3.8 AIR QUALITY

3.8.1 Affected Environment

3.8.1.1 Air Quality Standards and Regulations

National Ambient Air Quality Standards

The White Pass Study Area straddles the Yakima and Lewis County line. Three agencies have a role in air quality protection in Yakima County: EPA, WDOE, and the Yakima Regional Clean Air Authority. The Yakima Regional Clean Air Authority has primary air quality jurisdiction for all of Yakima County, and ensures that National Ambient Air Quality Standards (NAAQS) set by EPA and state standards set by WDOE are attained and maintained within the county (WDOE 1999). EPA has established health based standards for seven criteria pollutants including lead (Pb), particulates with aerodynamic diameters of less than 10 microns (PM_{10}) and less than 2.5 microns ($PM_{2.5}$), sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), and nitrogen dioxide (NO_2). WDOE has an additional standard for total suspended particulate, added additional averaging times for SO_2 and O_3, a stricter standard for NO_2. The Southwest Washington Clean Air Agency has primary responsibility for protecting and managing air quality in Lewis County (in addition to four other southwest Washington Counties). National and Washington State air quality standards are shown in Table 3.8-1. Standards in parenthesis were approved by the EPA on September 21, 2006, as described below, and became effective on December 18, 2006.

Table 3.8-1:
National Ambient Air Quality Standards

Pollutant	National		Washington State
	Primary (2006 Revision)	Secondary (2006 Revision)	
Total Suspended Particulates			
Annual Geometric Mean[a]	no standard	no standard	60 $\mu g/m^3$
24-hour Average	no standard	no standard	150 $\mu g/m^3$
Lead (Pb)			
Quarterly Average	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$	no standard
Particulates			
PM_{10}			
Annual Arithmetic Mean[b]	50 $\mu g/m^3$ (no standard)	50 $\mu g/m^3$ (no standard)	50 $\mu g/m^3$
24-hour Average	150 $\mu g/m^3$	150 $\mu g/m^3$	150 $\mu g/m^3$
$PM_{2.5}$			
Annual Arithmetic Mean	15 $\mu g/m^3$	15 $\mu g/m^3$	no standard
24-hour Average[c]	65 $\mu g/m^3$ (35 $\mu g/m^3$)	65 $\mu g/m^3$ (35 $\mu g/m^3$)	no standard
Sulfur Dioxide (SO_2)			
Annual Average	0.03 ppm	no standard	0.02 ppm
24-hour Average	0.14 ppm	no standard	0.10 ppm
3-hour Average	no standard	0.50 ppm	no standard

Table 3.8-1:
National Ambient Air Quality Standards

Pollutant	National		Washington State
	Primary (2006 Revision)	Secondary (2006 Revision)	
1-hour Average	no standard	no standard	0.40 ppm[a]
Carbon Monoxide (CO)			
8-hour Average	10,000 μg/m^3	10,000 μg/m^3	10,000 μg/m^3
1-hour Average	40,000 μg/m^3	40,000 μg/m^3	40,000 μg/m^3
Ozone (O_3)			
1-hour Average[d]	no standard	no standard	0.12 ppm
8-hour Average	0.08 ppm	0.08 ppm	no standard
Nitrogen Dioxide (NO_2)			
Annual Average	0.053 ppm	0.053 ppm	0.05 ppm

[a]Annual standards never to be exceeded, short-term standards not to be exceeded more than once per year unless noted.
[b]EPA recently revoked the annual standards for PM_{10} (refer to text below).
[c]EPA recently changed the 24-hour $PM_{2.5}$ average to 35 μg/m^3 as per 40 CFR Parts 53 and 58 (refer to text below).
[d]Revoked by EPA in 2005, except for eight-hour O_3 nonattainment Early Action Compact areas (refer to text below), as per 40 CFR Parts 51 and 81
Note: Primary standards are listed in this table as they appear in the federal regulations; ambient concentrations are rounded using the next higher decimal place to determine whether a standard has been exceeded. The data in this report are shown with these unrounded numbers.
ppm = parts per million
μg/m^3 = micrograms per cubic meter.
Source: WDOE 1999. Source for PM_{10} Annual Arithmetic Mean and PM2.5 24-hour average: EPA 2006.

On September 21, 2006, the EPA approved new NAAQS for particulate matter (PM_{10} and $PM_{2.5}$). Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the EPA revoked the 50 μg/m^3 annual PM_{10} standard (EPA 2006). The 24-hour $PM_{2.5}$ standard was changed from 65 to 35 μg/m^3 because of the effects of small particle pollution on public health and welfare (40 CFR Parts 53 and 58). The new standards came into effect on December 18, 2006. Table 3.8-1, above, reflects the revisions to the NAAQS approved by the EPA in 40 CFR Parts 53 and 58.

On June 15, 2005, the EPA revoked the one-hour O_3 standard for all areas except 14 eight-hour O_3 nonattainment Early Action Compact areas (EPA 2005). No counties in Washington State are included on the list of areas.

However, Washington State regulations continue to require compliance with the annual PM_{10} and one-hour O_3 standards, as shown in Table 3.8-1 above (WAC 1989, 1980).

Two types of NAAQS are defined by the Clean Air Act Amendment of 1977, a primary standard and a secondary standard (USA 1977). Some pollutants are subject to both primary and secondary standards. Primary pollutants of concern within the White Pass Study Area are inhalable particulate matter (PM_{10} and $PM_{2.5}$), CO, O_3, SO_2, NO_2, and Pb. Secondary standards are established to protect the public welfare

from any known or anticipated adverse effects associated with these pollutants such as soiling, corrosion, or damage to vegetation.

Prevention of Significant Deterioration

Air quality concerns in the White Pass Study Area are regulated by the 1963 National Clean Air Act as amended in 1966, 1970, 1977 and 1990 (USA 1963). The 1977 amendment provided for a Prevention of Significant Deterioration (PSD) program to prevent the growth of stationary industrial sources from causing a significant deterioration of air quality in areas that meet the NAAQS (attainment areas) (USA 1977). PSD regulations were established by the EPA to ensure that new or expanded sources of air pollution do not cause a significant deterioration in air quality in areas that currently meet ambient standards. The PSD requirements call for careful monitoring of actual air quality conditions and placement of limits on the "increment" of clean air that can be used by industrial projects. The intent of the PSD increments is to keep air quality in areas with concentrations meeting the NAAQS from dropping below the standards (i.e., keep pristine and clean areas clean) (USA 1977).

Under this provision, national parks larger than 6,000 acres and wilderness areas greater than 5,000 acres that were in existence at the time of the 1977 Clean Air Act Amendments were designated as Class I Airsheds, whereas the remainder of the country was designated Class II (USA 1977). The White Pass Study Area is located adjacent to the Goat Rocks Wilderness, where air quality is protected by designation as a Class I Airshed. The Mount Adams Wilderness and Mount Rainier National Park are also Class I Airsheds near the White Pass Study Area. The William O. Douglas Wilderness and lands within the White Pass Study Area are identified as a Class II Airshed. PSD increments for Class I and Class II Airsheds are shown in Table 3.8-2.

Table 3.8-2:
PSD Increments for Class I and Class II Airsheds

Pollutant	Averaging Period	Allowable Increments ($\mu g/m^3$)	
		Class I	Class II
Inhalable particle matter PM_{10}	Annual	4	17
	24-hour	8	30
Total suspended particle matter	Annual	5	19
	24-hour	10	37
Sulfur dioxide (SO_2)	Annual	2	20
	24-hour	5	91
	3-hour	25	512
Nitrogen dioxide (NO_2)	Annual	2.5	2.5

Note: $\mu g/m^3$ = Micrograms per cubic meter.
Source: USDA and USFS 1995b

Although the PSD permit provisions under the Clean Air Act apply only to major stationary sources of air pollution (motor vehicles are mobile sources), the EPA uses them to determine the degree of potential

impacts of other sources on air quality. The EPA has developed a list of 28 major source categories to classify facilities for PSD regulations. A facility is considered to be a major source, and therefore subject to PSD regulations, if the facility falls within one of the 28 listed categories and emits more than 100 tons per year of any criteria pollutant, or if the facility is not listed and emits more than 250 tons per year of a criteria pollutant. The PSD regulations also set ambient impact increments that limit the allowable increase of ambient concentrations of criteria pollutants. Facilities and uses at White Pass do not require a PSD permit because the PSD permitting process applies only to large industrial facilities.

Compliance with NAAQS and Other Air Quality Standards

The regulating agencies establish regulations that govern both the concentrations of pollutants in the outdoor air and contaminant emissions from air pollution sources. Unless the state or local jurisdiction has adopted more stringent standards, the EPA standards apply. The WDOE and Yakima Regional Clean Air Authority maintain a network of air quality monitoring stations throughout Yakima County. In general, these stations are located where there may be air quality problems, and so they are usually in or near urban areas or close to specific large air pollution sources. Other stations are located in remote areas to provide an indication of regional air pollution levels.

Geographic areas in which a primary or secondary NAAQS are violated are designated as "non-attainment areas" for that particular pollutant. The White Pass Study Area has not been designated a "non-attainment area" for any air quality pollutant.

3.8.1.2 Existing Air Quality and Source of Background Pollutants

Existing Air Quality at White Pass

The air quality of the White Pass Study Area can be described as excellent to outstanding as it largely matches that of the nearby Wilderness Area Class I Airshed. Both the White Pass Study Area and the nearby Class I Airsheds are likely affected by regional haze, perhaps created by industrial activities in the Puget Sound area and the Yakima Valley, and the smoke from occasional wildfires during the summer months. Generally, air flows freely through White Pass to quickly disperse pollutants emitted in the area. The White Pass Study Area is not prone to atmospheric inversions. Few sources of pollutants exist within the area and any existing sources are minor. The existing sources of background pollutants at White Pass are described in detail in Appendix K – Additional Air Quality and Noise Information.

Four existing and historic conditions have been identified and inventoried in the White Pass Study Area that have the potential to periodically degrade air quality below pristine levels. These conditions include: 1) dust from highway maintenance particularly during the late winter and spring months; 2) emissions from parked and transient car and truck traffic, an emergency diesel generator and snow-grooming vehicles; 3) emissions from approximately 16 fireplaces in the White Pass Village condominiums; and 4) kitchen stack emissions from the restaurant and day lodge. There are negligible fireplace smoke emissions

from the White Pass Study Area, as propane gas is used for heating and fireplace use. The "Worst Case Scenario" outputs of these sources are shown in Table 3.8-3.

Assumptions made for the "Worst Case Scenario" in Table 3.8-3 include:

- The number of operating fireplaces is 16.
- There is parking space for 1,109 vehicles; worst case scenario would have one-half of all vehicles leave in one hour, which is approximately 555 vehicles.
- All vehicles have a 12-minute cold start and a 6-minute run, so (Emission lb/hour) X (0.3 hour) = Total Output.
- There is one existing diesel generator in operation.
- There are two existing diesel groomers in operation.
- There are two existing kitchens in operation.

Table 3.8-3:
"Worst Case Scenario" Peak One-Hour Pollutant Emission Levels (lbs./hr)
from Existing Sources in the White Pass Study Area

Sources	Pollutant	Emissions[a] (lbs./unit)	No. Units	Total Output (lbs.)
Fireplaces	PM10	0.17/hr	16	2.72
Highway Dust		0.012/VMT	555[c]	6.66
Vehicles		0.016/hr	555[c]	2.66[d]
Generator		0.23	1	0.23
Groomers		0.23	2	0.46
Kitchens		0.07	2	0.14
Total				**12.87**
Fireplaces	PM2.5b	0.088/hr	16	1.41
Highway Dust		0.006/VMT	555[c]	3.33
Vehicles		0.008/hr	555[c]	1.33[d]
Generator		0.11	1	0.11
Groomers		0.11	2	0.22
Kitchen		0.03	2	0.06
Total				**6.46**
Fireplaces	CO	1.27/hr	16	20.32
Vehicles		6.32/hr	555[c]	1,052.28[d]
Generator		4.87/hr	1	4.87
Groomers		4.87/hr	2	9.74
Kitchens		0.51/hr	2	1.02
Total				**1,088.23**

Table 3.8-3:
"Worst Case Scenario" Peak One-Hour Pollutant Emission Levels (lbs./hr)
from Existing Sources in the White Pass Study Area

Sources	Pollutant	Emissions[a] (lbs./unit)	No. Units	Total Output (lbs.)
Fireplaces	NOx	0.01	16	0.16
Vehicles		0.20	555[c]	33.30[d]
Generator		3.95	1	3.95
Groomers		3.95	2	7.90
Kitchens		0.07	2	0.14
Total				**45.45**
Fireplaces	SOx	0.002	16	0.03
Vehicles		0.009	555[c]	1.50[d]
Generator		0.454	1	0.45
Groomers		0.454	2	0.91
Kitchens		0.001	2	0.00
Total				**2.89**

[a] Emission Factor Source – USDA and USFS 1995b; generator/groomer from manufacturer, 260 bhp.
[b] $PM_{2.5}$ emissions estimated at 0.5 PM_{10}.
[c] 1,109 parking spaces currently exist at White Pass (refer to Section 3.12 – Transportation), worst case scenario has one half of all vehicles leave in one hour, which is approximately 555 vehicles.
[d] Vehicles given 12-minute cold start and 6-minute run, so (Emission lb/hour) X (0.3 hour) = Total Output

3.8.2 Environmental Consequences

All management activities proposed under the Action Alternatives will comply with air quality standards and rules administered by the EPA, WDOE and the Yakima Regional Clean Air Authority for the reasons described under each of the alternatives.

The pollutants of concern for this project are PM_{10} and $PM_{2.5}$, due to possible health and/or visibility impacts, and CO, due to possible health impacts. The primary sources of these pollutants during the wintertime are motor vehicles (especially cold-starting automobiles) and wood-burning appliances. Other primary pollutants, including hydrocarbons, Pb, SO_x, and NO_x, are of lesser importance for this project because the types of development activities proposed would not generate these pollutants in significant quantities. Therefore, the focus of this analysis is on PM_{10}, $PM_{2.5}$, and CO.

3.8.2.1 Alternative 1

Construction Impacts

Under Alternative 1, construction-related air quality impacts would not occur. White Pass would continue to operate under its SUP and other projects could be proposed that could have a minor impact on air quality. Any future project proposal presented to the USFS would be evaluated under the NEPA process.

Operational Impacts

Under Alternative 1, operational air quality impacts would be associated with maintaining the existing ski trail network and infrastructure.

Maintaining ski trails and lift corridors would require periodic brushing or mowing to exclude trees and reduce the height of shrubs. These operations would generate minor amounts of fugitive dust and minor exhaust emissions during the time of the maintenance operation. **Specific air quality impacts associated with these projects cannot be determined because there is no approved schedule for implementation. Nonetheless, the projects are relatively small in scope and would not be expected to have significant air quality impacts.**

It is assumed that the number of skiers visiting White Pass would likely grow slightly in the future (refer to Section 3.11-Recreation). Under Alternative 1, White Pass would not expand operations, so any additional air pollutant emissions created under Alternative 1 would be negligible.

3.8.2.2 Alternative 2

Construction Impacts

Implementation of Alternative 2 would include the construction of two new lifts, corresponding trails, and a mid-mountain restaurant, which would result in a total of approximately 19.8 acres of soil disturbance (refer to Table 3.2-3). Construction of these facilities would generate fugitive dust. Dust emissions would be generated primarily by wind blowing over exposed soil surfaces during grading, scraping, and movement of construction equipment and support vehicles around construction sites and staging areas.

Fugitive dust emissions are generally the largest source of PM_{10} during construction. Emissions depend on soil type, soil moisture content, and the total area of soil disturbance. **Dust emissions attributable to construction activities are not considered significant because they would be temporary and would not occur within a designated PM_{10} or $PM_{2.5}$ non-attainment area.** During the summer construction period, construction equipment, including a helicopter to install chairlift towers, would be an undefined low-level emission source of short-term air pollutants.

Such emissions would be intermittent, with dust dispersing at increasing distances from the emission source. It is unlikely that intermittent fugitive dust from construction activities would expose the public to ambient PM10 concentrations exceeding the ambient limits described in Section 3.2.8. As described in Section 3.2 – Geology and Soils and Section 3.3 – Watershed Resources, Mitigation Measures MM1 through MM11 would be implemented to minimize the effects of soil disturbance. Tables 2.4-3 and 2.4-4 also contain Management Requirements and Other Management Provisions that would be implemented to reduce the potential impacts to soils and watershed resources. Additionally, in line with local county requirements, a dust control plan would be obtained (refer to Management Requirement MR15 in Table

2.4-3) and dust abatement measures would be implemented should conditions warrant (refer to Other Management Provision OMP3 in Table 2.4-4).

Construction equipment powered by internal combustion engines would generate NO_2, reactive organic gases, odors, SO_2, CO, and PM_{10}. Detailed construction schedules and knowledge of the type, number, and duration of heavy equipment operations are necessary to accurately quantify construction-related emissions. This information is not yet available for this FEIS. **However, air quality impacts caused by construction equipment emissions would be short-term, occurring only when construction activities are taking place, and would have a minor impact on overall air quality.**

Operational Impacts

Air pollutant emissions would result from mobile equipment at the ski area (e.g., groomers) and from snowmobiles used by employees of White Pass. Equipment operated by White Pass would be maintained to satisfy all emission standards. Equipment at White Pass would generate localized, short-term emissions of NO_2, $PM_{2.5}$, PM_{10}, and volatile organic compounds. Most of the equipment operation would occur during the winter months when formation of regional photochemical smog is of little concern. It is unlikely that emissions from White Pass' mobile equipment would expose the public to air pollutant concentrations approaching the allowable ambient standards listed in Section 3.8.1, as ongoing operations do not approach standards.

Proposed actions that would affect air quality would be the addition of a new kitchen (mid-mountain day lodge) under Alternative 2. In addition, it has been estimated that a maximum of 850 cars (current and additional) would be started and moved in any one hour under Alternative 2, which is 295 vehicles more than the existing condition because the CCC is higher under Alternative 2. The maximum total daily number of parked vehicles at White Pass on a peak capacity day (100 percent CCC) is 1,700.

Assumptions made for the "Worst Case Scenario" in Table 3.8-4 include:

- The number of fireplaces is 16 for all alternatives.
- There is parking space for 1,109 vehicles under Alternative 1; worst case scenario would have one-half of all vehicles leave in one hour, which is 555 vehicles. On a peak capacity day (100 percent CCC) under Alternative 2, there would be 1,700 parked vehicles; worst case scenario would have one-half of all vehicles leave in one hour, which is 850 vehicles. On a peak capacity day under Modified Alternative 4, 1,505 vehicles would be parked; worst case scenario would have 723 vehicles leave in one hour. On a peak capacity day under Alternative 6, 1,435 vehicles would be parked; worst case scenario would have 718 vehicles leave in one hour. On a peak capacity day under Alternative 9, 1,279 vehicles would be parked; worst case scenario would have 640 vehicles leave in one hour.

- All vehicles have a 12-minute cold start and a 6-minute run, so (Emission lb/hour) X (0.3 hour) = Total Output.
- There is one generator for all alternatives.
- There are two groomers for all alternatives.
- There are two kitchens in Alternative 1 and three kitchens in Alternatives 2, 6, 9 and Modified Alternative 4.

Table 3.8-4:
"Worst-Case Scenario"
1-Hour Emission Levels from White Pass Pollutant Sources

Pollutant	Sources	Emission Output (lbs./hour)				
		Alt. 1	**Alt. 2**	**Mod. Alt. 4**	**Alt. 6**	**Alt. 9**
PM_{10}	Fireplaces[c]	2.72	2.72	2.72	2.72	2.72
	Highway Dust[a]	6.66	10.20	8.68	8.62	7.68
	Vehicles[a]	2.66	4.08	3.47	3.45	3.07
	Generator[c]	0.23	0.23	0.23	0.23	0.23
	Groomers[c]	0.46	0.46	0.46	0.46	0.46
	Kitchens[b]	0.14	0.21	0.21	0.21	0.21
	Total	**12.87**	**17.90**	**15.77**	**15.68**	**14.37**
$PM_{2.5}$[b]	Fireplaces[c]	1.41	1.41	1.41	1.41	1.41
	Highway Dust[a]	3.33	5.10	4.34	4.31	3.84
	Vehicles[a]	1.33	2.04	1.74	1.72	1.54
	Generator[c]	0.11	0.11	0.11	0.11	0.11
	Groomers[c]	0.22	0.22	0.22	0.22	0.22
	Kitchen[b]	0.06	0.09	0.09	0.09	0.09
	Total	**6.46**	**8.97**	**7.90**	**7.86**	**7.20**
CO	Fireplaces[c]	20.32	20.32	20.32	20.32	20.32
	Vehicles[a]	1,052.28	1,611.60	1,370.81	1,361.33	1,213.44
	Generator[c]	4.87	4.87	4.87	4.87	4.87
	Groomers[c]	9.74	9.74	9.74	9.74	9.74
	Kitchens[b]	1.02	1.53	1.53	1.53	1.53
	Total	**1,088.23**	**1,648.06**	**1,407.27**	**1,397.79**	**1,249.90**

Table 3.8-4:
"Worst-Case Scenario"
1-Hour Emission Levels from White Pass Pollutant Sources

Pollutant	Sources	Emission Output (lbs./hour)				
		Alt. 1	Alt. 2	Mod. Alt. 4	Alt. 6	Alt. 9
NO_x	Fireplaces[c]	0.16	0.16	0.16	0.16	0.16
	Vehicles[a]	33.30	51.00	43.38	43.08	38.40
	Generator[c]	3.95	3.95	3.95	3.95	3.95
	Groomers[c]	7.90	7.90	7.90	7.90	7.90
	Kitchens[b]	0.14	0.21	0.21	0.21	0.21
	Total	**45.45**	**63.22**	**55.60**	**55.30**	**50.62**
SO_x	Fireplaces[c]	0.03	0.03	0.03	0.03	0.03
	Vehicles[a]	1.50	2.30	1.95	1.94	1.73
	Generator[c]	0.45	0.45	0.45	0.45	0.45
	Groomers[c]	0.91	0.91	0.91	0.91	0.91
	Kitchens[b]	0.00	0.00	0.00	0.00	0.00
	Total	**2.89**	**3.69**	**3.35**	**3.34**	**3.13**

[a] The number of parked vehicles increases from 1109 in Alternative 1 to 1700 under Alt. 2, 1505 under Mod. Alt. 4, 1435 under Alt. 6, and 1279 under Alt. 9. The worst case scenario of the number of vehicles leaving in one hour increases from 555 in Alt. 1 to 850 under Alt. 2, 723 under Mod. Alt. 4, 718 under Alt. 6, and 640 under Alt. 9.
[b] The number of kitchens increase from two to three in Alternatives 2, 6, 9 and Modified Alternative 4.
[c] The number of fireplaces, generators, and groomers remain constant under all alternatives

Increased use of the White Pass Ski Area is anticipated, requiring more vehicles for transportation. As shown in Table 3.8-5, the largest increase in pollutants would be for CO, with an increase of about 42.26 tons per year under Alternative 2. This increase, however, is negligible even under "worst-case" conditions as the existing conditions are very low. As the parking area is widespread, it is highly unlikely that the CO level in the White Pass Study Area would ever exceed the NAAQS standard during any one-hour period or PSD annual standards under Alternative 2.

As shown in Table 3.8-5, pollutants under all alternatives proposed for the White Pass Study Area are markedly below significant emission rates. Due to the low level of emissions associated with the project, complex modeling was deemed unnecessary. The emission outputs in Table 3.8-5 have been extended from one-hour to the one-day and annual levels to compare by alternative with PSD "significant emission rates."

Assumptions made for the "Worst Case Scenario" in Table 3.8-5 include:

- Fireplaces run for four hours per day and 90 days per year for all alternatives.

- Highway dust is in the air for four hours per day and highway dust occurs 40 days per year for all alternatives.
- Vehicles run for one hour per day and for 150 days per year for all alternatives.
- The generator, groomers, and kitchens all run for eight hours per day and 150 days per year for all alternatives.

Table 3.8-5:
"Worst Cast Scenario" Increased Air Quality Emission Rates by Alternative for the White Pass Study Area

Pollutant	PSD Significant Emission Rates[a]	Increased Emissions Rates				
		Alt. 1	Alt. 2	Modified Alt. 4	Alt. 6	Alt. 9
PM_{10}						
1-Hour (tons/hour)	-	0	0	0	0	0.00
1-Day[b] (tons/day)	-	0	0	0	0	0.00
Annual (lbs/year)	-	0	863	528	514	308
Annual[c] (tons/year)	15	0	0.43	0.26	0.26	0.15
$PM_{2.5}$						
1-Hour (tons/hour)	-	0	0	0	0	0.00
1-Day[b] (tons/day)	-	0	0	0	0	0.00
Annual (lbs/year)	-	0	425	258	251	148
Annual[c] (tons/year)	Not Established	0	0.21	0.13	0.13	0.07
CO						
1-Hour (tons/hour)	-	0	0	0.16	0.16	0.08
1-Day[b] (tons/day)	-	0	0	0.16	0.16	0.08
Annual (lbs/year)	-	0	8.45×10^4	4.84×10^4	4.70×10^4	2.48×10^4
Annual[c] (tons/year)	100	0	42.26	24.20	23.48	12.39
NO_x						
1-Hour (tons/hour)	-	0	0	0.01	0.01	0.00
1-Day[b] (tons/day)	-	0	0	0.01	0.01	0.00

Table 3.8-5:
"Worst Cast Scenario" Increased Air Quality Emission Rates by Alternative for the White Pass Study Area

Pollutant	PSD Significant Emission Rates[a]	Increased Emissions Rates				
		Alt. 1	Alt. 2	Modified Alt. 4	Alt. 6	Alt. 9
Annual (lbs/year)	-	0	2739	1596	1551	849
Annual[c] (tons/year)	40	0	1.37	0.80	0.78	0.42
SO_x						
1-Hour (tons/hour)	-	0	0	0	0	0.00
1-Day[b] (tons/day)	-	0	0	0	0	0.00
Annual (lbs/year)	-	0	957	546	529	277
Annual[c] (tons/year)	40	0	0.48	0.27	0.26	0.14

[a] USDA and USFS 1995b
[b] Assumptions made for 1-day calculations: fireplaces run for four hours/day, highway dust is in the air for four hours/day, vehicles run for one hour/day, and generator, kitchen, and groomers run for eight hours/day.
[c] Assumptions made for annual calculations: fireplaces run for 90 days, highway dust occurs 40 days/year, vehicles, kitchens, generators, and groomers run 150 days/year.
Note: 1 lb = 0.0005 tons

Due to the low level of additional emissions under Alternative 2, it is safe to assume that the Proposed Action would not significantly contribute to any visibility degradation in the nearby Class I areas. It is highly unlikely that the activities proposed under the Proposed Action would by themselves stimulate economic growth in either Lewis or Yakima County such that air quality levels would be indirectly affected in the White Pass Study Area and nearby Class I Airsheds.

3.8.2.3 Modified Alternative 4

Construction Impacts

Implementation of Modified Alternative 4 would include the creation of two new chairlifts and corresponding trails, a mid-mountain restaurant, trenching utilities to the restaurant, a new parking lot and rerouting the PCNST (0.1 acre of soil disturbance). The total soil disturbance impact for Modified Alternative 4 is approximately 44.4 acres including all clearing, grading, and all proposed developed surfaces (refer to Table 3.2-3). Construction of facilities would generate fugitive dust. Dust emissions would be generated primarily by wind blowing over exposed soil surfaces during grading, scraping, and movement of construction equipment and support vehicles around construction sites and staging areas.

Impacts of construction equipment powered by internal combustion engines would be similar to Alternative 2. **As described under Alternative 2, it is unlikely that intermittent fugitive dust from**

these construction activities would expose the public to ambient PM_{10} concentrations exceeding the ambient limits described in Section 3.2.8. As described in Section 3.2 – Geology and Soils and Section 3.3 – Watershed Resources, Mitigation Measures MM1 through MM11 would be implemented to minimize the effects of soil disturbance. Tables 2.4-3 and 2.4-4 also contain Management Requirements and Other Management Provisions that would be implemented to reduce the potential impacts to soils and watershed resources. Additionally, in line with local county requirements, a dust control plan would be obtained (refer to Management Requirement MR15 in Table 2.4-3) and dust abatement measures would be implemented should conditions warrant (refer to Other Management Provision OMP3 in Table 2.4-4).

Operational Impacts

Under Modified Alternative 4, air pollutant emissions would be as described for Alternative 2, except that Modified Alternative 4 includes a 7-acre parking lot with 946 additional parking spots. It has been estimated that a maximum of 723 cars (current and additional) would be started and moved in any one hour, which is 168 more than under existing conditions. These additional emission sources are additive to existing conditions and summarized in Table 3.8-4.

As shown in Table 3.8-4, pollutants under Modified Alternative 4 for the White Pass Study Area are markedly below significant emission rates. Due to the low level of emissions associated with the project, complex modeling and on-site air quality sampling was deemed unnecessary. The emission outputs in Table 3.8-5 have been extended from one-hour to the one-day and annual levels to compare by alternative with PSD significant emission rates. Increased use of the White Pass Study Area is anticipated and more vehicles would be required for transportation. As shown in Table 3.8-5, the largest increase in emissions would be for CO, with an increase of about 24.20 tons per year under Modified Alternative 4. This increase, however, is negligible even under "worst-case" conditions as the existing conditions are very low. It is highly unlikely that the CO level in the White Pass Study Area would exceed the NAAQS standard during any 1-hour period or PSD annual standards under Modified Alternative 4.

Due to the low level of additional emissions under Modified Alternative 4, it can be projected that Modified Alternative 4 would not significantly contribute to any visibility degradation in nearby Class I Airsheds. It is unlikely that Modified Alternative 4 would stimulate economic growth in either Lewis or Yakima County such that air quality levels would be indirectly affected in the White Pass Study Area and nearby Class I Airsheds (refer to Section 3.11 – Social and Economic Factors).

3.8.2.4 Alternative 6

Construction Impacts

Implementation of Alternative 6 would include the creation of one new chairlift, associated trails, a road to the bottom terminal of the lift, a new parking lot, and a mid-mountain restaurant. The total soil disturbance impact for Alternative 6 is approximately 15.3 acres including all clearing, grading, and all proposed developed surfaces (refer to Table 3.2-3). Construction of these facilities would generate

fugitive dust. Dust emissions would be generated primarily by wind blowing over exposed soil surfaces during grading, scraping, and movement of construction equipment and support vehicles around construction sites and staging areas. **As described under Alternative 2, it is highly unlikely that intermittent fugitive dust from these construction activities would expose the public to PM_{10} concentrations exceeding the NAAQS described in Table 3.8-1.** As described in Section 3.2 – Geology and Soils and Section 3.3 – Watershed Resources, Mitigation Measures MM1 through MM11 would be implemented to minimize the effects of soil disturbance. Tables 2.4-3 and 2.4-4 also contain Management Requirements and Other Management Provisions that would be implemented to reduce the potential impacts to soils and watershed resources. Additionally, in line with local county requirements, a dust control plan would be obtained (refer to Management Requirement MR15 in Table 2.4-3) and dust abatement measures would be implemented should conditions warrant (refer to Other Management Provision OMP3 in Table 2.4-4).

Construction equipment powered by internal combustion engines would generate NO_2, reactive organic gases, odors, SO_x, CO, and PM_{10}. Air quality impacts caused by construction equipment emissions under Alternative 6 would be short-term, occurring only when construction activities are taking place, and would have a minor impact on overall air quality as described under Alternative 2.

Operational Impacts

Under Alternative 6, air pollutant emissions from the proposed activities would be similar to Alternative 2 and Modified Alternative 4 except that the Hogback Express lift and corresponding trails would not be built, thus reducing emissions in Hogback Basin due to the lesser amount of grooming needed. Additionally, the mid-mountain lodge would be developed closer to the existing ski area.

The proposed activities under Alternative 6 that would affect air quality include the addition of a parking lot with 340 additional parking spots. It has been estimated that a maximum of 718 vehicles (current and additional) would be started and moved in any one hour under Alternative 6, which is 163 more than under existing conditions. These additional emission sources are additive to existing conditions and summarized in Table 3.8-4.

As shown in Table 3.8-4, pollutants under Alternative 6 for the White Pass Study Area are markedly below significant emission rates. Due to the low level of emissions associated with the project, complex modeling was deemed unnecessary. The emission outputs in Table 3.8-5 have been extended from one-hour to the one-day and annual levels to compare by alternative with PSD significant emission rates. Increased use of the White Pass Ski Area is anticipated and more vehicles would be required for transportation. As shown in Table 3.8-5, the largest increase in pollutants would be for CO, with an increase of about 23.48 tons per year under Alternative 6. **This increase, however, is negligible even under "worst-case" conditions as the existing conditions are very low. It is highly unlikely that the**

CO level in the White Pass area would ever exceed the NAAQS standard during any 1-hour period or PSD annual standards under Alternative 6.

Visibility impacts would be as described for Modified Alternative 4.

3.8.2.5 Alternative 9

Construction Impacts

Implementation of Alternative 9 would include the creation of one new chairlift and associated trails, a new parking lot located within the existing permit area, and rerouting the PCNST (0.1 acre of soil disturbance). The total soil disturbance impact for Alternative 9 is approximately 38.9 acres, including all clearing, grading, and all proposed developed surfaces (refer to Table 3.2-3). Construction of these facilities would generate fugitive dust. Dust emissions would be similar to Alternative 2, but located within the existing ski area. As described in Section 3.2 – Geology and Soils and Section 3.3 – Watershed Resources, Mitigation Measures MM1 through MM11 would be implemented to minimize the effects of soil disturbance. Tables 2.4-3 and 2.4-4 also contain Management Requirements and Other Management Provisions that would be implemented to reduce the potential impacts to soils and watershed resources. Additionally, in line with local county requirements, a dust control plan would be obtained (refer to Management Requirement MR15 in Table 2.4-3) and dust abatement measures would be implemented should conditions warrant (refer to Other Management Provision OMP3 in Table 2.4-4).

Construction equipment powered by internal combustion engines would generate NO_2, reactive organic gases, odors, SO_2, CO, and PM_{10}. Air quality impacts caused by construction equipment emissions under Alternative 9 would be short-term, occurring only when construction activities are taking place, and would have a minor impact on overall air quality as described under Alternative 2.

Operational Impacts

Air pollutant emissions would result from mobile equipment at the ski area (e.g., groomers) and from snowmobiles used by employees of White Pass. Equipment operated by White Pass would be maintained to satisfy all emission standards. **White Pass' equipment would generate localized, short-term emissions of NOx, particulates and volatile organic compounds, and as described under Alternative 2, it is highly unlikely that emissions from this equipment would expose the public to air pollutant concentrations approaching the allowable ambient standards listed in Table 3.8-1.**

The proposed activities under Alternative 9 that would affect air quality include the addition of a parking lot with 340 additional parking spots. It has been estimated that a maximum of 640 cars (current and additional) would be started and moved in any one hour under Alternative 9, which is 85 more than under existing conditions. These additional emission sources are additive to existing conditions and summarized in Table 3.8-4.

As shown in Table 3.8-4, pollutants under Alternative 9 for the White Pass Study Area are markedly below significant emission rates, similar to Alternative 2, Modified Alternative 4, and Alternative 6. As shown in Table 3.8-5, the largest increase in pollutants would be for CO, with an increase of about 12.39 tons per year under Alternative 9. This increase, however, is negligible even under "worst-case" conditions, as the existing conditions are very low. **It is unlikely that the CO level in the White Pass Study Area would ever exceed the NAAQS standard during any 1-hour period or PSD annual standards under Alternative 9.**

Due to the low level of additional emissions under Alternative 9, it can be projected that Alternative 9 would not significantly contribute to any visibility degradation in the nearby Class I Airsheds. It is highly unlikely that Alternative 9 would stimulate economic growth in either Lewis or Yakima County, such that air quality levels would be indirectly affected in the White Pass Study Area and nearby Class I Airsheds (refer to Section 3.11 – Social and Economic factors).

3.8.3 Cumulative Effects

A cumulative effects analysis was performed for each watershed at the site scale (White Pass Study Area). Past, present and reasonably foreseeable projects occurring within each watershed area are included in the analysis. Identified projects with cumulative effects may include activities that are both inside and outside the White Pass Study Area, such as vegetation management along US 12 (UCFC-16). Within the discussions below, cumulative impacts to air quality are considered for short-term and long-term impacts. Cumulative impacts include short-term increases in fugitive dust and vehicle emissions due to construction, and increases in criteria air pollutants due to periodic emissions.

A list of past, present and reasonably foreseeable projects with air quality effects that overlap in space and time with the Action Alternatives and occurring within the Upper Tieton River watershed (refer to Table 3.8-6) are presented below. No past, present or reasonably foreseeable projects within the Upper Clear Fork Cowlitz River watershed that impact air quality were identified. For a description of project actions, refer to Tables 3.0-FEIS1 and 3.0-FEIS2 in Section 3.0.

Table 3.8-6:
Cumulative Effects of Past, Present, and Reasonably Foreseeable Projects in the Upper Tieton River Watershed on Air Quality

Project Number	Project Name	Cumulative Effects
UT-2	White Pass Ski Area Sewer Line Replacement	Approximately 0.73 acre of grading will occur due to the excavation of the trench, resulting in fugitive dust and vehicle emissions. Project implementation and effects are expected to overlap in time and space with the effects of the White Pass expansion. No long-term effects to air quality are expected because the disturbed soil areas will be immediately stabilized/revegetated after construction and construction equipment will not be present upon completion of the project. Combined with the White Pass expansion and other projects identified in this table, this project will add to a cumulative, short-term increase in fugitive dust and vehicle emissions within the White Pass Study Area.
UT-3	White Pass Ski Area Generator Shed and Propane Tank	The generator and propane tank installed near the condominiums in 2001 will result in air pollutant emissions when the generator is in use. Project effects have temporal and spatial overlap with the proposed White Pass expansion. Due to the infrequent use of the generator, which is only used during power outages, the air quality effects are short-term, localized and likely not measurable. Combined with the White Pass expansion and other projects identified in this table that involve emissions, this project will add to a cumulative, short-term increase in air pollutants in the White Pass Study Area.
UT-18	Benton Rural Electric Association (REA) Power line Maintenance	Short-term air quality impacts from fugitive dust will occur during implementation of this project. Ongoing maintenance would overlap spatially and temporally with the White Pass expansion and would cumulatively add to short-term air quality effects from fugitive dust and vehicle emissions within the White Pass Study Area.
UT-30	US Cellular Backup power at White Pass Communications Site	The propane tank installed on Pigtail Peak to power a generator will result in air pollutant emissions when the generator is in use. Project effects have temporal and spatial overlap with the proposed White Pass expansion. Due to the infrequent use of the generator, which is only used during power outages, the air quality effects are short-term, localized and likely not measurable. Combined with the White Pass expansion and other projects identified in this table that involve emissions, this project will add to a cumulative, short-term increase in air pollutants in the White Pass Study Area.
UT-31	Cellular Phone Carrier Improvements at White Pass Communication Site	This project would impact approximately 0.3 acre, and would result in short-term fugitive dust and vehicle emissions from construction activities. This project will overlap spatially and temporally with the White Pass expansion, resulting in a cumulative, short-term impact to air quality. No long-term air quality impacts are expected.

As described above, short-term, cumulative air quality impacts would result from fugitive dust created by construction and excavation activities, as well as vehicle emissions and road use within the White Pass Study Area. Long-term, cumulative air quality impacts would result from periodic, localized emissions from occasional generator use, as described for the two propane generator projects (near the condominiums and on Pigtail Peak). Neither the long-term nor the short-term cumulative air quality

effects are expected to be measurable. The long-term increases are negligible due to the low concentration of increased pollutants. Both the short-term and long-term impacts to air quality would remain within the requirements for NAAQS and PSD increments outlined in the Clean Air Act, as well as state requirements for air quality.

No past, present or reasonably foreseeable projects would result in increased, long-term traffic and vehicle emissions. On a regional basis, the development under the Action Alternatives would not lead to a significant increase in traffic volumes (and resulting vehicle emissions) in either the Puget Sound or Yakima Valley airsheds (refer to Section 3.12 - Transportation). The ski traffic volume to White Pass is a small percentage of the traffic on US 12. The maximum daily increase in vehicles carrying skiers to White Pass under all Action Alternatives would have a negligible cumulative effect on air quality and visibility in Class I Airsheds, the Pigtail and Hogback Basins, and the Puget Sound and Yakima Valley regional airsheds. The negligible direct and indirect impacts on visibility would be additive to existing conditions. The addition of pollutants affecting visibility by additional ski area traffic under the Action Alternatives is small, and occurs during the winter months, during a period of mostly cloudy conditions and high precipitation. Because of these factors, it is likely that there would be a negligible cumulative effect on visibility under the Action Alternatives.