

APPENDIX B - MOUNTAIN PLAN SPECIFICATIONS

1.0 DESIGN CRITERIA

The upgrading and expansion of a ski area would be influenced by a variety of ski facility design criteria that help create a quality ski experience.

Trail System

Each trail must have a generally consistent grade within a given ability level to provide an interesting and challenging ski experience for the ability level for which the trail would be designed. Optimum trail widths should vary depending upon topographic conditions and the caliber of the skier being served.¹ The trail network must minimize cross-traffic and should provide the full range of ability levels consistent with market demand. The trails must be designed and constructed to minimize off fall-line conditions and avoid bottlenecks and convergence zones, which might produce skier congestion.

Lift Design

Ski lifts should be placed to serve the available ski terrain in the most efficient manner, while considering a myriad of factors such as wind conditions, round-trip skiing and access needs, skier connectivity between other lifts and trails, and the need for circulatory space at the lower and upper terminal sites. Additionally, it should be understood that the vertical rise and length of ski lifts for a particular mountain are the primary measures of overall attractiveness and marketability of a ski area.

Capacity Analysis and Design

Comfortable Carrying Capacity (CCC) is defined as an optimal level of utilization for the ski area (the number of visitors that can be accommodated at any given time) which guarantees a pleasant recreational experience, while at the same time preserving the quality of the environment. The accurate estimation of the CCC of a mountain is a complex issue and is the single most important planning criterion for the resort. Given proper identification of the mountain's true capacity, all other related skier service facilities can be planned, such as base lodge seating, mountain restaurant requirements, sanitary facilities, parking, and other skier services. The CCC figure is based on a comparison of the uphill hourly capacity of the lift system to the downhill capacity of the trail system, taking into account the typical amount of vertical terrain desired by skiers of varying ability levels.

Balance of Facilities and Limiting Factors

The mountain master planning process emphasizes the importance of balancing recreational facility development. The size of the skier service functions must be adequate for the CCC of the mountain. The

¹ For the purposes of this FEIS, the terms "skiing" and "skier" refer to all snow sliding sports typically associated with ski area facilities, such as snowboarding, telemark skiing, cross-country, alpine skiing, etc.

true capacity of the overall ski area is determined by the lowest of the limiting factors. The limiting factor of the ski area can either be trail capacity, lift capacity, support facility capacity, or parking capacity.

The future development of a ski area should be designed and coordinated to maintain a balance between skier demand, ski area capacity (lifts and trails), and the supporting equipment and facilities (e.g., grooming machines, day lodge services and facilities, utility infrastructure, access, and parking).

2.0 EXISTING SKI RESORT FACILITIES

The overall balance of the existing ski area is evaluated by calculating the skier capacities of White Pass’ various facility components, and, in turn, comparing these capacities to the ski area’s CCC. This examination of capacities helps to identify the ski resort’s strengths and weaknesses or surpluses and deficiencies. With an understanding of the ski area’s strengths and weaknesses, the next step is to identify improvements that would both help bring the existing ski area into better equilibrium, and help the resort meet the ever-changing needs of their skier marketplace.

Lifts

A total of five primary lifts service the skiable terrain at White Pass. Specifications for the existing lifts are set forth in Table 1. In addition, there is a 76-foot long Magic Carpet conveyor located near the base lodge which is used for teaching beginner skiers.

**Table 1:
Lift Specifications – Existing Conditions**

Map Ref.	Lift Name, Lift Type	Top Elev.	Bot. Elev.	Vert. Rise	Plan. Length	Slope Length	Avg. Grade	Hourly Cap.	Rope Speed	Carrier Spacing	Lift Maker/ Year Installed
		(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(%)	(per./hr.)	(fpm)	(ft.)	
1	Great White Express/DC4	5,999	4,477	1,521	4,814	5,125	32%	2,100	1,000	114	Doppelmayr/1994
2	Pigtail/C2	5,978	4,485	1,493	4,628	4,987	32%	900	450	60	Riblet/1958
3	Lower Cascade/C3	5,024	4,514	510	2,166	2,232	24%	1,800	450	45	Doppelmayr/2000
4	Paradise/C2	5,961	5,249	712	2,675	2,804	27%	1,200	450	45	Riblet/1984
5	Platter/S	4,545	4,479	66	512	517	13%	400	400	60	Doppelmayr/2000

KEY: “S” is Surface Lift, “C-2” is Fixed-Grip Double, “C-3” is Fixed-Grip Triple, “C-4” is Fixed-Grip Quad, “DC4” is Detachable Quad

- **Top Elevation** – The elevation of the lift’s top terminal.
- **Bottom Elevation** – The elevation of the lift’s bottom terminal.
- **Vertical Rise** – The difference in elevation between the top and bottom terminals.

- **Plan Length** – The length of the lift, from top terminal to bottom terminal, as measured on the mapping (i.e., a two-dimensional measurement).
- **Slope Length** – The length of the lift, from top terminal to bottom terminal, as measured on the ground (i.e., a three-dimensional measurement).
- **Slope Area** – The total number of acres of terrain occurring within a trail boundary. This may be determined by GIS measurement, or by calculation utilizing the slope length and average width.
- **Average Grade** – The average slope gradient (in percent) of the terrain under the length of the lift, from top terminal to bottom terminal.
- **Hourly Capacity** – The number of guests trips (one ride for one guest = one guest trip) per hour that a lift can accommodate in each hour.
- **Rope Speed** – The speed that a lift can transport guests, as expressed in number of feet per minute.
- **Carrier Spacing** – The distance in feet between each guest carrier (chair, gondola cabin).

Terrain

Specifications for the existing terrain are set forth in Table 2. The most significant terrain feature of White Pass is a prominent cliff band that crosses the area at about mid-mountain level. This cliff band makes repeat skiing from the top to the bottom of the mountain challenging, and can make egress to the bottom of the mountain at the end of the day difficult and crowded. There are several trails that drop over the cliff band, but all skiers below an expert ability level must use one of three routes to transition from the upper mountain to the lower mountain. These routes are either: the western route, from the bottom of the *Paradise* lift, of the Main Street/Paradise trails, which an upper level intermediate skier or higher can ski; the Holiday trail, which has enough long, flat sections and short, steep sections that it would be an undesirable route and should be rated as an intermediate trail; or the Cascade cat track, which was constructed to help with the circulation problem. Based on reported ski area observations, a majority of skiers use the Cascade cat track to both repeat ski and egress the mountain. The fact that almost all trails go over or through this cliff band limits the desirability of the resort's ski terrain and reduces the overall quality of the skiing experience.

**Table 2:
Terrain Specifications – Existing Conditions**

Map Ref	Trail/Area Name	Top Elev.	Bot. Elev.	Vert. Drop	Plan Length	Slope Length	Avg. Width	Slope Area	Avg. Grade	Max. Grade	Ability Level
		(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ac.)	(%)	(%)	
1	Beginner no-name Trail	4,547	4,478	68	584	589	104	1.4	12%	17%	Novice
2	Cascade	5,967	4,971	996	4,989	5,131	170	20.1	20%	43%	Intermediate
3	Cascade Cliff	5,266	5,050	216	849	896	206	4.2	25%	64%	Expert
4	Chair Trail	5,688	5,466	222	768	817	147	2.8	29%	57%	Expert
5	Elevator Shaft	5,206	5,087	119	354	380	150	1.3	34%	48%	Expert
6	Execution	5,415	5,027	388	593	723	162	2.7	65%	99%	Expert
7	Far Side	5,023	4,517	506	2,573	2,631	270	16.3	20%	35%	Low Intermediate
8	Grouse	5,851	5,339	513	3,056	3,113	80	5.7	17%	33%	Low Intermediate
9	Holicade	5,704	5,544	160	842	862	68	1.3	19%	35%	Intermediate
10	Holiday	5,975	4,816	1,159	8,539	8,713	106	21.3	14%	39%	Intermediate
11	Holiday Cliff	5,487	5,132	355	1,300	1,372	100	3.2	27%	65%	Expert
12	Jaw Breaker	5,518	5,388	129	1,432	1,444	83	2.8	9%	20%	Intermediate
13	Lower Holiday	4,816	4,509	306	2,185	2,213	208	10.5	14%	25%	Low Intermediate
14	Lower Hour Glass	5,139	4,918	221	765	802	131	2.4	29%	45%	Intermediate
15	Lower Paradise	4,766	4,475	291	3,516	3,548	60	4.9	8%	23%	Expert
16	Lower Roller	4,972	4,504	468	1,357	1,445	303	10.0	34%	53%	Advanced Intermediate
17	Mach V	5,943	5,635	308	1,036	1,102	109	2.8	30%	66%	Expert
18	Main Street	5,286	4,771	514	3,123	3,204	84	6.1	16%	56%	Expert
19	Midway	5,725	5,318	408	1,370	1,448	79	2.6	30%	53%	Expert
20	Near Side	5,038	4,475	562	2,479	2,549	309	18.1	23%	35%	Low Intermediate
21	Noname Trail	5,170	4,854	317	1,196	1,241	225	6.4	26%	38%	Intermediate
22	North Peak	5,905	5,632	272	1,183	1,264	78	2.3	23%	73%	Expert
23	Outhouse	5,979	5,812	167	304	353	195	1.6	55%	76%	Expert
24	Paradise Cliff	5,163	4,766	397	2,031	2,105	77	3.7	20%	55%	Expert
25	Poma Bowl	5,063	4,486	577	1,908	2,005	218	10.0	30%	45%	Intermediate
26	Poma Face	4,966	4,483	483	1,621	1,698	261	10.2	30%	41%	Intermediate
27	Ptarmigan	5,683	5,359	325	1,504	1,541	147	5.2	22%	29%	Low Intermediate
28	Quail	5,748	5,163	585	3,115	3,194	87	6.4	19%	33%	Low Intermediate
29	Raven's Haven	5,921	5,756	166	309	354	147	1.2	54%	59%	Expert
30	Roller Cattrac	5,975	5,670	305	1,544	1,589	83	3.0	20%	41%	Expert
31	Roller Cliff	5,318	4,972	346	655	748	106	1.8	53%	69%	Expert
32	Tucker	5,829	5,487	342	2,238	2,282	84	4.4	15%	36%	Intermediate

**Table 2:
Terrain Specifications – Existing Conditions**

Map Ref	Trail/Area Name	Top Elev.	Bot. Elev.	Vert. Drop	Plan Length	Slope Length	Avg. Width	Slope Area	Avg. Grade	Max. Grade	Ability Level
		(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ac.)	(%)	(%)	
33	Upper Hour Glass	5,635	5,210	424	981	1,104	141	3.6	43%	97%	Expert
34	Upper Paradise	5,736	5,286	450	2,183	2,240	117	6.0	21%	33%	Low Intermediate
35	Upper Roller	5,670	5,364	306	996	1,047	114	2.7	31%	43%	Expert
36	Water Fall	4,833	4,681	152	347	384	140	1.2	44%	55%	Expert
37	What	5,648	5,398	250	1,266	1,297	68	2.0	20%	39%	Intermediate
	Total					67,430		212.3			

Note: Half an acre of beginner terrain would be located within the boundaries of the Near Side trail, which would be accessed by the Magic Carpet conveyor.

- **Top Elevation** – The elevation at the beginning (top) of the trail.
- **Bottom Elevation** – The elevation at the end (bottom) of the trail.
- **Vertical Drop** – The difference in elevation between the beginning and end of the trail.
- **Plan Length** – The length of the trail centerline, from beginning of the trail to the end, as measured on the mapping (i.e., a two-dimensional measurement). A trail centerline is an imaginary line drawn down the middle of a trail.
- **Slope Length** – The three-dimensional length of the trail centerline, from beginning of the trail to the end, as measured on the ground or by use of three-dimensional mapping technology (i.e., AutoCADD, ArcMap).
- **Average Width** – The average width of the entire trail, from top to bottom. This may be determined by field measurements, or by calculation utilizing the given trail acreage and slope length (i.e., acreage x 43,560ft/slope length).
- **Slope Area** – The total number of acres of terrain occurring within a trail boundary. This may be determined by GIS measurement, or by calculation utilizing the slope length and average width.
- **Average Grade** – The average slope gradient (in percent) of the trail’s centerline, from the beginning of the trail to the end.
- **Maximum Grade** – The maximum gradient (in percent) occurring anywhere on the trail.
- **Skier Ability Level** – The following gradients were used to determine the skier ability level of the mountain terrain:

Skier Ability	Slope Gradient
Beginner	8 to 12%
Novice	to 25% (short pitches to 30%)
Low Intermediate	to 30% (short pitches to 35%)
Intermediate	to 40% (short pitches to 45%)
Advanced Intermediate	to 50% (short pitches to 55%)
Expert	over 50% (maximum of 80%)

Source: SE Group

Exceptions to these standards occur when access to a trail is limited to a higher ability level. For example, if a novice trail can only be accessed by a low intermediate trail, then it will be designated as a low intermediate trail rather than novice because it would be not readily accessible to the novice skier. Alternatively, if an otherwise intermediate trail contains a substantial pitch of 50 percent terrain, then the trail will be designated expert because only expert skiers can easily navigate the entire trail.

Skier Distribution

For purposes of this analysis, the distribution of available ski terrain would be evaluated based on two parameters. First, the distribution of skiers would be discussed as a percentage of skiers on the varying levels of terrain. This approach looks at both the acreage of terrain of each ability level and the acceptable skier density on that terrain (as a general rule, higher ability level terrain supports a lower density of skiers). Second, the acreage of terrain would be evaluated as a percentage of the total ski terrain at White Pass.

Specifications for the existing skier distribution are set forth in Table 3 and Illustrations 1 and 2.

**Table 3:
Skier Distribution by Ability Levels – Existing Conditions**

Skier Ability Level	Trail Area	Skier Capacity	Skier Distribution	Skier Market
	(acres)	(guests)	(%)	(%)
Beginner	0.5	15.0	1%	5%
Novice	1.4	25.4	1%	15%
Low Intermediate	67.7	947.8	47%	25%
Intermediate	80.9	809.3	40%	35%
Adv. Intermediate	10.0	70.3	3%	15%
Expert	51.7	155.1	8%	5%
Total	212.3	2,023	100%	100%

**Illustration 1:
Skier Distribution by Ability Levels – Existing Conditions**

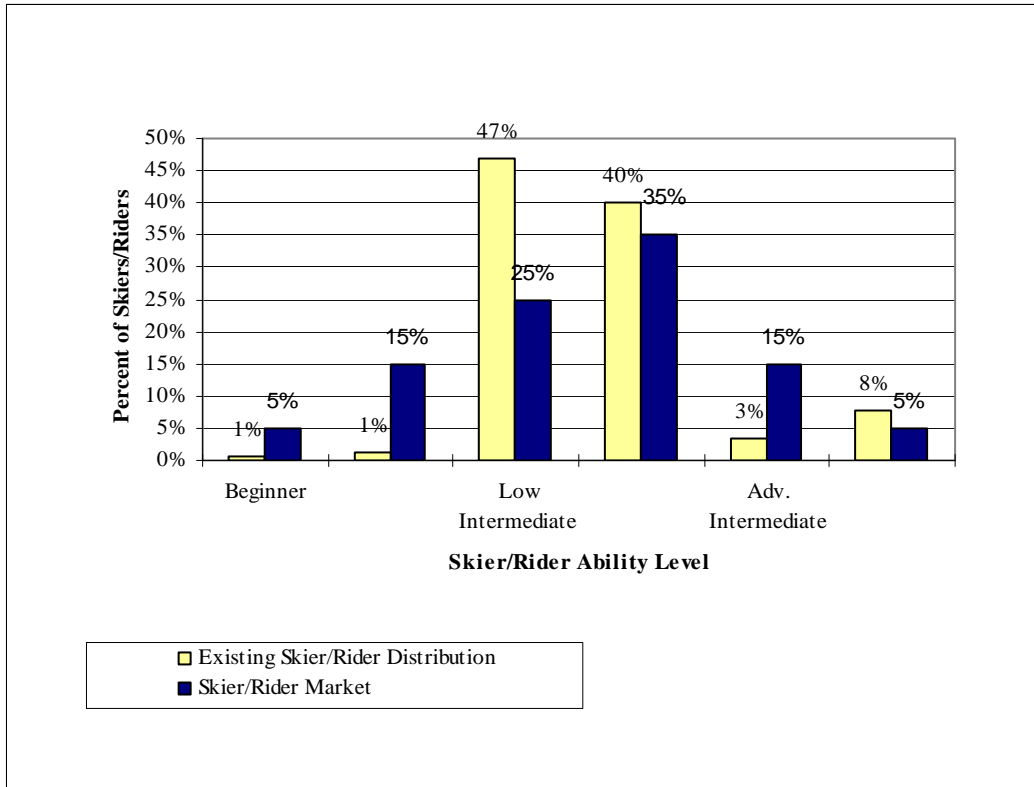


Table 3 and Illustration 1 compare White Pass’ ‘skier distribution’ (expressed as percent of skiers) with the market demand for each ability level. Skier distribution would be determined as follows:

- Each trail would be designated by ability level, as listed in Table 2. Each ability level has a standard design density for the ideal number of skiers occupying each acre of terrain at one time. The widely accepted density criteria for ski areas in western North America are listed below.

Skier Ability	Design Density
Beginner	25-35 skiers/acre
Novice	12-25 skiers/acre
Low Intermediate	8-20 skiers/acre
Intermediate	6-15 skiers/acre
Advanced Intermediate	4-10 skiers/acre
Expert	2-5 skiers/acre

Source: SE Group

- The number of acres of terrain designated to each ability level would be multiplied by the standard design density for each ability level.

- This total for each ability level would be expressed as a percentage of the total number of skiers.
- This percentage – or skier distribution – would then be compared with the market demand for each ability level.

The available ski terrain should be capable of accommodating the full range of ability levels consistent with market demand. As shown in Illustration 1, the configuration of White Pass currently provides an abundance of low intermediate terrain, an abundance of intermediate and expert terrain, and a deficit of beginner, novice, and advanced intermediate terrain, measured as a percentage of skiers at White Pass.

Illustration 2
Acreage Distribution by Ability Levels – Existing Conditions

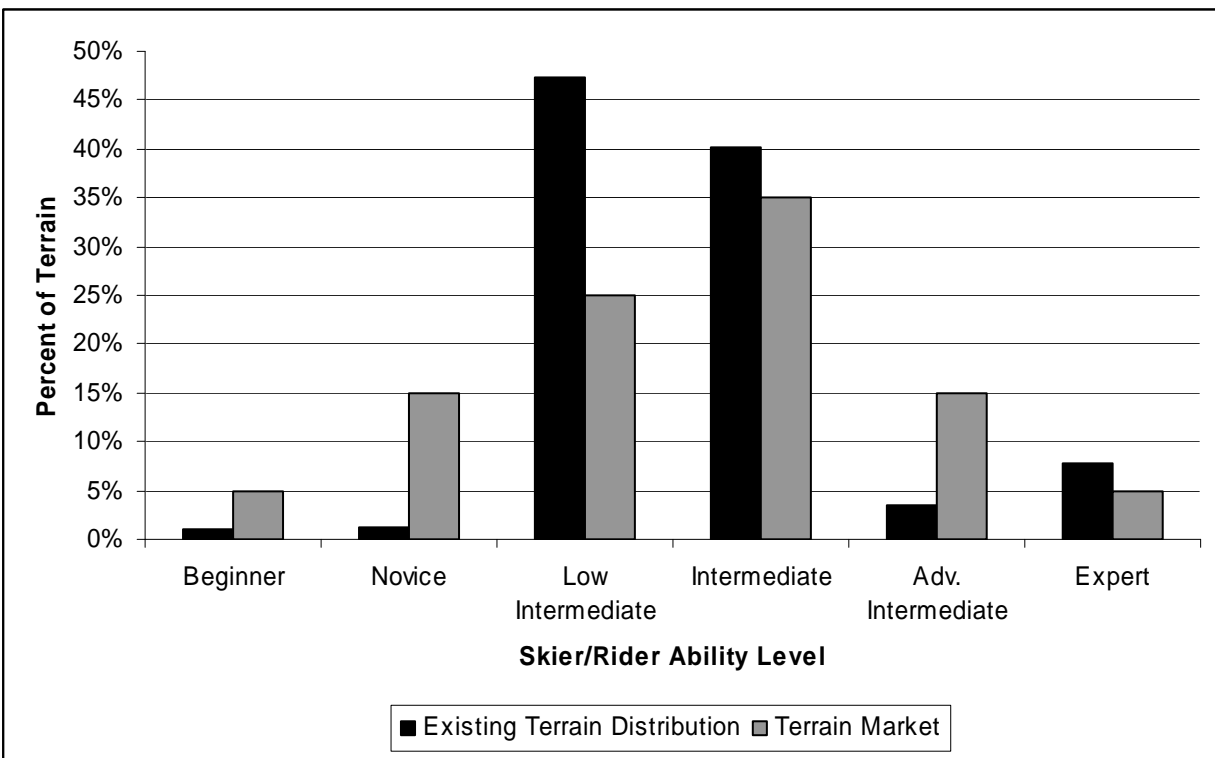


Illustration 2 compares the White Pass’ ‘acreage distribution’ by ability level with the market demand (as expressed in acres) for each ability level. This would be determined as follows:

- The market demand (in acres) would be determined by dividing the market demand (percentage displayed in Illustration 1) of each ability level by the standard design density (per acre) for each ability level. This number for each ability level would be expressed as a percentage of the total acreage of terrain.

- The terrain distribution (in acres) would be determined by dividing the number of acres of terrain in each ability level by the total acreage of terrain.

Consistent with the previous analysis comparing skier distribution by ability levels, the acreage distribution by ability levels comparison shows the same abundance of low intermediate, intermediate, and expert terrain; and significant lack of true novice and advanced intermediate terrain.

Illustration 2 provides an analysis of terrain at White Pass, as measured in acres (without consideration of skier density).

Comfortable Carrying Capacity

CCC would be derived from the resort’s supply of vertical transport (i.e., the combined uphill hourly capacities of the lifts) and demand for vertical transport (i.e., the aggregate number of trails demanded multiplied by the vertical rise associated with those trails). CCC would be calculated by dividing vertical supply (VTF/Day) by Vertical Demand. The calculation of White Pass’ current CCC would be described in Table 4. The CCC of the existing lift and trail network at White Pass would be calculated at 2,670 guests per day. It would not be uncommon for ski areas to experience peak days during which skier visitation exceeds the CCC by as much as 25 percent. However, it would not be recommended to consistently exceed the CCC due to the resulting decrease in the quality of the recreational experience.

**Table 4:
Classification of Comfortable Carrying Capacity – Existing Conditions**

Map Ref.	Lift Name / Lift Type	Slope Length	Vert. Rise	Hourly Cap.	Oper. Hours	Up-Mtn. Access Role	Load Eff.	Adj. Hourly Cap.	VTF/Day	Vertical Demand	CCC
		(ft.)	(ft.)	(PPH)	(hrs.)	(%)	(%)	(PPH)	(000)	(ft.)	(skiers)
1	Great White Express/DC4	5,125	1,521	2,100	7.00	10	5	1,785	19,008	18,154	1,050
2	Pigtail/C2	4,987	1,493	900	7.00	10	10	720	7,524	18,750	400
3	Lower Cascade/C3	2,232	510	1,800	7.00	0	10	1,620	5,784	9,074	640
4	Paradise/C2	2,804	712	1,200	7.00	0	10	1,080	5,380	10,647	510
5	Platters	517	66	400	7.00	0	10	360	167	2,421	70
Total		15,666		6,400				5,565	37,863		2,670

- **Oper. Hours** – The number of hours per day that the lift operates (not including night skiing).
- **Up-Mtn Access Role (%)** – The percentage of lift ridership used to access up-mountain facilities, as opposed to repeat-skiing the lift.

- **Load Eff. (%)** – The lift loading efficiency, for example, when lift has to stop due to a mis-load or unload.
- **Adj. Hourly Cap (PPH)** – The hourly capacity adjusted by reducing up-mountain access percentage and loading efficiency percentage.
- **Vertical Transport Feet per Day** – The number of persons a lift is able to transport in a day. VTF/day is derived by multiplying a lift’s uphill capacity (measured in persons per hour) by the lift’s vertical rise (measured in feet), then by the number of hours the lift operates in a day.
- **Vertical Demand (ft)** – The aggregate number of trails demanded on the resort’s lifts multiplied by the vertical rise associated with those trails.
- **Comfortable Carrying Capacity (CCC)** – An optimal level of utilization for the ski area (the number of visitors that can be accommodated at any given time) which guarantees a pleasant recreational experience, while at the same time preserving the quality of the environment.

Density Analysis

Specifications for the existing density analysis are set forth in Table 5.

**Table 5:
Ski Trail Density Analysis – Existing Conditions**

Map Ref.	Daily Lift CCC	Guest Dispersement				Density Analysis				
		Support Fac./ Milling	Lift Lines	On Lift	On Trails	Trail Area	Actual Trail Density	Target Trail Density	Diff.	Density Index
		(guests)	(guests)	(guests)	(guests)	(acres)	(guest/ac.)	(guest/ac.)	(+/-)	(%)
1	1,050	263	298	152	337	108.0	3	8	-5	38%
2	400	100	36	133	131	30.8	4	6	-2	67%
3	640	160	86	134	260	44.7	6	13	-7	46%
4	510	128	54	112	216	27.4	8	13	-5	62%
5	70	18	18	8	26	1.4	18	18	0	100%
Total	2,670	669	492	539	970	212.3	5	10	-5	52%

- **Daily Lift Comfortable Carrying Capacity (CCC)** – An optimal level of utilization for the ski area (the number of visitors that can be accommodated at any given time) which guarantees a pleasant recreational experience, while at the same time preserving the quality of the environment.
- **Support Fac./Milling (guests)** – The number of aggregate skier population using guest facilities and milling areas.

- **Lift Lines (guests)** – The number of aggregate skier population actively waiting in lift lines.
- **On Lift (guests)** – The number of aggregate skier population actively riding a lift.
- **On Trails (guests)** – The number of aggregate skier population actively skiing.
- **Trail Area (acres)** – Acreage of trails servicing the referred lift.
- **Actual Trail Density (guest/ac.)** – Calculated on-trail density; calculated by dividing the number of guests on the trails by the amount of trail area available.
- **Target Trail Density (guest/ac.)** – The product of the target density and the lift's trail distribution by ability level.
- **Diff. (+/-)** – Calculated trail density comparing actual trail density to target trail density; a negative number indicates an actual trail density lower than target density, a positive number indicates an actual trail density higher than target density.
- **Density Index (%)** – The density comparison stated as a percentage. A 100 percent density index represents a balance between actual density and target density, a percentage less than 100 indicates an actual trail density lower than target density, and a percentage higher than 100 indicates an actual trail density higher than target density.

The calculation of capacity for a ski area would be based in part on the target number of skiers that can be accommodated on each acre of ski terrain at any one given time. The widely accepted density criteria for ski areas in western North America are listed in the previous discussions regarding terrain and skier distribution.

These criteria assume that on an average day, approximately 33 percent of the total number of skiers in the area will be on the trails at any one time. The remainder of the skiers are either in lift lines, riding the lifts, or utilizing skier support services. The densities listed above have been used in the analysis of trail densities at White Pass.

The density index would be a percentage comparison of the actual trail density with the target trail density. A 100 percent index represents a balance between the actual and target trail density. An index under 100 percent indicates that the actual trail density would be lower than the target trail density (i.e., uncrowded). An index above 100 percent indicates that the actual trail density would be higher than the target trail density (i.e., crowded). Table 5 indicates that all White Pass trails are at or below the target trail density. The overall density index score shows that, as a whole, White Pass' trails are about half of target densities. This would be a desirable situation, indicating that none of White Pass' trails are typically over-crowded.

The exception to this situation would be the return trails. An analysis done as part of the 1999 Master Development Plan, and attached as Appendix B to that plan, showed that potential skier densities on the Cascade Track are roughly two times that of the recommended standard design criteria. The high density would be compounded by the fact that this route would be the primary way for skiers to transition from the top to the bottom of the mountain. Skiers ranging from novice to expert ability levels use the trail concurrently and at differing rates of speed.

Resort Balance and Limiting Factors

The overall balance of the existing ski area would be evaluated by calculating the capacities of the resort's various facilities, as compared to the resort's CCC. In this case, only lift network and ski terrain capacities were evaluated. The lift network capacity would be at 2,670 people, while the ski terrain capacity would be 5,548 people. This discrepancy would be attributable to the large amount of terrain as compared to the lift capacities. This situation would be reflected in the low skier densities. The overall balance of the ski area, however, would be limited by the cliff band. Since most of the trails are routed so that skiers must transition over the cliff band, and most of those skiers are limited to one or two routes through the cliff band by their ability level, the overall skier capacity of the resort would be likely constrained by the circulation challenge created by that topographic feature. The only ways to alleviate that problem are to create more terrain that would be not constrained by the cliff band, and/or to improve the capacity of routes across the cliff band.

3.0 PROPOSED UPGRADING PLAN – ALTERNATIVE 2

Summary

Under Alternative 2, two new lifts are proposed; both in the Hogback Basin area. New terrain would be developed to service these proposed lifts (the *Basin* and *Hogback Express* lifts), but no modifications to the existing lifts or terrain would occur. The two proposed lifts would be built at maximum capacity for quad chairlifts. Under Alternative 2, the CCC of White Pass would increase to 4,250. Alternative 2 does not address the need for improved circulation as it proposes no modifications to the existing egress trails. Alternative 2 addresses the need for skier dispersal, as it provides new lifts, terrain, and facilities away from the base area. This would reduce the crowding in the existing part of the ski area by allowing a significant number of skiers to remain on the upper mountain for much of the skiing day. However, since the egress trail circulation problems would not be addressed, it would be likely that the existing high densities on the egress trails would increase during the afternoon and lunchtime egress periods. Alternative 2 does not fully address the need for increased novice and advanced intermediate terrain. While Alternative 2 does add some advanced intermediate terrain, it does not add any novice terrain. Alternative 2 addresses the need for improved skiing during the early season, in warm periods during the regular season, and in low snow years. By providing additional skiing at higher elevations, the quality of the skiing during these times would be improved.

Lifts

Under Alternative 2, White Pass would add two additional lifts to their existing lift system. Therefore, White Pass would operate seven lifts, including the proposed *Basin* and *Hogback Express* chairlifts. The lifts would extend to the south-west of the existing ski area, into the Hogback Basin.

Under Alternative 2, the C-6 (*Basin*) would access advanced intermediate to low intermediate level terrain. The bottom terminal would be located approximately 1,500 feet upslope (south) from the existing Quail ski trail at approximately 5,552 feet elevation. The upper terminal would be located adjacent to western boundary of the proposed SUP, at approximately 6,169 feet elevation, and approximately 240 feet (i.e., the closest distance) from the Wilderness boundary. The *Basin* chairlift would be proposed as a bottom drive, fixed-grip quad chairlift. The proposed lift would accommodate 2,400 intermediate and expert level skiers per hour.

Under Alternative 2, the *Hogback Express* chairlift would access advanced intermediate to low intermediate level terrain. The bottom terminal would be located at approximately 5,605 feet elevation, southwest of the existing SUP boundary. The upper terminal would be located at approximately 6,473 feet elevation, approximately 430 feet (i.e., the closest distance) from the Wilderness boundary. The proposed lift would accommodate 2,400 intermediate and expert level skiers per hour.

The *Basin* lift, a fixed-grip quad, would primarily act as a transport lift to the *Hogback Express* lift, a high-speed detachable quad that would service the majority of ski terrain in Hogback Basin.

Specifications for the proposed lifts are set forth in Table 6.

**Table 6:
Lift Specifications – Proposed Upgrading – Alternative 2**

Map Ref.	Lift Name / Lift Type	Top Elev.	Bot. Elev.	Vert. Rise	Plan. Length	Slope Length	Avg. Grade	Hourly Cap.	Rope Speed	Carrier Spacing	Lift Maker/ Year Installed
		(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(%)	(per./hr.)	(fpm)	(ft.)	
1	Great White Express/DC4	5,999	4,477	1,521	4,814	5,125	32%	2,100	1,000	114	Doppelmayr/1994
2	Pigtail/C2	5,978	4,485	1,493	4,628	4,987	32%	900	450	60	Riblet/1958
3	Lower Cascade/C3	5,024	4,514	510	2,166	2,232	24%	1,800	450	45	Doppelmayr/2000
4	Paradise/C2	5,961	5,249	712	2,675	2,804	27%	1,200	450	45	Riblet/1984
5	Platters	4,545	4,479	66	512	517	13%	400	400	60	Doppelmayr/2000
6	Basin/C4	6,169	5,552	617	3,497	3,560	18%	2,400	400	40	<i>Proposed</i>
7	Hogback Express/DC4	6,473	5,605	867	4,041	4,162	21%	2,400	1,000	100	<i>Proposed</i>

KEY: “S” is Surface Lift, “C-2” is Fixed-GripDouble, “C-3” is Fixed-Grip Triple, “C-4” is Fixed-Grip Quad, “DC4” is Detachable Quad

Terrain

Under Alternative 2, White Pass would add approximately 70 acres of terrain on 15 new trails, all of which would be accessed from the two new lifts. The trail network under Alternative 2 would increase from the existing 37 named trails on approximately 212 acres to 52 trails on approximately 282 acres. The proposed trails are situated so that none cross the cliff band, and would provide desirable low intermediate through advanced intermediate skiing. The trails are mostly in the fall-line and provide enough variations in width and slope to provide good terrain variety. Traversing would be required on trails 2-1 and 2-2, which would be used to access and egress the new terrain. Throughout the terrain, there are flat areas of less than 10 percent slope extending 150 or more feet. In these areas, skiers would have to maintain speed to successfully navigate the low-gradient portions of the trails.

**Table 7:
Terrain Specifications – Proposed Upgrading – Alternative 2**

Map Ref	Trail/Area Name	Top Elev.	Bottom Elev.	Vert Drop	Plan Length	Slope Length	Avg. Width	Slope Area	Avg. Grade	Max. Grade	Ability Level
		(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ac.)	(%)	(%)	
1	Beginner no-name Trail	4,547	4,478	68	584	589	104	1.4	12%	17%	Novice
2	Cascade	5,967	4,971	996	4,989	5,131	170	20.1	20%	43%	Intermediate
3	Cascade Cliff	5,266	5,050	216	849	896	206	4.2	25%	64%	Expert
4	Chair Trail	5,688	5,466	222	768	817	147	2.8	29%	57%	Expert
5	Elevator Shaft	5,206	5,087	119	354	380	150	1.3	34%	48%	Expert
6	Execution	5,415	5,027	388	593	723	162	2.7	65%	99%	Expert
7	Far Side	5,023	4,517	506	2,573	2,631	270	16.3	20%	35%	Low Intermediate
8	Grouse	5,851	5,339	513	3,056	3,113	80	5.7	17%	33%	Low Intermediate
9	Holicade	5,704	5,544	160	842	862	68	1.3	19%	35%	Intermediate
10	Holiday	5,975	4,816	1,159	8,539	8,713	106	21.3	14%	39%	Intermediate
11	Holiday Cliff	5,487	5,132	355	1,300	1,372	100	3.2	27%	65%	Expert
12	Jaw Breaker	5,518	5,388	129	1,432	1,444	83	2.8	9%	20%	Intermediate
13	Lower Holiday	4,816	4,509	306	2,185	2,213	208	10.5	14%	25%	Low Intermediate
14	Lower Hour Glass	5,139	4,918	221	765	802	13.	2.4	29%	45%	Intermediate
15	Lower Paradise	4,766	4,475	291	3,516	3,548	60	4.9	8%	23%	Expert
16	Lower Roller	4,972	4,504	468	1,357	1,445	303	10.0	34%	53%	Advanced Intermediate
17	Mach V	5,943	5,635	308	1,036	1,102	109	2.8	30%	66%	Expert
18	Main Street	5,286	4,771	514	3,123	3,204	84	6.1	16%	56%	Expert
19	Midway	5,725	5,318	408	1,370	1,448	79	2.6	30%	53%	Expert
20	Near Side	5,038	4,475	562	2,479	2,549	309	18.1	23%	35%	Low Intermediate
21	Noname Trail	5,170	4,854	317	1,196	1,241	225	6.4	26%	38%	Intermediate
22	North Peak	5,905	5,632	272	1,183	1,264	78	2.3	23%	73%	Expert
23	Outhouse	5,979	5,812	167	304	353	195	1.6	55%	76%	Expert
24	Paradise Cliff	5,163	4,766	397	2,031	2,105	77	3.7	20%	55%	Expert
25	Poma Bowl	5,063	4,486	577	1,908	2,005	218	10.0	30%	45%	Intermediate

**Table 7:
Terrain Specifications – Proposed Upgrading – Alternative 2**

Map Ref	Trail/Area Name	Top Elev.	Bottom Elev.	Vert Drop	Plan Length	Slope Length	Avg. Width	Slope Area	Avg. Grade	Max. Grade	Ability Level
		(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ac.)	(%)	(%)	
26	Poma Face	4,966	4,483	483	1,621	1,698	261	10.2	30%	41%	Intermediate
27	Ptarmigan	5,683	5,359	325	1,504	1,541	147	5.2	22%	29%	Low Intermediate
28	Quail	5,748	5,163	585	3,115	3,194	87	6.4	19%	33%	Low Intermediate
29	Raven's Haven	5,921	5,756	166	309	354	147	1.2	54%	59%	Expert
30	Roller Catrac	5,975	5,670	305	1,544	1,589	83	3.0	20%	41%	Expert
31	Roller Cliff	5,318	4,972	346	655	748	106	1.8	53%	69%	Expert
32	Tucker	5,829	5,487	342	2,238	2,282	84	4.4	15%	36%	Intermediate
33	Upper Hour Glass	5,635	5,210	424	981	1,104	141	3.6	43%	97%	Expert
34	Upper Paradise	5,736	5,286	450	2,183	2,240	117	6.0	21%	33%	Low Intermediate
35	Upper Roller	5,670	5,364	306	996	1,047	114	2.7	31%	43%	Expert
36	Water Fall	4,833	4,681	152	347	384	140	1.2	44%	55%	Expert
37	What	5,648	5,398	250	1,266	1,297	68	2.0	20%	39%	Intermediate
38	Alt 2-1	5,547	5,442	105	1,739	1,747	34	1.4	6%	17%	Low Intermediate
39	Alt 2-2	5,833	5,554	279	3,286	3,309	39	2.9	9%	19%	Low Intermediate
40	Alt 2-3	5,820	5,558	262	1,492	1,518	90	3.1	18%	25%	Low Intermediate
41	Alt 2-4	6,190	5,554	636	3,603	3,668	105	8.8	18%	28%	Low Intermediate
42	Alt 2-5	6,069	5,653	416	2,448	2,493	82	4.7	17%	33%	Low Intermediate
43	Alt 2-6	6,150	5,776	374	2,210	2,249	103	5.3	17%	30%	Low Intermediate
44	Alt 2-7	6,153	5,974	180	1,125	1,146	39	1.0	16%	27%	Low Intermediate
45	Alt 2-8	6,120	5,889	232	2,292	2,315	67	3.6	10%	28%	Advanced Intermediate
46	Alt 2-9	5,960	5,618	342	1,965	2,008	76	3.5	17%	31%	Advanced Intermediate
47	Alt 2-10	6,038	5,741	296	1,465	1,508	118	4.1	20%	39%	Advanced Intermediate
48	Alt 2-11	6,465	6,120	345	1,482	1,532	81	2.9	23%	50%	Advanced Intermediate
49	Alt 2-12	6,484	5,621	862	4,081	4,198	114	11.0	21%	42%	Advanced Intermediate
50	Alt 2-13	6,264	5,618	646	3,693	3,797	96	8.3	17%	43%	Advanced Intermediate
51	Alt 2-14	6,297	5,741	556	2,434	2,521	95	5.5	23%	52%	Advanced Intermediate
52	Alt 2-15	6,463	6,000	463	2,535	2,592	63	3.7	18%	41%	Advanced Intermediate
Total						104,032		282.3			

Skier Distribution

Specifications for the proposed skier distribution under Alternative 2 are set forth in Table 8 and Illustrations 3 and 4.

**Table 8:
Skier Distribution by Ability Levels – Proposed Upgrading – Alternative 2**

Skier Ability Level	Trail Area	Skier Capacity	Skier Distribution	Skier Market
	(acres)	(guests)	(%)	(%)
Beginner	0.5	15.0	1%	5%
Novice	1.4	25.4	1%	15%
Low Intermediate	95.1	1331.4	49%	25%
Intermediate	80.9	809.3	30%	35%
Adv. Intermediate	52.6	368.3	14%	15%
Expert	51.7	155.1	6%	5%
Total	282.3	2,705	100%	100%

**Illustration 3:
Skier Distribution by Ability Levels – Proposed Upgrading – Alternative 2**

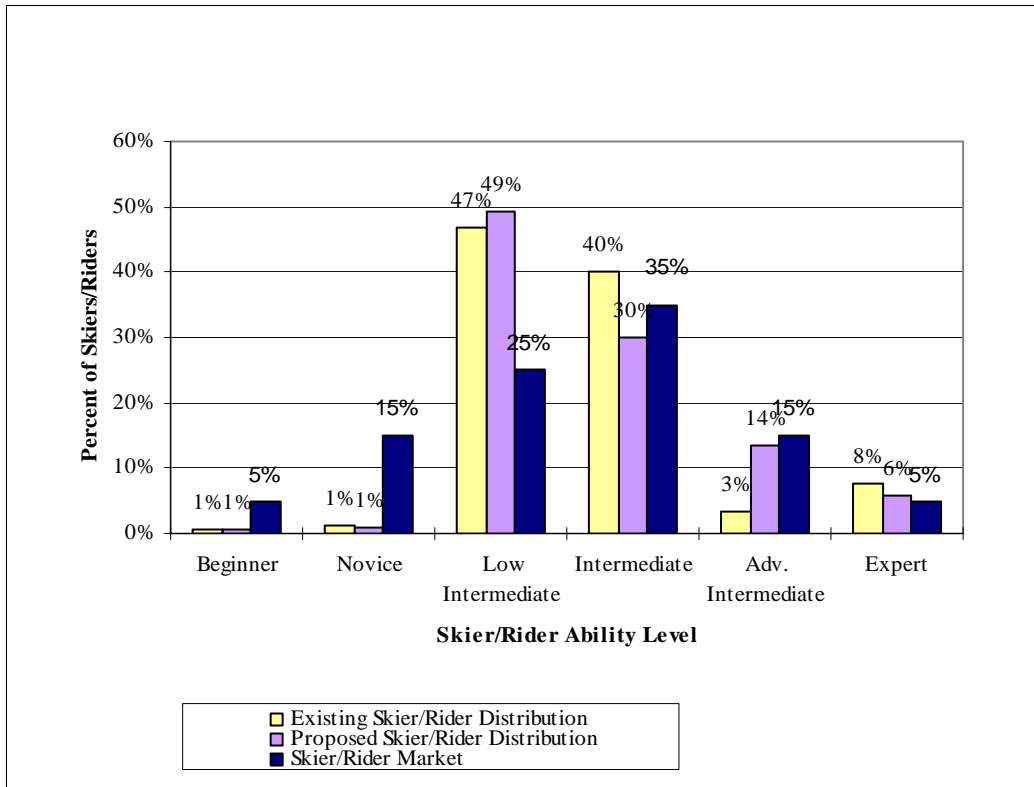


Table 8 and Illustration 3 compare the White Pass skier distribution with the market demand for each ability level. Skier distribution would be determined as follows:

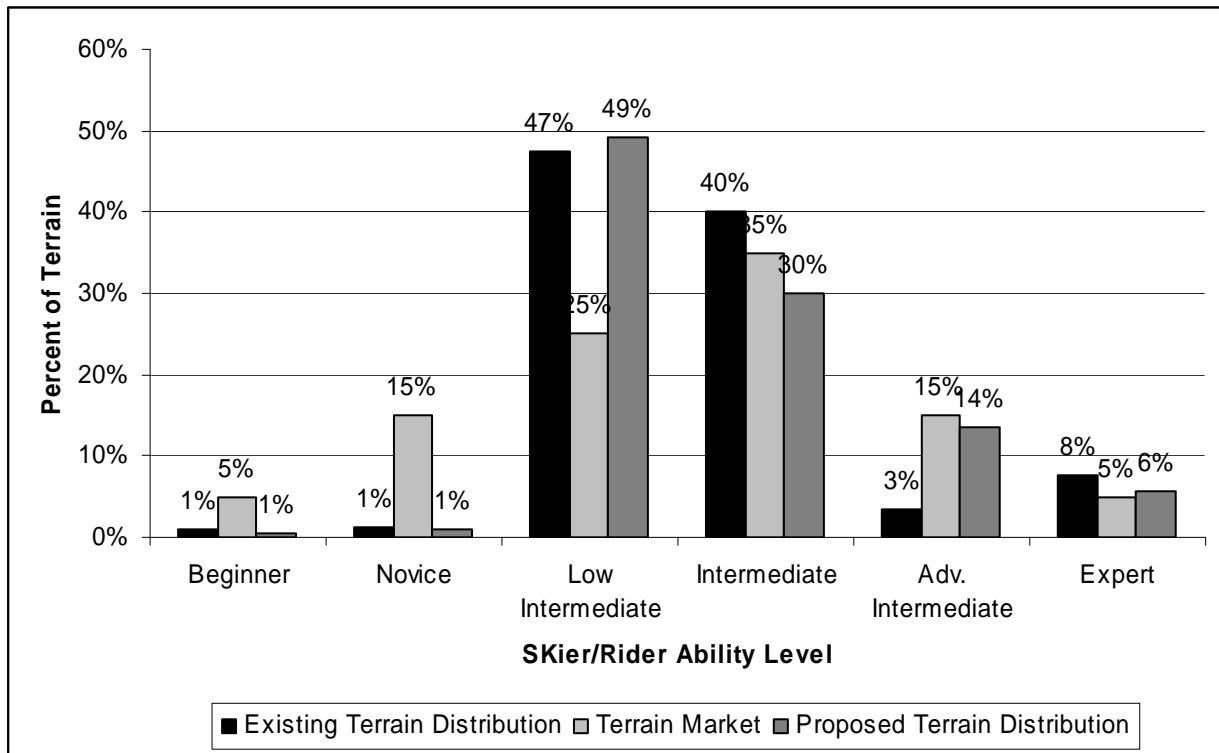
- Each trail would be designated by ability level, as listed in Table 7.

- The number of acres of terrain designated to each ability level would be multiplied by the standard design density for each ability level.
- This total for each ability level would be expressed as a percentage of the total number of skiers.
- This percentage – or skier distribution – would then be compared with the market demand for each ability level.

As shown in Table 8 and Illustration 3, Alternative 2 would improve the advanced intermediate terrain distribution by bringing it closer to the skier market goals, and would also add additional low intermediate terrain, which White Pass already has in surplus. As a result of increasing acreage in these two categories, the percentages for the other categories drop. The increase in low intermediate terrain would not be a desired objective of Alternative 2, however the lift and trail alignments that are required to access the Hogback Basin area (advanced intermediate terrain) results in increased low intermediate terrain.

Illustration 4 compares White Pass’ terrain distribution with the market demand.

**Illustration 4:
Acreage Distribution by Ability Levels – Proposed Upgrading – Alternative 2**



Consistent with the skier distribution in Illustration 3, the acreage distribution by ability levels comparison also indicates an increase in both advanced and low intermediate terrain acreages.

Comfortable Carrying Capacity

The calculation of White Pass’ CCC, under Alternative 2, would be described in Table 9. As illustrated, the proposed expansion would increase the CCC of the lift and trail network at White Pass to 4,250 guests per day (an increase of 59 percent).

**Table 9:
Classification of Comfortable Carrying Capacity – Proposed Upgrading – Alternative 2**

Map Ref.	Lift Name / Lift Type	Slope Length	Vert. Rise	Hourly Cap.	Oper. Hours	Up-Mtn. Access Role	Load Eff.	Adj. Hourly Cap.	VTF/Day	Vertical Demand	CCC
		(ft.)	(ft.)	(PPH)	(hrs.)	(%)	(%)	(PPH)	(000)	(ft.)	(skiers)
1	Great White Express/DC4	5,125	1,521	2,100	7.00	10	5	1,785	19,008	18,154	1,050
2	Pigtail/C2	4,987	1,493	900	7.00	10	10	720	7,524	18,750	400
3	Lower Cascade/C3	2,232	510	1,800	7.00	0	10	1,620	5,784	9,074	640
4	Paradise/C2	2,804	712	1,200	7.00	0	10	1,080	5,380	10,647	510
5	Platters	517	66	400	7.00	0	10	360	167	2,421	70
6	Basin/C4	3,560	617	2,400	6.50	30	10	1,440	5,777	7,218	800
7	Hogback Express/DC4	4,162	867	2,400	6.50	0	5	2,280	12,850	16,507	780
Total		23,388		11,200				9,285	56,490		4,250

Density Analysis

Specifications for the Alternative 2 density analysis are set forth in Table 10.

**Table 10:
Ski Trail Density Analysis – Proposed Upgrading – Alternative 2**

Map Ref.	Daily Lift CCC	Guest Dispersement				Density Analysis				
		Support Fac./ Milling	Lift Lines	On Lift	On Trails	Trail Area	Actual Trail Density	Target Trail Density	Diff.	Density Index
		(guests)	(guests)	(guests)	(guests)	(acres)	(guest/ac.)	(guest/ac.)	(+/-)	(%)
1	1,050	263	298	152	337	108.7	3	8	-5	38%
2	400	100	36	133	131	30.8	4	6	-2	67%
3	640	160	86	134	260	44.7	6	13	-7	46%
4	510	128	54	112	216	28.1	8	13	-5	62%
5	70	18	18	8	26	1.4	18	18	0	100%
6	800	200	72	214	314	22.8	14	14	0	100%
7	780	195	114	158	313	45.7	7	7	0	100%
Total	4,250	1,064	678	911	1,597	282.3	7	10	-3	70%

Table 10 indicates that under Alternative 2, as a whole, White Pass' trails would remain in the desirable situation of being at or below target trail densities. The exception to this would be the existing return trails to the bottom of the ski area, as described for the existing condition. Under Alternative 2, that situation could become worse during the egress time, especially the last hour and a half of ski area operation. Since there would be an increase of skiers on the upper mountain, the densities on those egress routes would increase to over the target densities during the time of day when those skiers are returning to the base area.

Resort Balance and Limiting Factors

Under Alternative 2, the overall capacity would increase and the balance of the ski resort would improve. Both the lift network and ski terrain capacities would increase. The lift network capacity would increase to 4,250 people, while the ski terrain capacity would increase to 7,178 people. This would create a better balance between the lift and trail networks, without creating over-crowding on the majority of the formal terrain. All of the capacity added would be in areas that are situated away from the cliff band, thereby addressing the problem of the cliff band restricting skier capacity. However, as stated above, all of the additional skiers in the new terrain would have to cross the cliff band to return to the base of the mountain at the end of the day. Since there are no upgrades in Alternative 2 for the trails that transition from the top of the mountain to the bottom of the mountain across the cliff band, the densities on those trails would increase from their already high levels.

4.0 PROPOSED UPGRADING PLAN – MODIFIED ALTERNATIVE 4

Summary

Modified Alternative 4 would be based on DEIS Alternative 4, with modifications. Under Modified Alternative 4, two new lifts, *Basin* and *Hogback Express*, are proposed; both in the Hogback Basin area. New terrain would be developed to service these lifts, new trails would be developed in the current SUP area and existing trails within the SUP area would be improved. These improvements include a new advanced intermediate trail off the *Paradise* lift and an additional egress trail off the Main Street trail, as well as grading on the Holiday trail. There would be no modifications to the existing lifts. Both new lifts would have lower hourly capacities than under Alternative 2. The *Basin* lift would be a triple instead of a quad, and the *Hogback Express* lift would be built at a reduced capacity. Under Modified Alternative 4, White Pass' CCC would increase to 3,800, resulting in an increase of approximately 42 percent, or 1,130 additional skiers. Modified Alternative 4 addresses the need for improved circulation as it proposes the above stated modifications and additions to the existing egress trails. Modified Alternative 4 addresses the need for skier dispersal, as it provides new lifts, terrain, and facilities away from the base area. In addition, this would reduce the crowding in the existing portion of the ski area by allowing a significant number of skiers to remain on the upper mountain for much of the skiing day. By addressing the existing circulation issues as described above, and by allowing for reduced lift capacities on the proposed lifts, Modified Alternative 4 addresses high egress densities that are identified in Alternative 2.

Additionally, Modified Alternative 4 addresses the need for increased novice and advanced intermediate terrain by adding new advanced intermediate terrain and creating novice terrain through the proposed grading on the Holiday trail, enabling that trail to be classified as novice. These improvements to the terrain distribution would result in an almost exact match between the amount of terrain available in those categories and the skier market, as discussed below. Modified Alternative 4 addresses the need for improved skiing during the early season, in warm periods during the regular season, and in low snow years. By providing additional skiing at higher elevations, the quality of skiing during these times would be significantly improved.

Lifts

As in Alternative 2, White Pass would add two additional lifts to their existing lift system under Modified Alternative 4. White Pass would operate a total of seven lifts, including the proposed *Basin* and *Hogback Express* chairlifts. The lifts would extend to the south-west of the existing SUP area, into the Hogback Basin. The bottom terminal of the proposed *Basin* chairlift would be located approximately 1,500 feet upslope (south) from the existing Quail trail at 5,522 feet elevation. The upper terminal would be located at 6,169 feet elevation, approximately 240 feet from the Wilderness/SUP area boundary. The bottom terminal of *Hogback Express* would be located approximately 3,600 feet east of the *Basin* lift at an elevation of 5,605 feet. The top terminal would be located at an elevation of approximately 6,473 feet.

As in Alternative 2, under Modified Alternative 4, the *Basin* lift, a fixed-grip, would primarily act as a transport lift to the *Hogback Express* lift, a high-speed detachable quad that would service primarily advanced intermediate terrain. The *Basin* lift would be a fixed-grip triple under Modified Alternative 4, allowing for faster rope speeds and lower ride times than in Alternative 2. Both of the lifts proposed under Modified Alternative 4 would operate at a lower hourly capacity than in Alternative 2.

Table 11 provides lift specification data for the lifts under Modified Alternative 4.

**Table 11:
Lift Specifications – Proposed Upgrading – Modified Alternative 4**

Map Ref.	Lift Name / Lift Type	Top Elev.	Bot. Elev.	Vert. Rise	Plan. Length	Slope Length	Avg. Grade	Hourly Cap.	Rope Speed	Carrier Spacing	Lift Maker/ Year Installed
		(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(%)	(per./hr.)	(fpm)	(ft.)	
1	Great White Express/DC4	5,999	4,477	1,521	4,814	5,125	32%	2,100	1,000	114	Doppelmayr/1994
2	Pigtail/C2	5,978	4,485	1,493	4,628	4,987	32%	900	450	60	Riblet/1958
3	Lower Cascade/C3	5,024	4,514	510	2,166	2,232	24%	1,800	450	45	Doppelmayr/2000
4	Paradise/C2	5,961	5,249	712	2,675	2,804	27%	1,200	450	45	Riblet/1984
5	Platters	4,545	4,479	66	512	517	13%	400	400	60	Doppelmayr/2000
6	Basin/C4	6,169	5,552	617	3,497	3,560	18%	1,800	500	50	<i>Proposed</i>
7	Hogback Express/DC4	6,473	5,605	867	4,041	4,162	21%	1,800	1,000	133	<i>Proposed</i>

KEY: “S” is Surface Lift, “C-2” is Fixed-Grip Double, “C-3” is Fixed-Grip Triple, “C-4” is Fixed-Grip Quad, “DC4” is Detachable Quad

Terrain

Under Modified Alternative 4, White Pass would add approximately 90 acres of terrain on 18 new trails, and restore and revegetate 5.4 acres of terrain within the existing ski area, for a net increase of about 85 acres of terrain. The trail network under Modified Alternative 4 would increase from the existing 37 named trails on approximately 212 acres to 55 trails on approximately 298 acres. The proposed trails in Hogback Basin are similar to those in Alternative 2, although narrower in many places to reduce riparian impacts. The proposed trails are situated so that none cross the cliff band. The trails would provide desirable low intermediate through advanced intermediate skiing. The trails are mostly in the fall-line and provide enough variations in width and slope to provide good terrain variety. Traversing would be required on trails 4-1, 4-2, and 4-16, which would be used to access and egress the new terrain. Trail 4-16, an egress trail that runs from the bottom of the *Hogback Express* lift back to the existing ski area, providing better circulation than Alternative 2. Throughout the terrain, there are flat areas of less than 10 percent slope extending 150 feet or more. Similar to Alternative 2, skiers would have to maintain speed to navigate these low-gradient areas.

The new trail in the *Paradise* pod would provide consistent, advanced intermediate terrain within the current SUP area. The additional egress trail off Main Street, above Lower Paradise, would help distribute the afternoon egress skiers, resulting in lower densities on both Lower Paradise and Cascade. This new trail also positions skiers higher on Lower Roller, which would allow skiers to traverse to the proposed parking lot; whereas the existing Lower Paradise trail exits at the elevation of the base area. The revegetated tree islands on the lower mountain would provide better separation of ability levels and enhance the visual quality of the area. Additionally, the quality of skiing on other terrain would be improved by widening and re-grading existing trails. Most notably, grading would be done on the Holiday

trail to reduce the slope gradient and an uphill pitch, so that it could be truly classified as a novice trail. Specifications for the proposed trails are set forth in Table 12.

**Table 12:
Terrain Specifications – Proposed Upgrading – Modified Alternative 4**

Map Ref	Trail/Area Name	Top Elev.	Bottom Elev.	Vert Drop	Plan Length	Slope Length	Avg. Width	Slope Area	Avg. Grade	Max. Grade	Ability Level
		(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ac.)	(%)	(%)	
1	Beginner no-name Trail	4,547	4,478	68	584	589	104	1.4	12%	17%	Novice
2	Cascade	5,967	4,971	996	4,989	5,131	170	20.1	20%	43%	Intermediate
3	Cascade Cliff	5,266	5,050	216	849	896	206	4.2	25%	64%	Expert
4	Chair Trail	5,688	5,466	222	768	817	147	2.8	29%	57%	Expert
5	Elevator Shaft	5,206	5,087	119	354	380	150	1.3	34%	48%	Expert
6	Execution	5,415	5,027	388	593	723	162	2.7	65%	99%	Expert
7	Far Side	5,023	4,517	506	2,573	2,631	249	15.0	20%	35%	Low Intermediate
8	Grouse	5,851	5,339	513	3,056	3,113	80	5.7	17%	33%	Low Intermediate
9	Holicade	5,704	5,544	160	842	862	68	1.3	19%	35%	Intermediate
10	Holiday	5,975	4,816	1,159	8,539	8,713	106	21.3	14%	25%	Novice
11	Holiday Cliff	5,487	5,132	355	1,300	1,372	100	3.2	27%	65%	Expert
12	Jaw Breaker	5,518	5,388	129	1,432	1,444	83	2.8	9%	20%	Intermediate
13	Lower Holiday	4,816	4,509	306	2,185	2,213	185	9.4	14%	25%	Low Intermediate
14	Lower Hour Glass	5,139	4,918	221	765	802	131	2.4	29%	45%	Intermediate
15	Lower Paradise	4,766	4,475	291	3,516	3,548	60	4.9	8%	23%	Expert
16	Lower Roller	4,972	4,504	468	1,357	1,445	303	10.0	34%	53%	Advanced Intermediate
17	Mach V	5,943	5,635	308	1,036	1,102	109	2.8	30%	66%	Expert
18	Main Street	5,286	4,771	514	3,123	3,204	84	6.1	16%	56%	Expert
19	Midway	5,725	5,318	408	1,370	1,448	79	2.6	30%	53%	Expert
20	Near Side	5,038	4,475	562	2,479	2,549	272	15.9	23%	35%	Low Intermediate
21	Noname Trail	5,170	4,854	317	1,196	1,241	225	6.4	26%	38%	Intermediate
22	North Peak	5,905	5,632	272	1,183	1,264	78	2.3	23%	73%	Expert
23	Outhouse	5,979	5,812	167	304	353	195	1.6	55%	76%	Expert
24	Paradise Cliff	5,163	4,766	397	2,031	2,105	77	3.7	20%	55%	Expert
25	Poma Bowl	5,063	4,486	577	1,908	2,005	218	10.0	30%	45%	Intermediate
26	Poma Face	4,966	4,483	483	1,621	1,698	261	10.2	30%	41%	Intermediate
27	Ptarmigan	5,683	5,359	325	1,504	1,541	147	5.2	22%	29%	Low Intermediate
28	Quail	5,748	5,163	585	3,115	3,194	87	6.4	19%	33%	Low Intermediate
29	Raven's Haven	5,921	5,756	166	309	354	147	1.2	54%	59%	Expert
30	Roller Cattrac	5,975	5,670	305	1,544	1,589	83	3.0	20%	41%	Expert
31	Roller Cliff	5,318	4,972	346	655	748	106	1.8	53%	69%	Expert
32	Tucker	5,829	5,487	342	2,238	2,282	84	4.4	15%	36%	Intermediate
33	Upper Hour Glass	5,635	5,210	424	981	1,104	141	3.6	43%	97%	Expert
34	Upper Paradise	5,736	5,286	450	2,183	2,240	117	6.0	21%	33%	Low Intermediate
35	Upper Roller	5,670	5,364	306	996	1,047	114	2.7	31%	43%	Expert

**Table 12:
Terrain Specifications – Proposed Upgrading – Modified Alternative 4**

Map Ref	Trail/Area Name	Top Elev.	Bottom Elev.	Vert Drop	Plan Length	Slope Length	Avg. Width	Slope Area	Avg. Grade	Max. Grade	Ability Level
		(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ac.)	(%)	(%)	
36	Water Fall	4,833	4,681	152	347	384	140	1.2	44%	55%	Expert
37	What	5,648	5,398	250	1,266	1,297	68	2.0	20%	39%	Intermediate
38	Alt 4-1	5,547	5,442	105	1,739	1,747	34	1.4	6%	17%	Low Intermediate
39	Alt 4-2	5,833	5,554	279	3,286	3,309	39	2.9	9%	19%	Low Intermediate
40	Alt 4-3	5,820	5,558	262	1,492	1,518	90	3.1	18%	25%	Low Intermediate
41	Alt 4-4	6,190	5,554	636	3,603	3,668	105	8.8	18%	28%	Low Intermediate
42	Alt 4-5	6,069	5,653	416	2,448	2,493	82	4.7	17%	33%	Low Intermediate
43	Alt 4-6	6,150	5,776	374	2,210	2,249	103	5.3	17%	30%	Low Intermediate
44	Alt 4-7	6,153	5,974	180	1,125	1,146	39	1.0	16%	27%	Low Intermediate
45	Alt 4-8	6,120	5,889	232	2,292	2,315	67	3.6	10%	28%	Advanced Intermediate
46	Alt 4-9	5,960	5,618	342	1,965	2,008	76	3.5	17%	31%	Advanced Intermediate
47	Alt 4-10	6,038	5,741	296	1,465	1,508	118	4.1	20%	39%	Advanced Intermediate
48	Alt 4-11	6,465	6,120	345	1,482	1,532	81	2.9	23%	50%	Advanced Intermediate
49	Alt 4-12	6,484	5,621	862	4,081	4,198	114	11.0	21%	42%	Advanced Intermediate
50	Alt 4-13	6,264	5,618	646	3,693	3,797	96	8.3	17%	43%	Advanced Intermediate
51	Alt 4-14	6,297	5,741	556	2,434	2,521	95	5.5	23%	52%	Advanced Intermediate
52	Alt 4-15	6,463	6,000	463	2,535	2,592	63	3.7	18%	41%	Advanced Intermediate
53	Alt 4-16	5,608	5,270	337	4,483	4,563	39	4.1	8%	12%	Advanced Intermediate
54	Alt 4-17	5,851	5,315	536	2,250	2,326	219	11.7	24%	45%	Advanced Intermediate
55	Alt 4-18	4,974	4,637	337	3,108	3,138	56	4.0	11%	22%	Low Intermediate
Total						114,060		297.6			

Skier Distribution

Specifications for proposed skier distribution under Modified Alternative 4 are set forth in Table 13 and Illustration 5.

Table 13:
Skier Distribution by Ability Levels – Proposed Upgrading – Modified Alternative 4

Skier Ability Level	Trail Area	Skier Capacity	Skier Distribution	Skier Market
	(acres)	(guests)	(%)	(%)
Beginner	0.5	15.0	1%	5%
Novice	22.7	408.3	14%	15%
Low Intermediate	94.6	1324.4	44%	25%
Intermediate	59.7	596.5	20%	35%
Adv. Intermediate	68.5	479.2	16%	15%
Expert	51.7	155.1	5%	5%
Total	297.6	2,979	100%	100%

Illustration 5:
Skier Distribution by Ability Levels – Proposed Upgrading – Modified Alternative 4

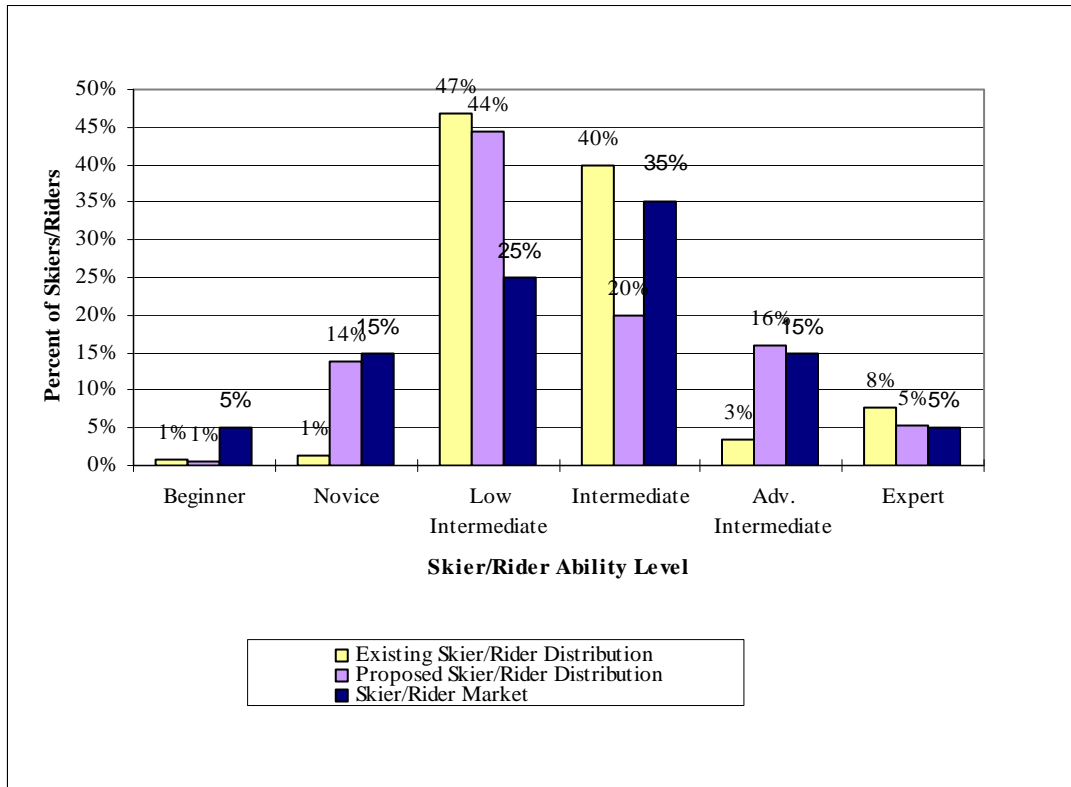


Table 13 and Illustration 5 compare White Pass’ skier distribution with the market demand for each ability level. Skier distribution would be determined as follows:

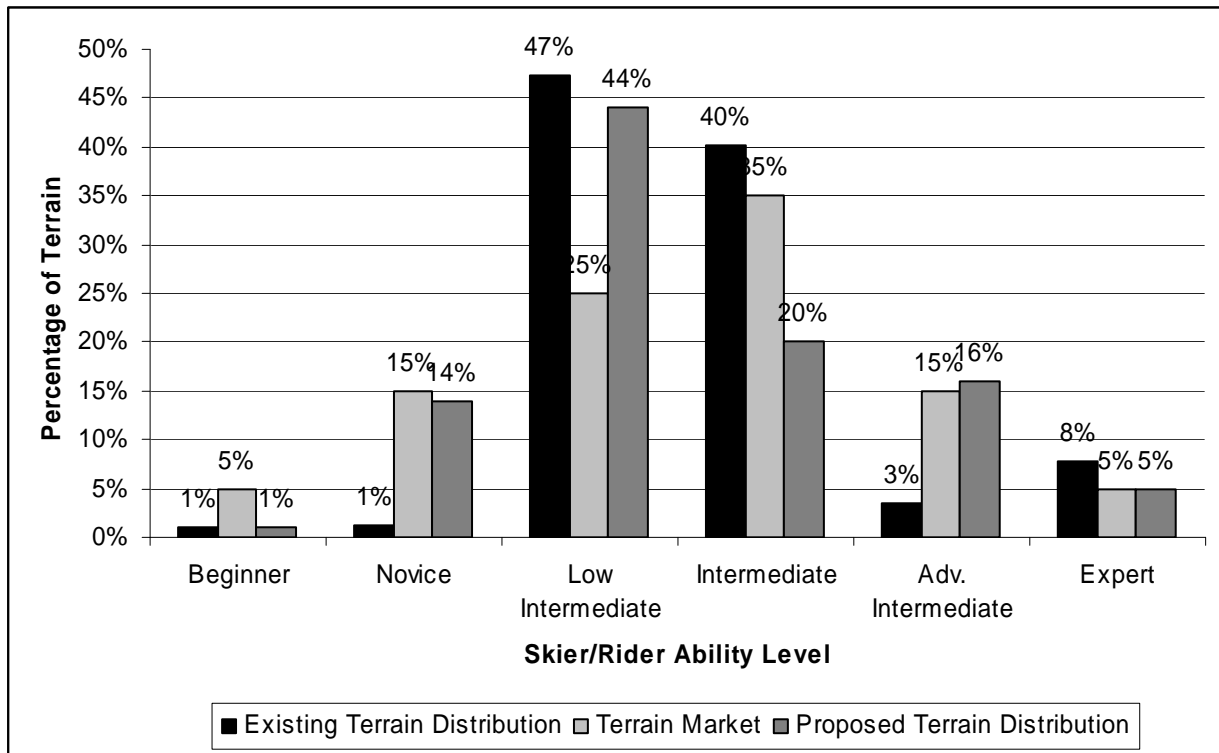
- Each trail would be designated by ability level, as listed in Table 12.

- The number of acres of terrain designated to each ability level would be multiplied by the standard design density for each ability level.
- This total for each ability level would be expressed as a percentage of the total number of skiers.
- This percentage – or skier distribution – would then be compared with the market demand for each ability level (Skier Market [%]).

As shown in Table 13 and Illustration 5, Modified Alternative 4 would improve the overall terrain distribution better than the other Action Alternatives. The novice and advanced intermediate terrain distribution would be brought to the skier market goals. Low intermediate terrain would be reduced in percentage, and expert would be reduced in percentage, bringing those categories closer to the market goal. The only category that would be moved farther away from the market goals would be intermediate, and this would be simply a matter of increases in other categories. There would be no reduction in the actual quantity of intermediate terrain.

Illustration 6 compares the White Pass terrain distribution to the market demand.

**Illustration 6:
Acreage Distribution by Ability Levels – Proposed Upgrading – Modified Alternative 4**



Consistent with the skier distribution in Illustration 5, the acreage distribution by ability levels comparison also indicates that the proposed upgrades would improve the overall distribution, particularly with the increase of novice and advanced intermediate terrain.

Comfortable Carrying Capacity

The calculation of White Pass’ CCC for Modified Alternative 4 is described in Table 14. As illustrated, the proposed expansion would increase the CCC of the lift and trail network at White Pass to 3,800 guests per day (an increase of 42 percent).

**Table 14:
Classification of Comfortable Carrying Capacity – Proposed Upgrading – Modified Alternative 4**

Map Ref.	Lift Name/ Lift Type	Slope Length	Vert. Rise	Hourly Cap.	Oper. Hours	Up-Mtn. Access Role	Load Eff.	Adj. Hourly Cap.	VTF/Day	Vertical Demand	CCC
		(ft.)	(ft.)	(PPH)	(hrs.)	(%)	(%)	(PPH)	(000)	(ft.)	(skiers)
1	Great White Express/DC4	5,125	1,521	2,100	7.00	10	5	1,785	19,008	18,154	1,050
2	Pigtail/C2	4,987	1,493	900	7.00	10	10	720	7,524	18,750	400
3	Lower Cascade/C3	2,232	510	1,800	7.00	0	10	1,620	5,784	9,074	640
4	Paradise/C2	2,804	712	1,200	7.00	0	10	1,080	5,380	10,647	510
5	Platters	517	66	400	7.00	0	10	360	167	2,421	70
6	Basin/C4	3,560	617	1,800	6.50	30	10	1,080	4,333	7,820	550
7	Hogback Express/DC4	4,162	867	1,800	6.50	0	5	1,710	9,638	16,507	580
Total		23,388		10,000				8,355	51,834		3,800

Although the proposed Hogback Basin lift alignments would be the same under Modified Alternative 4 and Alternative 2, the CCC under Modified Alternative 4 would be lower than under Alternative 2. The two proposed lifts have lower capacities under Modified Alternative 4, and the *Basin* lift would be proposed to be faster under Modified Alternative 4 than under Alternative 2. The lower capacities are proposed in an effort to address the issue of high densities on the egress trails.

Density Analysis

Specifications for the Modified Alternative 4 density analysis are set forth in Table 15.

**Table 15:
Ski Trail Density Analysis – Proposed Upgrading – Modified Alternative 4**

Map Ref.	Daily Lift CCC	Guest Dispersement				Density Analysis				
		Support Fac./ Milling	Lift Lines	On Lift	On Trails	Trail Area	Actual Trail Density	Target Trail Density	Diff.	Density Index
		(guests)	(guests)	(guests)	(guests)	(acres)	(guest/ac.)	(guest/ac.)	(+/-)	(%)
1	1,050	263	298	152	337	113.5	3	9	-6	33%
2	400	100	36	133	131	33.2	4	7	-3	57%
3	640	160	86	134	260	42.2	6	14	-8	43%
4	510	128	54	112	216	38.6	6	11	-5	55%
5	70	18	18	8	26	1.4	18	18	0	100%
6	550	138	54	128	230	22.8	10	14	-4	71%
7	580	145	86	119	230	45.7	5	7	-2	71%
Total	3,800	952	632	786	1,430	297.6	6	10	-5	53%

Table 15 indicates that under the proposed upgrading plan for Modified Alternative 4, all of White Pass’ trails will remain in the desirable situation of being at or below target trail densities. Overall density would be 17 percent less than that proposed for Alternative 2.

Under Modified Alternative 4, the high densities that occur under the existing condition and that would occur under Alternative 2, would be mitigated by these improvements. Specifically, operating the expansion area lifts at a lower capacity than Alternative 2 would reduce the total number of skiers in the area. Also, modifications to the Holiday trail would allow for the novice and low-intermediate skiers to make a choice on a route back to the base area. Where these skiers would have to ski Main Street under the existing condition or Alternative 2, they would have the choice to ride up the *Paradise* lift and ski down Holiday trail. Finally, the addition of the new egress trail above Main Street provides an optimal egress for all skiers leaving the expansion area or the *Paradise* pod.

Resort Balance and Limiting Factors

Under Modified Alternative 4, the overall capacity would increase and the balance of the ski resort would improve. Both the lift network and ski terrain capacities would increase. The lift network capacity would increase to 3,800 people, while the ski terrain capacity would increase to 7,766 people. This would create a better balance between the lift and trail networks, without creating over-crowding. All of the capacity added would be in areas that situated away from the cliff band, thereby addressing the problem of the cliff band restricting skier capacity. Further, Modified Alternative 4 would address the existing issues of the capacity restrictions that result from the high densities on the existing egress trails.

5.0 PROPOSED UPGRADING PLAN – ALTERNATIVE 6

Summary

Under Alternative 6, one new lift would be proposed in the Hogback Basin area. New terrain would be developed to service this lift, but there would be no modifications to the existing lifts or terrain. The new lift (*Basin*) would be built at maximum capacity for a high speed, detachable quad chairlift, as described in Alternative 2. Alternative 6 does not address the need for improved circulation as it proposes no modifications to the existing egress trails or trails that cross the cliff band. Alternative 6 somewhat addresses the need for skier dispersal, as it provides a new lift, terrain, and facilities away from the base area. This would somewhat reduce the crowding in the existing ski area by allowing some skiers to remain on the upper mountain for much of the skiing day. However, since the existing circulation problems would not be addressed, it would be likely that the existing high densities on the egress trails would be increased during the afternoon and lunchtime egress periods. Alternative 6 does not address the need for increased novice and advanced intermediate terrain. It does not add any advanced intermediate or novice terrain. Alternative 6 addresses the need for improved skiing during the early season, warm periods during the regular season, or low snow years. By providing additional skiing at higher elevations, the quality of the skiing during these times would be significantly improved.

Lifts

Under Alternative 6, White Pass would add one additional lift to their existing lift system, bringing the total number of lifts to six. The *Basin* lift would extend to the south-west of the existing ski area, into the western Hogback Basin (known also as Pigtail Basin). The lift alignment proposed for the *Basin* lift under Alternative 6 would be the same as under Alternative 2. The bottom terminal of the proposed *Basin* chairlift would be approximately 5,552 feet elevation. The upper terminal would be located at approximately 6,169 feet elevation, approximately 240 feet from the Wilderness/SUP area boundary. Under Alternative 6, the *Basin* lift would be the only lift proposed and would be installed as a high-speed detachable quad to provide round-trip skiing, as opposed to a transportation role, as in Alternative 2.

Specifications for the proposed lifts under Alternative 6 are set forth in Table 16.

**Table 16:
Lift Specifications – Proposed Upgrading – Alternative 6**

Map Ref.	Lift Name / Lift Type	Top Elev.	Bot. Elev.	Vert. Rise	Plan. Length	Slope Length	Avg. Grade	Hourly Cap.	Rope Speed	Carrier Spacing	Lift Maker/ Year Installed
		(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(%)	(per./hr.)	(fpm)	(ft.)	
1	Great White Express/DC4	5,999	4,477	1,521	4,814	5,125	32%	2,100	1,000	114	Doppelmayr/1994
2	Pigtail/C2	5,978	4,485	1,493	4,628	4,987	32%	900	450	60	Riblet/1958
3	Lower Cascade/C3	5,024	4,514	510	2,166	2,232	24%	1,800	450	45	Doppelmayr/2000
4	Paradise/C2	5,961	5,249	712	2,675	2,804	27%	1,200	450	45	Riblet/1984
5	Platters	4,545	4,479	66	512	517	13%	400	400	60	Doppelmayr/2000
6	Basin/DC4	6,169	5,552	617	3,497	3,560	18%	2,400	1,000	100	<i>Proposed</i>

KEY: “S” is Surface Lift, “C-2” is Fixed-Grip Double, “C-3” is Fixed-Grip Triple, “C-4” is Fixed-Grip Quad, “DC4” is Detachable Quad

Terrain

Under Alternative 6, White Pass would add approximately 29 acres of terrain on seven new trails, all of which would be accessed from the proposed *Basin* lift. The trail network under Alternative 6 would increase from the existing 37 named trails on approximately 212 acres to 44 trails on approximately 241 acres. None of the proposed trails are situated so that they cross the cliff band. Specifications for the proposed trails are set forth in Table 17. The new terrain would provide low intermediate skiing, a category that White Pass already has in abundance. The trails are mostly in the fall-line and provide enough variations in width and slope to provide good terrain variety. Traversing would be required on trails 6-1 and 6-2, which are the trails that would be used to access and egress the new terrain. Throughout the terrain, there are flat areas of less than 10 percent slope extending 150 feet or more. As described for Alternative 2 and Modified Alternative 4, skiers would have to maintain speed to navigate these flatter areas.

**Table 17:
Terrain Specifications – Proposed Upgrading – Alternative 6**

Map Ref	Trail/Area Name	Top Elev.	Bottom Elev.	Vert. Drop	Plan Length	Slope Length	Avg. Width	Slope Area	Avg. Grade	Max. Grade	Ability Level
		(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ac.)	(%)	(%)	
1	Beginner no-name Trail	4,547	4,478	68	584	589	104	1.4	12%	17%	Novice
2	Cascade	5,967	4,971	996	4,989	5,131	170	20.1	20%	43%	Intermediate
3	Cascade Cliff	5,266	5,050	216	849	896	206	4.2	25%	64%	Expert
4	Chair Trail	5,688	5,466	222	768	817	147	2.8	29%	57%	Expert
5	Elevator Shaft	5,206	5,087	119	354	380	150	1.3	34%	48%	Expert
6	Execution	5,415	5,027	388	593	723	162	2.7	65%	99%	Expert
7	Far Side	5,023	4,517	506	2,573	2,631	270	16.3	20%	35%	Low Intermediate

**Table 17:
Terrain Specifications – Proposed Upgrading – Alternative 6**

Map Ref	Trail/Area Name	Top Elev.	Bottom Elev.	Vert. Drop	Plan Length	Slope Length	Avg. Width	Slope Area	Avg. Grade	Max. Grade	Ability Level
		(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ac.)	(%)	(%)	
8	Grouse	5,851	5,339	513	3,056	3,113	80	5.7	17%	33%	Low Intermediate
9	Holicade	5,704	5,544	160	842	862	68	1.3	19%	35%	Intermediate
10	Holiday	5,975	4,816	1,159	8,539	8,713	106	21.3	14%	39%	Intermediate
11	Holiday Cliff	5,487	5,132	355	1,300	1,372	100	3.2	27%	65%	Expert
12	Jaw Breaker	5,518	5,388	129	1,432	1,444	83	2.8	9%	20%	Intermediate
13	Lower Holiday	4,816	4,509	306	2,185	2,213	208	10.5	14%	25%	Low Intermediate
14	Lower Hour Glass	5,139	4,918	221	765	802	131	2.4	29%	45%	Intermediate
15	Lower Paradise	4,766	4,475	291	3,516	3,548	60	4.9	8%	23%	Expert
16	Lower Roller	4,972	4,504	468	1,357	1,445	303	10.0	34%	53%	Advanced Intermediate
17	Mach V	5,943	5,635	308	1,036	1,102	109	2.8	30%	66%	Expert
18	Main Street	5,286	4,771	514	3,123	3,204	84	6.1	16%	56%	Expert
19	Midway	5,725	5,318	408	1,370	1,448	79	2.6	30%	53%	Expert
20	Near Side	5,038	4,475	562	2,479	2,549	309	18.1	23%	35%	Low Intermediate
21	Noname Trail	5,170	4,854	317	1,196	1,241	225	6.4	26%	38%	Intermediate
22	North Peak	5,905	5,632	272	1,183	1,264	78	2.3	23%	73%	Expert
23	Outhouse	5,979	5,812	167	304	353	195	1.6	55%	76%	Expert
24	Paradise Cliff	5,163	4,766	397	2,031	2,105	77	3.7	20%	55%	Expert
25	Poma Bowl	5,063	4,486	577	1,908	2,005	218	10.0	30%	45%	Intermediate
26	Poma Face	4,966	4,483	483	1,621	1,698	261	10.2	30%	41%	Intermediate
27	Ptarmigan	5,683	5,359	325	1,504	1,541	147	5.2	22%	29%	Low Intermediate
28	Quail	5,748	5,163	585	3,115	3,194	87	6.4	19%	33%	Low Intermediate
29	Raven's Haven	5,921	5,756	166	309	354	147	1.2	54%	59%	Expert
30	Roller Catrac	5,975	5,670	305	1,544	1,589	83	3.0	20%	41%	Expert
31	Roller Cliff	5,318	4,972	346	655	748	106	1.8	53%	69%	Expert
32	Tucker	5,829	5,487	342	2,238	2,282	84	4.4	15%	36%	Intermediate
33	Upper Hour Glass	5,635	5,210	424	981	1,104	141	3.6	43%	97%	Expert
34	Upper Paradise	5,736	5,286	450	2,183	2,240	117	6.0	21%	33%	Low Intermediate
35	Upper Roller	5,670	5,364	306	996	1,047	114	2.7	31%	43%	Expert
36	Water Fall	4,833	4,681	152	347	384	140	1.2	44%	55%	Expert
37	What	5,648	5,398	250	1,266	1,297	68	2.0	20%	39%	Intermediate
38	Alt 6-1	5,833	5,559	274	3,049	3,071	36	2.5	9%	19%	Low Intermediate
39	Alt 6-2	5,546	5,443	103	1,730	1,738	34	1.4	6%	18%	Low Intermediate
40	Alt 6-3	5,817	5,553	264	1,635	1,662	87	3.3	16%	25%	Low Intermediate
41	Alt 6-4	6,187	5,551	636	3,707	3,772	109	9.4	17%	28%	Low Intermediate
42	Alt 6-5	6,055	5,772	284	1,461	1,496	94	3.2	19%	33%	Low Intermediate
43	Alt 6-6	6,142	5,883	259	1,472	1,499	127	4.4	18%	29%	Low Intermediate
44	Alt 6-7	6,153	5,656	497	3,633	3,684	54	4.5	14%	27%	Low Intermediate
Total						84,351		241.1			

Skier Distribution

Specifications for the proposed skier distribution under Alternative 6 are set forth in Table 18 and Illustration 7.

**Table 18:
Skier Distribution by Ability Levels – Proposed Upgrading – Alternative 6**

Skier Ability Level	Trail Area	Skier Capacity	Skier Distribution	Skier Market
	(acres)	(guests)	(%)	(%)
Beginner	0.5	15.0	1%	5%
Novice	1.4	25.4	1%	15%
Low Intermediate	96.5	1351.0	56%	25%
Intermediate	80.9	809.3	33%	35%
Adv. Intermediate	10.0	70.3	3%	15%
Expert	51.7	155.1	6%	5%
Total:	241.1	2,426	100%	100%

**Illustration 7:
Skier Distribution by Ability Levels – Proposed Upgrading – Alternative 6**

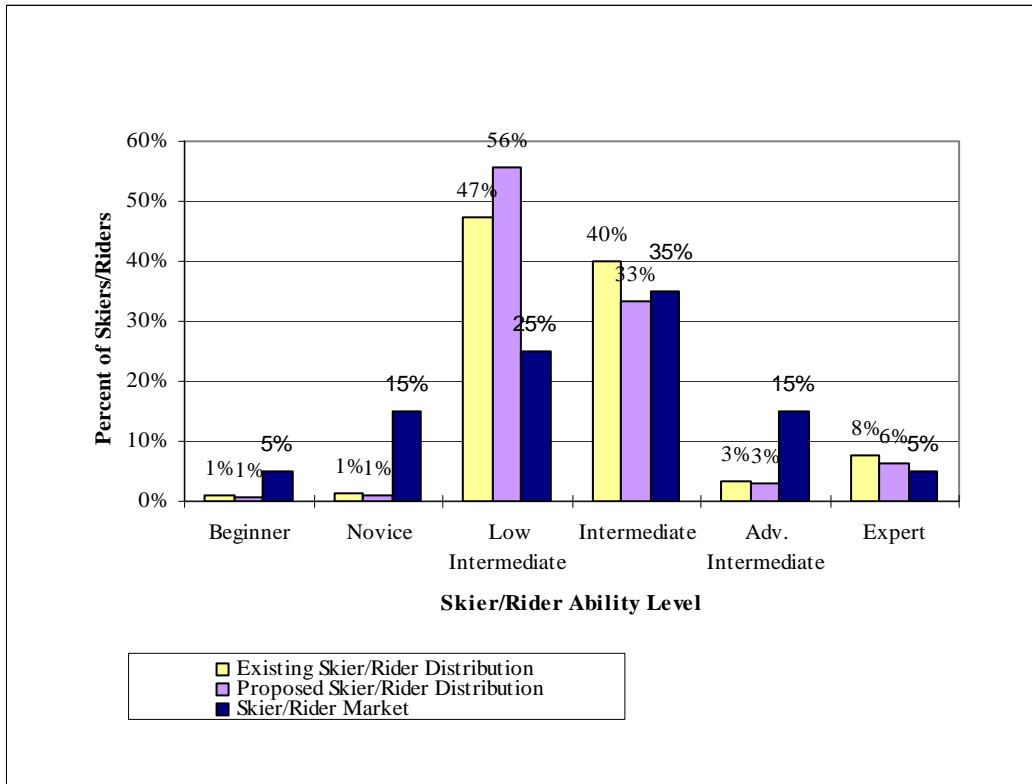


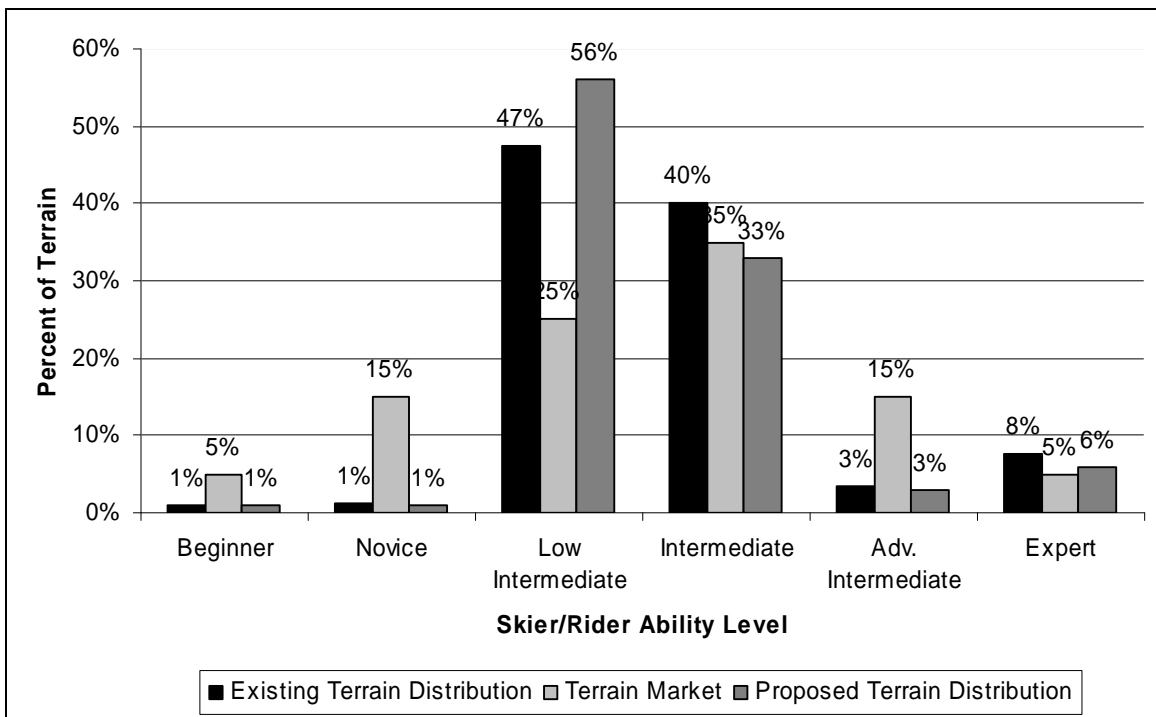
Table 18 and Illustration 7 compare White Pass’ skier distribution with the market demand for each ability level. Skier distribution would be determined as follows:

- Each trail would be designated by ability level, as listed in Table 17.
- The number of acres of terrain designated to each ability level would be multiplied by the standard design density for each ability level.
- This total for each ability level would be expressed as a percentage of the total number of skiers.
- This percentage – or skier distribution – would then be compared with the market demand for each ability level (Skier Market [%]).

As shown in Table 18 and illustration 7, Alternative 6 would not improve the overall terrain distribution. Under the existing conditions, White Pass has a significant surplus of low intermediate terrain, and this alternative would increase that imbalance by providing 29 acres of new low intermediate terrain, without providing terrain of any other ability level type. A primary goal of the new lift and associated trails would be to provide advanced intermediate terrain, but this alternative would not meet that goal.

Illustration 8 compares the White Pass terrain distribution to the market demand.

**Illustration 8:
Acreage Distribution by Ability Levels – Proposed Upgrading – Alternative 6**



Consistent with the skier distribution in Illustration 7, the acreage distribution by ability levels comparison also shows that the proposed upgrades would not improve the overall distribution, but instead would only add low intermediate terrain, which White Pass already has in surplus.

Comfortable Carrying Capacity

The calculation of White Pass’ CCC under Alternative 6 would be described in Table 19. The proposed upgrading program would increase the CCC of the lift and trail network at White Pass to 3,640 guests per day (an increase of 33 percent).

**Table 19:
Classification of Comfortable Carrying Capacity – Proposed Upgrading – Alternative 6**

Map Ref.	Lift Name / Lift Type	Slope Length	Vert. Rise	Hourly Cap.	Oper. Hours	Up-Mtn. Access Role	Load Eff.	Adj. Hourly Cap.	VTF/Day	Vertical Demand	CCC
		(ft.)	(ft.)	(PPH)	(hrs.)	(%)	(%)	(PPH)	(000)	(ft.)	(skiers)
1	Great White Express/DC4	5,125	1,521	2,100	7.00	10	5	1,785	19,008	18,154	1,050
2	Pigtail/C2	4,987	1,493	900	7.00	10	10	720	7,524	18,750	400
3	Lower Cascade/C3	2,232	510	1,800	7.00	0	10	1,620	5,784	9,074	640
4	Paradise/C2	2,804	712	1,200	7.00	0	10	1,080	5,380	10,647	510
5	Platters	517	66	400	7.00	0	10	360	167	2,421	70
6	Basin/C4	3,560	617	2,400	6.50	0	5	2,280	9,147	9,389	970
Total		19,226		8,800				7,845	47,010		3,640

Density Analysis

Specifications for the density analysis under Alternative 6 are set forth in Table 20.

**Table 20:
Ski Trail Density Analysis – Proposed Upgrading – Alternative 6**

Map Ref.	Daily Lift CCC	Guest Dispersement				Density Analysis				
		Support Fac./ Milling	Lift Lines	On Lift	On Trails	Trail Area	Actual Trail Density	Target Trail Density	Diff.	Density Index
		(guests)	(guests)	(guests)	(guests)	(acres)	(guest/ac.)	(guest/ac.)	(+/-)	(%)
1	1,050	263	298	152	337	108.7	3	8	-5	38%
2	400	100	36	133	131	30.8	4	6	-2	67%
3	640	160	86	134	260	44.7	6	13	-7	46%
4	510	128	54	112	216	28.1	8	13	-5	62%
5	70	18	18	8	26	1.4	18	18	0	100%
6	970	243	114	135	478	27.4	17	14	3	121%
Total	3,640	912	606	674	1,448	241.1	8	11	-3	75%

Table 20 indicates that under Alternative 6, the terrain associated with the proposed lift would be well above target trail densities. This is due to the relatively small amount of terrain available from this lift. In addition, since there would be no other lift for skiers to access from this lift under this alternative, all of the skiers in the expansion area would be using this terrain. Since a significant percentage of skiers using this lift under Alternative 2 and Modified Alternative 4 would be using it to access another lift, the terrain densities on the trails proposed for this lift would be kept at acceptable levels under Alternative 2 and Modified Alternative 4. However, since that would not be the case under Alternative 6, the terrain densities would be high.

In addition to this, as with Alternative 2 the existing return trails to the bottom of the ski area would also have problems with high densities. Under Alternative 6, skier densities would become worse during the egress time, typically the last hour and a half of ski area operation (refer to Table 20). Since there would be an increased number of skiers on the upper mountain, the densities on those egress routes would increase during the time of day when those skiers are returning to the base area. While there would be fewer skiers using the upper mountain under Alternative 6, as compared to Alternative 2 and Modified Alternative 4, there would still be an increase in skier densities on the egress trails.

Resort Balance and Limiting Factors

Under Alternative 6, the lift network and ski terrain capacities would both increase. The lift network capacity would increase to 3,640 people, while the ski terrain capacity would increase to 6,079 people. However, the overall balance of the ski resort would not be significantly improved. This is because only low intermediate terrain would be added, which would be an ability level class of terrain that White Pass already has in abundance. Also, as discussed in the density analysis above, if the new terrain would be utilized to its capacity, the terrain would be over crowded, creating an undesirable situation. Furthermore,

the effect of the new lift and terrain on utilization of the resort would be uncertain. The addition of this terrain would increase total acreage and change the character of the mountain, since the new terrain located more remote from the base area and in a subalpine parkland environment would be more desirable than much of the existing lower end terrain, which is closer to the base area and is largely comprised of cleared trails through dense forest stands. However, as a result of the above discussions of terrain distribution and density, this alternative would be less desirable than others.

All of the capacity added would be in areas that are situated away from the cliff band, thereby addressing the problem of the cliff band restricting skier capacity. However, as stated above, all of the additional skiers in the new terrain would have to cross the cliff band to return to the base of the mountain at the end of the day. Since there are no upgrades proposed in Alternative 6 for the trails that transition from the top of the mountain to the bottom of the mountain across the cliff band, the densities on those trails would increase from their already high levels.

6.0 PROPOSED UPGRADING PLAN – ALTERNATIVE 9

Summary

Under Alternative 9, one new lift would be proposed, located within the existing ski area boundary, to the east of the existing lifts. New terrain would be developed to service this lift, and grading would occur on existing trails within the existing part of the ski area. There would be a new advanced intermediate trail off the *Paradise* lift and an additional egress trail off the Main Street trail, as well as grading on the Holiday trail. There would be no modifications to the existing lifts. Alternative 9 addresses the need for improved circulation with the above-stated modifications and additions to the existing egress trails. Alternative 9 does not address the need for skier dispersal, as it does not provide any new lifts or terrain away from the existing base area. This would increase the crowding in the existing part of the ski area by increasing the number of skiers using the existing terrain and facilities. Aside from the mountain-top lodge, there would be no ski terrain related provision in Alternative 9 to allow skiers to remain on the upper mountain for much of the skiing day. Alternative 9 addresses the need for increased novice and advanced intermediate terrain by proposing grading on the Holiday trail, allowing it to be classified as a novice trail, and building two new advanced intermediate trails. However, while these changes would somewhat improve the terrain distribution percentages, there would be relatively little overall increase to the advanced intermediate acreage in particular, as discussed below. Further, there would not be much improvement to the variety of terrain offered, as all the proposed terrain lies within the existing resort boundaries. Alternative 9 does not address the need for improved skiing during the early season, in warm periods during the regular season, and during low snow years. By not providing any additional skiing at higher elevations, there would be no improvement to the quality of the skiing during these times.

Lifts

Under Alternative 9, White Pass would add some additional terrain and an additional lift within the existing resort boundaries. The *PCT* lift, a fixed-grip triple, would be to the east of the existing Holiday trail and would have five trails associated with it. The bottom terminal of the *PCT* lift would be located at approximately 4,573 feet elevation. The upper terminal would be located at approximately 5,100 feet elevation. The intent of the lift would be to improve the skiing product below the cliff band and provide access to more intermediate level terrain.

Specifications for the proposed lifts are set forth in Table 21.

**Table 21:
Lift Specifications – Proposed Upgrading – Alternative 9**

Map Ref.	Lift Name / Lift Type	Top Elev.	Bot. Elev.	Vert. Rise	Plan. Length	Slope Length	Avg. Grade	Hourly Cap.	Rope Speed	Carrier Spacing	Lift Maker/ Year Installed
		(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(%)	(per./hr.)	(fpm)	(ft.)	
1	Great White Express/DC4	5,999	4,477	1,521	4,814	5,125	32%	2,100	1,000	114	Doppelmayr/1994
2	Pigtail/C2	5,978	4,485	1,493	4,628	4,987	32%	900	450	60	Riblet/1958
3	Lower Cascade/C3	5,024	4,514	510	2,166	2,232	24%	1,800	450	45	Unknown
4	Paradise/C2	5,961	5,249	712	2,675	2,804	27%	1,200	450	45	Riblet/1984
5	Platters	4,545	4,479	66	512	517	13%	400	400	60	Unknown
6	PCT Lift/C3	5,092	4,573	519	2,855	2,919	18%	1,800	450	45	<i>Proposed</i>

KEY: “S” is Surface Lift, “C-2” is Fixed-GripDouble, “C-3” is Fixed-Grip Triple, “C-4” is Fixed-Grip Quad, “DC4” is Detachable Quad

Terrain

Under Alternative 9, White Pass would add approximately 53 acres of terrain and restore and revegetate 5.4 acres of existing terrain, for a total increase of about 48 acres of terrain. The trail network under Alternative 9 would increase from the existing 37 named trails on approximately 212 acres to 44 trails on approximately 260 acres. The new terrain would include seven new trails, five of which would be accessed from the new lift, one off the *Paradise* lift, and one from the bottom of the *Paradise* lift back to the base of the resort. Only the trail from the bottom of the *Paradise* lift would be situated so that it crosses the cliff band. The primary reason for this trail would be to increase capacity across the cliff band, and egress off the mountain, particularly to provide a novice level egress route. Additionally, the quality of skiing on other terrain would be improved by widening and re-grading existing trails. Most notably, grading would be done on the Holiday trail so that it could be truly classified as a novice trail, and hopefully make that a more desirable route across the cliff band. Also, the beginner trail off the *Platters* lift would be regraded to make it consistent beginner terrain. Specifications for the proposed trails are set forth in Table 22. The new terrain as proposed would provide primarily intermediate and advanced intermediate terrain, of which White Pass has a shortage. Several of the trails are in the fall-line and provide enough variations in width and slope to provide good terrain variety. The presence of several dry

stream gullies in the terrain along the *PCT* lift creates a challenge to the layout of the pod. Four skier bridges, approximately 40 feet in width, would be required for the trails to cross these gullies. As a result, ski trails that include these skier bridges would decrease in width from 150-200 feet to 40 feet at the bridge. In addition, the bridges would be lower in slope gradient than the trails to provide for a perpendicular crossing, resulting in bridge lengths that could exceed 100 feet. The trail would widen to 150-200 feet again down slope of the bridges. As a result, the terrain in the *PCT* pod would not provide consistent, full-line skiing due to the narrow, low-gradient bridge crossings.

**Table 22:
Terrain Specifications – Proposed Upgrading – Alternative 9**

Map Ref	Trail/Area Name	Top Elev.	Bottom Elev.	Vert Drop	Plan Length	Slope Length	Avg. Width	Slope Area	Avg. Grade	Max. Grade	Ability Level
		(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ac.)	(%)	(%)	
1	Beginner no-name Trail	4,547	4,478	68	584	589	142	1.9	12%	17%	Beginner
2	Cascade	5,967	4,971	996	4,989	5,131	170	20.1	20%	43%	Intermediate
3	Cascade Cliff	5,266	5,050	216	849	896	206	4.2	25%	64%	Expert
4	Chair Trail	5,688	5,466	222	768	817	147	2.8	29%	57%	Expert
5	Elevator Shaft	5,206	5,087	119	354	380	150	1.3	34%	48%	Expert
6	Execution	5,415	5,027	388	593	723	162	2.7	65%	99%	Expert
7	Far Side	5,023	4,517	506	2,573	2,631	241	14.6	20%	35%	Novice
8	Grouse	5,851	5,339	513	3,056	3,113	80	5.7	17%	33%	Low Intermediate
9	Holicade	5,704	5,544	160	842	862	68	1.3	19%	35%	Intermediate
10	Holiday	5,975	4,816	1,159	8,539	8,713	106	21.3	14%	25%	Novice
11	Holiday Cliff	5,487	5,132	355	1,300	1,372	100	3.2	27%	65%	Expert
12	Jaw Breaker	5,518	5,388	129	1,432	1,444	83	2.8	9%	20%	Intermediate
13	Lower Holiday	4,816	4,509	306	2,185	2,213	185	9.4	14%	25%	Low Intermediate
14	Lower Hour Glass	5,139	4,918	221	765	802	131	2.4	29%	45%	Intermediate
15	Lower Paradise	4,766	4,475	291	3,516	3,548	60	4.9	8%	23%	Expert
16	Lower Roller	4,972	4,504	468	1,357	1,445	303	10.0	34%	53%	Advanced Intermediate
17	Mach V	5,943	5,635	308	1,036	1,102	109	2.8	30%	66%	Expert
18	Main Street	5,286	4,771	514	3,123	3,204	84	6.1	16%	56%	Expert
19	Midway	5,725	5,318	408	1,370	1,448	79	2.6	30%	53%	Expert
20	Near Side	5,038	4,475	562	2,479	2,549	257	15.0	23%	35%	Low Intermediate
21	Noname Trail	5,170	4,854	317	1,196	1,241	225	6.4	26%	38%	Intermediate
22	North Peak	5,905	5,632	272	1,183	1,264	78	2.3	23%	73%	Expert
23	Outhouse	5,979	5,812	167	304	353	195	1.6	55%	76%	Expert
24	Paradise Cliff	5,163	4,766	397	2,031	2,105	77	3.7	20%	55%	Expert
25	Poma Bowl	5,063	4,486	577	1,908	2,005	218	10.0	30%	45%	Intermediate
26	Poma Face	4,966	4,483	483	1,621	1,698	261	10.2	30%	41%	Intermediate
27	Ptarmigan	5,683	5,359	325	1,504	1,541	147	5.2	22%	29%	Low Intermediate
28	Quail	5,748	5,163	585	3,115	3,194	87	6.4	19%	33%	Low Intermediate
29	Raven's Haven	5,921	5,756	166	309	354	147	1.2	54%	59%	Expert

**Table 22:
Terrain Specifications – Proposed Upgrading – Alternative 9**

Map Ref	Trail/Area Name	Top Elev.	Bottom Elev.	Vert Drop	Plan Length	Slope Length	Avg. Width	Slope Area	Avg. Grade	Max. Grade	Ability Level
		(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ac.)	(%)	(%)	
30	Roller Catrac	5,975	5,670	305	1,544	1,589	83	3.0	20%	41%	Expert
31	Roller Cliff	5,318	4,972	346	655	748	106	1.8	53%	69%	Expert
32	Tucker	5,829	5,487	342	2,238	2,282	84	4.4	15%	36%	Intermediate
33	Upper Hour Glass	5,635	5,210	424	981	1,104	141	3.6	43%	97%	Expert
34	Upper Paradise	5,736	5,286	450	2,183	2,240	117	6.0	21%	33%	Low Intermediate
35	Upper Roller	5,670	5,364	306	996	1,047	114	2.7	31%	43%	Expert
36	Water Fall	4,833	4,681	152	347	384	140	1.2	44%	55%	Expert
37	What	5,648	5,398	250	1,266	1,297	68	2.0	20%	39%	Intermediate
38	Alt 9-1	5,202	4,920	281	818	871	199	4.0	34%	49%	Advanced Intermediate
39	Alt 9-2	5,089	4,573	517	3,400	3,455	168	13.3	15%	35%	Intermediate
40	Alt 9-3	5,090	4,684	406	1,964	2,015	172	8.0	21%	36%	Intermediate
41	Alt 9-4	5,067	4,813	254	1,091	1,126	179	4.6	23%	36%	Intermediate
42	Alt 9-5	5,012	4,664	348	1,472	1,519	205	7.2	24%	34%	Low Intermediate
43	Alt 9-6	4,974	4,637	337	3,108	3,138	56	4.0	11%	22%	Low Intermediate
44	Alt 9-7	5,851	5,315	536	2,250	2,326	219	11.7	24%	45%	Advanced Intermediate
Total						81,881		259.70			

Skier Distribution

Specifications for the proposed skier distribution under Alternative 9 are set forth in Table 23 and Illustration 9.

**Table 23:
Skier Distribution by Ability Levels – Proposed Upgrading – Alternative 9**

Skier Ability Level	Trail Area	Skier Capacity	Skier Distribution	Skier Market
	(acres)	(guests)	(%)	(%)
Beginner	1.9	57.5	2%	5%
Novice	35.8	645.2	24%	15%
Low Intermediate	58.9	824.6	30%	25%
Intermediate	85.6	856.0	31%	35%
Adv. Intermediate	25.7	180.1	7%	15%
Expert	51.7	155.1	6%	5%
Total	259.7	2,718	100%	100%

**Illustration 9:
Skier Distribution by Ability Levels – Proposed Upgrading – Alternative 9**

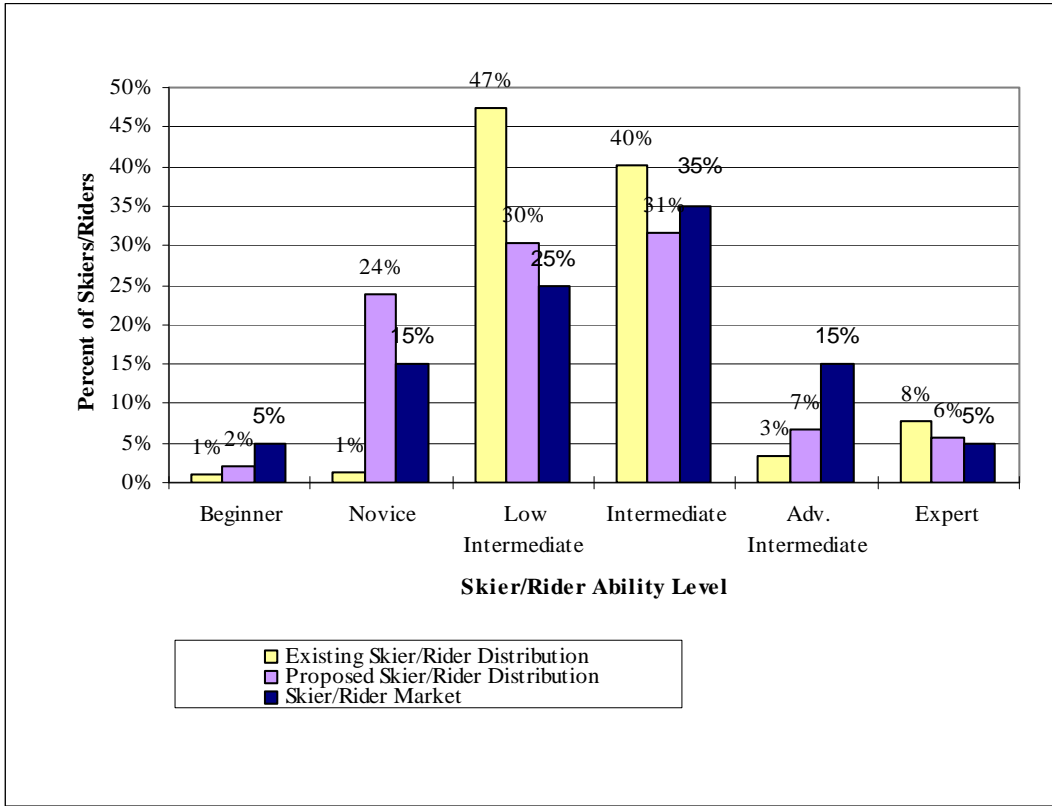


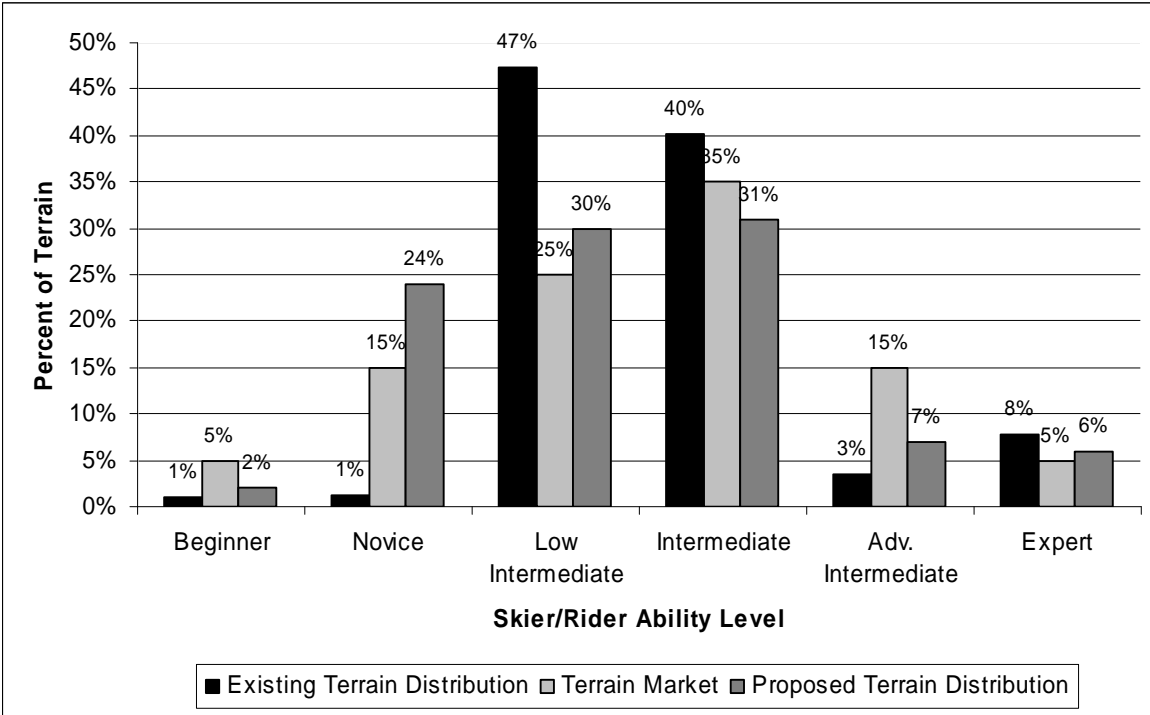
Table 23 and Illustration 9 compare White Pass’ skier distribution with the market demand for each ability level. Skier distribution would be determined as follows:

- Each trail would be designated by ability level, as listed in Table 22.
- The number of acres of terrain designated to each ability level would be multiplied by the standard design density for each ability level.
- This total for each ability level would be expressed as a percentage of the total number of skiers.
- This percentage – or skier distribution – would then be compared with the market demand for each ability level.

As shown in Table 23 and Illustration 9, Alternative 9 would improve the overall terrain distribution. Under the existing conditions, White Pass has a significant surplus of low intermediate terrain, and a deficit of novice and advanced intermediate terrain. Through the grading in this alternative, terrain would be re-classified from low intermediate to novice terrain, which greatly helps with the distribution. A small amount of advanced intermediate terrain would be added, which slightly helps with that imbalance.

Illustration 10 presents White Pass’ terrain distribution under Alternative 9.

**Illustration 10:
Acreage Distribution by Ability Levels – Proposed Upgrading – Alternative 9**



Consistent with the skier distribution in Illustration 10, the acreage distribution by ability levels comparison also indicates that Alternative 9 would improve the overall distribution, but not add much advanced intermediate terrain, which is what the resort would be primarily lacking.

Comfortable Carrying Capacity

The calculation of White Pass’ CCC under Alternative 9 is described in Table 24. As illustrated, Alternative 9 would increase the CCC of the lift and trail network at White Pass to 3,280 guests per day (an increase of 23 percent).

Table 24:
Classification of Comfortable Carrying Capacity – Proposed Upgrading – Alternative 9

Map Ref.	Lift Name / Lift Type	Slope Length	Vert. Rise	Hourly Cap.	Oper. Hours	Up-Mtn. Access Role	Load Eff.	Adj. Hourly Cap.	VTF/Day	Vertical Demand	CCC
		(ft.)	(ft.)	(PPH)	(hrs.)	(%)	(%)	(PPH)	(000)	(ft.)	(skiers)
1	Great White Express/DC4	5,125	1,521	2,100	7.00	10	5	1,785	19,008	18,154	1,050
2	Pigtail/C2	4,987	1,493	900	7.00	10	10	720	7,524	18,750	400
3	Lower Cascade/C3	2,232	510	1,800	7.00	0	10	1,620	5,784	9,074	640
4	Paradise/C2	2,804	712	1,200	7.00	0	10	1,080	5,380	10,647	510
5	Platters	517	66	400	7.00	0	10	360	167	2,421	70
6	PCT Lift/C3	2,919	519	1,800	6.50	0	10	1,620	5,467	8,892	610
Total		18,585		8,200				7,185	43,330		3,280

Density Analysis

Specifications for the density analysis under Alternative 6 are set forth in Table 25.

Table 25:
Ski Trail Density Analysis – Proposed Upgrading – Alternative 9

Map Ref.	Daily Lift CCC	Guest Dispersement				Density Analysis				
		Support Fac./ Milling	Lift Lines	On Lift	On Trails	Trail Area	Actual Trail Density	Target Trail Density	Diff.	Density Index
		(guests)	(guests)	(guests)	(guests)	(acres)	(guest/ac.)	(guest/ac.)	(+/-)	(%)
1	1,050	263	298	152	337	109.6	3	9	-6	33%
2	400	100	36	133	131	32.0	4	7	-3	57%
3	640	160	86	134	260	40.0	6	16	-10	38%
4	510	128	54	112	216	39.1	6	11	-5	55%
5	70	18	18	8	26	1.9	14	30	-16	47%
6	610	153	81	175	201	37.1	5	10	-5	50%
Total	3,280	822	573	714	1,171	259.7	5	11	-6	43%

Table 25 indicates that under Alternative 9, all of White Pass’ trails would remain in the desirable situation of being well below target trail densities. The overall density index improves under Alternative 9, primarily as a result of the grading that would be proposed to reclassify several trails down to their intended ability level ratings.

The creation of the novice route on the west side, from the bottom of the *Paradise* lift to the base of the resort, and the regrading of the Holiday trail, would drop skier densities on the Cascade cat track as well as increasing egress capacity.

Resort Balance and Limiting Factors

Under Alternative 9, the overall capacity would increase and the balance of the ski resort would improve. Both the lift network and ski terrain capacities would increase. The lift network capacity would increase to 3,280 people, while the ski terrain capacity would increase to 7,562 people. This would create a better balance between the lift and trail networks, without creating over-crowding. However, the most significant benefit of Alternative 9 would be the improvement of the skiing experience of the existing mountain by providing for better circulation and flow of skiers, increasing egress capacity (and therefore helping to alleviate the crowding on the existing Cascade cat track), and providing more, and more varied, terrain below the cliff band. However, this alternative would not add to the quantity of advanced intermediate terrain, or terrain at high elevations. Also, the quality of the terrain in the *PCT* pod would be limited by the interruptions provided by the skier bridges.