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SWEET



2.0 EXISTING RESORT CONDITIONS

2.1 LOCATION

Big White is located approximately 55 kilometres east of Kelowna, within the Beaverdell Range of the Okanagan Highland. The region lies within south central British Columbia, between the Continental Divide and the Coast Mountain Range (Fig. 2-1a).



Figure 2-1a. Location Context

2.2 ACCESS

Big White is accessed via Big White Road and Highway 33. Highway 33 connects the Resort to the City of Kelowna and acts as the primary access portal. Road access to Kelowna has improved significantly with the development of the Coquihalla Highway Connector and the William R. Bennett Bridge in Kelowna that spans Lake Okanagan. Distances and driving times to Big White Village from important regional population centres is presented in Table 2-1. It is important to note that the drive time to the Gem Lake Base, Big White's first portal for day use guest to access the skiing, shortens drive time by 15 minutes relative to the Village.

City	Distance (km)	Distance (mi)	Drive Time
Kelowna	47 km	29 mi	40 mins via BC-33 N
Vancouver	429 km	4 hrs via Hwy 97C / Coquihalla	
Seattle	Seattle 552 km 342 m		5.25 hrs via Hwy 97C / Coquihalla
Spokane	359 km	223 mi	4.25 hrs via Hwy 395
Calgary	655 km	407 mi	6.75 hrs via Hwy 97A / Trans Canada

Table 2-1	Drive	Times	to	Ria	White
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Kelowna International Airport serves the Central Okanagan with direct connections to Vancouver, Seattle, Honolulu, Calgary, Edmonton and Toronto. Non-stop flights are available daily during the ski season, making Big White easily accessible from many international markets (via Calgary or Vancouver). Big White is also the most easily accessible western resort from the Toronto market with two non-stop flights daily. With the continued improvement of air service, it is now possible to leave key markets in the morning and be skiing by the afternoon. The launch of non-stop flights from Europe will open additional markets for Big White. Shuttle service or rental cars are available at the Kelowna International Airport for transport to Big White.

2.3 REGIONAL CONTEXT

The economy of Okanagan region is well diversified with agriculture, forestry, and tourism as the region's prominent industries. The warm summer climate makes this area one of the more important agricultural centres in BC, as well as a tourism destination. Transportation links to the Lower Mainland via the Coquihalla Highway Connector have enhanced the Central Okanagan as a place to locate secondary and tertiary manufacturing. The University of British Columbia Okanagan (UBCO) and Okanagan College campuses have also attracted skilled people to the region. The population of the Central Okanagan surpassed 194,000 people in 2016, making it one of the fastest growing regions in British Columbia.

Summer tourism is centred on Lake Okanagan, the cities of Kelowna, Vernon, and Penticton, as well as the many championship golf courses and golf course communities, such as Predator Ridge and Gallagher's Canyon. Winter tourism is centred on the many ski resorts in the area: Big White, Silver Star, Apex, and Mt. Baldy. Agriculture, including over 200 wineries, and the popularity of the region as a tourism and retirement centre should ensure continued growth in the future.



Figure 2-1b. Regional Context

2.3.1 Regional Planning Policy

Big White is located within the Regional District of Kootenay Boundary (RDKB) and is administered under an Official Community Plan (OCP) and Zoning Bylaw specific to Big White. The Official Community Plan (OCP) sets out a long-term strategy for the physical, economic, and social development of the area. Official Community Plans are adopted by the Board of Directors as a formal Bylaw applicable to an unincorporated Electoral Area. The primary purpose of the OCP is to ensure that new development takes place in an orderly and economically efficient manner, and that the desired community characteristics and environmental qualities are protected.

In 2001, the RDKB approved the new OCP for Big White (Fig. 2-2a). It defines the range and type of development anticipated at the resort and outlined the goals, objectives and strategies for creating an attractive alpine community at Big White. With amendments, a large portion of this development is well on its way to being realized, as approved in the modified 1999 Master Plan and 2017 Bike Park Master Plan, and as reflected in Happy Valley and Black Forest Secondary Plans.

It is anticipated that the 2020 Master Plan will influence the next revision of the OCP. Lessons learned from existing developments will be incorporated into the new OCP and Big White will work with the RDKB to ensure that the new OCP and its subsequent amendments, responds to property owners concerns, improves existing bylaws (e.g. parking, residential density), and defines and renews the vision for the Big White community.

Complementing the OCP are the Big White Zoning Bylaws (Fig. 2-2b) and the Big White Design Guidelines.



Figure 2-2a. Existing OCP and Land Use Plan



Figure 2-2b. Big White Zoning Bylaws

2.3.2 Strategic Land Use Plans

Two types of higher-level strategic land use plans guide land use and development in British Columbia. Land Resource Management Plans and Sustainable Resource Management Plans are developed by the Province to guide rural land use and resource extraction throughout British Columbia. A third, Regional Growth Strategies, are developed by Regional Districts to address urban growth, development, and land use within a region, though they encompass large areas that are often made up of both urban and rural land uses.

The Resort straddles two Land Resource Management Plan (LRMP) areas: the Okanagan-Shuswap LRMP and the Kootenay Boundary LRMP. These LRMPs define objectives for the management of natural resources, strategies for achieving those objectives, and an assessment of the socio-economic and environmental opportunities and constraints for specific management zones that make up the plan area. All effort will be made to ensure that the goals, objectives and development strategies associated with this Master Plan coincide with the goals and objectives of both the Okanagan-Shuswap and Kootenay Boundary LRMPs.

As of writing, the Regional District of Kootenay Boundary had yet to undertake a Regional Growth Strategy.

2.3.3 Adjacent Land and Resource Use

The area surrounding Big White is made up primarily of Crown lands. As with all Crown land, there are many public and private interests on the land, from recreation use for backcountry skiing, hiking/biking, and snowmobiling, to resource extraction interests of the forestry and mining industries.

Forestry activity is particularly active around Big White. TFL 8, a private Tree Farm Licence, abuts and overlaps with the southern portion of Big White's existing CRA (Fig. 2-3). Other Licensees operate in the area as well, leaving the forests surrounding the resort a patchwork of cut blocks and regenerating forest of various ages. Big White has a strong collaborative working relationship with the forest tenure holders, cooperatively sharing plans and information in an ongoing and progressive fashion.

There are also several mineral claims in the area, most notable being the Blizzard Uranium claim. The Blizzard claim is approximately 10 km south of Big White and is visible from some ski runs at the Resort. It should be noted that the Province placed a moratorium on uranium mining in 2009, leading to a settlement that effectively precludes the likelihood of these lands ever being mined for uranium. Ski run development uses approximately 30-40% of the land area (as compared to forestry or mining operations which affect close to 100%) and is generally considered a non-extractive use of land and resources. It is the opinion of BHA and Big White that resort development is the highest and best use of land and offers the greatest opportunity for sustained prosperity. As such, Big White will continue work collaboratively with resource industries to address any issues that may arise and identify opportunities that support those industries while preserving the character of Big White and its natural surroundings.

The existing CRA also overlaps with and is adjacent to several traplines, some of which hold significance to the Westbank First Nation. Through ongoing conversation WFN has expressed the cultural, historical, and economic importance of trapping activities in this area and wider Okanagan. Big White recognizes this and is committed to working with the WFN and all trapline tenure holders to preserve these activities.

Public recreation also occurs on the Crown lands surrounding the Resort. These activities are dominated in the winter by snowmobile and backcountry skiing and in the summer by off-road motorized use and cross-country mountain biking. Big White views its role as a host and staging location for these activities and will continue to work with the various user groups to ensure that connections from the Resort to Crown lands and connections through the Resort to adjacent lands are maintained and improved. It is the goal of the Resort owners and management that tourism expansion and public recreation coexist and mutually benefit all parties. Improvements to the recreation offering made to attract tourism revenue will be designed to have the dual benefit of improving the quality of public recreation for all.



Figure 2-3. Overlapping Forestry Interests

2.4 HISTORIC CONTEXT

Big White Ski Resort began operating in 1963 with two T-Bars, bringing lift-serviced skiing to the local population. The Ridge Chair (double) was opened in the early 1970's. By the early 1980's, three triple chairs had been added. Big White was purchased by the Kelowna-based Schumann Resorts in 1985. They added the Resort's first detachable quad, the Ridge Rocket Express, in 1989 and another, the Bullet Express, in 1991. The Gem Lake Express was installed in 1996, doubling the skiable terrain. Since that time, the current ownership group, BWSR Trust, has continued to inject significant amounts of capital and passion into Big White, transforming it into the second largest ski resort in British Columbia.

2.4.1 Mountain Development – 1999 to Present

Mountain development has continued in recent years in line with the Master Plan approved by the Province in 1999. Expansion was centred on the Gem Lake Base Area which resulted in a substantial improvement to the day-use experience of local guests, as it reduced travels times from Kelowna by twenty minutes. The ski run development in the area expanded Big White's offering to provide an excellent mix of intermediate runs on a southern aspect.

In the high alpine, the Cliff T-bar was replaced by a double chairlift in 2004. The Cliff Chair services the advanced and expert terrain off the eastern side of Big White Mountain. In 2005, Big White added Canada's largest six passenger chairlift, the Snow Ghost Express, and upgraded the capacity of the Black Forest lift. In 2018 the old Powder Chair triple was replaced with a new fixed grip four-passenger chair along with associated trail improvements. Also, a new and widened skier tunnel was built increasing skier capacity of the Hummingbird trail, connecting the Village and the Ridge Base.

The Happy Valley area has seen the establishment of a major beginner skiing and snowboarding complex. Teaching and learning areas are serviced by three carpet lifts. Adjacent to this, there is the Big White tube park, snow play area and ice climbing tower. Happy Valley also is the staging point for the Big White Nordic ski trail system.

In 2018, Big White undertook a modification to its 1999 Master Plan, relocating two lifts proposed for the Gem West Area to the Black Forest Area. The relocation was pursued to address increasing demand for intermediate ski terrain at Big White and to add capacity to the Black Forest Area, the most popular skiing area at the Resort. The Black Forest Connector and Backcountry Chair will provide access a significant amount of intermediate skiing and gladed skiing, both serviced from the new Black Forest Day Lodge. Big White has also enthusiastically pursued development of its summer recreation offerings. In 2017, Big White opened the Big White bike park launching what is destined to become a world leading lift-accessed mountain biking experience. A year later in 2018, the Resort developed the Big White Slopestyle Course and announced its completion by hosting the inaugural Big White Invitational that featured the best slopestyle mountain bikers in the world.

2.4.2 Base Area Development – 1999 to Present

Base area development during this period has also been substantial and pursued to maintain a balance with the expansion of on-mountain developments. The Happy Valley area was developed to include a day lodge and parking area for day-use guest that is connected to the Village via the Lara's Gondola as well as the new Central Reservations building, a welcome centre for destination guests. The installation of Lara's Gondola has expanded the potential for 'ski to/ski from' accommodation as witnessed by the ongoing real estate development at the resort.

The assessed real estate value at Big White reached \$825 million in 2019.

2.5 ENVIRONMENTAL CONTEXT

2.5.1 Environmental Setting

Big White Ski Resort is located within the Thompson - Okanagan Highlands Ecoregion in the Northern Okanagan Highlands Ecosection. Elevations in the area range from 1,500 metres above sea level at the base area to close to 2,300 metres at the summit of Big White Mountain, the highest point in the Okanagan Highland region. In terms of Biogeoclimatic (BEC) zones, Big White lies within the Northern Okanagan Highlands Ecosection, which is nestled in the Thompson Okanagan Plateau Ecoregion. At higher elevations, this Southern Dry climate region is characterized by cold winters, a deep snowpack and relatively short cool summers. The area falls largely within the Engelmann Spruce-Sub Alpine Fir biogeoclimatic zone.

The Westridge area drains to the west to Hallam Creek and then to the north to the West Kettle River. The Big White Mountain and Village area drains south to Trapping Creek and then to the West Kettle River. The study area drains to both the south into Copper Kettle Creek and to the north into Whitefoot Creek. Both creeks drain into the Kettle River, which, along with the West Kettle River drain into the Columbia River Basin.

Big White Mountain Ecological Reserve

Ecological reserves are areas in British Columbia selected to preserve representative and special natural ecosystems, plant and animal species, features and phenomena. The key role of ecological reserves is to contribute to the maintenance of biological diversity and the protection of genetic materials, with scientific research one of the principal uses of ecological reserves in British Columbia.

The primary role of Big White Mountain Ecological Reserve is to protect a small example of the Engelmann Spruce-Subalpine Fir and Alpine Tundra zones in the southern interior. The Ecological Reserve protects old growth stands of Engelmann spruce and sub-alpine fir as well as high elevation wetlands. It is also representative of the only true alpine in the Northern Okanagan Highland Ecosection with large areas of krummholz (stunted, deformed vegetation encountered in subarctic and subalpine, treeline landscapes, shaped by continual exposure to freezing temperatures, snow and winds). Known rare species include Engelmann's sedge (Carex engelmannii), Elmer's Indian paintbrush (Castilleja elmeri), alpine Indian paintbrush (C. rhexifolia) and alpinewintergreen (Gaultheria humifusa).

In preparing this Master Plan and proposed developments, Big White has respected the boundaries of the Ecological Reserve and commits to protecting and preserving the ecological values found within.



Snowghosts haunting the landscape at Big White.

2.5.2 Climate and Weather

To assess historic weather patterns at Big White and their implication for all-season recreation, BHA derived average temperature and snowfall data from historic weather records (1969 – 2017) for a representative site within the ski area (49.73, - 118.94, 2,096 m.a.s.l.) from the ClimateBC database¹.

Temperature

BHA determined that Big White has a mean annual temperature of 0.3°C with seasonal averages ranging from -8.4°C in the winter to 11.0°C in the summer (Chart 2-1). Average winter temperatures (December to February) range from -11.3°C to -4.0°C, while average temperatures in the summer (June to August) range from 2.0°C to 16.5°C.



Chart 2-1. Average Temperature by Month

¹ UBC Centre for Forest Conservation Genetics (2019). ClimateBC/WNA/NA. Retrieved from: https://cfcg.forestry.ubc.ca/projects/climate-data/climatebcwna/#ClimateBC

²⁻¹⁰ **ABHA** Brent Harley and Associates Inc.

Snowfall

Snowfall at Big White is generally aligned with temperature, with greater than 75% of snow falling between November and March when the average temperature sits below -5°C (Chart 2-2). Total annual snowfall averages 9,590 cm while average monthly snowfall November through April is 1,330 cm. However, this can vary considerably as indicated by the Low and High records on Chart 2-2. These represent one standard deviation from historic monthly means and delineate the range in which 68% of historic snowfall has occurred.



Chart 2-2. Average Snowfall by Month

Snowpack

To complement snowfall records, BHA assembled historic snowpack data from records hosted by www.onthesnow.com (Chart 2-3). These indicate that average snowpack at Big White is suitable for alpine skiing (>40 cm) from late November well into to late April, with an average snowpack of 183 cm during this period. Owing to Big White's elevation and relatively cold temperatures (see Chart 2-1), the snowpack continues to grow throughout the season reaching its largest in April (avg. 273 cm).



Chart 2-3. Average Snowpack by Month

2.6 **EXISTING MOUNTAIN FACILITIES**

2.6.1 Introduction

The primary winter attraction at Big White is lift-serviced alpine skiing and snowboarding. Nordic skiing, ice skating, tubing, ice climbing, and snowmobiling act as secondary attractions, complementing and rounding out the dynamic offering at the Resort. In the summer, the Big White bike park, slopestyle course, and hiking opportunities form the core attractions. The following describes and illustrates the existing resort and provides an assessment of Big White's on-mountain and base area facilities and capacities.

2.6.2 Skiing and Snowboarding

The existing lift-serviced mountain facilities consist of 15 ski lifts that access 108 ski runs over an area of approximately 607 hectares (1,500 acres). Skiing and snowboarding are offered on the south and west faces of Big White Mountain utilizing 100% natural snowfall. These facilities have a Comfortable Carrying Capacity (CCC) of approximately 9,390 skiers/boarders per day. The existing mountain layout is illustrated on Figure 2-4a and on the 3D model on Figure 2-4b.

Comfortable Carrying Capacity is a measure of the optimum number of skiers who can utilize the skiing facilities over the course of a day, being guaranteed a pleasant recreational experience without causing a decline in the quality of the environment. Generally, depending on weather and snow conditions, 40% of the total CCC will be actively skiing, 25% will be on the lifts, 10% will be waiting in lift queues and the remaining 25% of skiers are regarded as idle, using the skier service facilities and amenities.

The ski season runs from mid-November to mid-April of each year, accounting for approximately 150 operating days. Night skiing is also offered on a limited number of runs. Since the first lifts were installed in the early 1960's, skier visits have steadily increased to a high of over 600,000 during the 2016/2017 ski season. This makes Big White the second largest ski resort in British Columbia by skier visits, next to Whistler Blackcomb.

Existing Ski Lifts

Big White currently has 15 uphill conveyances including one 8-passenger gondola, one 6-person express chair, four express quad chairs, two fixed quad chairs, one triple chair, three double chairs, one T-bar, three magic carpets and one tube lift. Figure 2-4a and Table 2-2 provide an illustration and specifications for the existing ski lifts at Big White.

BHA calculated the Uphill Comfortable Carrying Capacity for each lift by considering the vertical serviced, the capacity of the lift, the hours of operation, the lift loading efficiency, access reduction, and the vertical demand (as determined by the type of skiers using the lift). The Uphill CCC of each lift is then totaled to establish the Uphill CCC for the Resort. At Big White, Uphill CCC was determined to be 9,390.

Lift Name	Lift Type	Vertical Drop (m)	Slope Length (m)	Hourly Capacity (Theor.)	Hourly Capacity (Actual)	Weighted Vertical Demand	Loading Efficiency	Hours of Operation	Access Reduction	Uphill CCC
Ridge Rocket Express	D4C	437	1,798	2,800	2,200	4,470	0.95	7	13%	1,251
Snow Ghost Express	D6C	447	1,891	2,200	2,200	4,470	0.95	7	13%	1,280
Bullet Express	D4C	396	1,752	2,600	2,000	3,450	0.95	7	17%	1,262
Black Forest Express	D4C	314	1,440	2,400	2,400	3,697	0.95	7	11%	1,207
Cliff Chair	2C	225	678	1,200	1,200	7,804	0.9	6	0%	187
Alpine T-Bar	T-Bar	279	1,206	1,100	1,100	3,447	0.9	6	3%	467
Falcon Double Chair	2C	263	820	1,200	1,200	4,167	0.85	6	0%	387
Powder Chair	4C	298	886	2,400	2,400	5,470	0.8	6	3%	610
Gem Lake Express	D4C	705	2,440	2,800	2,000	5,077	0.95	7	3%	1,786
Lara's Gondola	D8G	92	571	3,000	2,000	1,382	0.9	7	64%	298
Telus Park Chair	2C	170	728	1,200	1,200	2,960	0.8	7	0%	387
Plaza Chair	4C	105	594	2,400	1,000	2,000	0.8	7	74%	76
Kids Carpet	S	2	22	1,100	800	500	0.61	7	0%	14
Magic Carpet	S	16	146	1,100	800	500	0.61	7	0%	109
Magic Carpet 2	S	10	143	1,100	800	500	0.61	7	0%	69
Total			15,123	28,600	23,300					9,390

Table 2-2. Summary of Existing Ski Lifts

As noted in Sec. 2.4.1., two additional lifts, the Backcountry Chair and Black Forest Connector, were recently approved under the existing Master Plan but final design and construction are still in process. These committed lifts and the uphill capacity they represent were not included in the analysis of the existing conditions but have been included in Section 4: Mountain Master Plan and the buildout capacity calculations.





Big White Ski Resort Master Plan 2020

Legend

Existing Big White CRA --- Existing Ski Lifts Existing Roads Existing Glading Existing Vegetation Lakes

Prepared for:



5315 Big White Road Kelowna, BC Canada. V1P 1P3 Tel: (250) 765-3101 Fax: (250) 491-6122 email: bigwhite@bigwhitecom



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Existing Conditions

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Big White Ski Resort Master Plan 2020

Legend



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Existing Resort Master Plan 3D

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Existing Ski Runs

Big White has 108 ski runs and 257 hectares of gladed runs spread out over 607 hectares (1,500 acres) of skiing and riding terrain. Internal to this, the terrain park offers a wide variety of freestyle features including jumps, halfpipes, and several rail setups all serviced by its own lift, the Telus Park Chair. The trails adjacent to the Bullet Express and Plaza Chair are open for night skiing Tuesday through Saturday nights, typically attracts between 200 and 250 skiers a night, and covers an area of approximately 35 hectares.

The existing ski runs have been categorized by skier ability level (i.e. skill class). The international standard for classifying ski runs is by easiest (green circle), more difficult (blue square) and most difficult (black diamond). Consistent with the All Season Resort Guidelines (ASRG), BHA further classified the existing ski runs based on the following criteria:

Skill Class	Range of Acceptable Gradients (%)
Beginner	8 to 15
Novice	15 to 25
Low Intermediate	25 to 35
Intermediate	35 to 45
Advanced	45 to 60
Expert	60 to 80
Extreme	80+

Table 2-3.	Ski Run	Classification

To undertake an accurate analysis, the existing network of ski runs was overlaid onto LiDAR mapping utilizing 5-metre contour intervals and organized into groups of trails or 'pods' that are associated with each lift. Ski runs that cross into one or more pod areas are generally associated with the lift at which they return. Some pods may be associated with one or more lifts depending on the flow and layout of the mountain. Figure 2-5 and Table 2-4 outlines the existing inventory of ski runs at Big White, and Figure 2-6 illustrates the existing ski pods. Of note, classification of the ski runs using the ASRG criteria differed from the ski trail classification applied by Big White in some instances. To ensure consistency with the broader ski industry and skier marketplace, BHA utilized the ASRG criteria for the ski trail analysis.

Run Number	Run Name	Slope Length (m)	Maximum Slope (%)	Average Slope (%)	Vertical Drop (m)	Average Width (m)	Trail Area (ha)	Skill Class				
	POD A (Snowghost and Ridge Rocket Express)											
A1 Serwa's 2,943 27 15 438 40 12 Low Intermediate												
A10	Exhibition	1,328	45	28	357	30	4	Advanced				
A11	Lower Distributor	1,096	36	18	190	20	2	Intermediate				
A14	Easy Out	476	27	21	99	70	3	Low Intermediate				
A15	Upper Distributor	680	32	18	120	30	2	Low Intermediate				
A16	Squirrel	586	32	27	151	30	2	Low Intermediate				
A17	Kangaroo	596	31	27	156	15	1	Low Intermediate				
A18	Roller Coaster	794	35	28	215	30	2	Low Intermediate				
A19	Speculation	748	41	27	196	45	3	Intermediate				
A2	Red Hawk	741	40	23	164	15	1	Intermediate				
A20	Ridge Connector	628	22	15	90	15	1	Novice				
A21	Mogul Track	574	23	13	75	15	1	Novice				
A3	Whitetail	798	36	24	187	15	1	Intermediate				
A4	Piece of Cake	1,082	43	23	244	15	2	Intermediate				
A5	Goat's Kick	766	39	25	187	40	3	Intermediate				
A6	Born to Run	780	42	29	216	35	3	Intermediate				
A7	Dragon's Tongue	931	43	28	251	40	4	Intermediate				
A8	Paradise	1,464	42	26	368	40	6	Intermediate				
A9	Perfection	1,548	44	26	391	50	8	Intermediate				
	Glades						42					
Total	Skiable Area						102					

Table 2-4. Existing Ski Run Network

Run Number	Run Name	Slope Length (m)	Maximum Slope (%)	Average Slope (%)	Vertical Drop (m)	Average Width (m)	Trail Area (ha)	Skill Class			
POD B (Bullet Express)											
B1 Sun Run 1,332 32 23 303 50 7 Low Intermediate											
B10	Master Gully	390	35	24	88	35	1	Low Intermediate			
B11	Homerun	877	36	19	167	30	3	Intermediate			
B12	Kyle's	717	29	21	146	40	3	Low Intermediate			
B13	-	644	23	15	97	70	5	Novice			
B14	Freeway	333	22	20	64	30	1	Novice			
B15	Secret	618	30	23	135	30	2	Low Intermediate			
B16	Easy Street	635	20	10	66	50	3	Novice			
B2	Spruce Trail	756	33	25	185	40	3	Low Intermediate			
B3	Ally Oop	481	28	22	103	20	1	Low Intermediate			
B4	International	965	36	25	233	40	4	Intermediate			
B5	-	321	35	28	86	15	0	Low Intermediate			
B6	-	129	31	28	35	15	0	Low Intermediate			
B7	Mervyn's	950	38	24	222	45	4	Intermediate			
B8	-	354	32	25	85	40	1	Low Intermediate			
B9	-	233	26	19	42	25	1	Low Intermediate			
	Glades						6				
Total	Skiable Area						45				

Run Number	Run Name	Slope Length (m)	Maximum Slope (%)	Average Slope (%)	Vertical Drop (m)	Average Width (m)	Trail Area (ha)	Skill Class			
POD C (Black Forest Express)											
C1	Homerun	175	25	22	37	30	1	Low Intermediate			
C2	-	1,427	29	21	294	50	7	Low Intermediate			
C3	-	1,368	29	22	294	5	1	Low Intermediate			
C4	Cougar Alley	1,307	36	22	277	50	7	Intermediate			
C5	Whiskey Jack	857	30	24	197	40	3	Low Intermediate			
C6	Herbert's Hollow	804	28	22	172	50	4	Low Intermediate			
C7	-	390	31	27	100	100	4	Low Intermediate			
C8	Rhonda Lake Return	1,153	19	8	87	20	2	Novice			
C9	Cliff Ski Out	2,230	20	13	287	15	3	Novice			
	Glades						17				
Total	Skiable Area						48				

Run Number	Run Name	Slope Length (m)	Maximum Slope (%)	Average Slope (%)	Vertical Drop (m)	Average Width (m)	Trail Area (ha)	Skill Class			
POD D (The Cliff)											
D1	Camel's Back	709	58	25	165	100	7	Advanced			
D2	The Cliff	381	80	56	184	150	6	Expert			
D3	-	211	9	6	12	15	0	Beginner			
D4	-	448	11	7	29	15	1	Beginner			
D5	Pegasus	588	77	39	210	160	9	Expert			
D6	Parachute Bowl	726	73	34	231	75	5	Expert			
	Glades						0				
Total	Skiable Area						29				

Run Number	Run Name	Slope Length (m)	Maximum Slope (%)	Average Slope (%)	Vertical Drop (m)	Average Width (m)	Trail Area (ha)	Skill Class			
POD E (Alpine T)											
E1	Sun Run	639	34	24	149	80	5	Low Intermediate			
E2	Highway 33	1,366	32	24	322	60	8	Low Intermediate			
E3	-	202	12	11	22	25	1	Beginner			
E4	Whitefoot Trail	277	28	22	60	150	4	Low Intermediate			
E5	T-Bar Easy Out	630	23	20	121	70	4	Novice			
E6	-	437	23	19	80	70	3	Novice			
	Glades						20				
Total	Skiable Area						46				

Run Number	Run Name	Slope Length (m)	Maximum Slope (%)	Average Slope (%)	Vertical Drop (m)	Average Width (m)	Trail Area (ha)	Skill Class		
POD F (Falcon Chair)										
F1	Grizzly	649	60	33	201	100	6	Advanced		
F3	Whitefoot	701	44	32	216	30	2	Intermediate		
F4	Falcon Easy Out	393	26	15	58	70	3	Low Intermediate		
F5	Trappers	833	24	15	122	70	6	Novice		
F6	-	314	21	16	49	25	1	Novice		
F7	-	488	20	11	51	25	1	Novice		
	Glades						20			
Total	Skiable Area						39			

Run Number	Run Name	Slope Length (m)	Maximum Slope (%)	Average Slope (%)	Vertical Drop (m)	Average Width (m)	Trail Area (ha)	Skill Class				
POD G (Powder Chair)												
G1	Corkscrew	1,136	42	27	298	50	6	Intermediate				
G10	Powder Keg	634	42	26	159	20	1	Intermediate				
G11	Meadowlark	776	20	14	111	30	2	Novice				
G3	Flagpole	993	54	32	296	40	4	Advanced				
G4	Shakey Knees	793	57	37	274	40	3	Advanced				
G5	Surprise	850	48	32	261	50	4	Advanced				
G6	Sleepy Hollow	1,046	31	18	183	30	3	Low Intermediate				
G7	Powder Easy Out	366	29	15	54	40	1	Low Intermediate				
G8	Powder Gulch	910	44	27	238	40	4	Intermediate				
	Glades						23					
Total	Skiable Area						52					

Run Number	Run Name	Slope Length (m)	Maximum Slope (%)	Average Slope (%)	Vertical Drop (m)	Average Width (m)	Trail Area (ha)	Skill Class		
	POD K (Plaza)									
K1	Hummingbird	357	22	17	60	20	1	Novice		
K2	-	201	21	19	37	30	1	Novice		
K3	Woodcutter	664	24	14	91	30	2	Novice		
	Glades						0			
Total Skiable Area							3			

Run Number	Run Name	Slope Length (m)	Maximum Slope (%)	Average Slope (%)	Vertical Drop (m)	Average Width (m)	Trail Area (ha)	Skill Class		
	POD Beginner									
MC	MC1	146.3	27	12	30	30	0.45	Low Intermediate		
KC	KC1	30	11	7	2	15	0.05	Beginner		
MC	MC2	143	7	7	10	30	0.45	Beginner		
	Glades						0			
Total Skiable Area							1			

Run Number	Run Name	Slope Length (m)	Maximum Slope (%)	Average Slope (%)	Vertical Drop (m)	Average Width (m)	Trail Area (ha)	Skill Class			
	POD H (Gem Lake)										
H1	Kalina's Rainbow	1,255	37	Intermediate							
H11	Blue Ribbon	1,787	44	27	460	40	7	Intermediate			
H12	Cann Cann	1,221	38	28	329	40	5	Intermediate			
H13	The Fourth Ace	1,051	43	28	284	33	3	Intermediate			
H14	Snowy	1,031	36	27	268	41	4	Intermediate			
H15	Mustang Sally	873	34	26	217	40	3	Low Intermediate			
H16	Blue Moon	532	31	27	138	35	2	Low Intermediate			
H17	Talon's Grip	1,468	50	27	384	40	6	Advanced			
H18	Kalina's Rainbow	1,613	42	25	390	40	6	Intermediate			
H19	Black Thunder	580	35	24	135	20	1	Intermediate			
H2	Playground	380	62	32	114	120	5	Expert			
H20	Black Jack	1,812	44	28	493	40	7	Intermediate			
H21	Black Magic	1,250	43	27	329	40	5	Intermediate			
H22	Pot of Gold	359	45	31	106	40	1	Intermediate			
H23	Black's Beauty	262	29	21	54	40	1	Low Intermediate			
H3	Village Way	2,322	29	16	360	30	7	Low Intermediate			
H30	Blue Saphire	1,336	41	22	287	40	5	Intermediate			
H31	Blackout	1,029	47	22	222	40	4	Advanced			
H33	-	208	23	21	44	15	0	Novice			
H34	Ogo Slow	3,125	19	11	337	30	9	Novice			
H4	Showdown	909	40	15	137	30	3	Intermediate			
H7	Black Bear	799	47	33	248	50	4	Advanced			
H8	Upper Gem Lift Line	834	58	34	270	20	2	Advanced			
H9	Lower Gem Lift Line	1,441	44	28	382	20	3	Intermediate			
	Glades						129				
Total	Skiable Area						229				

Run Number	Run Name	Slope Length (m)	Maximum Slope (%)	Average Slope (%)	Vertical Drop (m)	Average Width (m)	Trail Area (ha)	Skill Class		
	POD I (Lara's Gondola)									
1	-	549	25	15	77	20	1	Low Intermediate		
12	Gondola Way	1,036	14	7	71	30	3	Beginner		
13	-	511	13	7	34	15	1	Beginner		
	Glades						0			
Total Skiable Area							5			

Run Number	Run Name	Slope Length (m)	Maximum Slope (%)	Average Slope (%)	Vertical Drop (m)	Average Width (m)	Trail Area (ha)	Skill Class	
			POD J	(Telus Pa	rk)				
J1	Sundance	1,154	27	20	230	25	3	Low Intermediate	
J2	-	591	29	23	134	25	1	Low Intermediate	
J3	-	499	27	22	109	20	1	Low Intermediate	
J4	-	260	10	7	19	20	1	Beginner	
J5	-	524	16	11	56	20	1	Novice	
Glades							0		
Total	Skiable Area						7		



Blue skies and champagne powder at Big White.





Big White Ski Resort Master Plan 2020

Legend

- Existing Big White CRA Existing Glading --- Existing Ski Lifts Ski Run Category - Beginner ---- Intermediate
- Advanced — Extreme

Prepared for:

5315 Big White Road Kelowna, BC Canada. V1P 1P3 Tel: (250) 765-3101 Fax: (250) 491-6122 email: bigwhite@bigwhite.com



Planning by: **CBHAA** 4-1005 Alpha Lake Road, Whistler, B.C. Canada. V8E 0H5 Tel: 604 932 7002 email: bha@brentharley.com



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Existing Mountain Lifts, Trails and Glades

Figure 2-5

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Big White Ski Resort Master Plan 2020

Legend

Existing Big White CRA								
Existing Ski Lifts								
Existing Ski Pods								
A - Ridge Rocket/Snow Ghost								
B - Bullet Express								
C - Black Forest Express								
D - Cliff Chair								
E - Alpine T-Bar								
F - Falcon Chair								
G - Powder Chair								
H - Gem Lake Express								
I - Lara's/Plaza Quad								
J - Telus Park Chair								

Prepared for:

BioWh

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Existing Ski Pods

Figure 2-6

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Existing Downhill Capacity

Ski run capacity is a function of the acceptable density of users per hectare, rated by skier skill class. Per the BC All Season Resort Guidelines (ASRG), the range of acceptable densities for ski runs by skill class is as follows:

Skill Class	Acceptable Density	Density Applied at Big White				
Beginner	30 - 75/ha	45				
Novice	30 - 60/ha	38				
Low Intermediate	20 - 40/ha	25				
Intermediate	15 - 30/ha	19				
Advanced	10 - 20/ha	12				
Expert	5 - 10/ha	7				
*The acceptable density of skiers on gladed trails is generally 15% to 30% of the comparable skier skill class, depending on the spacing of the trees and the acceptable densities of the trails around them.						

Table 2-5. Acceptable Skier Densities by Skill Class

Successful ski resorts catering to destination guests strive to provide a high-quality skiing experience. This is best achieved when ski run densities are maintained at the lower end of the spectrum.

It should be noted that the preferred and acceptable skier densities have decreased considerably in recent years. The advent of shaped skis, combined with snowboarding's relatively easy learning curve, has enabled a larger number of skiers and snowboarders to negotiate steeper and more adventurous slopes sooner and with greater control than ever before. What was considered 'expertsonly' terrain ten years ago is now accessible to a much broader segment of the skiing population. This has resulted in faster speeds, more congestion and a greater potential for collisions. In addition, new terrain has opened up in areas that were traditionally too steep to ski or ride.

The issues of what is acceptable, what is expected, and what is desirable, must be given careful consideration. All destination skiers expect a low-density skiing experience. Resorts that wish to cater to a powder skiing experience need to keep the density even lower. Urban skiers may still be willing to accept higher densities in exchange for the convenience created by ease of access - but this too is changing rapidly. Big White is a destination resort that also serves a large and expanding day-use skier marketplace. As such, the acceptable trail density varies at the Resort throughout the year. On a weekend, guests are likely to expect a more crowded experience. However, a destination traveller who is skiing for an entire week will experience weekdays where the density on the ski runs is much lower than on the weekends. To capture the appropriate conditions, BHA has applied densities at Big White within the ASRG classifications at the Low and Medium densities (Table 2-5).

By applying the appropriate densities to the ski runs and gladed areas at Big White, BHA was able to calculate the capacity of the existing ski run network. Table 2-6 outlines the capacity of the existing ski runs by skier skill class within each pod and for the entire ski run network at Big White.

As such, the total ski run capacity is calculated to be 13,417 skiers per day.

			Downhill Capacity by Skill Class						
Pod	Vertical (m)	Skiable Area (ha)	Beginner	Novice	Low Intermediate	Intermediate	Advanced	Expert	Total Downhill CCC
A (Ridge / Snowghost)	443	102	0	81	776	1,413	68	0	2,338
B (Bullet Express Quad)	396	45	0	391	679	344	0	0	1,414
C (Black Forest Express)	314	48	0	254	689	436	0	0	1,379
D (Cliff Chair)	225	29	54	0	0	0	120	185	360
E (Alpine T-Bar)	279	46	28	336	612	337	0	0	1,312
F (Falcon Chair)	263	39	0	353	96	292	175	0	916
G (Powder Triple Chair)	298	52	0	105	161	314	408	0	987
H (Gem Lake Express)	705	229	0	436	468	2,189	845	41	3,978
I (Laura's Gondola)	592	5	213	0	38	0	0	0	251
J (Telus Park)	170	7	29	47	188	0	0	0	263
K (Plaza Chair)	105	3	0	149	0	0	0	0	149
Beginner	16	1	68	0	0	0	0	0	68
Totals		607	392	2,152	3,708	5,323	1,617	226	13,417

Table 2-6. Existing Downhill CCC

Existing Terrain Distribution Analysis

The developed terrain noted in Table 2-6 was broken down by skier skill class and the resultant distribution compared to the skill class distribution found in the skier marketplace as defined in the ASRG. This is illustrated in Table 2-7 and Chart 2-4.

The result of this analysis illustrates that when compared to the skier marketplace, Big White has an oversupply of novice and intermediate trails and lacks advanced or expert terrain. The proposed terrain expansions (see Section 4.0) have been designed to address this imbalance.

ÿ		
Market Distribution	ASRG Market	Big White
Beginner	5%	2.9%
Novice	10%	16.0%
Low Intermediate	20%	27.6%
Intermediate	35%	39.7%
Advanced	20%	12.0%
Expert	10%	1.7%

Table 2-7. Existing Terrain Distribution Assessment

Chart 2-4. Existing Terrain Distribution Assessment



Existing Lift and Trail Balance

Ideally, the Downhill CCC of the ski runs should match the Uphill CCC of the ski lifts resulting in a balanced ski product. This holds true over the entire resort as well as for each ski pod area. By comparing the Uphill CCC and Downhill CCC for each pod, points of imbalance can be identified. Subsequently, improvements can be made to rectify the imbalances and improve the overall quality of experience at the resort. The existing lift and trail balance for Big White is outlined in Table 2-8 and Chart 2-5.

Pod	Lifts	Uphill CCC	Downhill CCC
А	Snow Ghost/Ridge Rocket	2,531	2,338
В	Bullet	1,262	1,414
С	Black Forest	1,207	1,379
D	Cliff	187	360
E	Alpine T-Bar	467	1,312
F	Falcon	387	916
G	Powder	610	987
Н	Gem Lake Express	1,786	3,978
Ι	Lara's Gondola	298	251
J	Telus Park	387	263
K	Plaza	76	149
Beginner	Carpets	192	68
	Total	9,390	13.417

Table 2-8. Existing Lift and Trail Balance



Matching uphill and downhill capacity results in limited wait times and a positive guest experience.

Chart 2-5. Existing Lift and Trail Balance



As illustrated, the uphill capacities are for the most part equal or less than the downhill capacity of the trails. As such, the trails can accommodate more skiers than the lifts are currently able to provide, as defined by the ski run design densities.

Notably, the Gem Lake Express, the Alpine T-Bar, the Falcon Chair, and the Powder Chair have considerably more downhill capacity than these lifts can deliver. This creates a very low-density experience for the skiers. While this generally may be desirable from the skier's perspective, it illustrates an opportunity to increase lift capacity within these ski pods.

2.6.3 Existing Comfortable Carrying Capacity

The Comfortable Carrying Capacity (CCC) is a measure of the optimum number of skiers who can utilize the resort over the course of a day while being guaranteed a pleasant recreational experience without causing a decline in the quality of the physical or sociological environment. It is a dynamic number that incorporates the use of the mountain throughout the day.

As described above, BHA determined that the Uphill CCC for Big White is 9,390 skiers per day and the Downhill CCC is 13,417 skiers per day. The lower of these two numbers is chosen as the resort's overall CCC to ensure that neither capacity is exceeded. As such, the existing CCC of Big White is 9,390.

2.6.4 Additional Activities

With a resort like Big White that focuses primarily on winter skiing and snowboarding, calculation of the lift and trail capacities becomes the single most important planning indicator. However, additional attractions that add to the overall capacity of the resort must also be considered. In today's competitive tourism market, it is becoming increasingly necessary for resort developers to provide a variety of on-mountain activities that complement and enhance the area's alpine skiing product. The capacity of additional facilities and attractions such as Nordic skiing, tubing or self-propelled access to backcountry terrain, must be calculated and added to determine the total carrying capacity of the resort.

Existing Nordic Trails

Big White currently maintains 25 km of Nordic ski runs that serves classic as well skate skiers from beginner to advanced skill levels (Fig. 2-7). The ski run network is locally significant, although it pales in comparison to other regional networks such as the Silver Star/Sovereign Lakes complex which has approximately 60 km of trails. Big White's Nordic network does well in rounding out the winter offering and providing suitable activities for every member of the family. It is estimated that the existing Nordic Network adds approximately 100 additional guests at the Resort. These existing runs can comfortably handle a much greater number of guests, representing a significant opportunity to expand, balance, and improve the Nordic skiing offering at Big White.


Existing Snowmobile Trails

Snowmobiling around Big White is becoming a popular activity. Some guests stage from the Resort while others pass through, travelling along the vast network of trails, Forest Service roads, and mining roads on adjacent Crown Land. Trails and cabins in the area are maintained by the Kelowna Snowmobile Club who has approximately 500 paid members. About 400 kilometres of trails are groomed and maintained by the Club in Graystokes Provincial Park alone. The trail network connects Graystokes to Big White and on to Lassie Lake and Little White/Idabel Lake. Currently, snowmobiling accounts for approximately 50 additional guests at Big White. Figure 2-7 includes an overview of the existing trail network.

Additional Existing Winter Activities

In addition to the main attractions of skiing, snowboarding, and Nordic skiing, Big White has other activities that help diversify the offering at the resort. An Activity Centre is located in the Happy Valley Day Lodge area that includes ice skating, a tube park, 'Mini-Z' snowmobiles, sleigh rides, ice climbing and snowshoeing. The tube park was installed in 2004, utilizing an area of about 1.9 ha, and has capacity for approximately 200 guests per day. Ice skating accounts for about 100 guests per day and cumulatively, the mini snowmobiling, sleigh rides, ice climbing and snowshoeing accounts for another 100 guests.



Outdoor skating at Big White - one of the many complementary attractions.

Additional Passive Winter Guests

In addition to the active guests, non-participating guests must be considered when sizing the amount of accommodation and space use requirements at the resort. Parents, grandparents, and siblings visit to watch a family member participate in an activity, while some guests are content to explore the area before jumping into a recreation experience. The ASRG defines this number as equating to an additional 10% and 25% of active guests at a destination resort like Big White. A 15% ratio at Big White would add another 1,498 passive guests at the Resort.

2.6.5 Big White Bike Park

Introduction

Historically, Big White has been focused on winter recreation and guest experiences. However, in keeping with the desire to become a true all-season resort and in line with the approved 1999 Master Plan, Big White has enthusiastically pursued the development of a lift-serviced mountain bike park – Big White – over the last few years.

In 2016, BHA created the Big White Bike Park Master Plan for a downhill, liftserviced mountain bike park which will serve as the cornerstone of the Resort's summer activities. The intent of the Bike Park Master Plan was to delineate a clear course of action to establish Big White as a premier destination mountain bike resort. The Master Plan builds on previous Resort Master Plans, as well as the Vision, Goals and Objectives of Big White as an all-season resort.

Construction of the first phase of the bike park was initiated in 2016 and a limited network of trails was opened to the public in August 2017. This Section provides background on the vision and objectives for the bike park, reviews a market analysis for mountain biking at Big White, and details the extent of the downhill mountain biking facilities that have been completed to date, illustrating the configuration of the existing mountain bike trails and other bike related infrastructure. Potential for future expansion and improvement of the bike park is discussed in greater detail in Section 4.5.

It should be noted that while mountain biking and summer activities will continue to grow in popularity at Big White, summer visitation will not surpass winter visitation. As such, the Balanced Resort Capacity of Big White will be based on winter season visitation (see Sec. 2.7).



Mountain Biking with the whole family at Big White.

Big White's Mountain Biking Opportunities

The physical and environmental attributes as well as the facilities in place at Big White present clear opportunities for the development of mountain biking as their cornerstone summer attraction and activity base. These include:

- A diverse mix of terrain ideal for downhill and cross-country mountain bike trails;
- Mature, gladed stands of trees, currently used as ski runs, ideal for mountain bike trail development;
- An existing chairlift system directly associated with the potential mountain bike terrain;
- A well-established Village and base area with facilities from which to stage mountain biking from (e.g. rental shops, retail, accommodation, restaurants, bars, medical facilities, and maintenance);
- Proximity to large, recreation-oriented population that includes an established mountain bike market;
- Cool summer temperatures in contrast to the summer heat at the lower elevations of the Okanagan Valley.

Mountain Bike Park Vision, Goals and Objectives

Mountain Bike Park Vision

Big White's Vision for the future is:

"To be a major world-class destination resort, distinguished for the high-quality experience our guests receive throughout the year."

Mountain Bike Park Goals and Objectives

Complementing the Vision, the following goals and objectives acted to guide the creation of the Big White Mountain Bike Park:

- Develop a mountain bike park that will attract regional and international guests;
- Focus on the beginner/intermediate segment of the mountain bike market while catering to dedicated, core riders;
- Create signature trails that will inspire and excite the core mountain bike market;
- Integrate trails with expert and professional level difficulty, with event, races, and filming opportunities;
- Integrate industry best practices to limit environmental footprint and maximize soil and vegetation retention;
- Cater to families and 'never-ever' mountain bikers through world-class guiding and training programs;

- Offer a diverse mountain bike rental fleet catering from run-bikes for small children to top-of-the-line downhill mountain bikes for experts;
- Develop mountain bike trails utilizing terrain that is already established for skiing in the winter;
- Stage the Bike Park from the top of existing chairlifts;
- Create family-oriented biking facilities; day care, play areas, a kid's bike zone, etc.
- Preserve and take advantage of the unique character and environment of the area;
- Offer a dynamic mountain resort experience, that matches the market trends with the expectations and needs of the growing mountain biking community;
- Create a balanced mountain biking product at each phase of development;
- Ensure that the initial phases of development incorporate a familyoriented and beginner mountain biking experience;
- Offer a trail system that mirrors the mountain bike marketplace's full spectrum of skill sets;
- Actively encourage and utilize Big White Resort facilities for all-season use.

Bike Park Market Analysis

As part of the Bike Park Master Plan planning exercise, BHA conducted a review of downhill mountain bike markets in North America and applied these findings to the regional marketplace. Market data was derived primarily from a 2007 study commissioned by the City of Kelowna, BC Parks, and Regional District of Central Okanagan that analysed the Mountain Bike Community for the Central Okanagan region². The majority of Big White's season pass holders/day-use guests live in this region.

The study found that the Central Okanagan has a strong mountain bike market, with approximately 5% of the population participating versus the national average of around 3%. Further, over 50% of the group surveyed indicated they mountain bike at least one to two times per week. The Central Okanagan market was also receptive to travel for the purposes of cycling, with over 76% claiming they had mountain biked in areas outside of Kelowna at least a few times in the last year.

² Fay Baker Consulting (2007). Mountain Bike Community Profile for the Central Okanagan. Retrieved from: https://apps.kelowpa.cg/cit/page/docs/pdfs/Council/Meetings/Council%20Meetings%20

https://apps.kelowna.ca/citypage/docs/pdfs/Council/Meetings/Council%20Meetings%202007/2007-11-05/Item%205.3%20-%20Mountain%20Bike%20Community%20Profile.pdf

Table 2-9 describes the potential visitation to the Big White Mountain Bike Park focusing on a local population (within a two-hour drive)³. With a potential of 22,626 guests per year from the regional population base and a loyal season pass membership in the winter, Big White has a large and eager rider base. Of significant importance to Big White is the reality that the downhill mountain bike segment in the summer is often the same as the core downhill ski and snowboard segment in the winter.

In addition to a strong regional marketplace to draw from, the bike park at Big White will benefit from British Columbia's prominent international reputation as a mountain biking destination. The development of downhill and cross-country mountain biking at Big White aligns the Resort with other downhill mountain bike parks in the Central Okanagan region (i.e. Silver Star Mountain Resort and Sun Peaks Resort) and exposes the Resort to international riders looking to sample various bike parks in the larger Okanagan region.

Item	Values Based on Okanagan Market
Market Population	396,940
Population of Mountain Bikers (5% of Population)	19,847
Mountain Bikers that use lift-serviced bike parks – 40%	7,939
No visits annually (40%)	0
Visit 2 times annually (40%)	6,351
Visit 5 times annually (10%)	3,969
Visit 10 times annually (5%)	3,969
Visit 20 times annually (5%)	7,939
Total number of same day (local) visitors	22,229
Total number of overnight (non-local) visitors	397
Total Visits	22,626

Table 2-9. Big White Mountain Bike Park Market Potential

³ Find Population on Map (2019). Available at: http://www.freemaptools.com/findpopulation.htm

Lift-Serviced Bike Park Development

Rather than using ski runs, downhill, lift-serviced mountain biking requires a different trail system to be built. Built specifically for summer use, the terrain gradients of mountain bike trails generally align with beginner ski runs, and while they may occasionally cross ski runs, downhill mountain bike trails are typically developed within treed areas. When properly designed, constructed, and maintained, lift-serviced mountain bike trails use techniques to control the speed of the bikes and move riders down the hill in a well-managed and engaging fashion. This is especially important at turns or other features in the trail as it reduces the need for braking and minimizes impacts to soil and vegetation. Additionally, if trails are well designed, riders are directed on to the preferred downhill line and at the ideal speed as a result of the way the trail winds its way down the mountain, speeding up or slowing down the rider for the next trail feature.

The terrain at Big White is ideal for the creation of a mountain bike park. It has a unique mixture of slope and terrain types (e.g. smooth and compact, rocky) that can accommodate the development of a world-class mountain bike park. The proposed mountain bike pods have moderate slopes and ample gladed areas which will allow for interesting and attractive trail alignments. From the top of each chairlift, riders will begin their descent from sub-alpine terrain on welldefined trails, lined by wildflowers in the summer, leading to a lush interior forest which can have a variety of natural and manufactured features including rocks, roots, berms, and jumps.

The forested areas defining the existing ski runs have been previously thinned to accommodate gladed skiing. As such, the widely spaced trees will allow easy access for small machines and hand crews to build the trails in an environmentally sensitive manner, while ensuring effective drainage and sediment retention.

Industry Best Practices

The Big White Bike Park utilizes a combination of the International Mountain Bike Association (IMBA), Whistler, and North Shore Mountain Association trail standards, augmented by other emerging industry best practices. Key to the long-term success and sustainability of a bike park trail network are the quality of the mountain bike trails, erosion control, and a consistent and frequent maintenance program. The following paragraphs summarize current mountain bike trail best practices and guidelines employed at Big White.

The trail network at Big White will include both Technical and Freeride trails aligned to meet forecasted market demand. From opening day until the buildout stage, the bike park trail network will cater to all ability levels, with an emphasis on beginner and intermediate trails, and include natural and manufactured features.

Like the ski product at Big White, the bike trail network will include a range of trails from beginner to advanced. Typically, the breakdown of mountain biker marketplace by skill classes equates to 20% beginner, 60%, intermediate and 20% advanced. Big White will endeavour to ensure their trail network aligns with this breakdown throughout all stages of development.



Well built and maintained trails create consistent conditions and aid rider progression.

Trail Types and Classifications

In 2015, the Whistler Bike Park (WBP) explored an expanded trail classification system that built upon the historic ski area labelling system of Green, Blue, Black, Double Black for beginner, intermediate, advanced, and expert ski runs, respectively. The WBP further split the difficulty trail classification into two types of trails - Technical and Freeride.

Technical trails are typically hand built and are what the general population envisions when they think of downhill mountain bike trails: rocky, rooty and natural in character. Freeride trails are predominantly machine built, incorporate berms, jumps, drops, and result from sculpting the terrain to have riders flow down the trail.

The IMBA has adopted a related system of trail descriptors for bike parks: Jump, Pump and Flow. As described by IMBA Canada, these terms, or 'mountain-bikeisms', encapsulate what cutting edge bike parks are offering and what bike park riders have come to expect.

Jumps are a common feature in ski and snowboard parks, community skate parks, and BMX tracks. In its simplest form a jump is a platform that allows riders to become airborne. These features evolve from simple mounds of dirt on beginner trails to fifty to sixty-foot tabletops found on expert freeride trails.

Pump is used to describe the technique of generating momentum on the bike without pedaling. By weighting and un-weighting the bike, riders can 'work' the terrain and carry speed through technical sections. Until recently, this riding technique was understood only by expert riders, however, with the advent of pump tracks and skills parks, novices are learning how to use this technique to maximize their efficiency and fun while riding.

Finally, Flow is described by riders as the fun factor experienced when smoothly pumping and jumping one's bike along a trail. A purpose-built trail maximizes the natural attributes of the terrain while minimizing the interruptions imposed by sharp turns or features that require abrupt breaking. They create a rolling rhythm by smoothly combining features like banked turns, rollers and jumps to guide riders through landscapes in a seamless fashion. The pursuit of flow is what will repeatedly draw riders back to a park or trail system, to sharpen their skills and enhance these sensations.

A general description of the trail types, features, grades, surfaces, used in the design and planning of the Big White Bike Park is presented in Table 2-10.

	Mountain Bike Trail Classification	Technical	Freeride	Technical	Freeride	
Appropriate User		Beginner riders with some bike handling experience, typically riders have mountain biked before on public trail networks or have begun riding green freeride trails	Beginner riders with basic bike handling skills, this type of trail is the ideal introduction to bike park riding	Intermediate rider, typically has mountain biked many times before, trails have increased challenges and difficulty	Intermediate rider, willingness to travel at higher speeds and begin to go airborne	
Trail Description		Gentle slopes and easily rideable obstacles such as rocks, roots, and rollers	Gentle slopes with little to no obstacles present	Challenging riding with steep slopes and/or obstacles, narrower trails with reduced traction	slopes than beginner freeride trails, berms, rollers and tabletop jumps begin to be introduced	
Features		Embedded obstacles up to 10cm high	Embedded obstacles up to 5cm high	Embedded trail obstacles up to 20cm high	Embedded trail obstacles up to 20cm high	
	Trail Width	1 - 2 metre	2 - 7 metre	0.5 - 1 metre	2 - 5 metre	
Trail Surface		Primarily soil, some small rock and root debris	Primarily compacted soil with some small rock	Rough natural terrain and increased rock and roots	Primarily compacted soil with some small rock. Some roots and rocks	
	Average Grade Range	6 - 15%	4 - 12%	9 - 17%	7 - 14%	
	Maximum Grade	20% except rock faces at 25%	15% except rock faces at 20%	35% except rock faces at 45%	35% except rock faces at 45%	
	Minimum Curve Radius	2 metres	2.5 metres	1.8 metre	2 metre	
	Exposed Natural Obstacles	15cm max height, occasionally higher height for highly	10cm max height, occasionally higher height for highly	20cm max height	15cm max height, occasionally higher height for highly	

visible, easily

trail features

None

None

avoidable obstacles

Minimum 2 metres

Little to no technical

Rock face descents

not to exceed 20%

 Table 2-10. Standard Mountain Bike Trail Designation and Description

 Mountain Bike Trail

visible, easily

avoidable obstacles

Minimum 1 metre

Small roots and

Rock face descents

not to exceed 25%

rocks

None

None

(max height)

Bridges

(minimum width)

Technical Trail

Features

Rock Face or Ramp

(maximum grade)

Drops (max height)

Jumps (max height)

Rating

Green Circle (Beginner)

visible, easily

ground, small

(tabletops)

obstacles

tabletops

45%

Minimum 0.5 metre

Small bridges, low

width as trail, small

rollable drops, small

Drops up to 30cm,

45cm max height,

landing cleared of all

to ground, same

rollers

obstacles

tabletops

45%

avoidable obstacles

Small bridges low to

rollable drops, small

rollers and jumps

Drops up to 30cm,

100cm max height,

landing cleared of all

Minimum 1 metre

Blue Square (Intermediate)

Table 2-10 Standard Mountain	n Rike Trail Designation	and Description	(Continued)
	i bike iraii besigiranori	and Description	

Mountain Bike Trail Rating	Advanced (Bl	ack Diamond)	Expert Only (Double Black Diamond)			
Mountain Bike Trail Classification	Technical	Freeride	Technical	Freeride		
Appropriate User	Advanced rider, high level of fitness and experience required	Advanced rider, high level of fitness and experience required. Ability to jump on a bike encouraged	Expert riders only	Expert riders only		
Trail Description	Mixture of steep descents, loose surfaces, jumps and drops. Rough sections with numerous roots and rocks, steep rock rolls	Large jumps and drops, high speeds, built structures	Large jumps and drops, high speeds, built structures Large jumps and drops. Rough sections with numerous roots and rocks, steep rock rolls, Higher speeds and more sustained difficulty			
Features	Embedded trail Embedded trail obstacles over 20cm obstacles over 20cm		Embedded trail obstacles over 20cm	Embedded trail obstacles over 20cm		
Trail Width	0.3 - 0.7 metres	2 - 5 metres	0.3 – 0.7 metres	2 – 5 metres		
Trail Surface	Rugged natural terrain	Primarily compacted soil with some small rock. Some roots and rock obstacles of expert level may be incorporated.	Rugged natural terrain	Primarily compacted soil with some small rock. Some root and rock obstacles at expert level of difficulty may be incorporated		
Average Grade Range	15 – 30%	10 – 20%	15 – 30%	10 – 20%		
Maximum Grade	No Maximum	Na Maximum	No Maximum	No Maximum		
Minimum Curve Radius	Sharper corners acceptable	2 metre	Sharper corners acceptable	2 metre		
Exposed Natural Obstacles (max height)	Various heights	Various heights	Various heights	Various heights		
Bridges (minimum width)	Bridges Minimum 30cm, any bridges that cross over trails require quard rails require quard rails		Minimum 30cm, any bridges that cross over trails require guard rails	Minimum 30cm, any bridges that cross over trails require guard rails		
Technical Trail Features	Highly technical rocks and roots, drops and jumps	Large drops and jumps	Highly technical rocks and roots, drops and jumps	Large drops and jumps		
Rock Face or Ramp (maximum grade)	Not to exceed 120%	Not to exceed 120%	May exceed 120%	May exceed 120%		
Drops (max height)	Greater than 30cm, mandatory air	Greater than 30cm, mandatory air	Mandatory air	Mandatory air		
Jumps (max height)	No maximum	No maximum	No maximum	No maximum		

Mountain Bike Park Design

Successful mountain bike parks have an intricate mix of design characteristics and qualities that distinguish the area as being unique and special while meeting the needs and expectations of the guests.

Mountain Bike Park Design - Key Design Elements and Considerations:

- Design for Variety: Integrate multiple features or line choices on each trail;
- Sightlines: Sightlines in bike parks should be longer than those typically found in public trail networks. This is due to the generally faster speeds of downhill oriented parks versus public trail networks. Sightlines for the takeoff and landings of jumps should also be optimized to increase the safety. Generally, sightlines and trail widths are wider on freeride trails than on technical trails;
- Consistency within the Trail: Trail features need to coincide with and be built at an appropriate and consistent level of difficulty aligned with the trail classification. Ride-arounds and tabletop jumps (no large gaps) should be used for all trail classifications except for expert trails (double black diamond). When trail features call for riders to get airborne (drops, jumps, rollers), trail design must strive for a consistent amplitude throughout the trail;
- Pull Offs and Rest Areas: All trails should incorporate some widened sections to allow for tired or slower riders to pull off and rest. These areas are most important on beginner and intermediate trails where lessons and instruction take place. At junction locations where multiple trails split off, riders should be provided with areas to stop beside the trail;
- Build Progression into the Bike Park: Bike parks should strive to create a
 portfolio of trails that encourage riders to progress and improve their skills
 in an incremental fashion, introducing new riding concepts and
 demands in a logical manner. This progression should be illustrated and
 encouraged within the trail map and through guide training;
- Skills Park: A skills park should be present at the base of the mountain to introduce riders to and allow them to practice the techniques and skill sets required within the bike park before venturing into the park itself. A more advanced skills park should be positioned at the top of the chairlift to enable riders to self-assess their skill levels, practice their technique, and encourage them to ride trails aligned within their interests and skill set;
- Build Trails Based on Terrain: The resiliency of the trail network within a bike park will be influenced significantly by the terrain and quality of trail construction;

• Trail Ratings: Trails will be rated based on the single most difficult feature found within the trail. Mandatory air (i.e. gap jumps or drops without a continuous landing) is automatically an expert trail (Double Black). Skill set consistency must be provided throughout the length of the trail and its features.

Beyond these considerations, Big White has developed site-specific guidelines for the Bike Park. These are:

- Respect & enhance the existing ecosystem
- Use best practices in trail building & alignment
- Avoid creek crossings
- Avoid steep/erosion prone areas
- Avoid old growth forests
- Respect views and site aesthetic
- Respect the overall Vision for the bike park and Resort
- Optimize use of existing roads and trails
- Prioritize use of gladed or previously disturbed areas
- Utilize perpendicular crossings for ski runs

Big White – Existing Trails

The existing mountain bike park utilizes the Bullet Express to access the bike trails (Fig. 2-8 and Table 2-12). This enables mountain bikers to access 397 metres of vertical above the Village, descending to an ideal downhill bike park staging point in Big White Village. The mountain bike trail network created offers a wide range and variety trail types which cater to the ratio of beginner, intermediate and advanced mountain bikers found within the downhill mountain bike marketplace.

Big White – Existing Lifts

Phase 1 of the bike park utilizes the Bullet Express reconfigured for mountain bikes, with all downhill mountain bike trails accessible from the top terminal. With its lower terminal located in the Village, the Bullet Express effectively integrates the mountain bike park with base area guest services as well as events and festivals host there. Reconfigured for mountain bikes, the Bullet Express can accommodate approximately 590 riders per hour (Table 2-11).

Lift Name	Lift Type	Bottom Elev. (m)	Top Elev. (m)	Vertical Drop (m)	Horiz. Length (m)	Slope Length (m)	Avg. Slope (%)	Hourly Capacity (Theor.)	Hourly Capacity (Actual)	Approx. Ride Time (min)	Rope Speed (m/s)
Bullet Express	D4C	1,748	2,144	397	1,695	1,748	23.4	875	586	11.66	2.5

Table 2-11. Bike Park Existing Lifts





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Legend

- Existing Ski Lifts

Vegetation

Bike Park Trail Classifications

- Green
- ---- Blue
- Black

--- Double Black

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1:10,000 Veters 0 75 150 300

Existing Bike Park **Trail Network**

Name	Length (m)	Class	Туре					
EXISTING								
Nessy	1,924	Green	Flow					
Lap One	217	Green	Flow					
Its So Easy	316	Green	Flow					
Home Run	466	Green	Flow					
Easy Steezy	176	Green	Flow					
Bumble Bee	6,031	Green	Flow					
Pry Bar	1,162	Green	Flow					
Hot Tub	444	Blue	Flow					
Bermslang	1,675	Blue	Flow					
Lightning Strike	2,894	Blue	Flow					
Lightning Strike Alt Route	46	Blue	Flow					
Stacked Deck Blue Flow	855	Blue	Flow					
Hubba Bubba	1,449	Blue	Flow					
Plaza Climb Trail	863	Blue	Tech					
Mop Up	235	Blue	Tech					
Gecko	803	Blue	Tech					
Dark Roast	1,055	Black	Tech					
Catapult Ranch	1,826	Black	Tech					
Black Mamba	530	Black	Flow					
Rock Hammer	670	Black	Tech					
Stacked Deck	338	Black	Flow					
Stacked Deck Jump Line	533	Black	Flow					
Knockout	772	Double Black	Flow					
Rocket Science	1,270	Double Black	Tech					
Ace of Spades	713	Double Black	Tech					
The Joker	1,030	Double Black	Tech					
TOTAL	28,293							

Table 2-12. Trail Length (km) by Skill Class

Mountain Bike Trail Balance Assessment

Like skiing and snowboarding, the mountain biker marketplace has a wellestablished distribution by rider skill class. Similar to skiing and snowboarding, this distribution approximates a bell curve with relatively few beginners and advanced mountain bikers and intermediate mountain bikers dominating the market. Review of historic visitation at BC bike parks indicate that the breakdown is approximately 13% beginner, 66% intermediate, and 20% advanced (advanced and expert). Of note, the marketplace for mountain bike parks is skewed slightly towards advanced and expert riders relative to the larger mountain bike marketplace (including cross-country) as beginners are more likely to practice on their local trails and skills parks before committing to a day at a bike park.



Comparing Big White's existing distribution of trails to the mountain biker marketplace highlights that the Resort currently has an overabundance of beginner and advanced terrain while lacking intermediate terrain (Chart 2-6). However, it should be noted that Big White is currently still undertaking trail development envisioned for Phase 1 of the bike park. As such, what is currently available to the public should not be regarded as a finished offering but as a work in progress. Additional intermediate terrain will be developed as part of Phase 1 in the coming seasons and throughout subsequent phases of development. The final preferred concept for the Big White bike park is presented in Section 4.5 and illustrates the entire trail network at buildout.



High-speed berms on an advanced flow trail at the Big White bike park.

Mountain Biking Amenities

Bike Pump Track

A pump track is a structure that relies on the rider's up and down 'pumping' motion to propel the mountain bike forward instead of pedaling. Pump tracks are great for building balance, learning skills, improving confidence on the bike, and appeal to all ages and skill levels. They are suitable for bikes of all sizes; from toddler push bikes to dual suspension mountain bikes. Pump tracks create a community environment by bridging the generation gap between parents, small children and adolescents.

The pump track at Big White was built as part of Phase 1 of the bike park development and acts as a standalone attraction. Located in Big White Village, it is designed to complement Village amenities and help to animate the Village core during the summer season.



Bike pump track being used by riders of all skill levels and sizes.



Professional riders from around the world take the sport to new heights at the Big White Invitational.

Mountain Biking Slopestyle Course

A slopestyle course combines several natural and manufactured features (e.g. jumps, berms, large drops, quarterpipes) with riders attempting BMX style tricks. Slopestyle courses can be built into the landscape or placed on top of it with temporary features. The discipline is growing in popularity both among mountain bikers and spectators.

In summer 2018, the Big White Slopestyle course was constructed next to the existing tube park area, just north of the lower terminal of the Lara's Gondola, and accompanied by a seasonal spectator area and bike shuttle route for events (Fig. 2-9). The course flows through the trees to the west of the tube park and required minimal selective timber harvest to remove trees that overlap with the proposed course.

The slopestyle course has already proven a huge success, hosting the inaugural Big White Invitational Slopestyle event in July 2018. The event featured 25 of the top-ranked mountain bikers from around the world and was included as a Freeride Mountain Bike World Tour Gold event (the only one in North America). Big White will look to build off this early success and promote a range of mountain biking opportunities to riders from BC, Canada, and the world.







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1:1,500 Meters 0 5 10 20 30

Existing Bike Park Slopestyle Course Area

Figure 2-9

2.7 EXISTING BALANCED RESORT CAPACITY

Just as there are limits to growth in terms of the actual size that an attraction can reach before it compromises the environmental integrity of the site, there are thresholds beyond which the numbers of users, or the mix of user types, compromises the quality of experience that a resort offers - to its own detriment. Again, a balance must be determined and adhered to. The objective is to calculate a "balanced resort capacity".

As such, the definition of the Balanced Resort Capacity (BRC) is the optimum number of guests that can utilize a resort's facilities per day in such a way that their recreational expectations are being met while the integrity of the site's physical and sociological environment is maintained on a year-round basis. This number functions as the baseline figure for annual capacity potential and rates of utilization, as well as all development and market projections for the resort on a seasonal basis. Most importantly, the BRC becomes the cornerstone when defining the appropriate size of base area facilities (i.e. built space, infrastructure, parking, bed units, etc.) to be established at the resort.

The Balance Resort Capacity (BRC) of the activities and attractions at the resort is the baseline used to determine all the necessary supporting facilities such as restaurants, retail outlets, resort services, parking, and overnight accommodation. Following the ASRG, and historic visitation at Big White, BHA determined that the existing BRC of Big White Resort is 11,488 guests per day (Table 2-13).

Total Mtn CCC	9,390							
Additional Activities (Winter)								
Nordic Skiing	100							
Snowshoe	50							
Skating	100							
Tube Park	200							
Snowmobile	50							
Snowplay	100							
Total Additional	600							
Total Facility Capacity	9,990							
Add Passive Guests (15% of Capacity)	1,498							
BRC	11,488							

Table 2-13.	Fxistina	Balanced	Resort Co	ipacity	/
	LAISTING	Dalancea	RCJOIT CC	pacing	/

2.8 EXISTING BASE AREA

2.8.1 Existing Skier Related Built Space

Skier related built space provides the expected and required services for a ski resort to function properly during the skiing day. These services include all built space (e.g. restaurants, retail, equipment rental, day care, restrooms, ski patrol, lockers, resort information, administration, etc.) that cater to both day-use and destination skiers. Currently, there are four main day lodges at Big White which service day-use and destination guests throughout their ski day. These lodges are located at the Westridge Base (Westridge Warming Hut), the Ridge Base (Ridge Day Lodge), the Happy Valley Day Lodge, and Village Centre Mall. In addition, skier services are located throughout the Village at various hotels and at the new facility at the base of the Black Forest Express. In total, Big White has approximately 234,000 square feet of space dedicated to skier related services (Fig. 2-10, 2-11, and 2-12, and Table 2-14).

2.8.2 Existing Resort Related Space & Community Space

Destination guests have different expectations and needs as compared to the needs of a day-use skier. The destination guest is typically looking for a variety of restaurants, bars, tourist retail, and entertainment above and beyond the needs and services required for the ski day. The second homeowners, residents, and employees further add to the facility requirements. Their needs are more diverse and include grocery, pharmacy, general store, liquor store, and community services, among others.

Big White has a variety of all-season resort related or destination-oriented space throughout the Village and Happy Valley areas. Currently, there are 4 retail shops, 17 bar/restaurant/café/deli spaces (of which 8 are licenced lounges/bars), 1 general store and one spa. There are also various other spaces located within private developments, such as fitness rooms.

Community space will need to grow alongside the Resort as more permanent or semi-permanent residents settle at Big White. Currently at the Resort, a Fire Hall, community policing office, and public school serve the needs of the community, while ambulance services are based out of the City of Kelowna. A second Fire Hall is planned for development near the entrance to the Ridge Base.

Table 2-14. Existing Bui	Table 2-14. Existing Built Space at Big White (ft ²)																				
Service/Function	Ridge Day Lodge	Whitefoot Lodge	Das HofBrauhaus	White Crystal Inn	Admin Bldg.	Ski Patrol	Black Forest	Village Centre	Westridge Warming Hut	Snowshoe Sam's	Happy Valley Lodge	Silvertip (Committed)	Bizzis	Chateau Blanc (committed)	Sundance (committed)	Chateau at Big White	Stonebridge (committed)	Inn at Big White	Trapper's Crossing	The Woods	Total (sq. ft.)
									Res	taurants and R	Related Fac	ilities									
Restaurant Seating	2,734	3,615	905	1,314	0	0	3,850	6,900	1,840	5,500	16,550	2,500	0	16,263	2,500	1,500	800	800	1,000	992	69,563
Kitchen/Scramble	560	2,518	400	990	0	0	1,650	1,530		2,500	2,300	1,000	0	9,740	1,000	600	300	400	500	1,200	27,188
Bar/Lounge	0	2,357	2,100	904	0	0	0	1,085		5,000	0	0	0	11,376	0	0	0	800	0	420	24,042
Subtotal	3,294	8,490	3,405	3,208	0	0	5,500	9,515	1,840	13,000	18,850	3,500	0	37,379	3,500	2,100	1,100	2,000	1,500	2,612	120,793
										Reta	ail										
Equipment Rental/Repair	0	0	0	0	0	0	0	6,105	0	0	0	0	0	0	0	0	0	0	0	0	6,105
Retail	0	3,573	0	0	0	0	0	3,348	0	0	0	0	2,000	9,278	0	0	0	0	3,000	0	21,199
Subtotal	0	3,573	0	0	0	0	0	9,453	0	0	0	0	2,000	9,278	0	0	0	0	3,000	0	27,304
										Skier Se	ervices										
Washrooms	409	441	409	215	0	0	1,800	1,335	560	1,500	1,100	0	0	2,368	0	0	0	0	0	120	10,257
Ski Patrol/First Aid	0	0	0	0	0	3,875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,875
Ski School	0	0	0	0	140	0	0	323	0	0	0	0	0	0	0	0	0	0	0	0	463
Public Lockers	871	65	0	0	0	0	1,600	280	0	0	0	0	0	0	0	0	0	0	0	0	2,816
Day Care	0	12,035	0	0	0	0	150	2,615	0	0	0	0	0	0	0	0	0	0	0	0	14,800
Ticket Sales	182	0	0	0	215	0	0	1,141	130	0	400	0	0	0	0	0	0	0	0	0	2,068
Subtotal	1,462	12,541	409	215	355	3,875	3,550	5,694	690	1,500	1,500	0	0	2,368	0	0	0	0	0	120	34,279
	Operations/Storage																				
Administration	0	1,001	0	990	3,875	0	48	0	0	0	0	0	0	0	0	0	0	0	0	850	6,764
Employee Lounge/ Lockers	0	182	0	0	65	0	100	1,098	0	0	0	0	0	3,875	0	0	0	0	0	150	5,470
Storage Space	0	0	0	0	0	0	0	0	0	0	550	0	0	0	0	0	0	0	0	600	1,150
Subtotal	0	1,183	0	990	3,940	0	148	1,098	0	0	550	0	0	3,875	0	0	0	0	0	1,600	13,384
										Back of	House										
Mech./Furnace	245	1,328	196	227	221	200	100	1,327	130	747	1,076	180	103	2,724	180	108	57	103	232	100	9,585
Circulation/Walls/Waste	238	1,289	191	221	215	194	460	1,288	127	725	1,045	175	100	2,645	175	105	55	100	225	217	9,788
Subtotal	483	2,617	387	448	436	393	560	2,615	257	1,472	2,121	355	203	5,369	355	213	112	203	457	317	19,373
			·												•						
Total Ski Related Space	5,239	28,404	4,201	4,861	4,731	4,268	9,758	28,375	2,787	15,972	23,021	3,855	2,203	58,269	3,855	2,313	1,212	2,203	4,957	4,649	215,133
		-								Destinatio	n Space			-			-				
Restaurant/Bar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rec/Ent/Spa/Fitness	0	0	0	0	0	0	0	0	0	0	0	0	0	8,500	750	500	0	1,000	0	0	10,750
Destination Retail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Destination Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Convention/Seminar	0	0	0	400	0	0	0	0	0	0	0	0	0	6,350	0	0	0	0	0	0	6,750
Mechanical/ Furnace	0	0	0	21	0	0	0	0	0	0	0	0	0	765	39	26	0	52	0	0	901
	0	0	0	20	0	0	0	0	0	0	0	0	0	16 257	30 826	25	0	50	0	0	0/5
Total Resort Space	5,239	28,404	4,201	5,302	4,731	4,268	9,758	28,375	2,787	15,972	23,021	3,855	2,203	74,627	4,681	2,864	1,212	3,305	4,957	4,649	234,409





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1:8,000 Meters 200 300 0 100

Existing Base Area





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Meters 300 200 100 0 Existing Base Area Development Areas





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->	Existing Ski Lifts
	Gravel Roads/Parking
	Paved Driveways/ Parking
	Roads
Develo	opment Areas
	Village
	Chateau Blanc
	Feathertop
	Fire Hall
	Horsefly Road
	School
	Sewage Lagoons
	Snowpines
	The Forest
-	High Forest

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Meters

150

1:5,000 50

100

Existing Village Core

0

2.8.3 Space Use Requirements

To determine if there is an appropriate mix and amount of built space, BHA compared a space use inventory of the Resort to industry standards for ski resorts of a size and type similar to Big White. The objective was to identify any gross area deficiencies in the existing development that may, once corrected, make Big White a more balanced, enjoyable, and successful operation.

The space use requirements are directly related to the BRC of the ski area. Table 2-15 illustrates the comparison of the existing built space with the industry standards for Big White's established BRC.



Comfortable and spacious restaurant spaces cater to the needs and expectations of guests.

<u> </u>	,	Alpine CCC	9,390	
		BRC	11,489	
Service/Function	Existing Space (sq ft)	Space Required (sq ft)	Difference (sq ft)	% of Required
	DAY USE S	PACE		
R	estaurants and Rel	ated Facilities		
Restaurant	69,563	49,464	20,099	141%
Kitchen/Scramble	27,188	19,785	7,403	137%
Bar/Lounge	24,042	4,946	19,096	486%
Subtotal	120,793	74,196	46,597	163%
	Retail			
Equip Rental/Repair	6,105	9,096	-2,991	67%
Retail Sales	21,199	9,893	11,306	214%
Subtotal	27,304	18,989	8,315	144%
	Skier Servi	ces		
Washrooms	10,257	16,070	-5,813	64%
Ski Patrol/First Aid	3,875	3,639	236	106%
Ski School	463	5,054	-4,591	9%
Public Lockers	2,816	9,096	-6,280	31%
Day Care/Nursery	14,800	10,815	3,985	137%
licket Sales	2,068	1,213	855	171%
Subtotal	34,279	45,886	-11,607	75%
	Operations/S	torage	040	000/
Administration	6,764	7,580	-816	89%
Employee Lockers	5,470	3,032	2,438	180%
Subtotal	1,100	11,504	-10,354	10%
Subiolal	13,304 Devilles Quest	22,117	-0,733	01%
Day Llas Quest Crass Quiktetal	Day Use Guesi		24 570	4040/
Day Use Guest Space Subtotal	195,760	101,100	34,372	121%
Mashanias I/Europas	Day Use - Back		070	070/
Circulation Walls and Wests	9,585	9,861	-276	97%
Subtotal	9,700	22.009	-3,309	74%
Subiotal	Total Day Lico	23,000	-3,035	04 /0
Total Day Use Space	215.133	184,196	30.937	117%
		SPACE		,0
	Destination Gue	st Snace ¹		
Restaurant/Bar		18 /20	-18 /20	0%
Rec./Ent./Spa/Fitness	10.750	7.368	3.382	146%
Destination Retail	0	22.103	-22.103	0%
Destination Services	0	12,525	-12,525	0%
Convention/Seminar	6,750	5,894	856	115%
Subtotal	17,500	66,310	-48,810	26%
	Destination - Bac	k of House		
Mechanical/Furnace	901	3158	-2256	29%
Circulation, Walls and Waste	875	4210	-3335	21%
Subtotal	1,776	7368	-5592	24%
	Total Destination	on Space		
Total Destination Space	19,276	73,678	-54,402	26%
TO	TAL EXISTING RE	SORT SPACE		
Total Existing Pasort Space	234 400	257 874	-23 /65	Q1%
Total Existing Resolt Space	234,409	251,014	-23,403	3170

Table 2-15. Existing Built Space Analysis

. Guest Space is operational space (Restaurants, Retail, Skier Services, Operations/Storage) critical to the guest experience or staff activities. It excludes structural (Back of House) space.

A cursory review of the totals and ratios suggest that Big White has built space equivalent to the industry standard. However, on closer inspection, there are several imbalances that suggest changes should be considered in future developments and upgrades. The most important of these are as follows:

Washrooms

There appears to be a significant lack of publicly available washrooms. Some of this shortfall is justified by the fact that all the resort accommodation is 'ski to/ski from', making it convenient for destination guests to simply return to their unit. Nonetheless, this should be monitored to ensure that a negative experience does not begin to influence return visitation.

Equipment Rental

It appears that the amount of equipment rental space is about 32% less than industry standard. The availability of high-end skis is a feature that 'long haul' tourists look for in their choice of destination. This is a profit opportunity that should not be ignored, especially as Big White makes further efforts to cater to the destination tourist.

Ski School

The size and quality of the ski school at a ski resort are features that can have a very significant impact on the choice of the resort as a destination. The ski school should be a major profit centre of the operations at Big White. The obvious lack of space dedicated to ski school facilities at the resort suggests that this is a major opportunity that should be fully explored and addressed.

Destination Space

The space use analysis suggests that only approximately 25% of the required 'destination space' is in place at Big White. Some of this may be a function of the 'ski to/ski from' accommodation on the mountain. However, as Big White matures and expands, additional space should be allotted for facilities that cater to post-skiing activities. These may include specialized retail, restaurants, cafes, galleries, theatre, arcades, spas, convention/seminar space, and instructional centres.

2.8.4 Existing Overnight Accommodations

The existing residential and commercial accommodation facilities at Big White have evolved over time to coincide with the development of the skiing facilities. As the destination status of the resort improves, and the CCC and BRC increase, so too must the Resort's ability to accommodate overnight guests. Currently, 100% of the overnight accommodation is considered 'ski to/ski from'. This is a significant and positive quality that differentiates Big White from most other mountain resorts in North America. As a comparison, only 20% of the bed base at Whistler Blackcomb can be designated as ski to/ ski from.

Application of the ASRG Bed Unit Model to Big White's Existing Conditions results in a score of 39 points and a multiplier of 125% (Table 2-16). Given that BRC is currently 11,488, as built, Big White has earned 14,360 bed units.

Factor	Full Buildout			
Ski Terrain	2			
Skier Density per Hectare	4			
Accessibility	4			
Ski Area Access	1			
Population Within 250k	5			
Unique Qualities	2			
All Season Facilities	3			
Potential Length of Season	3			
Type of Snow	4			
Weather Conditions	4			
Express Lifts	2			
Need for Employee Housing	3			
First Nations Economic Participation	2			
Total Ranking	39			
Associated ASRG Ra	tio			
Total Points	Total % of BRC			
39	125%			

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The existing and committed overnight accommodation at Big White totals 3,019 units of development. Of these, 317 are single family units, 176 are duplex units, 1,742 are multi-family units, 752 are hotel rooms, 20 are pension units and 12 are hostel units. In total, this equates to 10,533 bed units. Effectively, this means that Big White should have another 3,827 bed units available for development to bring the resort into balance. A detailed breakdown of Big White's existing and committed residential and overnight accommodation units are described in Table 2-17.
Tabla 0 17	Evicting	and	Committed	Davidar	mont
1001e z-17.	EXISTITIO	ana	Commined	Develor	лпепт
		00.	00	20,000	

EXISTING DEVELOPMENT	Total Units	SFU	SFU and Suite	Duplex Units (600-1200 sq ft 1 side)	Duplex Units (1200-2000+ sq ft a side)	MFU (0-600 sq. ft) (1 bdrm)	MFU (600-1100 sq ft) (2 bdrm)	MFU (1100-2150+ sq ft) (3+ bdrm)	Hotel Room (0-800 sq ft)	Hotel Room (800-2000 sq ft)	Tourist Pension	Hostel	Bed Units
Black Bear I	6							6					24
Black Bear II	134					16	17	31	50		20		347
Blacksmith Lodge	11						11						33
Bullet Creek Cabins	18	18											108
Chateau Big White	53								52	1			106
Chateau on the Ridge	37					1		36					146
Copper Kettle Lodge I	21							21					84
Copper Kettle Lodge II	28							28					112
Crescent	10						10						30
Das Hofbrauhaus	48					37	11						107
Eagles Resort	54							54					216
Forest	28				28								168
Glacier Lodge	18						18						54
Greystoke	30					2	28						88
Grizzly Lodge	22					7	14	1					60
Inn at Big White	100					18			82				200
Killentyme	6						6						18
Legacy	28					10	8	10					84
Legend	23					2	1	20					87

EXISTING DEVELOPMENT	Total Units	SFU	SFU and Suite	Duplex Units (600-1200 sq ft 1 side)	Duplex Units (1200-2000+ sq ft a side)	MFU (0-600 sq. ft) (1 bdrm)	MFU (600-1100 sq ft) (2 bdrm)	MFU (1100-2150+ sq ft) (3+ bdrm)	Hotel Room (0-800 sq ft)	Hotel Room (800-2000 sq ft)	Tourist Pension	Hostel	Bed Units
Moguls	59					20	16	2	21				138
Monashee Inn	33					15	17	1					85
North	10	1				2	7						31
Perfection Ridge	5							5					20
Perfection Ridge II	8						8						24
Pinnacles	5				5								30
Plaza on the Ridge	50					1	9	40					189
Ponderosa	53						47		6				153
Powder Ridge	12							12					48
Ptarmigan Inn	43					10	24	5	4				120
Raven	35					6	23	6					105
Rock Ridge Estates	15	1			14								90
Samesun Hostel	12											12	48
Sasquatch	8							8					32
Silvertip Landing	19						8	11					68
Sno Inn	4						2	2					14
Snow Crest Village	22					9	3	10					67
Snow Fall Lodge	8						2	6					30
Snowbird Lodge	18						18						54
Snowpines	104		38	35			31						531

EXISTING DEVELOPMENT	Total Units	SFU	SFU and Suite	Duplex Units (600-1200 sq ft 1 side)	Duplex Units (1200-2000+ sq ft a side)	MFU (0-600 sq. ft) (1 bdrm)	MFU (600-1100 sq ft) (2 bdrm)	MFU (1100-2150+ sq ft) (3+ bdrm)	Hotel Room (0-800 sq ft)	Hotel Room (800-2000 sq ft)	Tourist Pension	Hostel	Bed Units
Snowy Creek Lodge	14						9	5					47
Solana Ridge	14					3	6	5					44
Solitude - Gondola Woods	10				10								60
Southpoint I	10						5	5					35
Southpoint II	5							5					20
Southpoint III	13						11	2					41
Spyglass	24						11	13					85
Stonebridge	92					5	76	11					282
Stonegate I	16						5	11					59
Stonegate II	34						11	23					125
Summit Peaks	7							7					28
Sundance Explorer Cabins	8	8											48
Sundance Lodge East	32					6	18	8					98
Sundance Lodge West	32					9	18	5					92
Sunridge Inn	10						2	8					38
Tamarack Inn	32					25	1	6					77
Ten Skiers	10					6	3		1				23
The Alpines	14					3	3	8					47
The Aspens I	6				6								36

EXISTING DEVELOPMENT	Total Units	SFU	SFU and Suite	Duplex Units (600-1200 sq ft 1 side)	Duplex Units (1200-2000+ sq ft a side)	MFU (0-600 sq. ft) (1 bdrm)	MFU (600-1100 sq ft) (2 bdrm)	MFU (1100-2150+ sq ft) (3+ bdrm)	Hotel Room (0-800 sq ft)	Hotel Room (800-2000 sq ft)	Tourist Pension	Hostel	Bed Units
The Aspens II	35					1	18	16					120
The Aspens III	50						33	17					167
Timber Ridge	28						28						84
Timbers	16					1	13	2					49
Towering Pines	12						6	6					42
Trailside	29						28	1					88
Trailside Heights	26						24	2					80
Trapper's Crossing	42					14	12	16					128
Tree Tops	36							36					144
White Crystal Inn	51								51				102
Whitefoot Lodge	124					24	12		88				260
Winter Ridge	24						12	12					84
Woodcutter Cabins	16			16									96
Porcupine 4-Plex	4							4					16
Snowbanks	6							6					24
Powder Views	6							6					24
Randoms at Snowpines	12	4			2		6						54

COMMITTED DEVELOPMENT	Total Units	SFU	SFU and Suite	Duplex Units (600-1200 sq ft 1 side)	Duplex Units (1200-2000+ sq ft a side)	MFU (0-600 sq. ft) (1 bdrm)	MFU (600-1100 sq ft) (2 bdrm)	MFU (1100-2150+ sq ft) (3+ bdrm)	Hotel Room (0-800 sq ft)	Hotel Room (800-2000 sq ft)	Tourist Pension	Hostel	Bed Units
Copper Kettle Lodge III	36							36					144
Black Forest DL 4255	48					48							352
Black Forest DL4254	24							24					176
Black Forest DL4256	6	6											36
Black Forest DL 4270	12					12							88
Feathertop	81	81											486
High Forest	50	16		34									300
Stonegate I	16						5	11					59
Stonegate II	34						12	22					124
Sundance Explorer Cabins	7	7											42
Sundance Townhomes	16							16					64
The Edge	26	12			14								156
Juniper Lodge	18						18						54
Grizzly Ridge	56	56											336
Randoms at Snowpines	12	4			2		6						54
Chateau Blanc	396									396			792
Switchback	10	10											60
Randoms at Village	73	55			10		8						414
Total Existing Accommodation	2,098	32	38	51	65	253	710	561	355	1	20	12	6,796
Committed	921	247	0	34	26	60	49	109	0	396	0	0	3,737
Totals	3,019	279	38	85	91	313	759	670	355	397	20	12	10,533

2.8.5 Existing Parking

In total, Big White has approximately 1,430 parking stalls available for day-use guests, located throughout the Gem Lake Base, Happy Valley Base and the Black Forest area. Assuming 3.0 guests per car, this results in parking capacity for approximately 4,290 day-use guests. In addition, there are 3,128 parking stalls attached to overnight accommodation units throughout the Resort. Assuming 2.5 guests per car, this provides enough parking for 7,820 destination guests at the resort. Based on this, in total there are 4,558 parking stalls with enough capacity for 12,110 guests. Table 2-18 details the use and capacities of the existing parking at Big White.

It is acknowledged that the Gem Lake ski terrain is dependent on weather conditions and sufficient snowpack. High winds close the Gem Lake Lift approximately ten times a year, sending day-use skiers to other staging points throughout the Resort. Further, the Gem Lake ski runs generally open later in the season than other areas of Big White due to their solar exposure and lower elevation. However, regardless of the status of the Gem Lake ski terrain, the Westridge Base area serves as an important day use parking and staging area. In the event the ski terrain is closed, Big White operates a shuttle service to bring guests to the Village.

Location	Car Capacity	Guest Capacity							
Day Sk	ier Parking								
Gem Base	560	1,680							
Happy Valley	570	1,710							
Black Forest	300	900							
Total	1,430	4,290							
Overnight Parking									
Black Bear I	6	15							
Black Bear II	134	335							
Blacksmith Lodge	11	27.5							
Bullet Creek Cabins	18	45							
Chateau Big White	53	132.5							
Chateau on the Ridge	37	92.5							
Copper Kettle Lodge I	21	52.5							
Copper Kettle Lodge II	28	70							
Copper Kettle Lodge III	36	90							

Table	2-18.	Fxistina	Parkina
TUDIC	2 10.	LAISIIIIg	i aikiiig

Crescent	10	25
Das Hofbrauhaus	48	120
Eagles Resort	54	135
Feathertop	81	202.5
Forest	28	70
Glacier Lodge	18	45
Greystoke	30	75
Grizzly Lodge	22	55
High Forest	50	125
Inn at Big White	100	250
Killentyme	6	15
Legacy	34	85
Legend	23	57.5
Moguls	59	147.5
Monashee Inn	33	82.5
North	18	45
Perfection Ridge	5	12.5
Perfection Ridge II	8	20
Pinnacles	5	12.5
Plaza on the Ridge	50	125
Ponderosa	53	132.5
Powder Ridge	12	30
Ptarmigan Inn	43	107.5
Raven	35	87.5
Rock Ridge Estates	15	37.5
Samesun Hostel	12	30
Sasquatch	8	20
Silvertip Landing	19	47.5
Sno Inn	4	10
Snow Crest Village	14	35
Snow Fall Lodge	8	20
Snowbird Lodge	18	45
Snowpines	106	265
Snowy Creek Lodge	14	35

Solana Ridge	14	35
Solitude - Gondola Woods	10	25
Southpoint I	10	25
Southpoint II	5	12.5
Spyglass	24	60
Stonebridge	88	220
Stonegate I	56	140
Stonegate II	44	110
Summit Peaks	7	17.5
Sundance Explorer Cabins	15	37.5
Sundance Lodge East	32	80
Sundance Lodge West	32	80
Sundance Townhomes	12	30
Sunridge Inn	10	25
Tamarack Inn	32	80
Ten Skiers	10	25
The Alpines	14	35
The Aspens I	6	15
The Aspens II	35	87.5
The Aspens III	50	125
Timber Ridge	28	70
Timbers	18	45
Towering Pines	12	30
Trailside	29	72.5
Trailside Heights	26	65
Trapper's Crossing	42	105
Tree Tops	36	90
White Crystal Inn	51	127.5
Whitefoot Lodge	124	310
Winter Ridge	24	60
Woodcutter Cabins	16	40
The Edge	19	47.5
Porcupine 4-Plex	4	10

Juniper Lodge	18	45
Snowbanks	6	15
Grizzly Ridge	56	140
Powder Views	6	15
Randoms at Snowpines	24	60
Chateau Blanc	600	1500
Switchback	10	25
Randoms at Village	73	182.5
Total Overnight Parking	3,128	7,820
Total Resort Wide Parking	4,558	12,110