>1.99</b>    |  |  |
| Road Crossings (Number of Crossings)                          |                     |           | 18                           | 0                | 7         | 4            | 4        | 19       | 28        | 8        | 1        | <b>89</b>      | 0         | 3                                     | 2             | 1              | 7            | 4           | <b>17</b>      |  |  |
| Road Crossing Density (number/sq. mi.)                        | Soils/Water/Fish    | 6.0       | 29.13                        | 0.00             | 20.35     | 11.44        | 13.29    | 90.51    | 50.07     | 29.89    | 4.11     | <b>30.23</b>   | 0.00      | 26.64                                 | 4.76          | 7.16           | 14.06        | 11.93       | <b>10.75</b>   |  |  |
| Impervious Cover (acres)                                      |                     |           | 8.98                         | 0.29             | 1.55      | 9.71         | 2.55     | 10.64    | 33.46     | 7.43     | 1.81     | <b>76.41</b>   | 0.93      | 12.78                                 | 0.65          | 0.21           | 6.22         | 5.75        | <b>26.53</b>   |  |  |
| Impervious Cover (% of total)                                 | Soils/Water         | 8.0       | 2.27                         | 0.88             | 0.70      | 4.34         | 1.32     | 7.92     | 9.35      | 4.34     | 1.16     | <b>4.05</b>    | 1.89      | 17.73                                 | 0.24          | 0.23           | 1.95         | 2.68        | <b>2.62</b>    |  |  |
| Bare Soils (acres)  | Soils               | 0.0       | 0.32                         | 0.00             | 0.00      | 2.02         | 0.00     | 0.00     | 6.29      | 0.00     | 0.31     | <b>8.94</b>    | 0.00      | 0.00                                  | 0.00          | 0.00           | 0.17         | <b>0.17</b> |                |  |  |
| Channel Length in a Modified Condition (miles)                |                     |           | 0.00                         | 0.00             | 0.00      | 0.01         | 0.00     | 0.11     | 0.61      | 0.08     | 0.00     | <b>0.82</b>    | 0.00      | 0.53                                  | 0.06          | 0.00           | 0.63         | 0.15        | <b>1.38</b>    |  |  |
| Modified Channel Length (% of total)                          | Water/Fish          | 8.0       | 0.00                         | 0.00             | 0.00      | 1.69         | 0.00     | 5.61     | 12.65     | 5.48     | 0.00     | <b>4.25</b>    | 0.00      | 76.34                                 | 1.96          | 0.00           | 22.20        | 5.50        | <b>13.75</b>   |  |  |
| Culverted Channel Length (miles)                              |                     |           | 0.07                         | 0.00             | 0.00      | 0.00         | 0.11     | 0.54     | 0.83      | 0.22     | 0.13     | <b>1.90</b>    | 0.00      | 0.17                                  | 0.00          | 0.00           | 0.11         | 0.01        | <b>0.29</b>    |  |  |
| Culverted Channel Length (% of total)                         | Water               | 8.0       | 1.56                         | 0.00             | 0.00      | 5.76         | 26.82    | 17.16    | 15.70     | 38.46    | 9.87     | 0.00           | 23.66     | 0.00                                  | 0.00          | 3.97           | 0.36         | <b>2.88</b> |                |  |  |
| <b>Activities on High Erosion Soils</b>                       |                     |           |                              |                  |           |              |          |          |           |          |          |                |           |                                       |               |                |              |             |                |  |  |
| Roads (acres)   |                     |           | 3.92                         | 0.00             | 0.00      | 0.73         | 0.54     | 0.65     | 0.87      | 1.52     | 0.51     | <b>8.73</b>    | 0.23      | 0.03                                  | 0.09          | 0.00           | 0.19         | 0.00        | <b>0.55</b>    |  |  |
| Bare Soils (acres)  |                     |           | 0.32                         | 0.00             | 0.00      | 2.02         | 0.00     | 0.00     | 6.29      | 0.00     | 0.31     | <b>8.94</b>    | 0.00      | 0.00                                  | 0.00          | 0.00           | 0.17         | <b>0.17</b> |                |  |  |
| Total Roads and Bare Soils (acres)                            |                     |           | 4.23                         | 0.00             | 0.00      | 2.74         | 0.54     | 0.65     | 7.16      | 1.52     | 0.83     | <b>17.67</b>   | 0.23      | 0.03                                  | 0.09          | 0.00           | 0.19         | 0.17        | <b>0.72</b>    |  |  |
| Total Hazcal 3 and 4 Soils (acres)                            |                     |           | 202.53                       | 5.60             | 21.41     | 127.38       | 37.04    | 41.10    | 106.02    | 63.39    | 95.81    | <b>700.28</b>  | 31.56     | 9.39                                  | 133.75        | 35.92          | 174.94       | 103.00      | <b>488.57</b>  |  |  |
| Activities on High Erosion Soils (% of total)                 | Soils               | 1.5       | 2.09                         | 0.00             | 0.00      | 2.15         | 1.45     | 1.58     | 6.75      | 2.41     | 0.86     | <b>2.52</b>    | 0.74      | 0.36                                  | 0.07          | 0.00           | 0.11         | 0.17        | <b>0.15</b>    |  |  |
| <b>Parameters Over Threshold</b>                              |                     |           |                              |                  |           |              |          |          |           |          |          |                |           |                                       |               |                |              |             |                |  |  |
| <b>Total:</b>   | <b>9</b>            |           | <b>5</b>                     | <b>2</b>         | <b>1</b>  | <b>6</b>     | <b>1</b> | <b>6</b> | <b>9</b>  | <b>6</b> | <b>4</b> | <b>7</b>       | <b>3</b>  | <b>7</b>                              | <b>1</b>      | <b>1</b>       | <b>4</b>     | <b>2</b>    | <b>5</b>       |  |  |
| <b>Soils:</b>   | <b>5</b>            |           | <b>4</b>                     | <b>0</b>         | <b>1</b>  | <b>4</b>     | <b>1</b> | <b>3</b> | <b>5</b>  | <b>3</b> | <b>1</b> | <b>4</b>       | <b>1</b>  | <b>3</b>                              | <b>0</b>      | <b>1</b>       | <b>1</b>     | <b>2</b>    | <b>2</b>       |  |  |
| <b>Water:</b>   | <b>7</b>            |           | <b>3</b>                     | <b>2</b>         | <b>1</b>  | <b>4</b>     | <b>1</b> | <b>5</b> | <b>7</b>  | <b>5</b> | <b>3</b> | <b>5</b>       | <b>3</b>  | <b>7</b>                              | <b>1</b>      | <b>1</b>       | <b>4</b>     | <b>1</b>    | <b>4</b>       |  |  |
| <b>Fish:</b>  | <b>5</b>            |           | <b>3</b>                     | <b>2</b>         | <b>1</b>  | <b>4</b>     | <b>1</b> | <b>4</b> | <b>5</b>  | <b>4</b> | <b>2</b> | <b>4</b>       | <b>3</b>  | <b>5</b>                              | <b>1</b>      | <b>1</b>       | <b>4</b>     | <b>1</b>    | <b>4</b>       |  |  |
| <b>Fish Habitat</b>   |                     |           |                              |                  |           |              |          |          |           |          |          |                |           |                                       |               |                |              |             |                |  |  |
| Length of Fish Bearing Streams (miles)                        |                     |           | 1.78                         | 0.60             | 0.00      | 0.00         | 0.12     | 0.12     | 0.00      | 0.25     | 0.33     | <b>3.20</b>    | 0.42      | 0.38                                  | 0.00          | 0.00           | 0.00         | 1.42        | <b></b>        |  |  |

## Analysis of Parameters Used to Determine Drainages of Particular Concern for Alternative 4

| Parameter   | Applicable Sections | Threshold | Upper Yakima River Watershed |                  |           |              |          |          |           |          |          |                | South Fork Snoqualmie River Watershed |              |               |                |              |             |                |          |
|---|---------------------|-----------|------------------------------|------------------|-----------|--------------|----------|----------|-----------|----------|----------|----------------|---------------------------------------|--------------|---------------|----------------|--------------|-------------|----------------|----------|
|   |                     |           | Lower Mill Creek             | Upper Mill Creek | Creek Run | Summit South | Hyak     | Tunnel   | Ski Acres | Beaver   | Other    | Subtotal       | Northside                             | Summit North | International | Upper Alpental | Nacrinomical | Other       | Subtotal       |          |
| Area (acres)  |                     |           | 395.50                       | 33.21            | 220.15    | 223.79       | 192.61   | 134.35   | 357.93    | 171.30   | 155.56   | <b>1884.41</b> | 49.02                                 | 72.08        | 270.07        | 89.34          | 318.62       | 214.58      | <b>1013.72</b> |          |
| Area (sq mile)  |                     |           | 0.62                         | 0.05             | 0.34      | 0.35         | 0.30     | 0.21     | 0.56      | 0.27     | 0.24     | <b>2.94</b>    | 0.08                                  | 0.11         | 0.42          | 0.14           | 0.50         | 0.34        | <b>1.58</b>    |          |
| Riparian Buffer (acres)                                       |                     |           | 84.05                        | 22.36            | 95.11     | 32.43        | 77.17    | 37.49    | 112.28    | 57.59    | 6.18     | <b>524.66</b>  | 7.45                                  | 32.82        | 70.46         | 19.07          | 89.81        | 54.57       | <b>274.18</b>  |          |
| Stream Length (miles)   |                     |           | 4.54                         | 0.45             | 2.86      | 0.87         | 1.93     | 2.01     | 4.86      | 1.38     | 0.33     | <b>19.21</b>   | 0.16                                  | 0.70         | 2.97          | 0.54           | 2.84         | 2.81        | <b>10.01</b>   |          |
| Riparian Buffers in a Developed or Modified Condition (acres) |                     |           | 70.40                        | 22.36            | 17.94     | 14.62        | 21.12    | 19.01    | 61.99     | 34.17    | 2.75     | <b>264.36</b>  | 6.19                                  | 30.90        | 29.24         | 6.09           | 36.24        | 6.20        | <b>114.87</b>  |          |
| Riparian Buffers in a Non-Natural Condition (% of total)      | Water/Fish          | 30.0      | 83.76                        | 100.00           | 18.87     | 45.09        | 27.37    | 50.71    | 55.21     | 59.34    | 44.52    | <b>50.39</b>   | 83.13                                 | 94.17        | 41.49         | 31.96          | 40.35        | 11.36       | <b>41.90</b>   |          |
| <b>Stream Length with Management Concerns</b>                 |                     |           |                              |                  |           |              |          |          |           |          |          |                |                                       |              |               |                |              |             |                |          |
| Modified Herbaceous (miles)                                   |                     |           | 0.27                         | 0.08             | 0.04      | 0.04         | 0.10     | 0.58     | 1.72      | 0.27     | 0.00     | <b>3.11</b>    | 0.01                                  | 0.38         | 0.08          | 0.00           | 0.55         | 0.00        | <b>1.01</b>    |          |
| Developed (miles)   |                     |           | 0.06                         | 0.00             | 0.01      | 0.01         | 0.01     | 0.17     | 0.39      | 0.11     | 0.11     | <b>0.87</b>    | 0.00                                  | 0.15         | 0.01          | 0.02           | 0.09         | 0.11        | <b>0.38</b>    |          |
| Bare Area Soil (miles)  |                     |           | 0                            | 0                | 0         | 0            | 0        | 0        | 0.08      | 0        | 0        | <b>0.08</b>    | 0                                     | 0            | 0             | 0              | 0            | 0           | <b>0</b>       |          |
| Total Length (miles)  |                     |           | 0.33                         | 0.08             | 0.05      | 0.05         | 0.11     | 0.75     | 2.20      | 0.39     | 0.11     | <b>4.06</b>    | 0.01                                  | 0.53         | 0.09          | 0.02           | 0.64         | 0.11        | <b>1.40</b>    |          |
| Stream Length w/ Management Concerns (% of total)             | Water/Fish          | 10.0      | 7.34                         | 18.33            | 1.73      | 5.78         | 5.81     | 37.32    | 45.19     | 27.98    | 32.40    | <b>21.15</b>   | 6.02                                  | 75.50        | 2.97          | 3.89           | 22.51        | 3.99        | <b>13.96</b>   |          |
| Road Length (miles)   |                     |           | 4.59                         | 0.15             | 0.77      | 1.78         | 0.84     | 2.47     | 4.92      | 2.06     | 0.40     | <b>17.98</b>   | 0.42                                  | 0.79         | 0.21          | 0.10           | 0.81         | 0.79        | <b>3.11</b>    |          |
| Road Density (miles/sq. mi.)                                  | Soils/Water/Fish    | 3.0       | 7.43                         | 2.90             | 2.25      | 5.08         | 2.78     | 11.77    | 8.80      | 7.68     | 1.66     | <b>6.11</b>    | 5.48                                  | 7.02         | 0.50          | 0.68           | 1.62         | 2.35        | <b>1.96</b>    |          |
| Road Crossings (Number of Crossings)                          |                     |           | 18                           | 0                | 6         | 3            | 3        | 19       | 28        | 8        | 1        | <b>86</b>      | 0                                     | 3            | 2             | 1              | 7            | 4           | <b>17</b>      |          |
| Road Crossing Density (number/sq. mi.)                        | Soils/Water/Fish    | 6.0       | 29.13                        | 0.00             | 17.44     | 8.58         | 9.97     | 90.51    | 50.07     | 29.89    | 4.11     | <b>29.21</b>   | 0.00                                  | 26.64        | 4.76          | 7.16           | 14.06        | 11.93       | <b>10.75</b>   |          |
| Impervious Cover (acres)                                      |                     |           | 8.93                         | 0.29             | 1.50      | 9.32         | 2.51     | 10.64    | 33.40     | 7.45     | 1.81     | <b>75.84</b>   | 0.93                                  | 12.78        | 0.73          | 2.11           | 5.51         | 5.75        | <b>27.81</b>   |          |
| Impervious Cover (% of total)                                 | Soils/Water         | 8.0       | 2.26                         | 0.88             | 0.68      | 4.16         | 1.30     | 7.92     | 9.33      | 4.35     | 1.16     | <b>4.02</b>    | 1.89                                  | 17.73        | 0.27          | 2.36           | 1.73         | 2.68        | <b>2.74</b>    |          |
| Bare Soils (acres)  | Soils               | 0.0       | 0.35                         | 0.00             | 0.00      | 2.03         | 0.00     | 0.00     | 6.29      | 0.00     | 0.31     | <b>8.98</b>    | 0.00                                  | 0.00         | 0.00          | 0.00           | 0.00         | 0.17        | <b>0.17</b>    |          |
| Channel Length in a Modified Condition (miles)                |                     |           | 0.00                         | 0.00             | 0.00      | 0.01         | 0.00     | 0.11     | 0.61      | 0.08     | 0.00     | <b>0.82</b>    | 0.00                                  | 0.53         | 0.06          | 0.00           | 0.63         | 0.15        | <b>1.38</b>    |          |
| Modified Channel Length (% of total)                          | Water/Fish          | 8.0       | 0.00                         | 0.00             | 0.00      | 1.69         | 0.00     | 5.61     | 12.65     | 5.48     | 0.00     | <b>4.25</b>    | 0.00                                  | 76.34        | 1.96          | 0.00           | 22.20        | 5.50        | <b>13.75</b>   |          |
| Culverted Channel Length (miles)                              |                     |           | 0.07                         | 0.00             | 0.00      | 0.00         | 0.11     | 0.54     | 0.83      | 0.22     | 0.13     | <b>1.90</b>    | 0.00                                  | 0.17         | 0.00          | 0.00           | 0.11         | 0.01        | <b>0.29</b>    |          |
| Culverted Channel Length (% of total)                         | Water               | 8.0       | 1.56                         | 0.00             | 0.00      | 5.76         | 26.82    | 17.16    | 15.70     | 38.46    | 9.87     | 0.00           | 23.66                                 | 0.00         | 0.00          | 3.97           | 0.36         | <b>2.88</b> |                |          |
| <b>Activities on High Erosion Soils</b>                       |                     |           |                              |                  |           |              |          |          |           |          |          |                |                                       |              |               |                |              |             |                |          |
| Roads (acres)   |                     |           | 3.92                         | 0.00             | 0.00      | 0.73         | 0.54     | 0.65     | 0.87      | 1.52     | 0.51     | <b>8.73</b>    | 0.23                                  | 0.03         | 0.09          | 0.00           | 0.22         | 0.00        | <b>0.58</b>    |          |
| Bare Soils (acres)  |                     |           | 0.35                         | 0.00             | 0.00      | 2.03         | 0.00     | 0.00     | 6.29      | 0.00     | 0.31     | <b>8.98</b>    | 0.00                                  | 0.00         | 0.00          | 0.00           | 0.00         | 0.17        | <b>0.17</b>    |          |
| Total Roads and Bare Soils (acres)                            |                     |           | 4.27                         | 0.00             | 0.00      | 2.75         | 0.54     | 0.65     | 7.16      | 1.52     | 0.83     | <b>17.72</b>   | 0.23                                  | 0.03         | 0.09          | 0.00           | 0.22         | 0.17        | <b>0.76</b>    |          |
| Total Hazcal 3 and 4 Soils (acres)                            |                     |           | 202.53                       | 5.60             | 21.41     | 127.38       | 37.04    | 41.10    | 106.02    | 63.39    | 95.81    | <b>700.28</b>  | 31.56                                 | 9.39         | 133.75        | 35.92          | 174.94       | 103.00      | <b>488.57</b>  |          |
| Activities on High Erosion Soils (% of total)                 | Soils               | 1.5       | 2.11                         | 0.00             | 0.00      | 2.16         | 1.45     | 1.58     | 6.75      | 2.41     | 0.86     | <b>2.53</b>    | 0.74                                  | 0.36         | 0.07          | 0.00           | 0.13         | 0.17        | <b>0.15</b>    |          |
| <b>Parameters Over Threshold</b>                              |                     |           |                              |                  |           |              |          |          |           |          |          |                |                                       |              |               |                |              |             |                |          |
| <b>Total:</b>   |                     | <b>9</b>  |                              | <b>5</b>         | <b>2</b>  | <b>1</b>     | <b>5</b> | <b>1</b> | <b>6</b>  | <b>9</b> | <b>6</b> | <b>4</b>       | <b>7</b>                              | <b>2</b>     | <b>7</b>      | <b>1</b>       | <b>2</b>     | <b>4</b>    | <b>2</b>       | <b>5</b> |
| <b>Soils:</b>   |                     | <b>5</b>  |                              | <b>4</b>         | <b>0</b>  | <b>1</b>     | <b>4</b> | <b>1</b> | <b>3</b>  | <b>5</b> | <b>3</b> | <b>1</b>       | <b>4</b>                              | <b>1</b>     | <b>3</b>      | <b>0</b>       | <b>1</b>     | <b>1</b>    | <b>2</b>       | <b>2</b> |
| <b>Water:</b>   |                     | <b>7</b>  |                              | <b>3</b>         | <b>2</b>  | <b>1</b>     | <b>3</b> | <b>1</b> | <b>5</b>  | <b>7</b> | <b>5</b> | <b>3</b>       | <b>5</b>                              | <b>2</b>     | <b>7</b>      | <b>1</b>       | <b>2</b>     | <b>4</b>    | <b>1</b>       | <b>4</b> |
| <b>Fish:</b>  |                     | <b>5</b>  |                              | <b>3</b>         | <b>2</b>  | <b>1</b>     | <b>3</b> | <b>1</b> | <b>4</b>  | <b>5</b> | <b>4</b> | <b>2</b>       | <b>4</b>                              | <b>2</b>     | <b>5</b>      | <b>1</b>       | <b>2</b>     | <b>4</b>    | <b>1</b>       | <b>4</b> |
| <b>Fish Habitat</b>   |                     |           |                              |                  |           |              |          |          |           |          |          |                |                                       |              |               |                |              |             |                |          |
| Length of Fish Bearing Streams (miles)                        |                     |           | 1.78                         | 0.60             | 0.00      | 0.00         | 0.12     | 0.12     | 0.00      | 0.25     | 0.33     | <b>3.20</b>    | 0.42                                  | 0.38         | 0.00          | 0.00           | 0.00         | 1.42        | <b>2.23</b>    |          |
| Length of Presumed Fish Bearing Stream (miles)                |                     |           | 0.00</                       |                  |           |              |          |          |           |          |          |                |                                       |              |               |                |              |             |                |          |

## Analysis of Parameters Used to Determine Drainages of Particular Concern for Modified Alternative 5

| Parameter   | Applicable Sections | Threshold | Upper Yakima River Watershed |                  |           |              |          |          |           |          |          |                | Subtotal | South Fork Snoqualmie River Watershed |              |               |                |            |                |          |
|---|---------------------|-----------|------------------------------|------------------|-----------|--------------|----------|----------|-----------|----------|----------|----------------|----------|---------------------------------------|--------------|---------------|----------------|------------|----------------|----------|
|   |                     |           | Lower Mill Creek             | Upper Mill Creek | Creek Run | Summit South | Hyak     | Tunnel   | Ski Acres | Beaver   | Other    |                |          | Northside                             | Summit North | International | Upper Alpental | Nocrinical | Other          | Subtotal |
| Area (acres)  |                     |           | 395.50                       | 33.21            | 220.15    | 223.79       | 192.61   | 134.35   | 357.93    | 171.30   | 155.56   | <b>1884.41</b> | 49.02    | 72.08                                 | 270.07       | 89.34         | 318.62         | 214.58     | <b>1013.72</b> |          |
| Area (sq mile)  |                     |           | 0.62                         | 0.05             | 0.34      | 0.35         | 0.30     | 0.21     | 0.56      | 0.27     | 0.24     | <b>2.94</b>    | 0.08     | 0.11                                  | 0.42         | 0.14          | 0.50           | 0.34       | <b>1.58</b>    |          |
| Riparian Buffer (acres)                                       |                     |           | 162.24                       | 25.66            | 95.11     | 32.43        | 77.17    | 37.49    | 112.28    | 57.59    | 6.18     | <b>606.14</b>  | 7.45     | 32.82                                 | 70.46        | 19.07         | 89.81          | 54.57      | <b>274.18</b>  |          |
| Stream Length (miles)   |                     |           | 4.54                         | 0.45             | 2.86      | 0.87         | 1.93     | 2.01     | 4.86      | 1.38     | 0.33     | <b>19.21</b>   | 0.16     | 0.70                                  | 2.97         | 0.54          | 2.84           | 2.81       | <b>10.01</b>   |          |
| Riparian Buffers in a Developed or Modified Condition (acres) |                     |           | 130.33                       | 25.62            | 24.32     | 20.69        | 21.81    | 19.13    | 62.08     | 34.18    | 2.75     | <b>340.91</b>  | 6.19     | 30.90                                 | 30.81        | 6.09          | 36.22          | 6.20       | <b>116.42</b>  |          |
| Riparian Buffers in a Non-Natural Condition (% of total)      | Water/Fish          | 30.0      | 80.34                        | 99.86            | 25.58     | 63.79        | 28.26    | 51.03    | 55.29     | 59.34    | 44.52    | <b>56.24</b>   | 83.13    | 94.17                                 | 43.72        | 31.96         | 40.33          | 11.36      | <b>42.46</b>   |          |
| <b>Stream Length with Management Concerns</b>                 |                     |           |                              |                  |           |              |          |          |           |          |          |                |          |                                       |              |               |                |            |                |          |
| Modified Herbaceous (miles)                                   |                     |           | 0.32                         | 0.08             | 0.05      | 0.10         | 0.08     | 0.52     | 1.72      | 0.27     | 0.00     | <b>3.15</b>    | 0.05     | 0.38                                  | 0.12         | 0.00          | 0.55           | 0.00       | <b>1.10</b>    |          |
| Developed (miles)   |                     |           | 0.06                         | 0.00             | 0.04      | 0.01         | 0.02     | 0.17     | 0.39      | 0.11     | 0.11     | <b>0.91</b>    | 0.00     | 0.15                                  | 0.01         | 0.02          | 0.11           | 0.11       | <b>0.40</b>    |          |
| Bare Area Soil (miles)  |                     |           | 0                            | 0                | 0         | 0            | 0        | 0        | 0.08      | 0        | 0        | <b>0.08</b>    | 0        | 0                                     | 0            | 0             | 0              | 0          | <b>0</b>       |          |
| Total Length (miles)  |                     |           | 0.38                         | 0.08             | 0.09      | 0.11         | 0.10     | 0.68     | 2.20      | 0.39     | 0.11     | <b>4.14</b>    | 0.05     | 0.53                                  | 0.13         | 0.02          | 0.66           | 0.11       | <b>1.50</b>    |          |
| Stream Length w/ Management Concerns (% of total)             | Water/Fish          | 10.0      | 8.37                         | 18.33            | 3.08      | 13.12        | 5.34     | 34.11    | 45.19     | 27.98    | 32.40    | <b>21.55</b>   | 33.68    | 75.50                                 | 4.44         | 3.89          | 23.19          | 3.99       | <b>15.02</b>   |          |
| Road Length (miles)   |                     |           | 4.62                         | 0.15             | 0.77      | 1.96         | 0.84     | 2.47     | 4.92      | 2.06     | 0.40     | <b>18.20</b>   | 0.42     | 0.79                                  | 0.21         | 0.10          | 0.85           | 0.79       | <b>3.15</b>    |          |
| Road Density (miles/sq. mi.)                                  | Soils/Water/Fish    | 3.0       | 7.48                         | 2.89             | 2.24      | 5.61         | 2.79     | 11.77    | 8.80      | 7.70     | 1.65     | <b>6.18</b>    | 5.48     | 7.01                                  | 0.50         | 0.72          | 1.71           | 2.36       | <b>1.99</b>    |          |
| Road Crossings (Number of Crossings)                          |                     |           | 18                           | 0                | 7         | 4            | 4        | 19       | 28        | 8        | 1        | <b>89</b>      | 0        | 3                                     | 2            | 1             | 7              | 4          | <b>17</b>      |          |
| Road Crossing Density (number/sq. mi.)                        | Soils/Water/Fish    | 6.0       | 29.13                        | 0.00             | 20.35     | 11.44        | 13.29    | 90.51    | 50.07     | 29.89    | 4.11     | <b>30.23</b>   | 0.00     | 26.64                                 | 4.76         | 7.16          | 14.06          | 11.93      | <b>10.75</b>   |          |
| Impervious Cover (acres)                                      |                     |           | 8.98                         | 0.29             | 1.83      | 9.73         | 2.55     | 10.64    | 33.40     | 7.43     | 1.81     | <b>76.66</b>   | 0.93     | 12.78                                 | 0.72         | 2.11          | 6.26           | 5.75       | <b>28.54</b>   |          |
| Impervious Cover (% of total)                                 | Soils/Water         | 8.0       | 2.27                         | 0.88             | 0.83      | 4.35         | 1.32     | 7.92     | 9.33      | 4.34     | 1.16     | <b>4.07</b>    | 1.89     | 17.73                                 | 0.27         | 2.36          | 1.96           | 2.68       | <b>2.82</b>    |          |
| Bare Soils (acres)  | Soils               | 0.0       | 0.32                         | 0.00             | 0.00      | 2.02         | 0.00     | 0.00     | 6.29      | 0.00     | 0.31     | <b>8.94</b>    | 0.00     | 0.00                                  | 0.00         | 0.00          | 0.00           | 0.17       | <b>0.17</b>    |          |
| Channel Length in a Modified Condition (miles)                |                     |           | 0.00                         | 0.00             | 0.00      | 0.01         | 0.00     | 0.11     | 0.61      | 0.08     | 0.00     | <b>0.82</b>    | 0.00     | 0.53                                  | 0.06         | 0.00          | 0.63           | 0.15       | <b>1.38</b>    |          |
| Modified Channel Length (% of total)                          | Water/Fish          | 8.0       | 0.00                         | 0.00             | 0.00      | 1.69         | 0.00     | 5.61     | 12.65     | 5.48     | 0.00     | <b>4.25</b>    | 0.00     | 76.34                                 | 1.96         | 0.00          | 22.20          | 5.50       | <b>13.75</b>   |          |
| Culverted Channel Length (miles)                              |                     |           | 0.07                         | 0.00             | 0.00      | 0.00         | 0.11     | 0.54     | 0.83      | 0.22     | 0.13     | <b>1.90</b>    | 0.00     | 0.17                                  | 0.00         | 0.00          | 0.11           | 0.01       | <b>0.29</b>    |          |
| Culverted Channel Length (% of total)                         | Water               | 8.0       | 1.56                         | 0.00             | 0.00      | 5.76         | 26.82    | 17.16    | 15.70     | 38.46    | 9.88     | 0.00           | 23.66    | 0.00                                  | 3.97         | 0.36          | <b>2.88</b>    |            |                |          |
| <b>Activities on High Erosion Soils</b>                       |                     |           |                              |                  |           |              |          |          |           |          |          |                |          |                                       |              |               |                |            |                |          |
| Roads (acres)   |                     |           | 3.92                         | 0.00             | 0.00      | 0.73         | 0.54     | 0.65     | 0.87      | 1.52     | 0.51     | <b>8.73</b>    | 0.23     | 0.03                                  | 0.09         | 0.00          | 0.19           | 0.00       | <b>0.55</b>    |          |
| Bare Soils (acres)  |                     |           | 0.32                         | 0.00             | 0.00      | 2.02         | 0.00     | 0.00     | 6.29      | 0.00     | 0.31     | <b>8.94</b>    | 0.00     | 0.00                                  | 0.00         | 0.00          | 0.00           | 0.17       | <b>0.17</b>    |          |
| Total Roads and Bare Soils (acres)                            |                     |           | 4.23                         | 0.00             | 0.00      | 2.74         | 0.54     | 0.65     | 7.16      | 1.52     | 0.83     | <b>17.67</b>   | 0.23     | 0.03                                  | 0.09         | 0.00          | 0.19           | 0.17       | <b>0.72</b>    |          |
| Total Hazzl 3 and 4 Soils (acres)                             |                     |           | 202.53                       | 5.60             | 21.41     | 127.38       | 37.04    | 41.10    | 106.02    | 63.39    | 95.81    | <b>700.28</b>  | 31.56    | 9.39                                  | 133.75       | 35.92         | 174.94         | 103.00     | <b>488.57</b>  |          |
| Activities on High Erosion Soils (% of total)                 | Soils               | 1.5       | 2.09                         | 0.00             | 0.00      | 2.15         | 1.45     | 1.58     | 6.75      | 2.41     | 0.86     | <b>2.52</b>    | 0.74     | 0.36                                  | 0.07         | 0.00          | 0.11           | 0.17       | <b>0.15</b>    |          |
| <b>Parameters Over Threshold</b>                              |                     |           |                              |                  |           |              |          |          |           |          |          |                |          |                                       |              |               |                |            |                |          |
| <b>Total:</b>   |                     | <b>9</b>  |                              | <b>5</b>         | <b>2</b>  | <b>1</b>     | <b>6</b> | <b>1</b> | <b>5</b>  | <b>9</b> | <b>6</b> | <b>4</b>       | <b>6</b> | <b>3</b>                              | <b>7</b>     | <b>1</b>      | <b>2</b>       | <b>4</b>   | <b>2</b>       | <b>5</b> |
| <b>Soils:</b>   |                     | <b>5</b>  |                              | <b>4</b>         | <b>0</b>  | <b>1</b>     | <b>4</b> | <b>1</b> | <b>3</b>  | <b>5</b> | <b>3</b> | <b>1</b>       | <b>4</b> | <b>1</b>                              | <b>3</b>     | <b>0</b>      | <b>1</b>       | <b>1</b>   | <b>2</b>       | <b>2</b> |
| <b>Water:</b>   |                     | <b>7</b>  |                              | <b>3</b>         | <b>2</b>  | <b>1</b>     | <b>4</b> | <b>1</b> | <b>4</b>  | <b>7</b> | <b>5</b> | <b>3</b>       | <b>4</b> | <b>3</b>                              | <b>7</b>     | <b>1</b>      | <b>2</b>       | <b>4</b>   | <b>1</b>       | <b>4</b> |
| <b>Fish:</b>  |                     | <b>5</b>  |                              | <b>3</b>         | <b>2</b>  | <b>1</b>     | <b>4</b> | <b>1</b> | <b>4</b>  | <b>5</b> | <b>4</b> | <b>2</b>       | <b>4</b> | <b>3</b>                              | <b>5</b>     | <b>1</b>      | <b>2</b>       | <b>4</b>   | <b>1</b>       | <b>4</b> |
| <b>Fish Habitat</b>   |                     |           |                              |                  |           |              |          |          |           |          |          |                |          |                                       |              |               |                |            |                |          |
| Length of Fish Bearing Streams (miles)                        |                     |           | 1.78                         | 0.60             | 0.00      | 0.00         | 0.12     | 0.12     | 0.00      | 0.25     | 0.33     | <b>3.20</b>    | 0.42     | 0.38                                  | 0.00         | 0.00          | 0.             |            |                |          |

**Table 4.2.3-1 MDP**

**Summary of Sediment Risks from Roads  
in The Summit at Snoqualmie Study Area by Alternative**

| Parameter (units)                                    | Alt 1 | Alt 2 | Alt 3 | Alt 4 | Mod Alt 5 |
|--|-------|-------|-------|-------|-----------|
| Total road length (miles)                            | 18.52 | 18.23 | 18.23 | 17.97 | 18.23     |
| Road density (mi/mi <sup>2</sup> )                   | 4.72  | 4.65  | 4.65  | 4.58  | 4.65      |
| <b>Road Length by surfacing (miles)</b>              |       |       |       |       |           |
| Native   | 16.98 | 16.24 | 16.24 | 16.03 | 16.24     |
| Paved  | 1.53  | 1.88  | 1.88  | 1.83  | 1.88      |
| <b>Road length by soil erosion potential (miles)</b> |       |       |       |       |           |
| 1 (lowest)   | 0.30  | 0.30  | 0.30  | 0.30  | 0.30      |
| 2  | 15.12 | 14.86 | 14.86 | 14.58 | 14.86     |
| 3  | 3.08  | 3.05  | 3.05  | 3.07  | 3.05      |
| 4 (highest)  | 0     | 0     | 0     | 0     | 0         |

**Table 4.2.3-1 Mill Creek**

**Summary of Sediment Risks from Roads  
in The Summit at Snoqualmie Study Area by Alternative**

| Parameter (units)                                    | Alt 1 | Alt 2 | Alt 3 | Alt 4 | Mod Alt 5 |
|--|-------|-------|-------|-------|-----------|
| Total road length (miles)                            | 3.52  | 3.52  | 3.52  | 3.52  | 3.52      |
| Road density (mi/mi <sup>2</sup> )                   | 5.76  | 5.76  | 5.76  | 5.76  | 5.76      |
| <b>Road Length by surfacing (miles)</b>              |       |       |       |       |           |
| Native   | 3.52  | 3.52  | 3.52  | 3.52  | 3.52      |
| Paved  | 0     | 0     | 0     | 0     | 0         |
| <b>Road length by soil erosion potential (miles)</b> |       |       |       |       |           |
| 1 (lowest)   | 0     | 0     | 0     | 0     | 0         |
| 2  | 1.84  | 1.84  | 1.84  | 1.84  | 1.84      |
| 3  | 1.64  | 1.64  | 1.64  | 1.64  | 1.64      |
| 4 (highest)  | 0.04  | 0.06  | 0.06  | 0.06  | 0.06      |

**Table 4.2.3-1 Total**

**Summary of Sediment Risks from Roads  
in The Summit at Snoqualmie Study Area by Alternative**

| Parameter (units)                                    | Alt 1 | Alt 2 | Alt 3 | Alt 4 | Mod Alt 5 |
|--|-------|-------|-------|-------|-----------|
| Total road length (miles)                            | 22.03 | 21.74 | 21.74 | 21.48 | 21.74     |
| Road density (mi/mi <sup>2</sup> )                   | 4.86  | 4.80  | 4.80  | 4.74  | 4.80      |
| <b>Road Length by surfacing (miles)</b>              |       |       |       |       |           |
| Native   | 20.50 | 19.86 | 19.86 | 19.65 | 19.86     |
| Paved  | 1.53  | 1.88  | 1.88  | 1.83  | 1.88      |
| <b>Road length by soil erosion potential (miles)</b> |       |       |       |       |           |
| 1 (lowest)   | 0.30  | 0.30  | 0.30  | 0.30  | 0.30      |
| 2  | 16.96 | 16.70 | 16.70 | 16.42 | 16.70     |
| 3  | 4.72  | 4.69  | 4.69  | 4.71  | 4.69      |
| 4 (highest)  | 0.04  | 0.06  | 0.06  | 0.06  | 0.06      |

**Table 4.2.3-3A MDP**

**Summary of Detrimental Soil Quality Conditions  
in The Summit at Snoqualmie Study Area by Alternative**

| Disturbance Source  | Alt 1   | Alt 2   | Alt 3   | Alt 4   | Mod Alt 5 |
|---|---------|---------|---------|---------|-----------|
| Study Area (acres)  | 2509.08 | 2509.08 | 2509.08 | 2509.08 | 2509.08   |
| Developed Area (acres)  | 87.77   | 99.35   | 96.12   | 96.83   | 98.38     |
| Bare Area Soils (acres)   | 13.52   | 9.11    | 9.11    | 9.15    | 9.11      |
| Total detrimental soil conditions (acres)                           | 107.10  | 108.46  | 105.23  | 105.98  | 107.49    |
| Percent of Study Area in a Detrimental Soil Condition (percent)     | 4%      | 4%      | 4%      | 4%      | 4%        |
| Detrimental Soil Conditions Below Study Area Threshold (yes or no)? | Yes     | yes     | yes     | yes     | yes       |

**Table 4.2.3-3B Mill Creek**

**Summary of Detrimental Soil Quality Conditions  
in The Summit at Snoqualmie Study Area by Alternative**

| Disturbance Source  | Alt 1  | Alt 2  | Alt 3  | Alt 4  | Mod Alt 5 |
|---|--------|--------|--------|--------|-----------|
| Study Area (acres)  | 389.05 | 389.05 | 389.05 | 389.05 | 389.05    |
| Developed Area (acres)  | 6.82   | 6.82   | 6.82   | 6.82   | 6.82      |
| Bare Area Soils (acres)   | 0      | 0      | 0      | 0      | 0         |
| Total detrimental soil conditions (acres)                           | 6.82   | 6.82   | 6.82   | 6.82   | 6.82      |
| Percent of Study Area in a Detrimental Soil Condition (percent)     | 2%     | 2%     | 2%     | 2%     | 2%        |
| Detrimental Soil Conditions Below Study Area Threshold (yes or no)? | Yes    | Yes    | Yes    | Yes    | Yes       |

**Table 4.2.3-3C Total**

**Summary of Detrimental Soil Quality Conditions  
in The Summit at Snoqualmie Study Area by Alternative**

| Disturbance Source  | Alt 1   | Alt 2   | Alt 3   | Alt 4   | Mod Alt 5 |
|---|---------|---------|---------|---------|-----------|
| Study Area (acres)  | 2898.13 | 2898.13 | 2898.13 | 2898.13 | 2898.13   |
| Developed Area (acres)  | 94.59   | 106.17  | 102.94  | 103.65  | 105.2     |
| Bare Area Soils (acres)   | 13.52   | 9.11    | 9.11    | 9.15    | 9.11      |
| Total detrimental soil conditions (acres)                           | 113.92  | 115.28  | 112.05  | 112.8   | 114.31    |
| Percent of Study Area in a Detrimental Soil Condition (percent)     | 4%      | 4%      | 4%      | 4%      | 4%        |
| Detrimental Soil Conditions Below Study Area Threshold (yes or no)? | Yes     | Yes     | Yes     | Yes     | Yes       |

**Table 4.3.3-1 MDP**  
**Impacts to Streams within the Upper Yakima Watershed**

| Disturbance Source  | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Mod. Alt. 5 |
|---|--------|--------|--------|--------|-------------|
| Road Density  | 4.72   | 4.65   | 4.65   | 4.58   | 4.65        |
| Number of Stream Crossings (all channel types) by crossing structure <sup>1</sup> |        |        |        |        |             |
| Culvert   | 61     | 60     | 60     | 59     | 60          |
| Bridge  | 1      | 3      | 3      | 1      | 3           |
| Ford <sup>2</sup>   | 12     | 12     | 12     | 12     | 12          |
| Total Number of Stream Crossings  | 74     | 75     | 75     | 72     | 75          |
| Length of Altered or Channelized Channel Types <sup>1</sup>                       |        |        |        |        |             |
| Long Culverted Channels (miles)   | 1.84   | 1.9    | 1.9    | 1.9    | 1.9         |
| Ditches conveying natural streamflow (miles)                                      | 0.89   | 0.83   | 8.3    | 0.83   | 0.83        |
| Number of culverted segments  | 30     | 35     | 35     | 35     | 35          |

<sup>1</sup> Includes Jurisdictional streams<sup>2</sup> Does not include temporary crossings

**Table 4.3.3-1 Mill Creek**  
**Impacts to Streams within the Upper Yakima Watershed**

| Disturbance Source  | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Mod. Alt. 5 |
|---|--------|--------|--------|--------|-------------|
| Road Density  | 5.76   | 5.76   | 5.76   | 5.76   | 5.76        |
| Number of Stream Crossings (all channel types) by crossing structure <sup>1</sup> |        |        |        |        |             |
| Culvert   | 14     | 14     | 14     | 14     | 14          |
| Bridge  | 0      | 0      | 0      | 0      | 0           |
| Ford <sup>2</sup>   | 0      | 0      | 0      | 0      | 0           |
| Total Number of Stream Crossings  | 14     | 14     | 14     | 14     | 14          |
| Length of Altered or Channelized Channel Types <sup>1</sup>                       |        |        |        |        |             |
| Long Culverted Channels (miles)   | 0      | 0      | 0      | 0      | 0           |
| Ditches conveying natural streamflow (miles)                                      | 0      | 0      | 0      | 0      | 0           |
| Number of culverted segments  | 0      | 0      | 0      | 0      | 0           |

<sup>1</sup> Includes Jurisdictional streams<sup>2</sup> Does not include temporary crossings

**Table 4.3.3-1 Total**  
**Impacts to Streams within the Upper Yakima Watershed**

| Disturbance Source  | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Mod. Alt. 5 |
|---|--------|--------|--------|--------|-------------|
| Road Density  | 4.86   | 4.80   | 4.80   | 4.74   | 4.80        |
| Number of Stream Crossings (all channel types) by crossing structure <sup>1</sup> |        |        |        |        |             |
| Culvert   | 75     | 74     | 74     | 73     | 74          |
| Bridge  | 1      | 3      | 3      | 1      | 3           |
| Ford <sup>2</sup>   | 12     | 12     | 12     | 12     | 12          |
| Total Number of Stream Crossings  | 88     | 89     | 89     | 86     | 89          |
| Length of Altered or Channelized Channel Types <sup>1</sup>                       |        |        |        |        |             |
| Long Culverted Channels (miles)   | 1.84   | 1.9    | 1.9    | 1.9    | 1.9         |
| Ditches conveying natural streamflow (miles)                                      | 0.89   | 0.83   | 8.3    | 0.83   | 0.83        |
| Number of culverted segments  | 30     | 35     | 35     | 35     | 35          |

<sup>1</sup> Includes Jurisdictional streams<sup>2</sup> Does not include temporary crossings

**Table 4.3.3-3 MDP**  
**Summary of Wetlands in the Upper Yakima River Watershed**

| Parameter                          | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Mod. Alt. 5 |
|------------------------------------|--------|--------|--------|--------|-------------|
| Clearing Impacts (acres)           |        |        |        |        |             |
| PEM                                | 0      | 1.32   | 1.05   | 1.05   | 1.33        |
| PFO                                | 0      | 0      | 0      | 0      | 0           |
| PSS                                | 0      | 0.87   | 0.64   | 0.05   | 0.94        |
| Total                              | 0      | 2.19   | 1.7    | 1.1    | 2.27        |
| Grading Impacts (acres)            |        |        |        |        |             |
| PEM                                | 0      | 1.53   | 1.59   | 1.53   | 1.56        |
| PFO                                | 0      | 0.06   | 0.06   | 0.06   | 0.06        |
| PSS                                | 0      | 0.31   | 0.23   | 0.18   | 0.25        |
| Total                              | 0      | 1.9    | 1.87   | 1.77   | 1.87        |
| Total Clearing and Grading Impacts | 0      | 4.09   | 3.57   | 2.87   | 4.14        |
| Total number of wetlands impacted  | 0      | 39     | 36     | 31     | 42          |
| Total Natural Wetlands (acres)     | 18.07  | 16.69  | 16.98  | 17.91  | 16.85       |
| Total Modified Wetlands (acres)    | 44.76  | 45.35  | 45.00  | 44.21  | 45.18       |
| Total Wetlands (acres)             | 62.83  | 62.04  | 61.98  | 62.11  | 62.02       |

**Table 4.3.3-3 Mill Creek**  
**Summary of Wetlands in the Upper Yakima River Watershed**

| Parameter                          | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Mod. Alt. 5 |
|------------------------------------|--------|--------|--------|--------|-------------|
| Clearing Impacts (acres)           |        |        |        |        |             |
| PEM                                | 0      | 0      | 0      | 0      | 0           |
| PFO                                | 0      | 0      | 0      | 0      | 0           |
| PSS                                | 0      | 0      | 0      | 0      | 0           |
| Total                              | 0      | 0      | 0      | 0      | 0           |
| Grading Impacts (acres)            |        |        |        |        |             |
| PEM                                | 0      | 0      | 0      | 0      | 0           |
| PFO                                | 0      | 0      | 0      | 0      | 0           |
| PSS                                | 0      | 0      | 0      | 0      | 0           |
| Total                              | 0      | 0      | 0      | 0      | 0           |
| Total Clearing and Grading Impacts | 0      | 0      | 0      | 0      | 0           |
| Total number of wetlands impacted  | 0      | 0      | 0      | 0      | 0           |
| Total Natural Wetlands (acres)     | 0      | 0      | 0      | 0      | 0           |
| Total Modified Wetlands (acres)    | 0.23   | 0.23   | 0.23   | 0.23   | 0.23        |
| Total Wetlands (acres)             | 0.23   | 0.23   | 0.23   | 0.23   | 0.23        |

**Table 4.3.3-3 Total**  
**Summary of Wetlands in the Upper Yakima River Watershed**

| Parameter                          | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Mod. Alt. 5 |
|------------------------------------|--------|--------|--------|--------|-------------|
| Clearing Impacts (acres)           |        |        |        |        |             |
| PEM                                | 0      | 1.32   | 1.05   | 1.05   | 1.33        |
| PFO                                | 0      | 0      | 0      | 0      | 0           |
| PSS                                | 0      | 0.87   | 0.64   | 0.05   | 0.94        |
| Total                              | 0      | 2.19   | 1.7    | 1.1    | 2.27        |
| Grading Impacts (acres)            |        |        |        |        |             |
| PEM                                | 0      | 1.53   | 1.59   | 1.53   | 1.56        |
| PFO                                | 0      | 0.06   | 0.06   | 0.06   | 0.06        |
| PSS                                | 0      | 0.31   | 0.23   | 0.18   | 0.25        |
| Total                              | 0      | 1.9    | 1.87   | 1.77   | 1.87        |
| Total Clearing and Grading Impacts | 0      | 4.09   | 3.57   | 2.87   | 4.14        |
| Total number of wetlands impacted  | 0      | 39     | 36     | 31     | 42          |
| Total Natural Wetlands (acres)     | 18.07  | 16.69  | 16.98  | 17.91  | 16.85       |
| Total Modified Wetlands (acres)    | 44.99  | 45.58  | 45.23  | 44.44  | 45.41       |
| Total Wetlands (acres)             | 63.06  | 62.27  | 62.21  | 62.34  | 62.25       |

**Table 4.3.3-4 MDP**  
**Hydrologic Landcover in the Upper Yakima River Watershed**

| Parameter   | Alt. 1<br>(acres) | Alt. 2<br>(acres) | Alt. 3<br>(acres) | Alt. 4<br>(acres) | Mod. Alt. 5<br>(acres) |
|---|-------------------|-------------------|-------------------|-------------------|------------------------|
| Study Area  | 2509.08           | 2509.08           | 2509.08           | 2509.08           | 2509.08                |
| <b>Land Cover Types (Hydrologic Maturity) within the Study Area<sup>1</sup></b> |                   |                   |                   |                   |                        |
| Forested – Mature (Mature)  | 529.31            | 489.61            | 505.43            | 517.26            | 490.59                 |
| Forested – Immature (Intermediate)  | 260.52            | 243.34            | 243.86            | 247.38            | 242.68                 |
| Forested – Sapling (Immature)   | 44.16             | 59.96             | 71.99             | 63.14             | 64.86                  |
| Naturally Non-forested (Immature) <sup>2</sup>                                  | 35.67             | 34.23             | 34.60             | 35.49             | 34.36                  |
| Modified (Immature)   | 562.49            | 597.69            | 569.89            | 563.08            | 593.02                 |
| Developed   | 64.01             | 70.54             | 69.59             | 69.02             | 69.84                  |

<sup>1</sup>Precise totals may not occur due to rounding.

**Table 4.3.3-4 Mill Creek**  
**Hydrologic Landcover in the Upper Yakima River Watershed**

| Parameter   | Alt. 1<br>(acres) | Alt. 2<br>(acres) | Alt. 3<br>(acres) | Alt. 4<br>(acres) | Mod. Alt. 5<br>(acres) |
|---|-------------------|-------------------|-------------------|-------------------|------------------------|
| Study Area  | 389.05            | 389.05            | 389.05            | 389.05            | 389.05                 |
| <b>Land Cover Types (Hydrologic Maturity) within the Study Area<sup>1</sup></b> |                   |                   |                   |                   |                        |
| Forested – Mature (Mature)  | 44.94             | 44.94             | 44.94             | 44.94             | 44.94                  |
| Forested – Immature (Intermediate)  | 46.99             | 46.99             | 46.99             | 46.99             | 46.99                  |
| Forested – Sapling (Immature)   | 241.05            | 241.05            | 241.05            | 241.05            | 241.05                 |
| Naturally Non-forested (Immature) <sup>2</sup>                                  | 15.55             | 15.55             | 15.55             | 15.55             | 15.55                  |
| Modified (Immature)   | 33.70             | 33.70             | 33.70             | 33.70             | 33.70                  |
| Developed   | 6.82              | 6.82              | 6.82              | 6.82              | 6.82                   |

<sup>1</sup>Precise totals may not occur due to rounding.

**Table 4.3.3-6 MDP**  
**Riparian Buffer Land Cover Specifications within the Upper Yakima River Watershed**

| Parameter   | Alt. 1  | Alt. 2  | Alt. 3  | Alt. 4  | Mod. Alt. 5 |
|---|---------|---------|---------|---------|-------------|
| Study Area (acres)  | 2509.08 | 2509.08 | 2509.08 | 2509.08 | 2509.08     |
| Riparian Buffer Area (acres)  | 429.15  | 430.32  | 423.68  | 430.32  | 423.68      |
| <b>Land cover types within riparian buffers (acres)<sup>1</sup></b> |         |         |         |         |             |
| Forested – Mature   | 204.20  | 185.45  | 191.22  | 198.56  | 187.92      |
| Forested – Immature   | 37.00   | 34.26   | 34.12   | 35.08   | 34.22       |
| Forested – Sapling  | 2.76    | 7.10    | 15.38   | 7.05    | 8.88        |
| Naturally Non-forested <sup>2</sup>                                 | 19.73   | 18.35   | 20.15   | 19.57   | 19.94       |
| Modified  | 149.84  | 165.81  | 143.99  | 151.53  | 153.63      |
| Developed   | 15.62   | 19.34   | 18.81   | 18.53   | 19.10       |
| <b>Land cover along stream length (miles)<sup>3</sup></b>           |         |         |         |         |             |
| Forested – Mature   | 6.37    | 5.84    | 5.92    | 6.18    | 5.90        |
| Forested – Immature   | 1.23    | 1.13    | 1.11    | 1.14    | 1.12        |
| Forested – Sapling  | 0.41    | 0.58    | 0.66    | 0.59    | 0.64        |
| Naturally Non-forested <sup>2</sup>                                 | 0.84    | 0.74    | 0.80    | 0.82    | 0.78        |
| Modified  | 3.99    | 4.44    | 4.28    | 4.06    | 4.30        |
| Developed   | 0.20    | 0.24    | 0.22    | 0.20    | 0.24        |
| Total Length (miles) <sup>3</sup>                                   | 13.03   | 12.99   | 12.99   | 12.99   | 12.99       |
| <b>Road length within riparian buffers (miles)</b>                  |         |         |         |         |             |
| Native  | 3.90    | 3.75    | 4.30    | 3.66    | 4.30        |
| Paved   | 0.41    | 0.41    | 0.41    | 0.41    | 0.41        |
| Total   | 4.31    | 4.16    | 4.71    | 4.07    | 4.71        |

<sup>1</sup>Includes wetland landcover types

<sup>2</sup>Includes lake landcover type

<sup>3</sup>Includes jurisdictional streams (except culverted streams)

<sup>4</sup>Precise totals may not occur due to rounding.

**Table 4.3.3-6 Mill Creek**  
**Riparian Buffer Land Cover Specifications within the Upper Yakima River Watershed**

| Parameter   | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Mod. Alt. 5 |
|---|--------|--------|--------|--------|-------------|
| Study Area (acres)  | 389.05 | 389.05 | 389.05 | 389.05 | 389.05      |
| Riparian Buffer Area (acres)  | 94.34  | 94.34  | 182.46 | 94.34  | 182.46      |
| <b>Land cover types within riparian buffers (acres)<sup>1</sup></b> |        |        |        |        |             |
| Forested – Mature   | 7.09   | 7.09   | 23.54  | 7.09   | 23.54       |
| Forested – Immature   | 0      | 0      | 0      | 0      | 0           |
| Forested – Sapling  | 70.29  | 70.29  | 128.69 | 70.29  | 128.69      |
| Naturally Non-forested <sup>2</sup>                                 | 0      | 0      | 0      | 0      | 0           |
| Modified  | 15.38  | 15.38  | 27.59  | 15.38  | 27.59       |
| Developed   | 1.58   | 1.58   | 2.64   | 1.58   | 2.64        |
| <b>Land cover along stream length (miles)<sup>3</sup></b>           |        |        |        |        |             |
| Forested – Mature   | 0.73   | 0.73   | 0.73   | 0.73   | 0.73        |
| Forested – Immature   | 0.13   | 0.13   | 0.13   | 0.13   | 0.13        |
| Forested – Sapling  | 2.70   | 2.70   | 2.70   | 2.70   | 2.70        |
| Naturally Non-forested <sup>2</sup>                                 | 0.01   | 0.01   | 0.01   | 0.01   | 0.01        |
| Modified  | 0.71   | 0.71   | 0.71   | 0.71   | 0.71        |
| Developed   | 0.05   | 0.05   | 0.05   | 0.05   | 0.05        |
| Total Length (miles) <sup>3</sup>                                   | 4.33   | 4.33   | 4.33   | 4.33   | 4.33        |
| <b>Road length within riparian buffers (miles)</b>                  |        |        |        |        |             |
| Native  | 0.81   | 0.81   | 0.81   | 0.81   | 0.81        |
| Paved   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00        |
| Total   | 0.81   | 0.81   | 0.81   | 0.81   | 0.81        |

<sup>1</sup>Includes wetland landcover types

<sup>2</sup>Includes lake landcover type

<sup>3</sup>Includes jurisdictional streams (except culverted streams)

<sup>4</sup>Precise totals may not occur due to rounding.

**Table 4.3.3-4 Total**  
**Hydrologic Landcover in the Upper Yakima River Watershed**

| Parameter   | Alt. 1<br>(acres) | Alt. 2<br>(acres) | Alt. 3<br>(acres) | Alt. 4<br>(acres) | Mod. Alt. 5<br>(acres) |
|---|-------------------|-------------------|-------------------|-------------------|------------------------|
| Study Area  | 2898.13           | 2898.13           | 2898.13           | 2898.13           | 2898.13                |
| <b>Land Cover Types (Hydrologic Maturity) within the Study Area<sup>1</sup></b> |                   |                   |                   |                   |                        |
| Forested – Mature (Mature)  | 574.25            | 534.55            | 550.37            | 562.2             | 535.53                 |
| Forested – Immature (Intermediate)  | 307.51            | 290.33            | 290.85            | 294.37            | 289.67                 |
| Forested – Sapling (Immature)   | 285.21            | 301.01            | 313.04            | 304.19            | 305.91                 |
| Naturally Non-forested (Immature) <sup>2</sup>                                  | 51.22             | 49.78             | 50.15             | 51.04             | 49.91                  |
| Modified (Immature)   | 596.19            | 631.39            | 603.59            | 596.78            | 626.72                 |
| Developed   | 70.83             | 77.36             | 76.41             | 75.84             | 76.66                  |

<sup>1</sup>Precise totals may not occur due to rounding.

**Table 4.3.3-6 Total**  
**Riparian Buffer Land Cover Specifications within the Upper Yakima River Watershed**

| Parameter   | Alt. 1  | Alt. 2  | Alt. 3  | Alt. 4     | Mod. Alt. 5 |
|---|---------|---------|---------|------------|-------------|
| Study Area (acres)  | 2898.13 | 2898.13 | 2898.13 | 2898.13    | 2898.13     |
| Riparian Buffer Area (acres)  | 523.49  | 524.66  | 606.14  | 524.66     | 606.14      |
| <b>Land cover types within riparian buffers (acres)<sup>1</sup></b> |         |         |         |            |             |
| Forested – Mature   | 211.29  | 192.54  | 214.76  | 205.65</td |             |

**Table 4.4.3-1 MDP**

Comparison of Fish Impact Related Parameters by MDP Alternatives

| Parameter (units)  | Alt 1 Total   | Alt 2 Total   | Alt 3 Total   | Alt 4 Total   | Mod Alt 5 Total |
|--|---------------|---------------|---------------|---------------|-----------------|
| Culverted stream length (miles) <sup>1</sup>   | 2.07          | 2.18          | 2.18          | 2.18          | 2.18            |
| <b>Road length within the Study Area (miles)<sup>2</sup></b>                           |               |               |               |               |                 |
| Total Roads (miles)  | 18.52         | 18.23         | 18.23         | 17.97         | 18.23           |
| Total Road Density (miles/square mile)   | 4.72          | 4.65          | 4.65          | 4.58          | 4.65            |
| <b>Road length within Riparian Buffers (miles)<sup>2</sup></b>                         |               |               |               |               |                 |
| Total Roads (miles)  | 4.31          | 4.16          | 4.15          | 4.07          | 4.15            |
| Total Road Density (miles/square mile)   | 3.92          | 3.78          | 3.81          | 3.70          | 3.81            |
| <b>Number of fish bearing road crossings<sup>1</sup></b>                               |               |               |               |               |                 |
| Culvert  | 13            | 13            | 13            | 13            | 13              |
| Bridge   | 7             | 7             | 7             | 7             | 7               |
| Ford   | 0             | 0             | 0             | 0             | 0               |
| <b>Number of presumed fish bearing road crossings<sup>1</sup></b>                      |               |               |               |               |                 |
| Culvert  | 10            | 10            | 10            | 10            | 10              |
| Bridge   | 0             | 1             | 1             | 0             | 1               |
| Ford   | 0             | 0             | 0             | 0             | 0               |
| <b>Number of non fish bearing road crossings<sup>1</sup></b>                           |               |               |               |               |                 |
| Culvert  | 85            | 85            | 85            | 84            | 85              |
| Bridge   | 0             | 1             | 1             | 0             | 1               |
| Ford   | 14            | 14            | 14            | 14            | 14              |
| <b>Land cover types within Riparian Buffers (acres)<sup>2</sup></b>                    |               |               |               |               |                 |
| Forested – Mature  | 312.35        | 290.97        | 297.47        | 304.35        | 297.29          |
| Forested – Immature  | 37.40         | 30.99         | 30.58         | 31.81         | 30.68           |
| Forested – Sapling   | 8.40          | 13.89         | 22.44         | 16.71         | 15.94           |
| Naturally Non-forested   | 71.47         | 69.56         | 70.31         | 71.11         | 69.70           |
| Modified   | 237.34        | 253.08        | 241.43        | 236.24        | 247.28          |
| Developed  | 28.79         | 35.57         | 33.94         | 33.84         | 35.27           |
| <b>Total Riparian Buffers (acres)</b>  | <b>695.74</b> | <b>694.06</b> | <b>696.16</b> | <b>694.06</b> | <b>696.16</b>   |
| <b>Total Riparian Buffers (miles<sup>2</sup>)</b>                                      | <b>1.09</b>   | <b>1.08</b>   | <b>1.09</b>   | <b>1.08</b>   | <b>1.09</b>     |
| <b>Large woody debris recruitment potential by channel type (miles)<sup>2, 4</sup></b> |               |               |               |               |                 |
| <b>MS1 Channels (miles)</b>  |               |               |               |               |                 |
| Adequate LWD Recruitment   | 3.89          | 3.64          | 3.71          | 3.74          | 3.66            |
| Inadequate LWD Recruitment   | 1.72          | 2.11          | 2.04          | 2.01          | 2.09            |
| <b>MS2 and MS3 Channels (miles)</b>  |               |               |               |               |                 |
| Adequate LWD Recruitment   | 5.63          | 5.32          | 5.30          | 5.53          | 5.34            |
| Inadequate LWD Recruitment   | 6.75          | 7.00          | 7.03          | 6.79          | 6.98            |
| <b>VB1 Channels (miles)</b>  |               |               |               |               |                 |
| Adequate LWD Recruitment   | 1.53          | 1.50          | 1.50          | 1.50          | 1.50            |
| Inadequate LWD Recruitment   | 0.66          | 0.64          | 0.64          | 0.64          | 0.64            |
| <b>VB2 Channels (miles)</b>  |               |               |               |               |                 |
| Adequate LWD Recruitment   | 0.14          | 0.14          | 0.14          | 0.14          | 0.14            |
| Inadequate LWD Recruitment   | 0.20          | 0.20          | 0.20          | 0.20          | 0.20            |

<sup>1</sup>Includes jurisdictional and non-jurisdictional streams inside and outside of the Study Area (study area and channels downstream to Keechelus Lake in Upper Yakima subwatershed and to Franklin Falls in SFSW). Does not include temporary crossings.<sup>2</sup>Includes jurisdictional streams and conditions within the Study Area only.<sup>3</sup>Adequate LWD recruitment potential includes all forested land cover types except for sapling forests. Inadequate includes all other landcover types.**Table 4.4.3-1 Mill Creek Only**

Comparison of Fish Impact Related Parameters by MDP Alternatives

| Parameter (units)  | Alt 1 Total   | Alt 2 Total   | Alt 3 Total   | Alt 4 Total   | Mod Alt 5 Total |
|--|---------------|---------------|---------------|---------------|-----------------|
| Culverted stream length (miles) <sup>1</sup>   | 0             | 0             | 0             | 0             | 0               |
| <b>Road length within the Study Area (miles)<sup>2</sup></b>                           |               |               |               |               |                 |
| Total Roads (miles)  | 3.52          | 3.52          | 3.52          | 3.52          | 3.52            |
| Total Road Density (miles/square mile)   | 5.76          | 5.76          | 5.76          | 5.76          | 5.76            |
| <b>Road length within Riparian Buffers (miles)<sup>2</sup></b>                         |               |               |               |               |                 |
| Total Roads (miles)  | 0.81          | 0.81          | 1.37          | 0.81          | 1.37            |
| Total Road Density (miles/square mile)   | 1.33          | 1.33          | 2.25          | 1.33          | 2.25            |
| <b>Number of fish bearing road crossings1</b>  |               |               |               |               |                 |
| Culvert  | 0             | 0             | 0             | 0             | 0               |
| Bridge   | 0             | 0             | 0             | 0             | 0               |
| Ford   | 0             | 0             | 0             | 0             | 0               |
| <b>Number of presumed fish bearing road crossings1</b>                                 |               |               |               |               |                 |
| Culvert  | 1             | 1             | 1             | 1             | 1               |
| Bridge   | 0             | 0             | 0             | 0             | 0               |
| Ford   | 0             | 0             | 0             | 0             | 0               |
| <b>Number of non fish bearing road crossings1</b>                                      |               |               |               |               |                 |
| Culvert  | 13            | 13            | 13            | 13            | 13              |
| Bridge   | 0             | 0             | 0             | 0             | 0               |
| Ford   | 0             | 0             | 0             | 0             | 0               |
| <b>Land cover types within Riparian Buffers (acres)<sup>2</sup></b>                    |               |               |               |               |                 |
| Forested – Mature  | 7.09          | 7.09          | 23.54         | 7.09          | 23.54           |
| Forested – Immature  | 5.82          | 5.82          | 6.09          | 5.82          | 6.09            |
| Forested – Sapling   | 64.61         | 64.47         | 122.60        | 64.47         | 122.60          |
| Naturally Non-forested   | 0.25          | 0.25          | 0.34          | 0.25          | 0.34            |
| Modified   | 25.42         | 25.56         | 27.59         | 25.56         | 27.59           |
| Developed  | 1.58          | 1.58          | 2.64          | 1.58          | 2.64            |
| <b>Total Riparian Buffers (acres)</b>  | <b>104.76</b> | <b>104.76</b> | <b>182.80</b> | <b>104.77</b> | <b>182.80</b>   |
| <b>Total Riparian Buffers (miles<sup>2</sup>)</b>                                      | <b>0.16</b>   | <b>0.16</b>   | <b>0.29</b>   | <b>0.16</b>   | <b>0.29</b>     |
| <b>Large woody debris recruitment potential by channel type (miles)<sup>2, 4</sup></b> |               |               |               |               |                 |
| <b>MS1 Channels (miles)</b>  |               |               |               |               |                 |
| Adequate LWD Recruitment   | 0.10          | 0.10          | 0.10          | 0.10          | 0.10            |
| Inadequate LWD Recruitment   | 0.88          | 0.88          | 0.88          | 0.88          | 0.88            |
| <b>MS2 and MS3 Channels (miles)</b>  |               |               |               |               |                 |
| Adequate LWD Recruitment   | 0.17          | 0.17          | 0.17          | 0.17          | 0.17            |
| Inadequate LWD Recruitment   | 1.80          | 1.80          | 1.80          | 1.80          | 1.80            |
| <b>VB1 Channels (miles)</b>  |               |               |               |               |                 |
| Adequate LWD Recruitment   | 0.56          | 0.56          | 0.56          | 0.56          | 0.56            |
| Inadequate LWD Recruitment   | 0.79          | 0.79          | 0.79          | 0.79          | 0.79            |
| <b>VB2 Channels (miles)</b>  |               |               |               |               |                 |
| Adequate LWD Recruitment   | 0             | 0             | 0             | 0             | 0               |
| Inadequate LWD Recruitment   | 0             | 0             | 0             | 0             | 0               |

**Table 4.4.3-1 Total**

Comparison of Fish Impact Related Parameters by MDP Alternatives

| Parameter (units)   | Alt 1 Total | Alt 2 Total | Alt 3 Total | Alt 4 Total | Mod Alt 5 Total |
|---|-------------|-------------|-------------|-------------|-----------------|
| Culverted stream length (miles) <sup>1</sup>                        | 2.07        | 2.18        | 2.18        | 2.18        | 2.18            |
| <b>Road length within the Study Area (miles)<sup>2</sup></b>        |             |             |             |             |                 |
| Total Roads (miles)   | 22.03       | 21.74       | 21.74       | 21.48       | 21.74           |
| Total Road Density (miles/square mile)                              | 4.86        | 4.80        | 4.80        | 4.74        | 4.80            |
| <b>Road length within Riparian Buffers (miles)<sup>2</sup></b>      |             |             |             |             |                 |
| Total Roads (miles)   | 5.12        | 4.97        | 5.52        | 4.88        | 5.52            |
| Total Road Density (miles/square mile)                              | 4.09        | 3.98        | 4.00        | 3.91        | 4.00            |
| <b>Number of fish bearing road crossings<sup>1</sup></b>            |             |             |             |             |                 |
| Culvert   | 13          | 13          | 13          | 13          | 13              |
| Bridge  | 7           | 7           | 7           | 7           | 7               |
| Ford  | 0           | 0           | 0           | 0           | 0               |
| <b>Number of presumed fish bearing road crossings<sup>1</sup></b>   |             |             |             |             |                 |
| Culvert   | 11          | 11          | 11          | 11          | 11              |
| Bridge  | 0           | 1           | 1           | 0           | 1               |
| Ford  | 0           | 0           | 0           | 0           | 0               |
| <b>Number of non fish bearing road crossings<sup>1</sup></b>        |             |             |             |             |                 |
| Culvert   | 98          | 98          | 98          | 97          | 98              |
| Bridge  | 0           | 1           | 1           | 0           | 1               |
| Ford  | 14          | 14          | 14          | 14          | 14              |
| <b>Land cover types within Riparian Buffers (acres)<sup>2</sup></b> |             |             |             |             |                 |
| Forested – Mature   | 319.44      | 298.06      | 321.01      | 311.44      | 320.8           |

**Table 4.5.2-1 MDP**  
**Summary of Impact Acreage for Land Cover Types**  
**Within the Study Area - by Alternative**

| Land Cover Type <sup>2</sup>              | Alt 1 Total Existing Landcover (acres) | Alt 2 Total Impacts (acres) | Alt 3 Total Impacts (acres) | Alt 4 Total Impacts (acres) | Mod Alt 5 Total Impacts (acres) |
|---|--|-----------------------------|-----------------------------|-----------------------------|---------------------------------|
| <b>Mixed Conifer – Western hemlock</b>    |  |                             |                             |                             |                                 |
| Mature                                    | 27.16                                  | 0.00                        | 0.00                        | 0.00                        | 0.00                            |
| Immature                                  | 96.18                                  | 0.20                        | 0.20                        | 0.08                        | 0.20                            |
| <b>Mixed Conifer – Pacific Silver fir</b> |  |                             |                             |                             |                                 |
| Mature                                    | 756.40                                 | 48.03                       | 25.87                       | 15.60                       | 40.05                           |
| Immature                                  | 187.69                                 | 22.71                       | 20.66                       | 19.52                       | 22.84                           |
| Sapling                                   | 44.16                                  | 5.24                        | 3.95                        | 3.41                        | 5.79                            |
| <b>Mixed Conifer – Mountain hemlock</b>   |  |                             |                             |                             |                                 |
| Mature                                    | 224.61                                 | 6.64                        | 0.78                        | 2.42                        | 5.16                            |
| Immature                                  | 0.00                                   | 0.00                        | 0.00                        | 0.00                        | 0.00                            |
| <b>Shrub</b>                              |  |                             |                             |                             |                                 |
| Natural                                   | 103.17                                 | 2.25                        | 1.97                        | 1.31                        | 2.12                            |
| Modified                                  | 326.63                                 | 31.96                       | 25.33                       | 27.78                       | 31.95                           |
| <b>Herbaceous</b>                         |  |                             |                             |                             |                                 |
| Natural                                   | 14.77                                  | 0.45                        | 0.26                        | 0.18                        | 0.48                            |
| Modified                                  | 415.83                                 | 51.2                        | 48.67                       | 50.9                        | 51.03                           |
| <b>Lakes/Open Water</b>                   |  |                             |                             |                             |                                 |
|   | 1.34                                   | 0.00                        | 0.00                        | 0.00                        | 0.00                            |
| <b>Unvegetated Rock Outcrops/Talus</b>    |  |                             |                             |                             |                                 |
|   | 224.58                                 | 5.46                        | 2.42                        | 5.46                        | 5.45                            |
| <b>Developed Land</b>                     |  |                             |                             |                             |                                 |
|   | 87.77                                  | 22.99                       | 24.09                       | 21.61                       | 22.97                           |
| <b>Totals (Acres)</b>                     | <b>2510.31</b>                         | <b>196.91</b>               | <b>153.97</b>               | <b>148.05</b>               | <b>187.82</b>                   |

<sup>1</sup>Includes both long-term impacts and short-term impacts.

<sup>2</sup>Includes Wetland and Lake landcover types.

**Table 4.5.2-1 Mill Creek**  
**Summary of Impact Acreage for Land Cover Types**  
**Within the Study Area - by Alternative**

| Land Cover Type <sup>2</sup>              | Alt 1 Total Existing Landcover (acres) | Alt 2 Total Impacts (acres) | Alt 3 Total Impacts (acres) | Alt 4 Total Impacts (acres) | Mod Alt 5 Total Impacts (acres) |
|---|--|-----------------------------|-----------------------------|-----------------------------|---------------------------------|
| <b>Mixed Conifer – Western hemlock</b>    |  |                             |                             |                             |                                 |
| Mature                                    | 20.55                                  | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | 0                                      | 0                           | 0                           | 0                           | 0                               |
| <b>Mixed Conifer – Pacific Silver fir</b> |  |                             |                             |                             |                                 |
| Mature                                    | 24.39                                  | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | 46.99                                  | 0                           | 0                           | 0                           | 0                               |
| Sapling                                   | 241.05                                 | 0                           | 0                           | 0                           | 0                               |
| <b>Mixed Conifer – Mountain hemlock</b>   |  |                             |                             |                             |                                 |
| Mature                                    | 0                                      | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | 0                                      | 0                           | 0                           | 0                           | 0                               |
| <b>Shrub</b>                              |  |                             |                             |                             |                                 |
| Natural                                   | 4.9                                    | 0                           | 0                           | 0                           | 0                               |
| Modified                                  | 15.38                                  | 0                           | 0                           | 0                           | 0                               |
| <b>Herbaceous</b>                         |  |                             |                             |                             |                                 |
| Natural                                   | 0                                      | 0                           | 0                           | 0                           | 0                               |
| Modified                                  | 18.32                                  | 0                           | 0                           | 0                           | 0                               |
| <b>Lakes/Open Water</b>                   |  |                             |                             |                             |                                 |
|   | 0                                      | 0                           | 0                           | 0                           | 0                               |
| <b>Unvegetated Rock Outcrops/Talus</b>    |  |                             |                             |                             |                                 |
|   | 10.68                                  | 0                           | 0                           | 0                           | 0                               |
| <b>Developed Land</b>                     |  |                             |                             |                             |                                 |
|   | 6.82                                   | 0                           | 0                           | 0                           | 0                               |
| <b>Totals (Acres)</b>                     | <b>389.05</b>                          | <b>0</b>                    | <b>0</b>                    | <b>0</b>                    | <b>0</b>                        |

<sup>1</sup>Includes both long-term impacts and short-term impacts.

<sup>2</sup>Includes Wetland and Lake landcover types.

**Table 4.5.2-1 Total**  
**Summary of Impact Acreage for Land Cover Types**  
**Within the Study Area - by Alternative**

| Land Cover Type <sup>2</sup>              | Alt 1 Total Existing Landcover (acres) | Alt 2 Total Impacts (acres) | Alt 3 Total Impacts (acres) | Alt 4 Total Impacts (acres) | Mod Alt 5 Total Impacts (acres) |
|---|--|-----------------------------|-----------------------------|-----------------------------|---------------------------------|
| <b>Mixed Conifer – Western hemlock</b>    |  |                             |                             |                             |                                 |
| Mature                                    | 47.71                                  | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | 96.18                                  | 0.2                         | 0.2                         | 0.08                        | 0.2                             |
| <b>Mixed Conifer – Pacific Silver fir</b> |  |                             |                             |                             |                                 |
| Mature                                    | 780.79                                 | 48.03                       | 25.87                       | 15.6                        | 40.05                           |
| Immature                                  | 234.68                                 | 22.71                       | 20.66                       | 19.52                       | 22.84                           |
| Sapling                                   | 285.21                                 | 5.24                        | 3.95                        | 3.41                        | 5.79                            |
| <b>Mixed Conifer – Mountain hemlock</b>   |  |                             |                             |                             |                                 |
| Mature                                    | 224.61                                 | 6.64                        | 0.78                        | 2.42                        | 5.16                            |
| Immature                                  | 0                                      | 0                           | 0                           | 0                           | 0                               |
| <b>Shrub</b>                              |  |                             |                             |                             |                                 |
| Natural                                   | 108.04                                 | 2.25                        | 1.97                        | 1.31                        | 2.12                            |
| Modified                                  | 342.01                                 | 31.96                       | 25.33                       | 27.78                       | 31.95                           |
| <b>Herbaceous</b>                         |  |                             |                             |                             |                                 |
| Natural                                   | 14.77                                  | 0.45                        | 0.26                        | 0.18                        | 0.48                            |
| Modified                                  | 434.15                                 | 51.2                        | 48.67                       | 50.9                        | 51.03                           |
| <b>Lakes/Open Water</b>                   |  |                             |                             |                             |                                 |
|   | 1.34                                   | 0                           | 0                           | 0                           | 0                               |
| <b>Unvegetated Rock Outcrops/Talus</b>    |  |                             |                             |                             |                                 |
|   | 235.26                                 | 5.46                        | 2.42                        | 5.46                        | 5.45                            |
| <b>Developed Land</b>                     |  |                             |                             |                             |                                 |
|   | 94.59                                  | 22.99                       | 24.09                       | 21.61                       | 22.97                           |
| <b>Totals (Acres)</b>                     | <b>2899.36</b>                         | <b>197.14</b>               | <b>154.2</b>                | <b>148.28</b>               | <b>188.05</b>                   |

**Table 4.5.3-1 MDP**  
**Summary of Long-term<sup>1</sup> Impact Acreage for Land Cover Types**  
**Within the Study Area - by Alternative**

| Land Cover Type <sup>2</sup>              | Land Ownership | Alt 1 Total Existing Landcover (acres) | Alt 2 Total Impacts (acres) | Alt 3 Total Impacts (acres) | Alt 4 Total Impacts (acres) | Mod Alt 5 Total Impacts (acres) |
|---|----------------|--|-----------------------------|-----------------------------|-----------------------------|---------------------------------|
| <b>Mixed Conifer – Western hemlock</b>    |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 23.48                                  | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 3.68                                   | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | Public         | 95.76                                  | 0.11                        | 0.11                        | 0                           | 0.11                            |
|   | Private        | 0.42                                   | 0                           | 0                           | 0                           | 0                               |
| <b>Mixed Conifer – Pacific silver fir</b> |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 556.93                                 | 36.29                       | 14.44                       | 5.24                        | 28.52                           |
|   | Private        | 199.48                                 | 6.21                        | 6.18                        | 6.01                        | 6.22                            |
| Immature                                  | Public         | 103.98                                 | 6.46                        | 4.67                        | 4.24                        | 6.6                             |
|   | Private        | 83.72                                  | 12.37                       | 12.12                       | 11.68                       | 12.37                           |
| Sapling                                   | Public         | 16.96                                  | 1.63                        | 0.34                        | 0                           | 2.17                            |
|   | Private        | 27.20                                  | 2.95                        | 2.95                        | 2.75                        | 2.95                            |
| <b>Mixed Conifer – Mountain hemlock</b>   |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 221.40                                 | 5.06                        | 0.72                        | 1.34                        | 3.58                            |
|   | Private        | 3.21                                   | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 0                                      | 0                           | 0                           | 0                           | 0                               |
| <b>Shrub</b>                              |                |  |                             |                             |                             |                                 |
| Natural                                   | Public         | 64.70                                  | 1.85                        | 1.65                        | 1.06                        | 1.78                            |
|   | Private        | 38.47                                  | 0.13                        | 0.13                        | 0.13                        | 0.13                            |
| Modified                                  | Public         | 200.63                                 | 15.49                       | 13.46                       | 12.49                       | 15.48                           |
|   | Private        | 126.01                                 | 1.77                        | 1.77                        | 1.36                        | 1.77                            |
| <b>Herbaceous</b>                         |                |  |                             |                             |                             |                                 |
| Natural                                   | Public         | 7.22                                   | 0.35                        | 0.16                        | 0.07                        | 0.38                            |
|   | Private        | 7.55                                   | 0.08                        | 0.08                        | 0.08                        | 0.08                            |
| Modified                                  | Public         | 205.50                                 | 19.39                       | 18.22                       | 19.22                       | 19.26                           |
|   | Private        | 210.33                                 | 11.82                       | 11.82                       | 11.76                       | 11.82                           |
| <b>Lakes/Open Water</b>                   | Public         | 0.00                                   | 0.00                        | 0.00                        | 0.00                        | 0.00                            |
|   | Private        | 1.34                                   | 0.00                        | 0.00                        | 0.00                        | 0.00                            |
| <b>Unvegetated Rock Outcrops/Talus</b>    | Public         | 220.18                                 | 3.91                        | 1.93                        | 3.94                        | 3.93                            |
|   | Private        | 4.41                                   | 0.00                        | 0.00                        | 0.00                        | 0.00                            |
| <b>Developed Land</b>                     | Public         | 35.94                                  | 17.42                       | 17.40                       | 16.01                       | 17.41                           |
|   | Private        | 51.82                                  | 2.39                        | 3.67                        | 2.38                        | 2.39                            |
| <b>Totals (Acres)</b>                     |                | <b>2510.31</b>                         | <b>145.46</b>               | <b>111.58</b>               | <b>99.77</b>                | <b>136.70</b>                   |

<sup>1</sup>Includes all impacts EXCEPT for utility line installation and perimeter construction impacts around buildings, parking lots, roads, and lift terminals.

<sup>2</sup>Includes Wetland and Lake landcover types.

<sup>3</sup>Precise totals may not occur due to rounding.

**Table 4.5.3-1 Mill Creek  
Summary of Long-term<sup>1</sup> Impact Acreage for Land Cover Types  
Within the Study Area - by Alternative**

| Land Cover Type <sup>2</sup>              | Land Ownership | Alt 1 Total Existing Landcover (acres) | Alt 2 Total Impacts (acres) | Alt 3 Total Impacts (acres) | Alt 4 Total Impacts (acres) | Mod Alt 5 Total Impacts (acres) |
|---|----------------|--|-----------------------------|-----------------------------|-----------------------------|---------------------------------|
| <b>Mixed Conifer – Western hemlock</b>    |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 20.55                                  | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 0                                      | 0                           | 0                           | 0                           | 0                               |
| <b>Mixed Conifer – Pacific silver fir</b> |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 24.39                                  | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 46.99                                  | 0                           | 0                           | 0                           | 0                               |
| Sapling                                   | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 241.05                                 | 0                           | 0                           | 0                           | 0                               |
| <b>Mixed Conifer – Mountain hemlock</b>   |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 0                                      | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 0                                      | 0                           | 0                           | 0                           | 0                               |
| <b>Shrub</b>                              |                |  |                             |                             |                             |                                 |
| Natural                                   | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 4.87                                   | 0                           | 0                           | 0                           | 0                               |
| Modified                                  | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 15.38                                  | 0                           | 0                           | 0                           | 0                               |
| <b>Herbaceous</b>                         |                |  |                             |                             |                             |                                 |
| Natural                                   | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 0                                      | 0                           | 0                           | 0                           | 0                               |
| Modified                                  | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 18.32                                  | 0                           | 0                           | 0                           | 0                               |
| <b>Lakes/Open Water</b>                   | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 0                                      | 0                           | 0                           | 0                           | 0                               |
| <b>Unvegetated Rock</b>                   | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 10.68                                  | 0                           | 0                           | 0                           | 0                               |
| <b>Outcrops/Talus</b>                     | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 6.82                                   | 0                           | 0                           | 0                           | 0                               |
| <b>Totals (Acres)</b>                     |                | <b>389.05</b>                          | <b>0</b>                    | <b>0</b>                    | <b>0</b>                    | <b>0</b>                        |

<sup>1</sup>Includes all impacts EXCEPT for utility line installation and perimeter construction impacts around buildings, parking lots, roads, and lift terminals.

<sup>2</sup>Includes Wetland and Lake landcover types.

<sup>3</sup>Precise totals may not occur due to rounding.

**Table 4.5.3-1 Total  
Summary of Long-term<sup>1</sup> Impact Acreage for Land Cover Types  
Within the Study Area - by Alternative**

| Land Cover Type <sup>2</sup>              | Land Ownership | Alt 1 Total Existing Landcover (acres) | Alt 2 Total Impacts (acres) | Alt 3 Total Impacts (acres) | Alt 4 Total Impacts (acres) | Mod Alt 5 Total Impacts (acres) |
|---|----------------|--|-----------------------------|-----------------------------|-----------------------------|---------------------------------|
| <b>Mixed Conifer – Western hemlock</b>    |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 23.48                                  | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 24.23                                  | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | Public         | 95.76                                  | 0.11                        | 0.11                        | 0                           | 0.11                            |
|   | Private        | 0.42                                   | 0                           | 0                           | 0                           | 0                               |
| <b>Mixed Conifer – Pacific silver fir</b> |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 556.93                                 | 36.29                       | 14.44                       | 5.24                        | 28.52                           |
|   | Private        | 223.87                                 | 6.21                        | 6.18                        | 6.01                        | 6.22                            |
| Immature                                  | Public         | 103.98                                 | 6.46                        | 4.67                        | 4.24                        | 6.6                             |
|   | Private        | 130.71                                 | 12.37                       | 12.12                       | 11.68                       | 12.37                           |
| Sapling                                   | Public         | 16.96                                  | 1.63                        | 0.34                        | 0                           | 2.17                            |
|   | Private        | 268.25                                 | 2.95                        | 2.95                        | 2.75                        | 2.95                            |
| <b>Mixed Conifer – Mountain hemlock</b>   |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 221.4                                  | 5.06                        | 0.72                        | 1.34                        | 3.58                            |
|   | Private        | 3.21                                   | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 0                                      | 0                           | 0                           | 0                           | 0                               |
| <b>Shrub</b>                              |                |  |                             |                             |                             |                                 |
| Natural                                   | Public         | 64.7                                   | 1.85                        | 1.65                        | 1.06                        | 1.78                            |
|   | Private        | 43.34                                  | 0.13                        | 0.13                        | 0.13                        | 0.13                            |
| Modified                                  | Public         | 200.63                                 | 15.49                       | 13.46                       | 12.49                       | 15.48                           |
|   | Private        | 141.39                                 | 1.77                        | 1.77                        | 1.36                        | 1.77                            |
| <b>Herbaceous</b>                         |                |  |                             |                             |                             |                                 |
| Natural                                   | Public         | 7.22                                   | 0.35                        | 0.16                        | 0.07                        | 0.38                            |
|   | Private        | 7.55                                   | 0.08                        | 0.08                        | 0.08                        | 0.08                            |
| Modified                                  | Public         | 205.5                                  | 19.39                       | 18.22                       | 19.22                       | 19.26                           |
|   | Private        | 228.65                                 | 11.82                       | 11.82                       | 11.76                       | 11.82                           |
| <b>Lakes/Open Water</b>                   | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 1.34                                   | 0                           | 0                           | 0                           | 0                               |
| <b>Unvegetated Rock Outcrops/Tal</b>      | Public         | 220.18                                 | 3.91                        | 1.93                        | 3.94                        | 3.93                            |
|   | Private        | 15.09                                  | 0                           | 0                           | 0                           | 0                               |
| <b>Developed Land</b>                     | Public         | 35.94                                  | 17.42                       | 17.4                        | 16.01                       | 17.41                           |
|   | Private        | 58.64                                  | 2.39                        | 3.67                        | 2.38                        | 2.39                            |
| <b>Totals (Acres)</b>                     |                | <b>2898.13</b>                         | <b>145.69</b>               | <b>111.81</b>               | <b>99.77</b>                | <b>136.93</b>                   |

<sup>1</sup>Includes all impacts EXCEPT for utility line installation and perimeter construction impacts around buildings, parking lots, roads, and lift terminals.

<sup>2</sup>Includes Wetland and Lake landcover types.

<sup>3</sup>Precise totals may not occur due to rounding.

**Table 4.5.3-2 MDP**

**Summary of Short-term<sup>1</sup> Impact Acreage for Land Cover Types  
Within the Study Area - by Alternative**

| Land Cover Type <sup>2</sup>              | Land Ownership | Alt 1 Total Existing Landcover (acres) | Alt 2 Total Impacts (acres) | Alt 3 Total Impacts (acres) | Alt 4 Total Impacts (acres) | Mod Alt 5 Total Impacts (acres) |
|---|----------------|--|-----------------------------|-----------------------------|-----------------------------|---------------------------------|
| <b>Mixed Conifer – Western hemlock</b>    |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 23.48                                  | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 3.68                                   | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | Public         | 95.76                                  | 0.09                        | 0.09                        | 0.08                        | 0.09                            |
|   | Private        | 0.42                                   | 0                           | 0                           | 0                           | 0                               |
| <b>Mixed Conifer – Pacific silver fir</b> |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 556.93                                 | 3.21                        | 2.93                        | 2.11                        | 3.00                            |
|   | Private        | 199.48                                 | 2.31                        | 2.31                        | 2.24                        | 2.31                            |
| Immature                                  | Public         | 103.98                                 | 2.09                        | 2.09                        | 2.00                        | 2.09                            |
|   | Private        | 83.72                                  | 1.79                        | 1.79                        | 1.59                        | 1.79                            |
| Sapling                                   | Public         | 16.96                                  | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 27.20                                  | 0.66                        | 0.66                        | 0.66                        | 0.66                            |
| <b>Mixed Conifer – Mountain hemlock</b>   |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 221.40                                 | 1.58                        | 0.06                        | 1.09                        | 1.58                            |
|   | Private        | 3.21                                   | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 0                                      | 0                           | 0                           | 0                           | 0                               |
| <b>Shrub</b>                              |                |  |                             |                             |                             |                                 |
| Natural                                   | Public         | 64.70                                  | 0.26                        | 0.18                        | 0.12                        | 0.21                            |
|   | Private        | 38.47                                  | 0.01                        | 0.01                        | 0.01                        | 0.01                            |
| Modified                                  | Public         | 200.63                                 | 12.03                       | 7.44                        | 11.39                       | 12.03                           |
|   | Private        | 126.01                                 | 2.66                        | 2.66                        | 2.54                        | 2.66                            |
| <b>Herbaceous</b>                         |                |  |                             |                             |                             |                                 |
| Natural                                   | Public         | 7.22                                   | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 7.55                                   | 0                           | 0                           | 0                           | 0                               |
| Modified                                  | Public         | 205.50                                 | 12.44                       | 11.08                       | 12.33                       | 12.41                           |
|   | Private        | 210.33                                 | 7.55                        | 7.55                        | 7.58                        | 7.55                            |
| <b>Lakes/Open Water</b>                   | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 1.34                                   | 1.34                        | 1.34                        | 1.34                        | 1.34                            |
| <b>Unvegetated Rock Outcrops/Talus</b>    | Public         | 220.18                                 | 1.55                        | 0.49                        | 1.52                        | 0                               |
|   | Private        | 4.41                                   | 0                           | 0                           | 0                           | 0                               |
| <b>Developed Land</b>                     | Public         | 35.94                                  | 1.75                        | 1.57                        | 1.76                        | 1.74                            |
|   | Private        | 51.82                                  | 1.44                        | 1.44                        | 1.46                        | 1.44                            |
| <b>Totals (Acres)</b>                     |                | <b>2510.31</b>                         | <b>51.46</b>                | <b>42.39</b>                | <b>48.51</b>                | <b>51.11</b>                    |

<sup>1</sup>Short-term impacts include those associated with utility line installation and perimeter construction.

<sup>2</sup>Includes Wetland and Lake landcover types.

<sup>3</sup>Precise totals may not occur due to rounding.

**Table 4.5.3-2 Mill Creek**

**Summary of Short-term<sup>1</sup> Impact Acreage for Land Cover Types  
Within the Study Area - by Alternative**

| Land Cover Type <sup>2</sup>              | Land Ownership | Alt 1 Total Existing Landcover (acres) | Alt 2 Total Impacts (acres) | Alt 3 Total Impacts (acres) | Alt 4 Total Impacts (acres) | Mod Alt 5 Total Impacts (acres) |
|---|----------------|--|-----------------------------|-----------------------------|-----------------------------|---------------------------------|
| <b>Mixed Conifer – Western hemlock</b>    |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 20.55                                  | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 0                                      | 0                           | 0                           | 0                           | 0                               |
| <b>Mixed Conifer – Pacific silver fir</b> |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 0.00                                   | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 24.39                                  | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 46.99                                  | 0                           | 0                           | 0                           | 0                               |
| Sapling                                   | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 241.05                                 | 0                           | 0                           | 0                           | 0                               |
| <b>Mixed Conifer – Mountain hemlock</b>   |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 0                                      | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 0                                      | 0                           | 0                           | 0                           | 0                               |
| <b>Shrub</b>                              |                |  |                             |                             |                             |                                 |
| Natural                                   | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 4.87                                   | 0                           | 0                           | 0                           | 0                               |
| Modified                                  | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 15.38                                  | 0                           | 0                           | 0                           | 0                               |
| <b>Herbaceous</b>                         |                |  |                             |                             |                             |                                 |
| Natural                                   | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 0                                      | 0                           | 0                           | 0                           | 0                               |
| Modified                                  | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 18.32                                  | 0                           | 0                           | 0                           | 0                               |
| <b>Lakes/Open Water</b>                   | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 0                                      | 0                           | 0                           | 0                           | 0                               |
| <b>Unvegetated Rock Outcrops/Talus</b>    | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 10.68                                  | 0                           | 0                           | 0                           | 0                               |
| <b>Developed Land</b>                     | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 6.82                                   | 0                           | 0                           | 0                           | 0                               |
| <b>Totals (Acres)</b>                     |                | <b>389.05</b>                          | <b>0</b>                    | <b>0</b>                    | <b>0</b>                    | <b>0</b>                        |

<sup>1</sup>Short-term impacts include those associated with utility line installation and perimeter construction.

<sup>2</sup>Includes Wetland and Lake landcover types.

<sup>3</sup>Precise totals may not occur due to rounding.

**Table 4.5.3-2 Total**

**Summary of Short-term<sup>1</sup> Impact Acreage for Land Cover Types  
Within the Study Area - by Alternative**

| Land Cover Type <sup>2</sup>              | Land Ownership | Alt 1 Total Existing Landcover (acres) | Alt 2 Total Impacts (acres) | Alt 3 Total Impacts (acres) | Alt 4 Total Impacts (acres) | Mod Alt 5 Total Impacts (acres) |
|---|----------------|--|-----------------------------|-----------------------------|-----------------------------|---------------------------------|
| <b>Mixed Conifer – Western hemlock</b>    |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 23.48                                  | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 24.23                                  | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | Public         | 95.76                                  | 0.09                        | 0.09                        | 0.08                        | 0.09                            |
|   | Private        | 0.42                                   | 0                           | 0                           | 0                           | 0                               |
| <b>Mixed Conifer – Pacific silver fir</b> |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 556.93                                 | 3.21                        | 2.93                        | 2.11                        | 3                               |
|   | Private        | 223.87                                 | 2.31                        | 2.31                        | 2.24                        | 2.31                            |
| Immature                                  | Public         | 103.98                                 | 2.09                        | 2.09                        | 2                           | 2.09                            |
|   | Private        | 130.71                                 | 1.79                        | 1.79                        | 1.59                        | 1.79                            |
| Sapling                                   | Public         | 16.96                                  | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 268.25                                 | 0.66                        | 0.66                        | 0.66                        | 0.66                            |
| <b>Mixed Conifer – Mountain hemlock</b>   |                |  |                             |                             |                             |                                 |
| Mature                                    | Public         | 221.4                                  | 1.58                        | 0.06                        | 1.09                        | 1.58                            |
|   | Private        | 3.21                                   | 0                           | 0                           | 0                           | 0                               |
| Immature                                  | Public         | 0                                      | 0                           | 0                           | 0                           | 0                               |
|   | Private        | 0                                      | 0                           | 0                           | 0                           | 0                               |
| <b>Shrub</b>                              |                |  |                             |                             |                             |                                 |
| Natural                                   | Public         | 64.7                                   | 0.26                        | 0.18                        | 0.12                        | 0.21                            |
|   | Private        | 43.34                                  | 0.01                        | 0.01                        | 0.01                        | 0.01                            |
| Modified                                  | Public         | 200.63                                 | 12.03                       | 7.44                        | 11.39                       | 12.03                           |
|   | Private        | 141.39                                 | 2.66                        | 2.66                        | 2.54                        | 2.66                            |
| <b>Herbaceous</b>                         |                |  |                             |                             |                             |                                 |
| Natural                                   | Public         | 7.22                                   | 0.02                        | 0.02</                      |                             |                                 |

**Table 4.6.3-1 A:**  
**Vegetative Types within The Summit-at-Snoqualmie  
MDP Study Area by Alternative (Excluding Mill Creek)**

| Vegetation Type                          | Alt 1 (Existing) | Alt 2  | Alt 3  | Alt 4  | Mod Alt 5 |
|--|------------------|--------|--------|--------|-----------|
| <b>Forested Habitat (acres)</b>          |                  |        |        |        |           |
| Western hemlock, mature                  | 27.16            | 27.14  | 27.14  | 27.14  | 27.14     |
| Western hemlock, immature                | 96.18            | 96.03  | 95.94  | 96.06  | 95.96     |
| Mountain hemlock, mature                 | 224.61           | 218.85 | 223.74 | 222.31 | 221.17    |
| Pacific silver Fir, mature               | 756.40           | 716.90 | 729.65 | 743.06 | 727.13    |
| Pacific silver Fir, immature and sapling | 254.31           | 249.93 | 262.58 | 260.20 | 254.24    |
| <b>Riparian habitat (acres)</b>          |                  |        |        |        |           |
| Western hemlock, mature                  | 15.44            | 15.43  | 15.44  | 15.43  | 15.44     |
| Western hemlock, immature                | 16.36            | 16.30  | 16.23  | 16.30  | 16.23     |
| Mountain hemlock, mature                 | 23.87            | 22.16  | 23.65  | 23.16  | 23.07     |
| Pacific silver Fir, mature               | 273.16           | 253.37 | 258.38 | 265.75 | 258.79    |
| Pacific silver Fir, immature and sapling | 29.49            | 28.59  | 36.78  | 32.22  | 30.39     |
| Shrub, natural                           | 42.91            | 41.02  | 41.10  | 42.06  | 40.72     |
| Shrub, modified                          | 101.24           | 105.55 | 96.67  | 95.91  | 100.85    |
| Herbaceous, natural                      | 13.77            | 13.19  | 13.55  | 13.69  | 13.62     |
| Herbaceous, modified                     | 146.29           | 157.70 | 144.75 | 150.51 | 146.43    |
| Rock/Talus                               | 13.48            | 14.01  | 15.67  | 14.01  | 15.38     |
| Developed                                | 28.80            | 35.57  | 33.94  | 33.84  | 35.27     |
| <b>Aquatic habitats</b>                  |                  |        |        |        |           |
| Ponds and Lakes                          | 1.34             | 1.34   | 1.34   | 1.34   | 1.34      |
| Wetlands                                 | 72.29            | 70.89  | 70.85  | 70.96  | 70.87     |
| Streams <sup>2</sup> (miles)             | 25.14            | 24.89  | 24.90  | 24.90  | 24.90     |
| <b>Cliff and talus habitat</b>           |                  |        |        |        |           |
| Rock/Talus                               | 224.58           | 223.99 | 225.08 | 224.00 | 224.01    |
| <b>Herbaceous and shrub habitat</b>      |                  |        |        |        |           |
| Shrub, natural                           | 103.12           | 101.13 | 101.22 | 102.17 | 100.84    |
| Shrub, modified                          | 326.55           | 341.08 | 318.46 | 322.68 | 332.79    |
| Herbaceous, natural                      | 14.77            | 14.15  | 14.53  | 14.69  | 14.58     |
| Herbaceous, modified                     | 415.73           | 441.64 | 435.75 | 421.06 | 433.96    |

**Table 4.6.3-1 B:**  
**Vegetative Types within The Summit-at-Snoqualmie  
Mill Creek Portion of the Study Area by Alternative  
(Includes Only Mill Creek Portion of Study Area)**

| Vegetation Type                          | Alt 1 (Existing) | Alt 2  | Alt 3  | Alt 4  | Mod Alt 5 |
|--|------------------|--------|--------|--------|-----------|
| <b>Forested Habitat (acres)</b>          |                  |        |        |        |           |
| Western hemlock, mature                  | 20.55            | 20.55  | 20.55  | 20.55  | 20.55     |
| Western hemlock, immature                | 0                | 0      | 0      | 0      | 0         |
| Mountain hemlock, mature                 | 0                | 0      | 0      | 0      | 0         |
| Pacific silver Fir, mature               | 24.39            | 24.39  | 24.39  | 24.39  | 24.39     |
| Pacific silver Fir, immature and sapling | 265.58           | 265.58 | 265.58 | 265.58 | 265.58    |
| <b>Riparian habitat (acres)</b>          |                  |        |        |        |           |
| Western hemlock, mature                  | 7.04             | 7.04   | 18.43  | 7.04   | 18.43     |
| Western hemlock, immature                | 0                | 0      | 0      | 0      | 0         |
| Mountain hemlock, mature                 | 0                | 0      | 0      | 0      | 0         |
| Pacific silver Fir, mature               | 0.06             | 0.06   | 5.11   | 0.06   | 5.11      |
| Pacific silver Fir, immature and sapling | 70.43            | 70.29  | 128.69 | 70.29  | 128.69    |
| Shrub, natural                           | 0.25             | 0.25   | 0.34   | 0.25   | 0.34      |
| Shrub, modified                          | 15.32            | 15.38  | 15.38  | 15.38  | 15.38     |
| Herbaceous, natural                      | 0.00             | 0.00   | 0.00   | 0.00   | 0.00      |
| Herbaceous, modified                     | 0.00             | 0.00   | 12.21  | 0.00   | 12.21     |
| Rock/Talus                               | 0.00             | 0.00   | 0.00   | 0.00   | 0.00      |
| Developed                                | 1.58             | 1.58   | 2.64   | 1.58   | 2.64      |
| <b>Aquatic habitats</b>                  |                  |        |        |        |           |
| Ponds and Lakes                          | 0                | 0      | 0      | 0      | 0         |
| Wetlands                                 | 0                | 0      | 0      | 0      | 0         |
| Streams <sup>2</sup> (miles)             | 4.33             | 4.33   | 4.33   | 4.33   | 4.33      |
| <b>Cliff and talus habitat</b>           |                  |        |        |        |           |
| Rock/Talus                               | 10.68            | 10.68  | 10.68  | 10.68  | 10.68     |
| <b>Herbaceous and shrub habitat</b>      |                  |        |        |        |           |
| Shrub, natural                           | 4.87             | 4.87   | 4.87   | 4.87   | 4.87      |
| Shrub, modified                          | 15.32            | 15.38  | 15.38  | 15.38  | 15.38     |
| Herbaceous, natural                      | 0.00             | 0.00   | 0.00   | 0.00   | 0.00      |
| Herbaceous, modified                     | 18.24            | 18.32  | 18.32  | 18.32  | 18.32     |

**Table 4.6.3-1 C:**  
**Vegetative Types within The Summit-at-Snoqualmie  
Study Area by Alternative (Study Area Including Mill Creek)**

| Vegetation Type                          | Alt 1 (Existing) | Alt 2  | Alt 3  | Alt 4  | Mod Alt 5 |
|--|------------------|--------|--------|--------|-----------|
| <b>Forested Habitat (acres)</b>          |                  |        |        |        |           |
| Western hemlock, mature                  | 47.71            | 47.69  | 47.69  | 47.69  | 47.69     |
| Western hemlock, immature                | 96.18            | 96.03  | 95.94  | 96.06  | 95.96     |
| Mountain hemlock, mature                 | 224.61           | 218.85 | 223.74 | 222.31 | 221.17    |
| Pacific silver Fir, mature               | 780.79           | 741.29 | 754.04 | 767.45 | 751.52    |
| Pacific silver Fir, immature and sapling | 519.89           | 515.51 | 528.16 | 525.78 | 519.82    |
| <b>Riparian habitat (acres)</b>          |                  |        |        |        |           |
| Western hemlock, mature                  | 22.48            | 22.47  | 33.87  | 22.47  | 33.87     |
| Western hemlock, immature                | 16.36            | 16.3   | 16.23  | 16.3   | 16.23     |
| Mountain hemlock, mature                 | 23.87            | 22.16  | 23.65  | 23.16  | 23.07     |
| Pacific silver Fir, mature               | 273.22           | 253.43 | 263.49 | 265.81 | 263.90    |
| Pacific silver Fir, immature and sapling | 99.92            | 98.88  | 165.47 | 102.51 | 159.08    |
| Shrub, natural                           | 43.16            | 41.27  | 41.44  | 42.31  | 41.06     |
| Shrub, modified                          | 116.56           | 120.93 | 112.05 | 111.29 | 116.23    |
| Herbaceous, natural                      | 13.77            | 13.19  | 13.55  | 13.69  | 13.62     |
| Herbaceous, modified                     | 146.29           | 157.7  | 156.96 | 150.51 | 158.64    |
| Rock/Talus                               | 13.48            | 14.01  | 15.67  | 14.01  | 15.38     |
| Developed                                | 30.38            | 37.15  | 36.58  | 35.42  | 37.91     |
| <b>Aquatic habitats</b>                  |                  |        |        |        |           |
| Ponds and Lakes                          | 1.34             | 1.34   | 1.34   | 1.34   | 1.34      |
| Wetlands                                 | 72.29            | 70.89  | 70.85  | 70.96  | 70.87     |
| Streams <sup>2</sup> (miles)             | 29.47            | 29.22  | 29.23  | 29.23  | 29.23     |
| <b>Cliff and talus habitat</b>           |                  |        |        |        |           |
| Rock/Talus                               | 235.26           | 234.67 | 235.76 | 234.68 | 234.69    |
| <b>Herbaceous and shrub habitat</b>      |                  |        |        |        |           |
| Shrub, natural                           | 107.99           | 106    | 106.09 | 107.04 | 105.71    |
| Shrub, modified                          | 341.87           | 356.46 | 333.84 | 338.06 | 348.17    |
| Herbaceous, natural                      | 14.77            | 14.15  | 14.53  | 14.69  | 14.58     |
| Herbaceous, modified                     | 433.97           | 459.96 | 454.07 | 439.38 | 452.28    |

**Table 4.6.3-2 A:**  
Habitat by Alternative for Species Having a Primary Association with Forested Habitat in the MDP Study Area (Excluding Mill Creek)

| Forested Habitat Type  | Species   | Alt 1 (Existing)        | Alt 2  | Alt 3  | Alt 4  | Mod Alt 5 |
|--|---|-------------------------|--------|--------|--------|-----------|
| Mature western hemlock and pacific silver fir  | Northern spotted owl<br>Marbled   | 783.56                  | 744.04 | 756.79 | 770.20 | 754.27    |
| Mature western hemlock, Pacific silver fir, and mountain hemlock                       | Pileated woodpecker<br>Primary cavity excavators<br>Olive-sided flycatcher<br>Northern goshawk Silver haired bat<br>Hoary bat Long-eared myotis<br>Long-legged myotis<br>Yuma myotis<br>Pacific western big-eared bat<br>Marten<br>Neotropical migratory birds (31 species) | 1008.17                 | 962.89 | 980.53 | 992.51 | 975.44    |
| Mature western hemlock <sup>1</sup>  | Johnson's hairstreak (butterfly)  | Western hemlock, mature | 27.16  | 27.14  | 27.14  | 27.14     |
| Immature mixed conifer-Pacific silver fir; Pacific silver fir-sapling; western hemlock | Neotropical migratory birds (11 species)  | 616.07                  | 611.54 | 624.1  | 621.84 | 350.20    |

<sup>1</sup>There would be no impact to mature western hemlock as a result of any of the action alternatives. The reduction of 0.02 acres depicted in the table is a result of the GIS process and does not represent actual impacts to mature western hemlock.

**Table 4.6.3-2 B:**  
Habitat by Alternative for Species Having a Primary Association with Forested Habitat in the Mill Creek Portion of the Study Area (Includes Only Mill Creek)

| Forested Habitat Type  | Species   | Alt 1 (Existing) | Alt 2  | Alt 3  | Alt 4  | Mod Alt 5 |
|--|---|------------------|--------|--------|--------|-----------|
| Mature western hemlock and pacific silver fir  | Northern spotted owl<br>Marbled   | 44.94            | 44.94  | 44.94  | 44.94  | 44.94     |
| Mature western hemlock, Pacific silver fir, and mountain hemlock                       | Pileated woodpecker<br>Primary cavity excavators<br>Olive-sided flycatcher<br>Northern goshawk Silver haired bat<br>Hoary bat Long-eared myotis<br>Long-legged myotis<br>Yuma myotis<br>Pacific western big-eared bat<br>Marten<br>Neotropical migratory birds (31 species) | 44.94            | 44.94  | 44.94  | 44.94  | 44.94     |
| Mature western hemlock <sup>1</sup>  | Johnson's hairstreak (butterfly)  | 20.55            | 20.55  | 20.55  | 20.55  | 20.55     |
| Immature mixed conifer-Pacific silver fir; Pacific silver fir-sapling; western hemlock | Neotropical migratory birds (11 species)  | 265.58           | 265.58 | 265.58 | 265.58 | 265.58    |

<sup>1</sup>There would be no impact to mature western hemlock as a result of any of the action alternatives. The reduction of 0.02 acres depicted in the table is a result of the GIS process and does not represent actual impacts to mature western hemlock.

**Table 4.6.3-2 C:**  
Habitat by Alternative for Species Having a Primary Association with Forested Habitat in the Total Study Area (Study Area Including Mill Creek)

| Forested Habitat Type  | Species   | Alt 1 (Existing) | Alt 2   | Alt 3   | Alt 4   | Mod Alt 5 |
|--|---|------------------|---------|---------|---------|-----------|
| Mature western hemlock and pacific silver fir  | Northern spotted owl<br>Marbled   | 828.5            | 788.98  | 801.73  | 815.14  | 799.21    |
| Mature western hemlock, Pacific silver fir, and mountain hemlock                       | Pileated woodpecker<br>Primary cavity excavators<br>Olive-sided flycatcher<br>Northern goshawk Silver haired bat<br>Hoary bat Long-eared myotis<br>Long-legged myotis<br>Yuma myotis<br>Pacific western big-eared bat<br>Marten<br>Neotropical migratory birds (31 species) | 1053.11          | 1007.83 | 1025.46 | 1037.45 | 1020.38   |
| Mature western hemlock <sup>1</sup>  | Johnson's hairstreak (butterfly)  | 47.71            | 47.69   | 47.69   | 47.69   | 47.69     |
| Immature mixed conifer-Pacific silver fir; Pacific silver fir-sapling; western hemlock | Neotropical migratory birds (11 species)  | 616.07           | 611.54  | 624.1   | 621.84  | 615.79    |

<sup>1</sup>There would be no impact to mature western hemlock as a result of any of the action alternatives. The reduction of 0.02 acres depicted in the table is a result of the GIS process and does not represent actual impacts to mature western hemlock.

**Table 4.6.3-3 A:**  
Habitat by Alternative for Species Having a Primary Association With Riparian Habitat in the MDP Study Area (Excluding Mill Creek)

| Species                     | Riparian Habitat Types   | Alt 1 (Existing)  | Alt 2   | Alt 3   | Alt 4   | Mod Alt 5   |
|-----------------------------|--|---|---|---|---|---|
| Bald eagle                  | Mature conifer forest adjacent to large bodies of water (within Riparian Reserve of Lake Keechelus).                                   | RR falls Outside of Study Area – There will be no impact. | RR falls Outside of Study Area – There will be no impact. | RR falls Outside of Study Area – There will be no impact. | RR falls Outside of Study Area – There will be no impact. | RR falls Outside of Study Area – There will be no impact. |
| Van dyke's salamander       | Riparian Buffers of streams, seeps and wetlands within mature western hemlock, mature Pacific silver fir, and mature mountain hemlock. | 312.48  | 290.97  | 297.47  | 304.35  | 297.30  |
| Harlequin duck              | Riparian Buffers of perennial streams within mature western hemlock, mature Pacific silver fir, and mature mountain hemlock.           | 46.38   | 40.26   | 45.10   | 40.93   | 44.60   |
| Neotropical migratory birds | Various - see table 3.6.1-7  | n/a   | n/a   | n/a   | n/a   | n/a   |

**Table 4.6.3-3 B:**  
Habitat by Alternative for Species Having a Primary Association With Riparian Habitat in the Mill Creek Portion of the Study Area (Includes Only Mill Creek)

| Species                     | Riparian Habitat Types   | Alt 1 (Existing)  | Alt 2   | Alt 3   | Alt 4   | Mod Alt 5   |
|-----------------------------|--|---|---|---|---|---|
| Bald eagle                  | Mature conifer forest adjacent to large bodies of water (within Riparian Reserve of Lake Keechelus).                                   | RR falls Outside of Study Area – There will be no impact. | RR falls Outside of Study Area – There will be no impact. | RR falls Outside of Study Area – There will be no impact. | RR falls Outside of Study Area – There will be no impact. | RR falls Outside of Study Area – There will be no impact. |
| Van dyke's salamander       | Riparian Buffers of streams, seeps and wetlands within mature western hemlock, mature Pacific silver fir, and mature mountain hemlock. | 7.09  | 7.09  | 23.54   | 7.09  | 23.54   |
| Harlequin duck              | Riparian Buffers of perennial streams within mature western hemlock, mature Pacific silver fir, and mature mountain hemlock.           | 22.44   | 22.44   | 18.15   | 22.44   | 18.15   |
| Neotropical migratory birds | Various - see table 3.6.1-7  | n/a   | n/a   | n/a   | n/a   | n/a   |

**Table 4.6.3-3 C:**  
Habitat by Alternative for Species Having a Primary Association With Riparian Habitat in the Total Study Area (Study Area Including Mill Creek)

| Species                     | Riparian Habitat Types   | Alt 1 (Existing)  | Alt 2   | Alt 3   | Alt 4   | Mod Alt 5   |
|-----------------------------|--|---|---|---|---|---|
| Bald eagle                  | Mature conifer forest adjacent to large bodies of water (within Riparian Reserve of Lake Keechelus).                                   | RR falls Outside of Study Area – There will be no impact. | RR falls Outside of Study Area – There will be no impact. | RR falls Outside of Study Area – There will be no impact. | RR falls Outside of Study Area – There will be no impact. | RR falls Outside of Study Area – There will be no impact. |
| Van dyke's salamander       | Riparian Buffers of streams, seeps and wetlands within mature western hemlock, mature Pacific silver fir, and mature mountain hemlock. | 319.57  | 298.06  | 321.01  | 311.44  | 320.84  |
| Harlequin duck              | Riparian Buffers of perennial streams within mature western hemlock, mature Pacific silver fir, and mature mountain hemlock.           | 68.82   | 62.70   | 63.25   | 63.37   | 62.75   |
| Neotropical migratory birds | Various - see table 3.6.1-7  | n/a   | n/a   | n/a   | n/a   | n/a   |

**Table 4.6.3-4 A:**  
Habitat by Alternative for Species Having a Primary Association With Aquatic Habitat in the MDP Study Area (Excluding Mill Creek)

| Aquatic Habitat Type              | Species   | Alt 1 (Existing) | Alt 2 | Alt 3 | Alt 4 | Mod Alt 5 |
|-----------------------------------|---|------------------|-------|-------|-------|-----------|
| Lakes and wetlands                | Cascades frog<br>Red-legged frog<br>Pacific tree frog<br>Western toad | 73.63            | 72.23 | 72.19 | 72.3  | 72.21     |
| Streams                           | Tailed frog   | 25.14            | 24.89 | 24.90 | 24.90 | 24.90     |
| All aquatic habitats <sup>1</sup> | Neotropical migratory birds   | n/a              | n/a   | n/a   | n/a   | n/a       |

**Table 4.6.3-4 B:**  
Habitat by Alternative for Species Having a Primary Association With Aquatic Habitat in the Mill Creek Portion of the Study Area (Includes Only Mill Creek)

| Aquatic Habitat Type              | Species   | Alt 1 (Existing) | Alt 2 | Alt 3 | Alt 4 | Mod Alt 5 |
|-----------------------------------|---|------------------|-------|-------|-------|-----------|
| Lakes and wetlands                | Cascades frog<br>Red-legged frog<br>Pacific tree frog<br>Western toad | 0                | 0     | 0     | 0     | 0         |
| Streams                           | Tailed frog   | 4.33             | 4.33  | 4.33  | 4.33  | 4.33      |
| All aquatic habitats <sup>1</sup> | Neotropical migratory birds   | n/a              | n/a   | n/a   | n/a   | n/a       |

**Table 4.6.3-4 C:**  
Habitat by Alternative for Species Having a Primary Association With Aquatic Habitat in the Total Study Area (Study Area Including Mill Creek)

| Aquatic Habitat Type              | Species   | Alt 1 (Existing) | Alt 2 | Alt 3 | Alt 4 | Mod Alt 5 |
|-----------------------------------|---|------------------|-------|-------|-------|-----------|
| Lakes and wetlands                | Cascades frog<br>Red-legged frog<br>Pacific tree frog<br>Western toad | 73.63            | 72.23 | 72.19 | 72.3  | 72.21     |
| Streams                           | Tailed frog   | 29.47            | 29.22 | 29.23 | 29.23 | 29.23     |
| All aquatic habitats <sup>1</sup> | Neotropical migratory birds   | n/a              | n/a   | n/a   | n/a   | n/a       |

**Table 4.6.3-5 A:**  
Species Having a Primary Association With Cliff and/or Talus Habitat in the MDP Study Area (Excluding Mill Creek)

| Species                   | Habitat types        | Alt 1 (Existing) | Alt 2  | Alt 3  | Alt 4  | Mod Alt 5 |
|---------------------------|----------------------|------------------|--------|--------|--------|-----------|
| Peregrine falcon          | Cliffs               | 224.58           | 223.99 | 225.08 | 224.00 | 224.01    |
| Mountain goat             | Cliffs/rock outcrops | 224.58           | 223.99 | 225.08 | 224.00 | 224.01    |
| Larch Mountain salamander | Talus                | 224.58           | 223.99 | 225.08 | 224.00 | 224.01    |

**Table 4.6.3-5 B:**  
Species Having a Primary Association With Cliff and/or Talus Habitat in the Mill Creek Portion of the Study Area (Including Only Mill Creek)

| Species                   | Habitat types        | Alt 1 (Existing) | Alt 2 | Alt 3 | Alt 4 | Mod Alt 5 |
|---------------------------|----------------------|------------------|-------|-------|-------|-----------|
| Peregrine falcon          | Cliffs               | 10.68            | 10.68 | 10.68 | 10.68 | 10.68     |
| Mountain goat             | Cliffs/rock outcrops | 10.68            | 10.68 | 10.68 | 10.68 | 10.68     |
| Larch Mountain salamander | Talus                | 10.68            | 10.68 | 10.68 | 10.68 | 10.68     |

**Table 4.6.3-5 C:**  
Species Having a Primary Association With Cliff and/or Talus Habitat in the Total Study Area (Study Area Including Mill Creek)

| Species                   | Habitat types        | Alt 1 (Existing) | Alt 2  | Alt 3  | Alt 4  | Mod Alt 5 |
|---------------------------|----------------------|------------------|--------|--------|--------|-----------|
| Peregrine falcon          | Cliffs               | 235.26           | 234.67 | 235.76 | 234.68 | 234.69    |
| Mountain goat             | Cliffs/rock outcrops | 235.26           | 234.67 | 235.76 | 234.68 | 234.69    |
| Larch Mountain salamander | Talus                | 235.26           | 234.67 | 235.76 | 234.68 | 234.69    |

**Table 4.6.3-6 A:**  
Species Having a Primary Association With Herbaceous and/or Shrub Habitat in the MDP Study Area (Excluding Mill Creek)

| Species                     | Habitat types                   | Alt 1 (Existing) | Alt 2  | Alt 3  | Alt 4  | Mod Alt 5 |
|-----------------------------|---------------------------------|------------------|--------|--------|--------|-----------|
| Western sulphur butterfly   | Herbaceous, natural and managed | 430.49           | 455.79 | 450.28 | 435.75 | 448.53    |
| Neotropical migratory birds | All herbaceous and shrub types  | 860.17           | 898.00 | 869.96 | 860.60 | 882.16    |

**Table 4.6.3-6 B:**  
Species Having a Primary Association With Herbaceous and/or Shrub Habitat in the Mill Creek Portion of the Study Area (Including Only Mill Creek)

| Species                     | Habitat types                   | Alt 1 (Existing) | Alt 2 | Alt 3 | Alt 4 | Mod Alt 5 |
|-----------------------------|---------------------------------|------------------|-------|-------|-------|-----------|
| Western sulphur butterfly   | Herbaceous, natural and managed | 18.24            | 18.32 | 18.32 | 18.32 | 18.32     |
| Neotropical migratory birds | All herbaceous and shrub types  | 38.42            | 38.57 | 38.57 | 38.57 | 38.57     |

**Table 4.6.3-6 C:**  
Species Having a Primary Association With Herbaceous and/or Shrub Habitat in the Total Study Area (Study Area Including Mill Creek)

| Species                     | Habitat types                   | Alt 1 (Existing) | Alt 2  | Alt 3  | Alt 4  | Mod Alt 5 |
|-----------------------------|---------------------------------|------------------|--------|--------|--------|-----------|
| Western sulphur butterfly   | Herbaceous, natural and managed | 448.73           | 474.11 | 468.6  | 454.07 | 466.85    |
| Neotropical migratory birds | All herbaceous and shrub types  | 898.59           | 936.57 | 908.53 | 899.17 | 920.73    |

**Table 4.6.3-7 A:**  
Species Having a Primary Association With General Habitats  
in the MDP Study Area (Excluding Mill Creek)

| Species      | Habitat types  | Alt 1 (Existing) | Alt 2   | Alt 3   | Alt 4   | Mod Alt 5 |
|--------------|--|------------------|---------|---------|---------|-----------|
| Grizzly bear | May use all vegetation types within the SUP  | n/a              | n/a     | n/a     | n/a     | n/a       |
| Gray wolf    | May use all vegetation types within the SUP  | n/a              | n/a     | n/a     | n/a     | n/a       |
| <b>Elk</b>   |  |                  |         |         |         |           |
| Foraging     | Pacific silver fir sapling, herbaceous (natural and modified), shrub (natural and modified, immature Pacific silver fir, immature western hemlock. | 1210.41          | 1243.97 | 1228.48 | 1216.86 | 1232.37   |
| Cover        | Mature mountain hemlock, mature Pacific silver fir, and mature western hemlock.  | 1007.73          | 962.89  | 980.52  | 992.51  | 975.44    |
| <b>Deer</b>  |  |                  |         |         |         |           |
| Foraging     | Pacific silver fir sapling, herbaceous (natural and modified), shrub (natural and modified, immature Pacific silver fir, immature western hemlock. | 1210.41          | 1243.97 | 1228.48 | 1216.86 | 1232.37   |
| Cover        | Mature mountain hemlock, mature Pacific silver fir, and mature western hemlock.  | 1210.41          | 1243.97 | 1228.48 | 1216.86 | 1232.37   |
| Wolverine    | May use all vegetation types within the SUP.   | n/a              | n/a     | n/a     | n/a     | n/a       |

**Table 4.6.3-7 B:**  
Species Having a Primary Association With General Habitats  
in the Mill Creek Portion of the Study Area (Including Only Mill Creek)

| Species      | Habitat types  | Alt 1 (Existing) | Alt 2  | Alt 3  | Alt 4  | Mod Alt 5 |
|--------------|--|------------------|--------|--------|--------|-----------|
| Grizzly bear | May use all vegetation types within the SUP  | n/a              | n/a    | n/a    | n/a    | n/a       |
| Gray wolf    | May use all vegetation types within the SUP  | n/a              | n/a    | n/a    | n/a    | n/a       |
| <b>Elk</b>   |  |                  |        |        |        |           |
| Foraging     | Pacific silver fir sapling, herbaceous (natural and modified), shrub (natural and modified, immature Pacific silver fir, immature western hemlock. | 304.00           | 304.15 | 304.15 | 304.15 | 304.15    |
| Cover        | Mature mountain hemlock, mature Pacific silver fir, and mature western hemlock.  | 44.94            | 44.94  | 44.94  | 44.94  | 44.94     |
| <b>Deer</b>  |  |                  |        |        |        |           |
| Foraging     | Pacific silver fir sapling, herbaceous (natural and modified), shrub (natural and modified, immature Pacific silver fir, immature western hemlock. | 304.00           | 304.15 | 304.15 | 304.15 | 304.15    |
| Cover        | Mature mountain hemlock, mature Pacific silver fir, and mature western hemlock.  | 44.94            | 44.94  | 44.94  | 44.94  | 44.94     |
| Wolverine    | May use all vegetation types within the SUP.   | n/a              | n/a    | n/a    | n/a    | n/a       |

**Table 4.6.3-7 C:**  
Species Having a Primary Association With General Habitats  
in the Total Study Area (Study Area Including Mill Creek)

| Species      | Habitat types  | Alt 1 (Existing) | Alt 2   | Alt 3   | Alt 4   | Mod Alt 5 |
|--------------|--|------------------|---------|---------|---------|-----------|
| Grizzly bear | May use all vegetation types within the SUP  | n/a              | n/a     | n/a     | n/a     | n/a       |
| Gray wolf    | May use all vegetation types within the SUP  | n/a              | n/a     | n/a     | n/a     | n/a       |
| <b>Elk</b>   |  |                  |         |         |         |           |
| Foraging     | Pacific silver fir sapling, herbaceous (natural and modified), shrub (natural and modified, immature Pacific silver fir, immature western hemlock. | 1514.41          | 1548.12 | 1532.63 | 1521.01 | 1536.52   |
| Cover        | Mature mountain hemlock, mature Pacific silver fir, and mature western hemlock.  | 1052.67          | 1007.83 | 1025.46 | 1037.45 | 1020.38   |
| <b>Deer</b>  |  |                  |         |         |         |           |
| Foraging     | Pacific silver fir sapling, herbaceous (natural and modified), shrub (natural and modified, immature Pacific silver fir, immature western hemlock. | 1514.41          | 1548.12 | 1532.63 | 1521.01 | 1536.52   |
| Cover        | Mature mountain hemlock, mature Pacific silver fir, and mature western hemlock.  | 1052.67          | 1007.83 | 1025.46 | 1037.45 | 1020.38   |
| Wolverine    | May use all vegetation types within the SUP.   | n/a              | n/a     | n/a     | n/a     | n/a       |