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Garibaldi Master Plan Update

FEBRUARY, 2018

AQUILINI DEVELOPMENT

IBI

SE GROUP

Garibaldi Resort Master Plan Update

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Abbreviations

ASRG	All Seasons Resort Guidelines
ASRP	All Seasons Resort Policy
ATV	All-terrain Vehicle
BRC	Balanced Resort Capacity
BU	Bed Unit
CASP	Commercial Alpine Skiing Policy
CCC	Comfortable Carrying Capacity
CRA	Controlled Recreation Area
DOS	District of Squamish
EA	Environmental Assessment
EAO	Environmental Assessment Office
FLNRO	Forests, Lands and Natural Resource Operations
FSR	Forest Service Road
F&B	Food and Beverage
GAS	Garibaldi at Squamish
GDP	Gross Domestic Product
MRB	Mountain Resorts Branch
MTCA	Ministry of Tourism, Culture and the Arts
OCP	Official Community Plan
RGS	Regional Growth Strategy
RFP	Request for Proposal
RR	Rural Resource
SAOT	Skiers at One Time
SFN	Squamish First Nation
SLRD	Squamish Lillooet Regional District
UTV	Utility Task Vehicle

Garibaldi's high alpine terrain with Garibaldi massif behind

Garibaldi at Squamish presents an opportunity for the Squamish Nation, the Garibaldi at Squamish partners, multiple levels of Government, residents and user groups to showcase both an historical and current effort to secure and maintain Squamish Nation culture and associated rights and title in a development context. At the outset of the project, the proponents recognized and embraced the cultural and legal significance of the project proposed in Squamish Nation's traditional territory and requested to work together with the Squamish Nation to deliver project objectives of mutual interest to all as partners. The proponents are extremely proud of our evolving partnership with the Squamish Nation community and look forward to learning and growing together and incorporating lessons learned into all facets of the planning, approval, construction and operations phases of the Project.

FORWARD

This Garibaldi Master Plan Update follows on the 2003 and 2009 Mountain Master Plans that led to the Interim Agreement established between the Province's Mountain Resort Branch (MRB) and Garibaldi. The information in this Master Plan Update represents the next phase of the application – the "Concept Stage", in accordance with MRB's All Season Resort Guidelines (ASRG). The information addresses all portions of the ASRG's chapters II.3 – 5 ("The Concept Stage"), describing in detail the concepts for the overall resort, the mountain, and the base lands. Some of the technical information in the later sections of chapter II.5 is summarized in the interest of brevity, however the full reports are contained in the appendix under separate cover.

The overall capacities established in the 2009 plan have been maintained in this update, specifically: the mountain Comfortable Carrying Capacity (CCC) of 15,250, the Balanced Resort Capacity (BRC) of 17,538, and the base area lands Bed Unit (BU) capacity of 21,922. Within the framework of these capacities specific strategies in this Master Plan Update have been revised to reflect considerable stakeholder feedback and changes in the resort industry. The changes include:

- Removal of Lift S in order to reduce trail densities in the alpine area
- Modifications to base terminals locations for most out-of-base lifts in order to better integrate with the revised base area lands
- Modifications to several lower portions of ski trails to better integrate with the revised base area lands
- Increase in size of guest services facilities by 20%, reflecting industry trends
- Consolidation of base area lands, reducing the number of parcels from 14 to 9 to achieve a more compact development footprint that concentrates more than double the previous number of bed units and commercial space in the main village in order to establish a strong nucleus of activity and reduce car dependency from bed units in outlying parcels. The consolidation led to the elimination of parcels in the vicinity of the Sea to Sky Highway and Cat Lake trail network
- The parcels have been re-numbered as shown in the chart below:

BASE LANDS PARCEL REFERENCES

2009	2017
1	Deleted
2	1
3	Deleted
4	Deleted
5	2
6	3
7	4
8	5
9	6
10A	7
10B	8
11	9
12	Deleted
13	Deleted

- Addition of non-ski recreation to reflect trends in the mountain resort industry and optimize efficient use of the resort in non-peak times:
  - Winter activities such as fat-tire biking, skating and snow tubing
  - Summer activities such as zip-lining and adventure zones
  - Programming / events year-round such as educational classes and kid's camps

II.3 MOUNTAIN RESORT PLANNING: THE CONCEPT STAGE

II.3.1 INTRODUCTION

The British Columbia All Season Resort Policy (ASRP) is one of many Provincial policies that have been developed to assist the government in achieving its goals related to the "highest and best use" management of public lands across the Province. The principal purpose of this Resort Policy is to optimize British Columbia's potential as a world-class mountain tourism destination.

The All Season Resort Guidelines (ASRG) document was developed and structured to address issues and respond to requirements defined within many Provincial statutes and policies, including the All Season Resort Policy, the Commercial Alpine Skiing Policy (CASP), the Environmental Assessment Act and others.

The ASRG document is designed to provide a clear and concise road map for future development, assist in the process of planning and evaluating all season resort proposals, and *"…encourage and foster well-balanced, environmentally sensitive mountain resort development that responds to the needs and expectations of the marketplace while having a positive social and economic impact on the community, region and province."*

All resorts must be phased together with on mountain and base area facilities in balance. The success of Sun Peaks, Big White and Fernie, along with Whistler/Blackcomb, is a result of using this model of building resort infrastructure, followed by releasing lands for residential and tourist development. The base area accommodation then provides ongoing mountain visits, which leads to a demand for more infrastructure, a model that has served BC well for over 30 years.

Garibaldi at Squamish (Garibaldi) has been approved by the Environmental Assessment Office of BC, following an extensive review process which included a separate review by the Squamish Nation.

Reports commissioned for the District of Squamish (DOS) by MMK Consulting as part of the Socio-Economic portion of the Environmental Assessment (EA) process projected that there would be an average of 1,917 new construction jobs created each year for the 20 year build out of the resort and 4,029 operational jobs at full buildout. Annual additional tax revenues at full operation are forecast to be $24 million for senior governments, with $2 million for local government.

Garibaldi is conferring with the Squamish Nation on a new name and brand that better reflects their heritage, culture and traditional uses of this land. This is a process that will take time and in the interim we will continue to use 'Garibaldi' to represent the working name of Garibaldi at Squamish Inc.

This draft closely follows the ASRG, and the chapters of this plan match the corresponding chapters contained in the ASRG Chapter II to facilitate regulatory review.

The original concepts for development of Garibaldi were created in the mid-Nineties. Somewhat different concepts were contemplated in the late Seventies and Eighties and the first formal master development plan for the current concept (Garibaldi at Squamish Mountain Master Plan April 2003, SE Group) was submitted in 2003. The 2017 Garibaldi Master Plan Update is fundamentally similar to the 2003 Mountain Master Plan, although it has been updated based on input from the public, government agencies, First Nations as well as through the EA process.

The 2003 and 2009 Mountain Master Plan form the basis for this 2017 Master Plan Update, responded to the Terms of Reference as set forth in the Commercial Alpine Ski Policy Master Plan Terms of Reference for The Garibaldi Alpen Resorts (1996) Ltd and Garibaldi at Squamish Project (April 2002).

The 2017 Master Plan Update continues to respect the capacity calculations established through the 2003 Mountain Master Plan. These approved capacities include:

- Comfortable Carrying Capacity (CCC) = 15,250
- Balanced Resort Capacity (BRC) = 17, 538
- Bed Units (BU) = 21,922.

View West to Tantalus Range from Garibaldi's high alpine

II.3.2 REQUEST FOR A PROPOSAL

This 2017 Garibaldi Master Plan Update addresses the ten requirements of a Request for Proposal as listed in Section II.3.2 of the ASRG. These requirements are as follows:

- The issues pertaining to the project's ability to satisfactorily adhere to the physical, environmental, social and economic realities that define a successful mountain resort development;
- Development concepts for the mountain and base area lands;
- Phased development and implementation concepts;
- A discussion of the environmental impacts created by the development concept, and remedial measures;
- A discussion of the economic and social impacts, land use issues and proposed methods for resolution of conflicts;
- A preliminary servicing infrastructure (power sewer and water) feasibility plan;
- A preliminary economic proforma (cash flow projections and development cost estimates);
- A market analysis;
- A summary of ownership and management structure in a detailed prospectus;
- Evidence of the applicant's financial capability to complete the master planning and approval process

The RFP process began in February 1995, when the predecessors of Garibaldi at Squamish, Inc., Garibaldi Alpen Resorts (1987 & 1996) Ltd., filed an Expression of Interest under the Province of British Columbia's Commercial Alpine Skiing Policy ("CASP") resulting in an internationally advertised Request for Public Proposal Call (RFP), a competitive bid process, and ultimately, the awarding of the exclusive Proponent Rights for the development by the Province.

View of Squamish and Howe Sound from proposed Village site

In 1996, a public approvals process was initiated in accordance with the CASP and the new Environmental Assessment (EA) Act legislated by the Province in 1995.

In 1997, an Interim Agreement was signed with the Province under the CASP that allowed Garibaldi to proceed with development of a Master Plan. This Interim Agreement has been modified and renewed and is currently extended to December 31, 2017.

In 1998, the first stage of the EA process ("Project Application") resulted in Terms of Reference with no significant issues identified. At the time, a MarkTrend Public Opinion Poll required by the EA Office indicated over 90% support for the development in the local community of Squamish, with a corresponding 85% support from Whistler. A delay in obtaining EA approval arose because of concerns over the impact of the lower development areas near Cat and Brohm Lake as well as the proposed water withdrawals from Brohm River. The application was altered with the removal of the lower development areas and golf course, and a new plan to access fresh water from wells located in the Paradise Valley.

In January 2016, the project secured the Environmental Assessment Certificate #TD16-10 (EA Certificate) which now enables the company to complete the master planning process.

The 2017 Master Plan Update continues to respect the capacity calculations established through the earlier plans, as outlined in the October 9, 2008 MTCA letter and referred to in the 2016 EA Certificate (Schedule A). These approved capacities include:

- Comfortable Carrying Capacity (CCC) = 15,250
- Balanced Resort Capacity (BRC) = 17, 538
- Bed Units (BU) = 21,922.

The continuation of these capacities is intentional, to maintain conditions and agreements outlined in the 2008 MTCA letter, 2016 EA Certificate, and other past documentation.

Rendering of proposed resort viewed from West

II.3.3 PROJECT OVERVIEW

As proposed and shown in Figure 1, Garibaldi will consist of a 2,508-hectare parcel. The resort boundary has adjusted slightly from the 2,759 ha area approved in the EA certificate as a result of parcel deletions/additions in the base area, particularly around Brohm Lake and the south east portion of the boundary, and a minor boundary adjustment on the mountain, mostly in the vicinity of Lift P. The EA area was expanded to include the Paradise Valley water source as well as the pipeline and pumping stations up to the resort.

Approximately 624 ha of the parent parcel is comprised of mountain recreation development (ski trails, mountain recreation infrastructure and related facilities) and 524 ha is allocated to base area development (visitor lodging, housing, roads and base area trails). Approximately 54% or 1,360 ha of the Garibaldi Controlled Recreation Area (CRA) will not have any significant disturbance take place.

The mountain resort development will offer recreational activities during all seasons, including 130 ski and snowboard trails, 21 aerial lifts, a network of multi-use trails, a variety of other multi-season recreation offerings, and 3 on-mountain guest service facilities.

The mountain recreation will be staged from two main base area portals (the Village Portal and the South Portal) as well as a smaller North Portal for guests at local accommodations in the northwest corner of the resort.

According to industry standards, the ski* and snowboard terrain has been estimated to support a Comfortable Carrying Capacity (CCC) of 15,250 skiers/riders at one time. The non-alpine ski and snowboard recreation offerings will support a summer capacity of 14,000 guests and a winter capacity of 680 guests. The Balanced Resort Capacity (BRC) for Garibaldi is 17,538. The associated guest

*In this report the word “ski”, and other variations of the word, is used as a general, all-inclusive term for the various types of snow sliding (e.g., alpine skiing, snowboarding, telemark skiing, freestyle skiing, carving, etc.)

Figure 1: Overall Master Plan

service facilities are sized to accommodate the BRC, which includes the CCC and additional “non-skiing” guests, estimated to be an additional 15% of CCC. Non-skiing guests include those who are either participating in other winter activities or accompanying active participants.

The base area lands are comprised of guest services, recreational amenities, overnight beds and parking organized in a series of development parcels. The most concentrated parcels are situated at the base of mountain ski lifts, while less concentrated parcels are situated along the primary roads that connect these concentration zones. This pattern of development limits the base area footprint and preserves large areas of natural terrain, which also provides convenient access, mostly walkable or rideable along established greenways for access between parking, overnight beds, lifts, services and amenities.

The mountain resort's main village (the Village Portal) will be situated slope-side, on a southwest facing plateau at an elevation of 1,130 metres. Access will be via a newly constructed access road, which will connect to the Sea to Sky Highway approximately 13 kilometres north of downtown Squamish. A primary day skier base and mountain portal (South Portal) will be located along the resort access road at the 650-metre elevation and a secondary portal, the North Portal, will be located at the 1150-metre elevation.

The arrangement of development at the resort is compact, mostly occurring in clusters adjacent to the main access road, ski trails and multi-use trails. Guest services are located at each of the three main portals, each centrally located relative to neighbouring developments. This compact, mixed-use layout will locate all public bed units and over three-quarters of the private bed units within walking distance of services and recreational amenities. In addition, the majority of the visitor accommodation is located with ski to /ski from access in relation to lifts and services.

Rendering of proposed resort looking from South-west

Rendering of proposed resort looking from North-west

Rendering of proposed resort viewed from Sea to Sky highway near Murrin Park

Rendering of proposed mid-mountain ski trails as seen from Cleveland Avenue

Rendering of the proposed village

II.3.4 PROJECT VISION, GOALS AND OBJECTIVES

The intent of this project is to create a year-round, all-season destination recreational resort community on the Brohm Ridge slopes of Mount Garibaldi, currently branded as Garibaldi at Squamish (Garibaldi). Throughout the process, the proponent's design team has and continues to use the Province's ASRG document, together with aesthetic and environmentally sensitive design philosophies in creating and testing the concepts, master plans and infrastructure designs for Garibaldi. The calculations and subsequent numbers contained in this document are derived from the planning parameters provided in the All Season Resort Policy and ASRG.

II.3.4.1 PROJECT VISION

Garibaldi will be designed in harmony with the breathtaking natural geography of the Squamish and Sea to Sky region and will meet the local and visitor demand for outdoor recreation and adventure travel. The resort will deliver the serenity of a mountain retreat, while providing a broad range of amenities that will feature a cultural and educational focus on the unique traditions of the Squamish Nation people who have served as custodians of the land since time immemorial.

II.3.4.2 PROJECT GOALS AND OBJECTIVES

OVERALL GOAL – To build a compact yet complete resort in Phase 1, and to develop incrementally into an international destination to meet the market demand while keeping the resort amenities, tourist lodging, housing and services always in balance.

Objectives

1. To be open by 2022 and to offer a high quality Regional Resort that will lay a successful foundation for future growth, while maintaining the economic, social and environmental pillars of sustainability
2. To work with surrounding communities and businesses to resolve some of the region's common issues and with all partners to grow tourism opportunities for the region
3. To coordinate with Squamish Nation to highlight its history and culture in all parts of the resort planning, construction and operation, while contributing to economic opportunities for members
4. To be from inception an all-season Destination Resort that attracts visitors from around the world to this unique recreational and cultural experience

SQUAMISH NATION HERTITAGE AND ECONOMIC GOAL – To partner with the Squamish Nation by highlighting Squamish Nation history and culture during the resort's master planning process as well as providing employment and economic opportunities for Squamish Nation's members and businesses throughout both construction and operation phases of the resort.

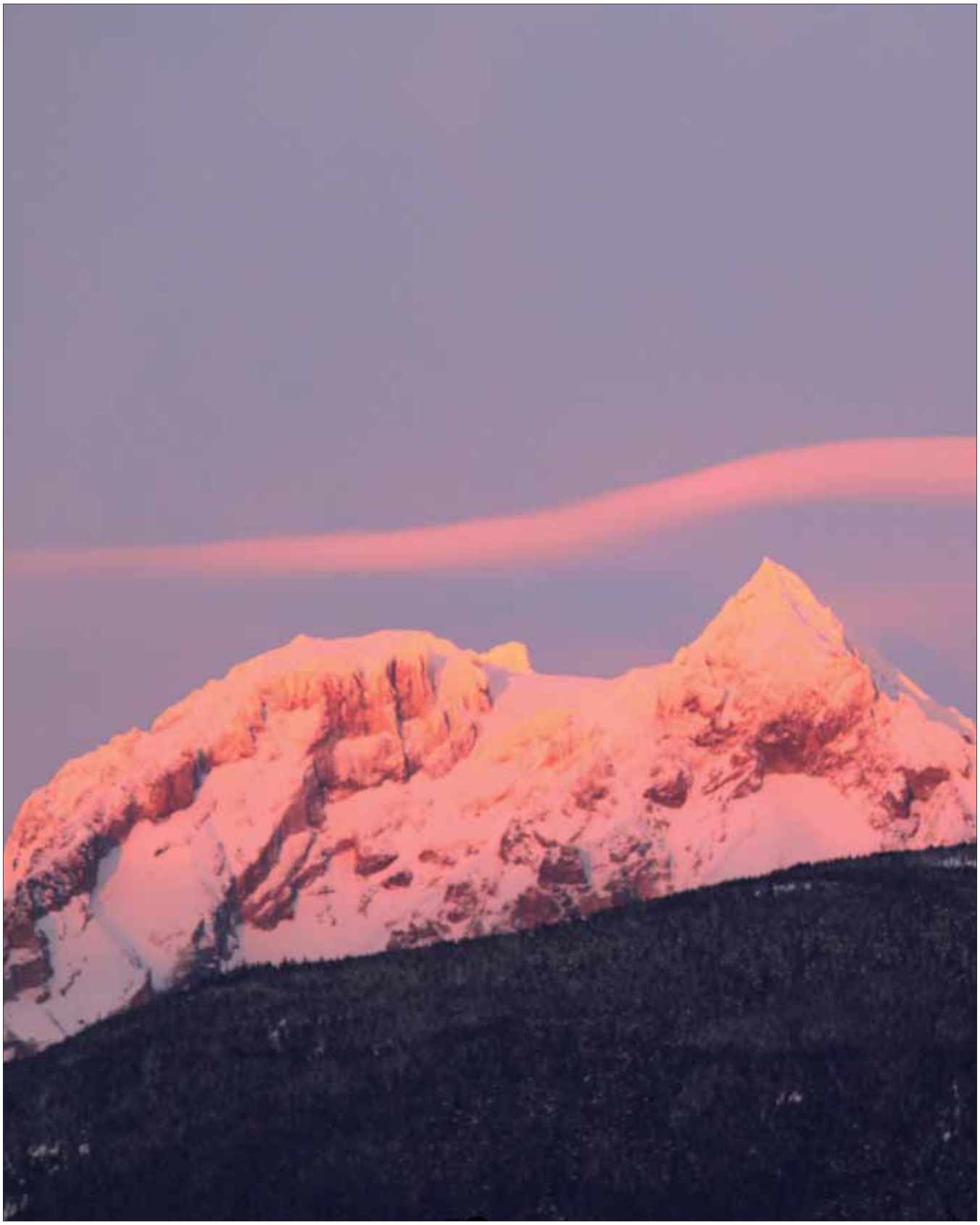
Objectives

1. To be the employer of choice for Squamish Nation members
2. To celebrate and promote Squamish Nation culture through the resort amenities
3. To recognize and protect the ecosystems within the traditional lands of the Squamish Nation
4. To protect any archeological sites of significance to the Squamish Nation

ECONOMIC GOAL – To provide quality jobs at home for all local residents, increase revenue for all levels of government and increase access to destination visitors for all local businesses.

Objectives

1. To be the employer of choice for residents who might otherwise commute
2. To schedule and plan expansion to provide construction employment on an annual basis
3. To provide cross-training in order to provide year round employment
4. To ensure that visitors are easily able to access all regional tourism opportunities by coordinating with local tourism associations



Garibaldi massif seen from Squamish

ENVIRONMENTAL GOAL – To protect the natural beauty of the mountain environment for the enjoyment of future residents and visitors

Objectives

1. To meet or exceed the 40 Conditions in the Environmental Assessment Certificate
2. To work with local groups and government agencies on innovative methods of improving the existing conditions on the mountain – through design, construction and operations
3. To recognize and protect the ecosystems within the traditional lands of the Squamish Nation
4. To work specifically on transportation methods that emphasize alternatives to cars

SOCIAL GOAL – To provide recreational and employment opportunities close to where people live

Objectives

1. To include access and activity options that are free of charge so that people of all income levels can enjoy the mountain.
2. To work on regional and local transportation options to allow ease of access to the mountain
3. To allow families an affordable place to play, socialize and work close to home
4. To ensure that quality and affordable housing is available to resort staff based on existing successful models
5. To ensure that impacts to existing or future community services are positive
6. To improve access to the mountain environment for seniors and the disabled

II.3.4.3 MEETING ASRP REQUIREMENTS FOR A DESTINATION RESORT

Garibaldi meets the criteria for a Destination Resort as defined in the Resort Guidelines, Section II.1.7.3 as follows:

a. Garibaldi is intended to serve local, regional and destination guests with emphasis on catering to destination needs and services through its range of year-round recreational opportunities, visitor amenities and accommodations.

b. Garibaldi will offer a unique and truly special mountain experience, not only because of the majesty of its natural terrain and long distance views of Howe Sound, but also because the Proponent intends to provide high speed, high capacity lifts to offer guests the optimum recreational experience (short lift lines, fast lift trips). At the same time, Garibaldi will be at the forefront of the industry in lift and trail management and all-season recreation offerings.

c. Garibaldi will provide a wide range of tourist facilities, during all seasons of the year, which will create a total resort experience for a multitude of guest types. While lift-served skiing and snowboarding will be the cornerstone activity in the winter, a variety of other events, activities and programs will offer attractions to non-alpine skiing guests. Likewise, during the summer, fall and spring, Garibaldi will offer a comprehensive array of events, activities and programs that will support and attract daily visitation commensurate with wintertime visitation, thereby keeping beds full and the resort energized throughout all seasons.

d. Garibaldi is approximately one hour from Vancouver, British Columbia, and approximately four hours from Seattle, Washington, which puts the resort well within an acceptable driving distance from its primary user markets.

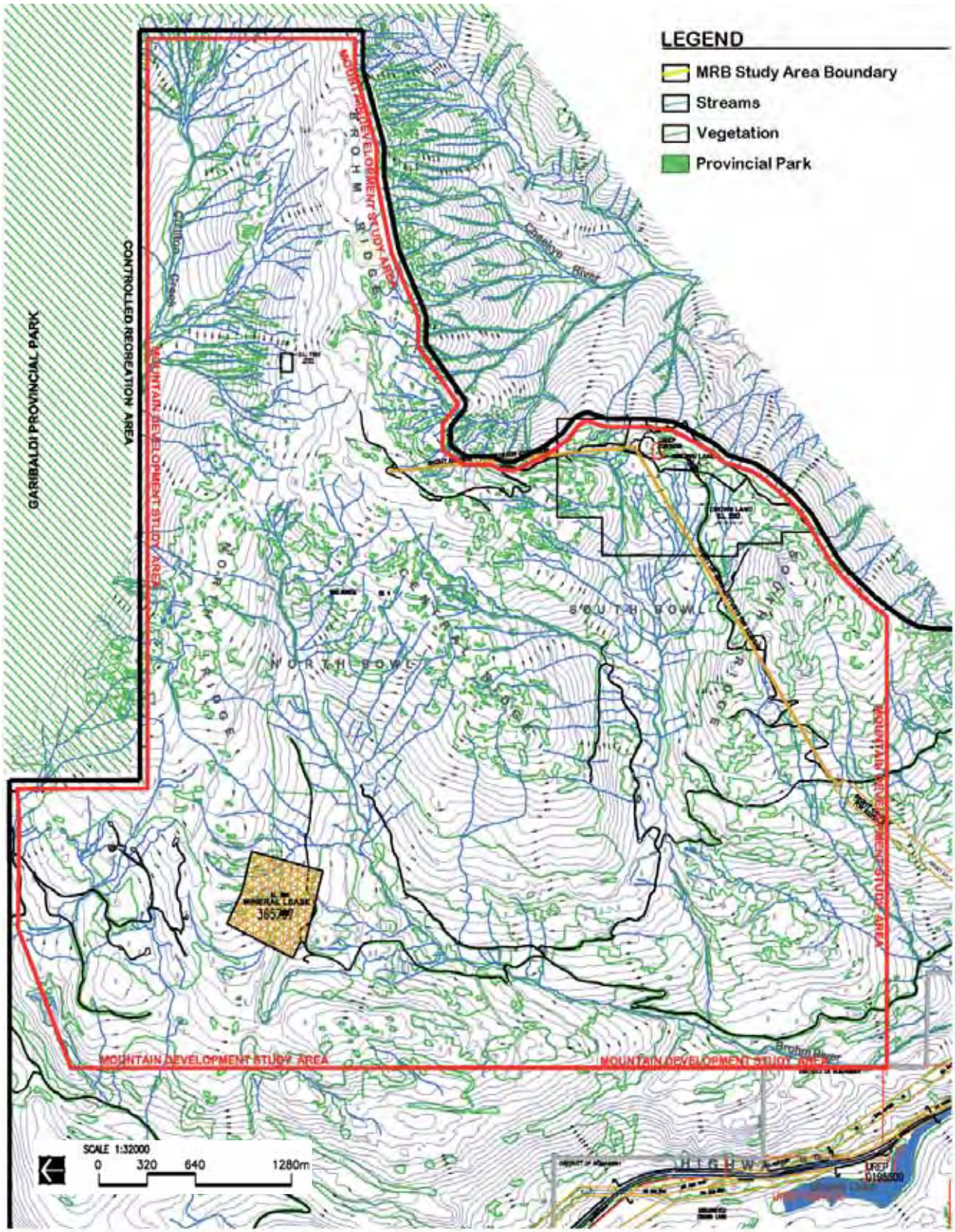
e. Vancouver International Airport is an hour and a half from Garibaldi, and consequently, well within the two- to three-hour drive recommended in the ASRG.

f. As per the October 9, 2008 MTCA letter and 2016 EA Certificate, over the proposed twenty year project development, Garibaldi will construct accommodations totaling 21,920 bed units, including 54% commercial beds and 46% private beds. An additional 2,740 beds (12.5% of the 21,920 tourism-oriented bed units) will be designated for employee housing, more than the 10 % range recommended in the EA Condition. Employee housing units are not counted as part of the 21,920 bed unit total as they are for non-commercial use.

II.3.5 SITE MAPPING

To effectively analyze the study area, and develop sound concepts for resort development, topographic mapping with a 5-metre contour interval, as shown in Figure 2, formed the basis for all analysis and planning phases of the project.

Figure 2: Mountain Project Study Area



North slopes of Brohm Ridge

II.3.6 SITE INVENTORY

The mountain development study area (where developed skiing and associated facilities will occur) is in the northeast sector of the overall project study area (see Figure 3). The mountain development will encompass approximately 624 hectares (1,541 acres) of land within the proposed Garibaldi Controlled Recreation Area. The study area is bounded on the north and east sides by Garibaldi Provincial Park, on the west by the Sea to Sky Highway corridor and on the south by the Cheekye River valley.

The Garibaldi mountain terrain is defined by Brohm Ridge, which runs east west from the eastern edge of the study area, and its North, Central and South ridges which branch out from the main ridgeline. These secondary ridges create two primary “bowl” areas, the North Bowl (between the North and Central ridges) and South Bowl (between the Central and South ridges). The highest point of the study area is 1,875 metres (6,152 feet) and located at the east end of Brohm Ridge.

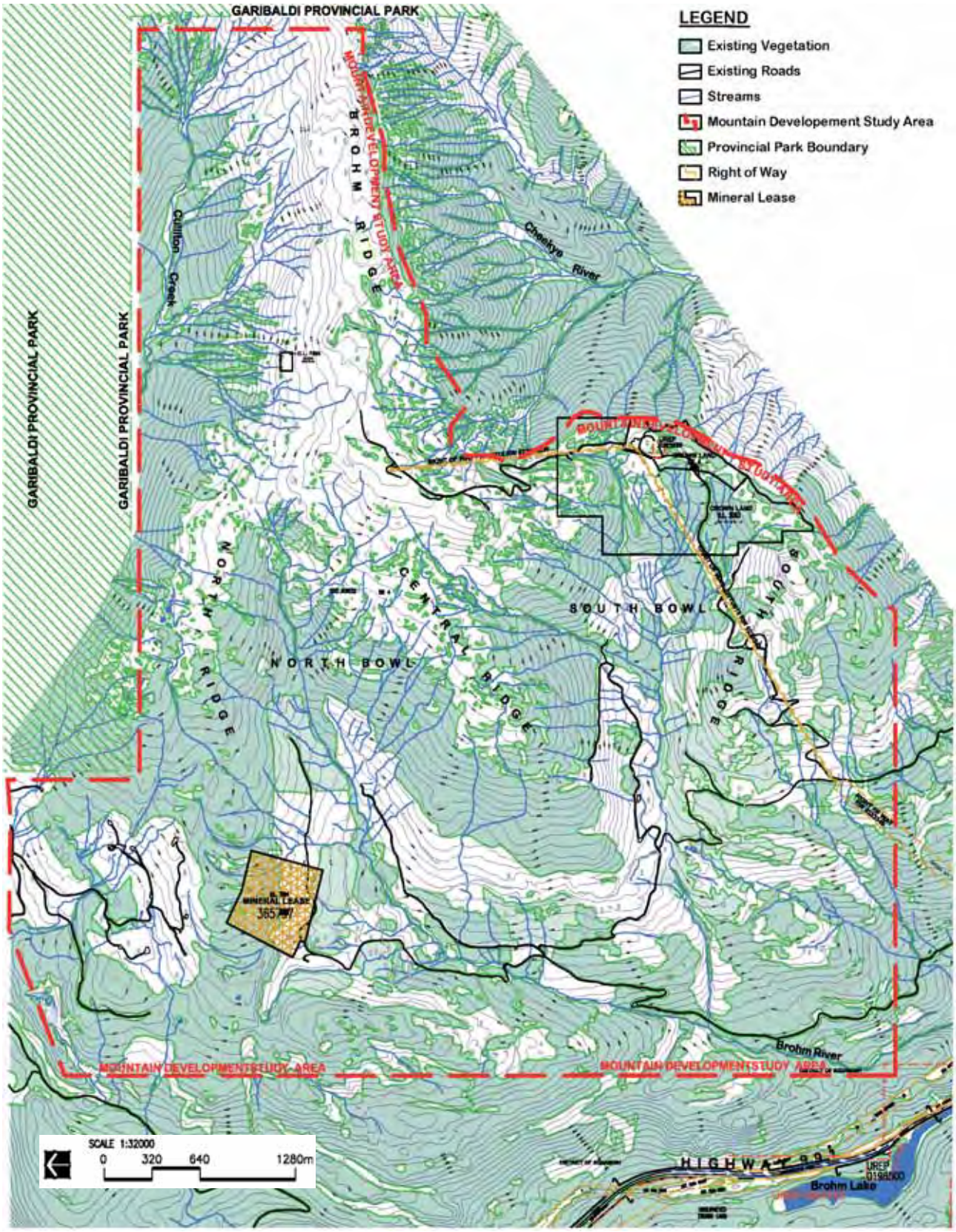
The steep slopes to the north and south of Brohm Ridge drain into Culliton Creek (north side) and Cheekye River (south side). The North Bowl drains into Brohm River and the South Bowl drains into a non-fish bearing tributary of Brohm River, Brook Creek. The land flattens out at the base of North Bowl, and there are a number of flat benches at the base of South Bowl. These areas are suitable for base area development.

The study area is bounded to the southwest by Highway 99. Existing forest access roads provide access from Highway 99 into both bowls, as well as up onto Brohm Ridge. There is an existing forest access road that approaches from the North that will be improved to provide emergency egress in case of a major wildfire.

II.3.7 ENVIRONMENTAL INVENTORY

An environmental inventory of the project area was completed as part of the Environmental Assessment process. Links to these studies are noted in the appendix to this document.

Figure 3: Mountain Existing Conditions



II.3.8 SITE ANALYSIS

II.3.8.1 MOUNTAIN RESORT DEVELOPMENT ANALYSIS

The objective of the Mountain Resort Development Analysis is to identify the full potential of the study area to support the intended components of the resort development, and to make sure that sufficient land is set aside for the necessary support facilities (e.g., access roads, skier drop-off areas, parking, day lodges, village development, other recreational amenities, etc.). The following analyses are based on evaluation of 1:5,000 scale mapping (with a 5-metre contour interval); review of project documentation and reports; aerial reconnaissance of the project area; and on-the-ground field reconnaissance and ground truthing of the site.

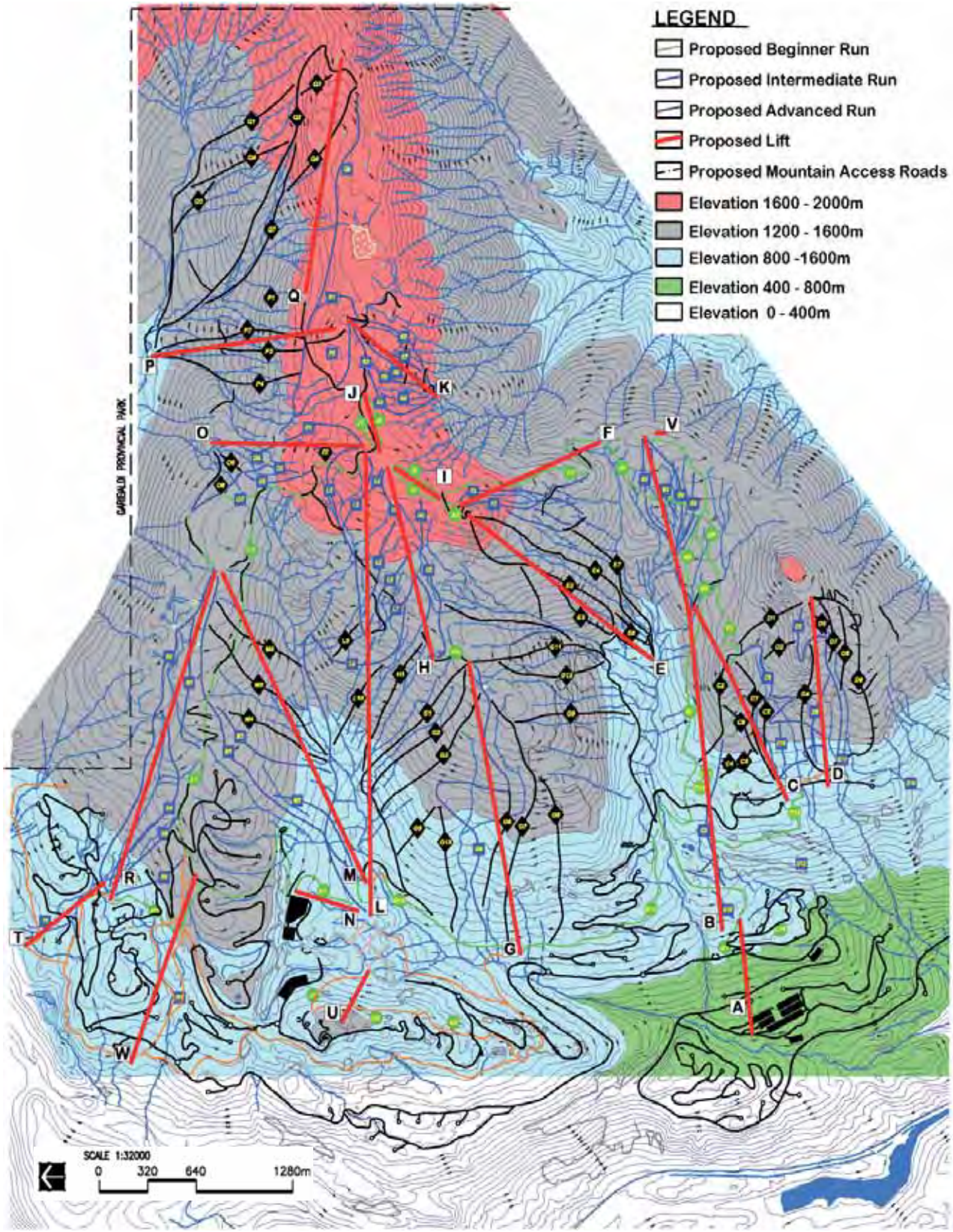
Elevation Analysis

The Garibaldi study area's elevation analysis graphically depicts the range of elevations found within the proposed mountain development area and illustrates the general flow of the natural topography. As shown in Figure 4, elevations range from the 650-metre elevation (2,132-foot elevation) at the base of the proposed ski area to an elevation of 1,865 metres (6,119 feet) at the northeast corner of the project area.

Slopes above the 1,125-metre elevation (3,691-foot elevation) receive consistent, abundant, high-quality snow. From the 850-metre elevation (2,789-foot elevation) to the 1,125-metre elevation, the snowpack is not as consistent as the upper elevations, and the snow quality is not as good. The snowpack below the 850-metre elevation can be unreliable during the beginning and end of the ski season.

There is a vertical drop of over 1,215 metres (3,986 feet) and topographic relief, which is favorable for the development of alpine skiing terrain.

Figure 4: Mountain Elevation Analysis



Slope Gradient Analysis

The study area's slope gradients range from 0% to greater than 100%. The slope gradient analysis indicates that the study area is dominated by moderate terrain, suitable for intermediate-level skiers (i.e., gradients of 25 to 45%). In general, the lands at the base of the study area have gentle slopes, ranging from 0 to 25%. These gradients are appropriate for residential and commercial development, as well as beginner and novice terrain. The ridge top areas (i.e., upper Brohm Ridge, North Ridge, Central Ridge and South Ridge) also consist of gentle terrain – gradients appropriate for beginners and novices. The north and south facing flanks of upper Brohm Ridge, and isolated bands at mid-mountain, are characterized by steep terrain (i.e., gradients in excess of 45%), which is desirable for advanced intermediate and expert skiers.

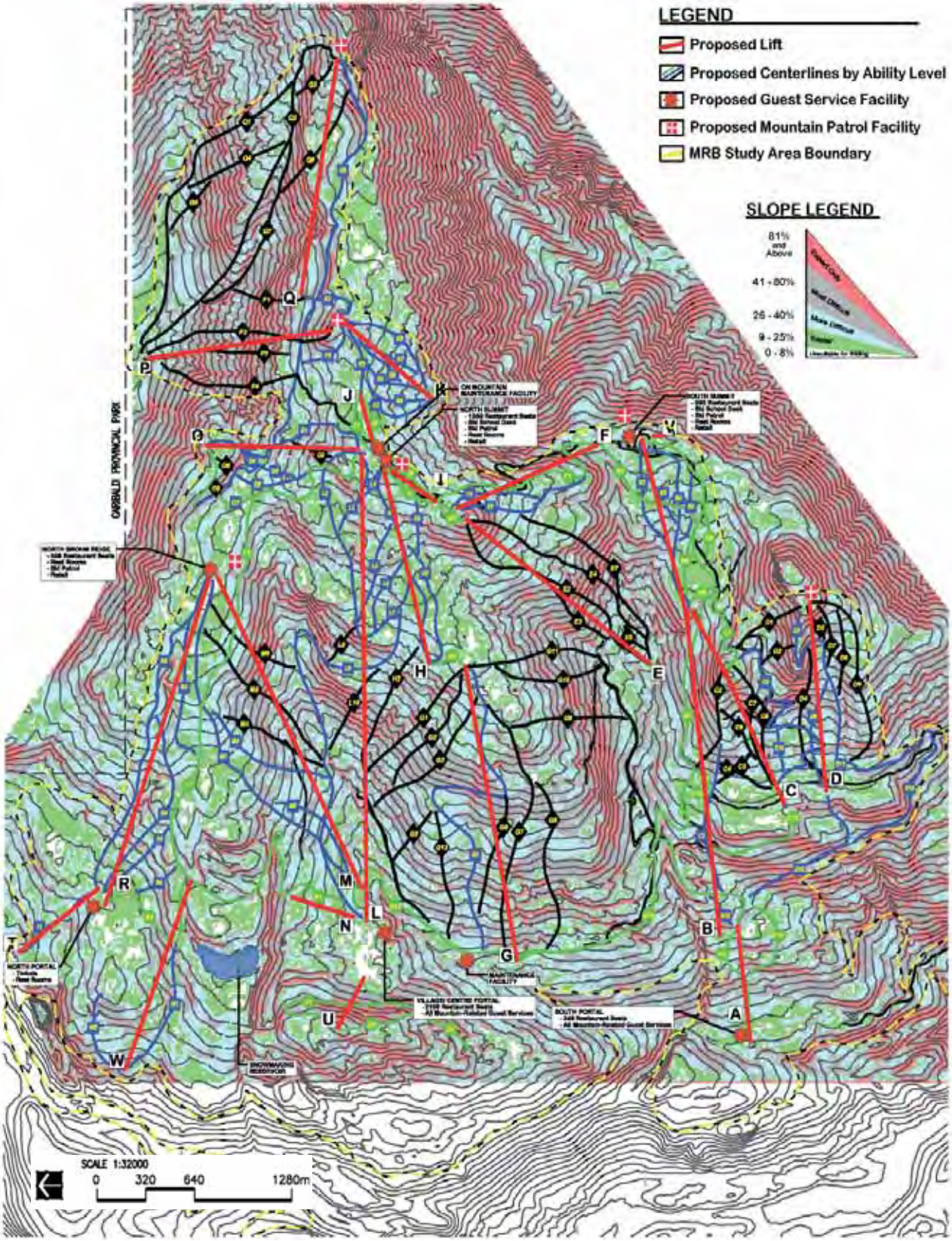
Slopes that exceed 80% as well as those that lead to unsafe areas will be permanently closed.

The study area's slope gradient analysis is illustrated in Figure 5. The full range of skiable slope gradients has been color coded to represent the universal terrain designations (i.e., easier, more difficult, most difficult, and experts only). The color designations are described below.

- White – Slope gradients between 0 and 8% (0 to 5 degrees) are too flat for skiing and snowboarding, but are ideal for up-mountain support facilities, base area facilities and activities, and resort accommodation development.
- Green – Slope gradients between 9 and 25% (5 to 15 degrees) are ideal for beginner skiers and snowboarders, and are suitable for some up-mountain support facilities, base area activities and facilities, and resort accommodation.
- Blue – Slope gradients between 26 and 45% (15 to 24 degrees) are ideal for intermediate skiers and snowboarders, and are suitable for limited types of recreation and resort accommodation development.
- Black – Slope gradients between 46 and 80% (24 to 40 degrees) are ideal for expert skiers and snowboarders, but can pose intermittent avalanche hazards and are typically too steep for resort accommodation development. Limited recreation, predominantly advanced hiking and biking trails, may occur on these slopes.
- Red – Slope gradients greater than 80% (greater than 40 degrees) will be considered for permanent closure as part of the operational avalanche plan if they are deemed to present an ongoing danger.

Slopes in the study area's higher and middle elevations include a variety of terrain suitable for advanced skier ability levels. Terrain for intermediate-level skiers is dispersed throughout the site, and slopes desirable for beginner and novice skiers occur in the base area and the North and South Summit areas. Careful placement of lifts and trails across the mountain should enable a distribution of ability levels which matches the ability profile of Garibaldi's local, regional, and destination markets.

Figure 5: Mountain Slope Analysis



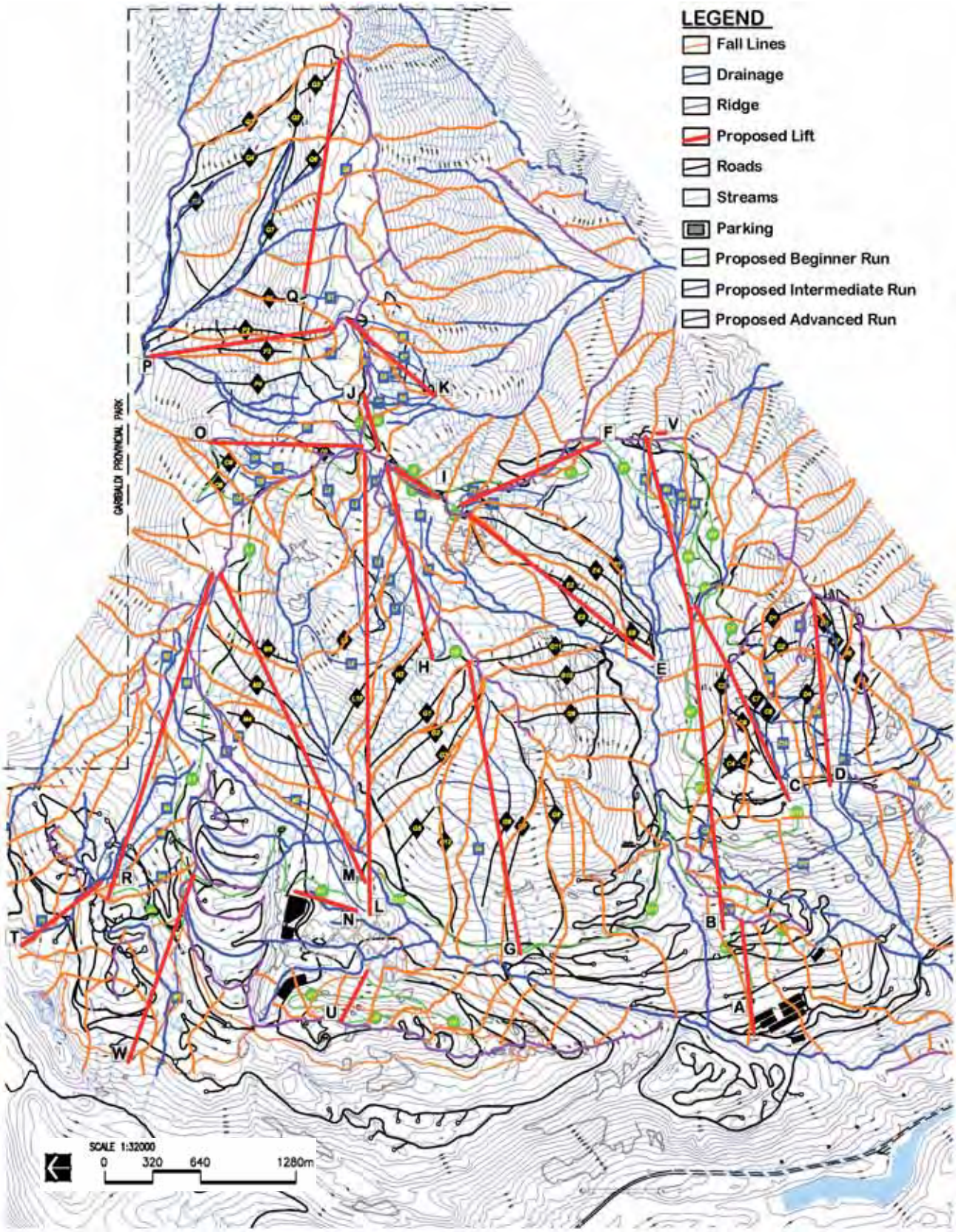
Fall-Line Analysis

Fall-line represents the path an object would take as it descends a slope under the sole influence of gravity (i.e., a ball rolling down a smooth slope would follow a fall-line path). Terrain with consistent fall-lines has the greatest potential for providing a quality trail network. Consequently, a mountain with consistent fall-lines usually has more development potential than a mountain with non-uniform fall-lines. In addition to better recreational potential, a mountain with naturally consistent fall-lines will yield high quality trails with a smaller amount of earthwork, a factor that yields environmental and "bottom-line" dividends. While the development of off fall-line trails are at times necessary in the development of connections, consistent fall-line terrain should constitute the majority of a resort's trail network.

A fall-line analysis captures a study area's prominent ridges, prominent drainages, fall-lines, and areas of convergence. The fall-line analysis (Figure II-4) identifies the natural flow of descents, from Garibaldi's higher elevation ridges to the valley and basin floors. It also helps differentiate pods of terrain and helps illustrate development potential.

As Figure 6 demonstrates, Garibaldi's geomorphology creates consistent and lengthy fall-lines throughout the study area. With careful lift and trail planning, it has been feasible to design well-integrated and efficient lift and trail networks, with a reasonable amount of earthwork.

Figure 6: Mountain Fall Line Analysis



Slope Aspect Analysis

Slope aspects are categorized according to the eight, cardinal directions of the compass. The prevailing characteristics for each of the eight exposures are as follows:

North-facing – best for snow quality; minimal wind scour and sun exposure.

Northeast-facing – best for snow quality; minimal wind scour and sun exposure.

East-facing – good for snow quality; some wind scour; morning sun exposure.

Southeast-facing – fair for snow quality; moderate wind scour; morning and early afternoon sun exposure.

South-facing – inferior for snow quality; moderate wind scour; full sun exposure.

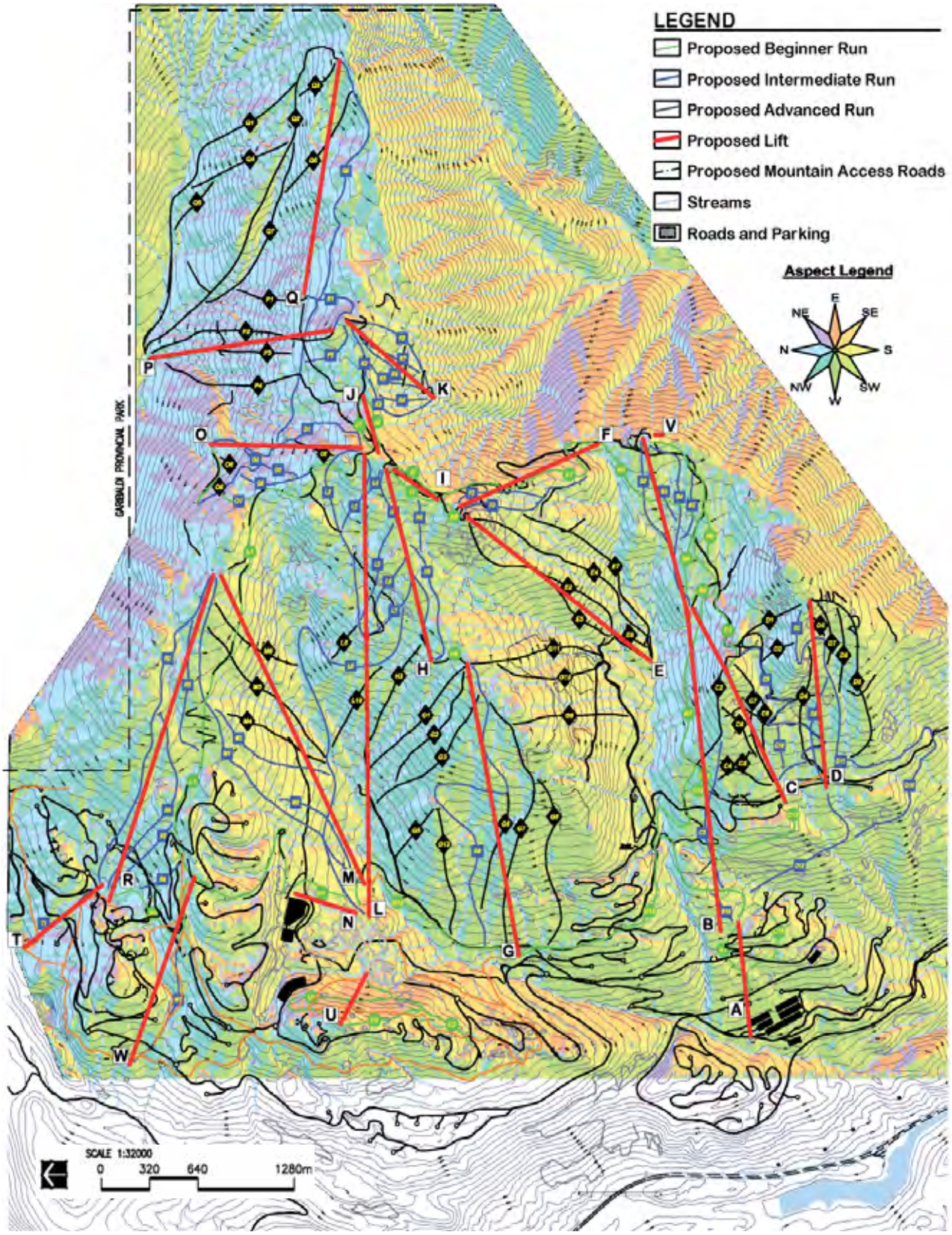
Southwest-facing – inferior for snow quality; high wind scour; full sun exposure.

West-facing – fair for snow quality; high wind scour; late morning and afternoon sun exposure.

Northwest-facing – good for snow quality; high wind scour; afternoon sun exposure.

Garibaldi is characterized by terrain with widely differing slope aspect. As depicted in Figure 7, the majority of the study area's terrain faces west, northwest and southwest. While the Garibaldi's north and northwest exposures will provide slopes with high quality snow conditions, the area's south and southwest slopes are less desirable for snow quality and retention, but provide sunny slopes. However, Garibaldi's latitude and weather systems create frequent cold temperatures, which make for good-quality snow conditions over these southerly exposures of the mountain. The exception to this is the south facing lower elevations (below 1,500 metres), where machine-made snow will be necessary to augment the natural snowpack in order to maintain high quality ski trails.

Figure 7: Mountain Solar Aspect Analysis



Cabin at mid-mountain 1485m, April 19, 2017

Climatological Analysis

The following text and table excerpts are taken directly from Section 3.2.4: Climate, as it appeared in the Garibaldi at Squamish Development: Project Application, Garibaldi Alpen Resorts (1996) Ltd. document. This data resulted in approval and issuance of an Interim Agreement. While this data suggests favorable climatological conditions and snowpack for Garibaldi, the final Master Plan submission will update these studies based on current information as well as weather stations in place on the mountain.

Background Climate Trends Detailed studies of the climate in the vicinity of Brohm Ridge have been prepared by Pacific Meteorology Inc., in 1990 and updated in 1996. In addition, suggestions made in the critique of the formal proposal by Golder & Associates were incorporated into the climate description.

Snow pack data for the periods of record for stations located within the vicinity and at similar elevations as the proposed Garibaldi at Squamish project (1,100 m [3,609 ft]) at the proposed village site and 1,850 m (6,070 ft: at the top of the highest run), was obtained from the Ministry of Environment, Lands & Parks Resource Inventory and Data Management Branch.

In the Vancouver area, 1960–1991 Climate Normals indicate slight increases or no change in total precipitation at locations such as Vancouver International Airport, Vancouver UBC and Vancouver Capilano.

At Hollyburn Ridge, annual precipitation and snowfall are 2,916 cm and 820 mm respectively (1148 in and 32 in), an insignificant decrease of 38 mm and 30 cm (1.5 in and 12 in) from the 1951–1980 Normals.

At Whistler Roundhouse, mean total precipitation and snowfall data from 1973–1985 were 1,654 mm and 1,187 cm (65 in and 467 in) respectively. For the years 1973–1992, they were 1,621 mm and 1,171 cm (64 in and 461 in). This indicates slight declines that are not significant and are probably a result of the natural variability of annual precipitation.

Climate changes at the Whistler/Alta Lake station are more pronounced. The 1951–1980 Normals for total precipitation and snowfall are 1,415 mm and 657 cm (56 in and 259 in), respectively. Compared to this, the means from 1976–1994 for the new Whistler site are 1,194 mm and 388 cm (47 in and 153 in), representing a 16 percent decrease in total precipitation and 41 percent decrease in snowfall.

It is not known how much of the 16 percent decrease in total precipitation may be attributed to the station relocation or to general climatic variability. The decrease in snowfall however is significant and is likely due to warmer temperatures producing an increase in the proportion of rain compared to snow. The growth of the village to a town and the concomitant increases in the number of buildings may account in part for the local temperature rise and a decrease in snowfall.

Snow Pack Data in the Vicinity of the Proposed Resort

STATION & ELEVATION	PERIOD OF RECORD	JAN 01	FEB 01	MAR 01	APRIL 01	MAY 01	JUNE 01	JUNE 15
WHISTLER MTN (1,450 M ASL)	1970–1990	49–157 112*	38-216 144*	66-270 171*	89-310 187*	32-259 135*	1-224 NA	0-175 37*
DIAMOND HEAD (1,420 M ASL)	1977–1996	ND	101-222	166-405 315*	228-436 354*	170-385 293*	87-231 NA	42-145 NA
GROUSE MTN. (1,100 M ASL)	1936–1996	13-223 127*	20-373 200*	39-490 250*	11-721 283*	104-323 NA	208	ND
HOLLYBURN (1,100 M ASL)	1945–1987	99-268 NA	160-332 NA	57-615 NA	155-630 NA	163	100-230 NA	ND
MT. SEYMOUR (1,070 M ASL)	1960–1989	25-288 197	30-429 NA	55-579 316*	80-620 353*	0-566 297*	0-498 228*	0-401 144*
STAVE LAKE (1,210 M ASL)	1967–1996	43-258 NA	56-429 276*	123-554 346*	142-566 379*	472	127-427 NA	371

*MEAN

Mountain Opportunities and Constraints

The following opportunities and constraints have been delineated and/or were considered during the generation of the Mountain Master Development Plan:

- Existing Conditions – study area boundary, legal boundaries, land use, roads, prominent landforms and drainages, vegetation
- Vehicular Access Points
- Snow Line – slopes above the 850-metre elevation receive consistent, abundant, acceptable quality snow. The snowpack below the 850-metre elevation is less reliable during the beginning and end of the ski season.
- Slopes mid-mountain that exceed the intermediate classification that present design challenges to build trails to link other intermediate terrain
- Slopes greater than 80%, which are too steep for skiing.
- Base Area Development – slopes between 0 and 10% (unlimited development) and 10 and 20% (upper limits to high-density, commercial and residential development)
- Predominant Wind Direction – prevailing wind directions are from the north during periods of clear and cold-weather and from the south during incoming storms, with wind speeds reaching up to 88 km/h (55mph). There are strong southerly winds on Brohm Ridge that tend to scour the snow from the southwestern edge of the ridge, although the strongest winds tend to take place during storms, while depositing snow on the north facing slopes
- Solar orientation
- Spectacular views of the surrounding lands in all directions
- Ski Development Pods – delineating areas of potential alpine skiing development
- Potential Lift Alignments to provide good return ski pods as well as mountain access for other recreation, such as lift serviced mountain biking and hiking
- Base Area Portals – potential base area focal points, located at the base of potential lift alignments
- Comfortable Walking Distance – This is the distance from a destination (typically a lift terminal) that is comfortable to walk while wearing ski boots. The distance, approximately 400 metres, is decreased 100 metres for every 10-metre change in elevation, to compensate for the added difficulty of walking uphill. The areas within the comfortable walking distance zones define the most valuable base area lands.
- Sensitive Fish & Wildlife Habitat as outlined in the 40 Conditions of the EA Certificate– for example, fish bearing sections of Brohm, Cheekye, Swift and Culliton waterways; sensitive wetlands; mountain goat critical winter habitat; etc.
- Potential Avalanche Zones – Areas of the mountain (based on slope only) that are commonly considered to fall within the range of the majority of avalanche activity. These areas contain slopes between 30 and 60 degrees (58 to 173%). Other factors (not considered) including aspect, ground cover, tree cover, snow compaction, wind loading, weather patterns and elevation, will contribute to the degree of avalanche hazard within these areas. For example, an area of thick tree cover at 50 degrees is typically not an avalanche zone. Areas defined as potential avalanche zones will be monitored and controlled as conditions warrant.

Figure 8 graphically summarizes the mountain opportunities and constraints for Garibaldi. Potential Avalanche Zones are illustrated on Figure 9.

Figure 8: Mountain Opportunities & Constraints Analysis

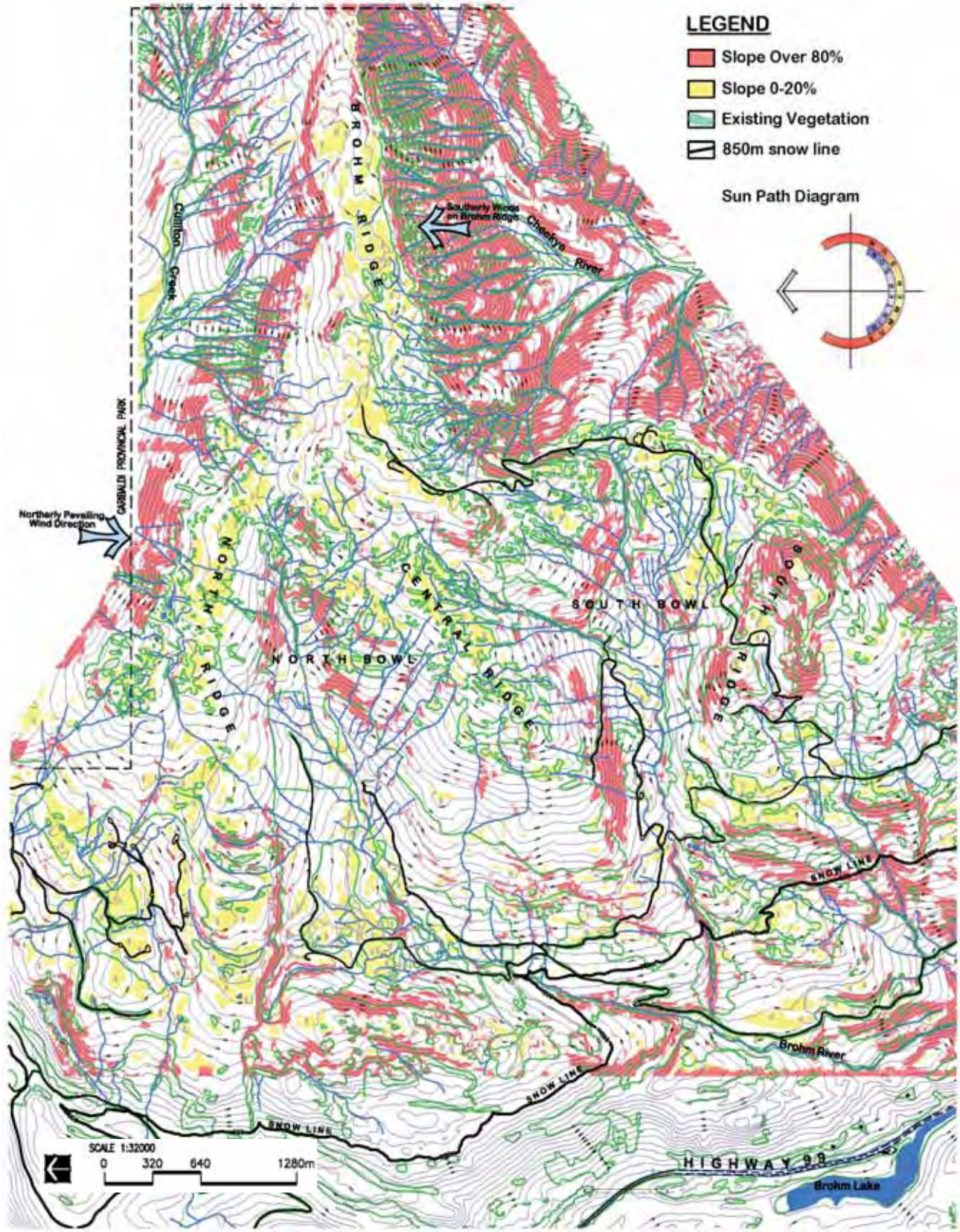
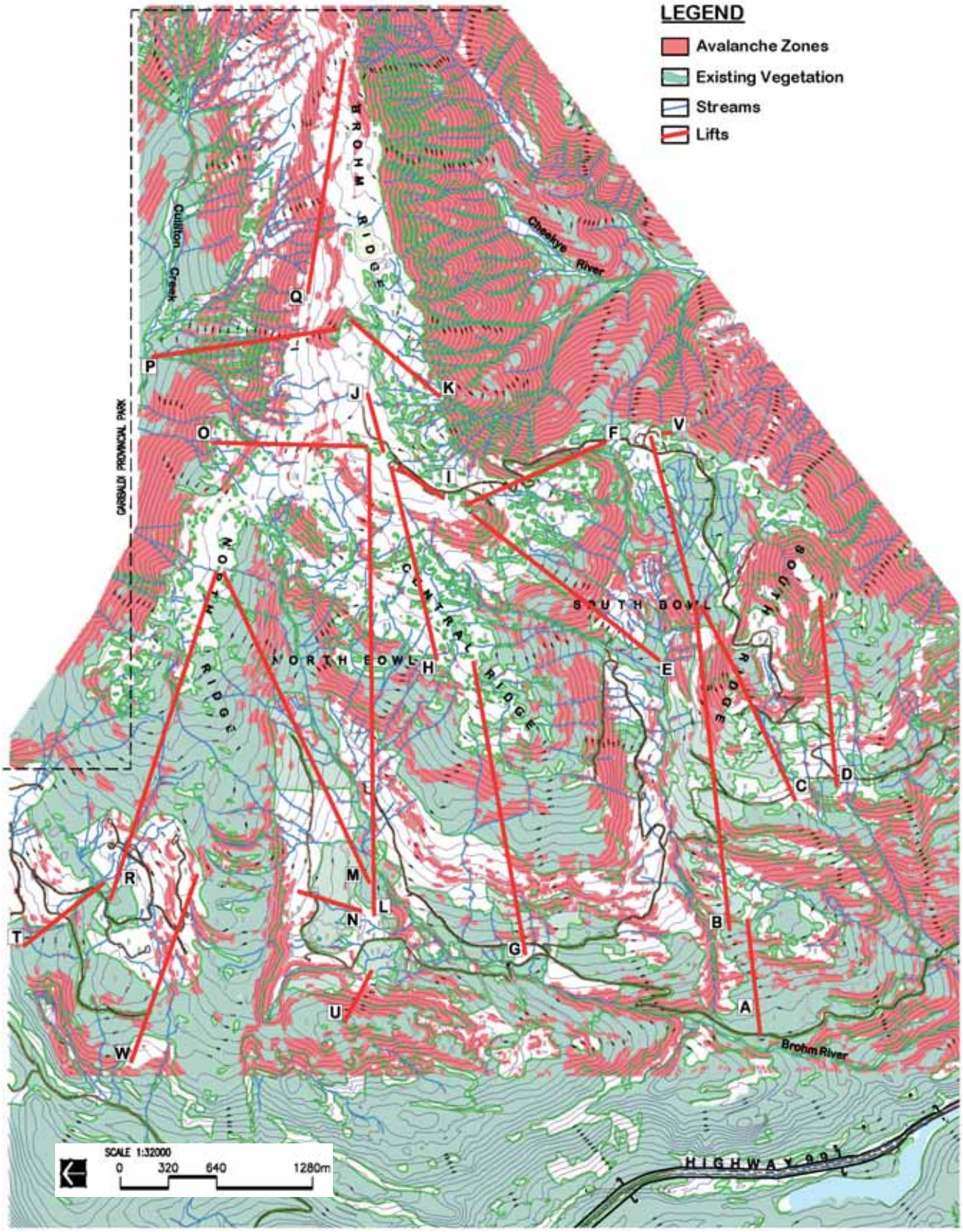
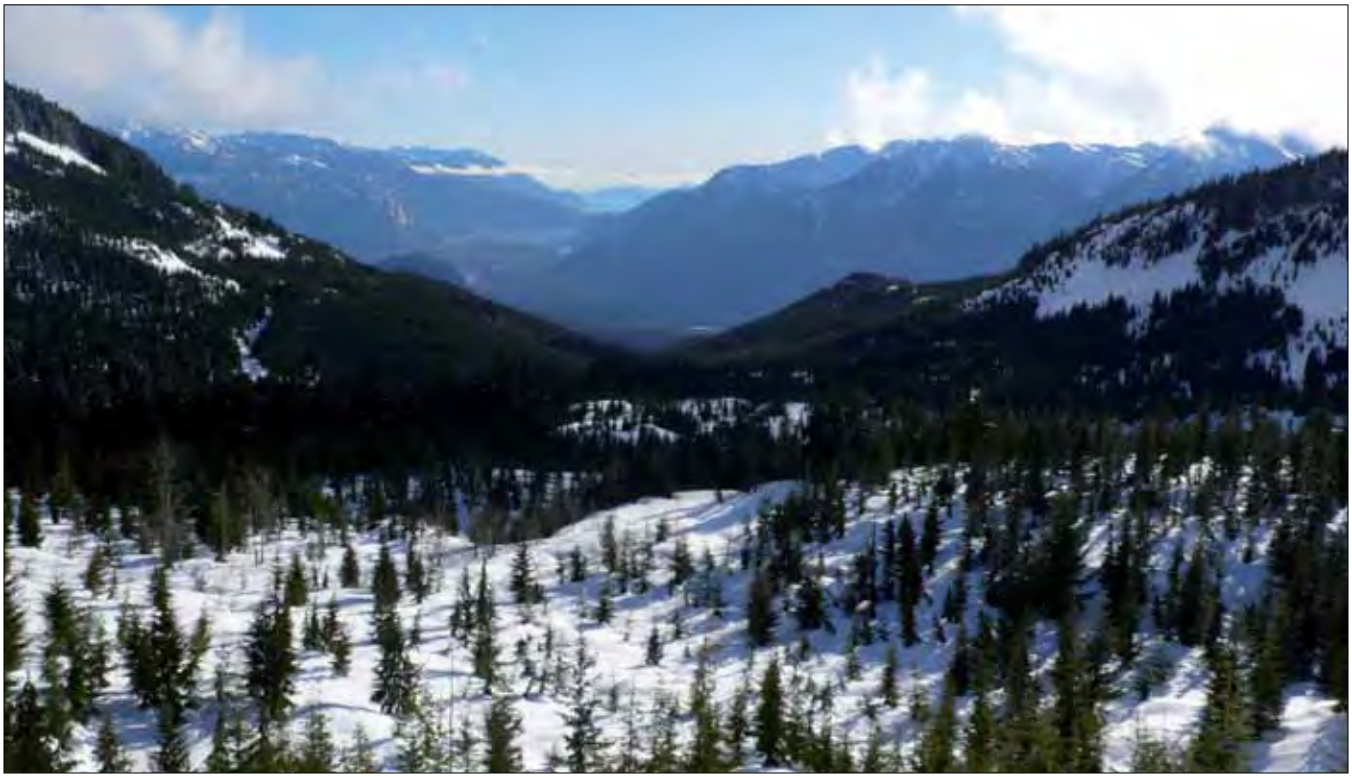


Figure 9: Avalanche Zones Analysis



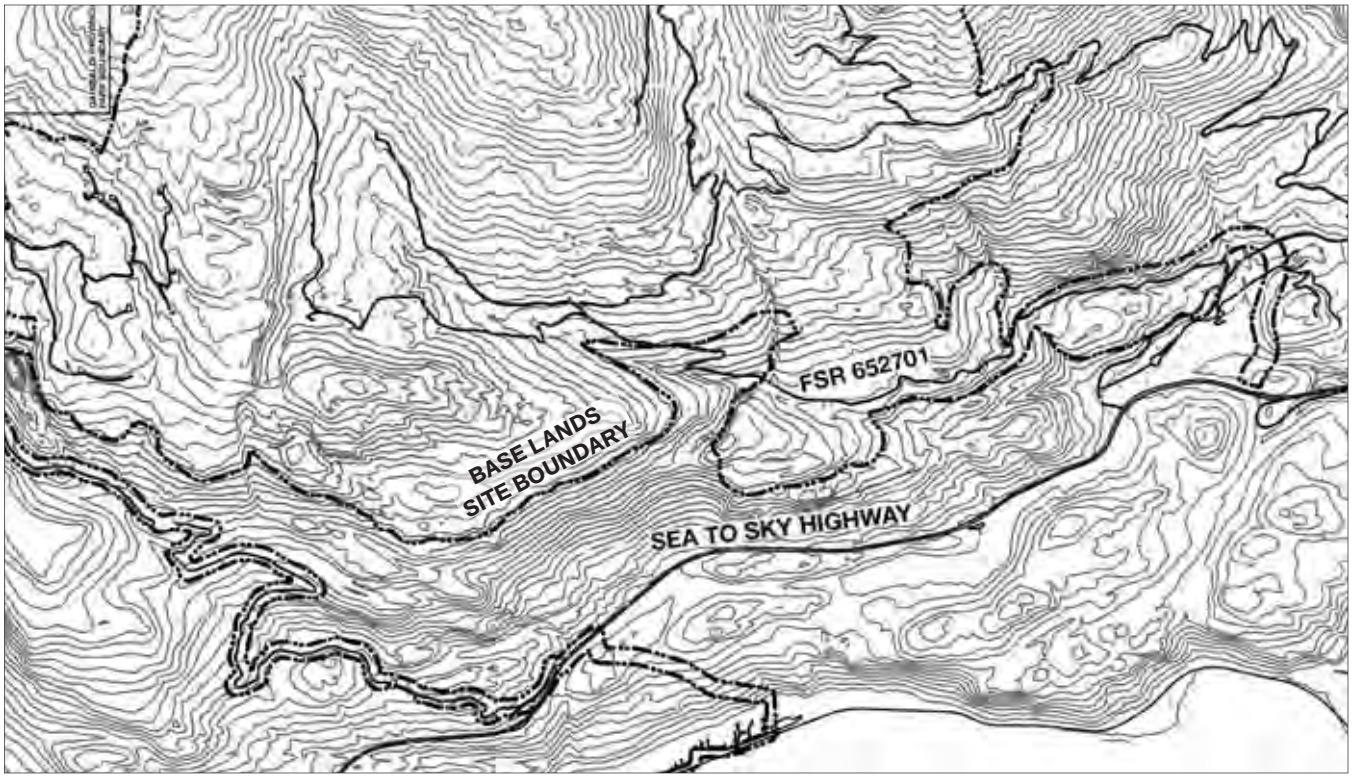


Site of main village with views south to Squamish

II.3.8.2 BASE/VILLAGE DEVELOPMENT ANALYSIS

The base area lands analysis covers a wide range of influences that bear on the potential of the lands to support development that in turn supports the mountain recreation facilities. The base area development includes guest service facilities, parking, shops and services, other amenities like spas, and overnight accommodation for public (rental) and private. The development potential of the lands is influenced by such physical factors as topography and slope gradients, natural flora and fauna, hydrology, solar aspect, location relative to the mountain facilities, and others. It is also influenced by regulatory factors such as stream setbacks, all of which are described on the following pages.

Figure 10: Base Area Lands Existing Conditions



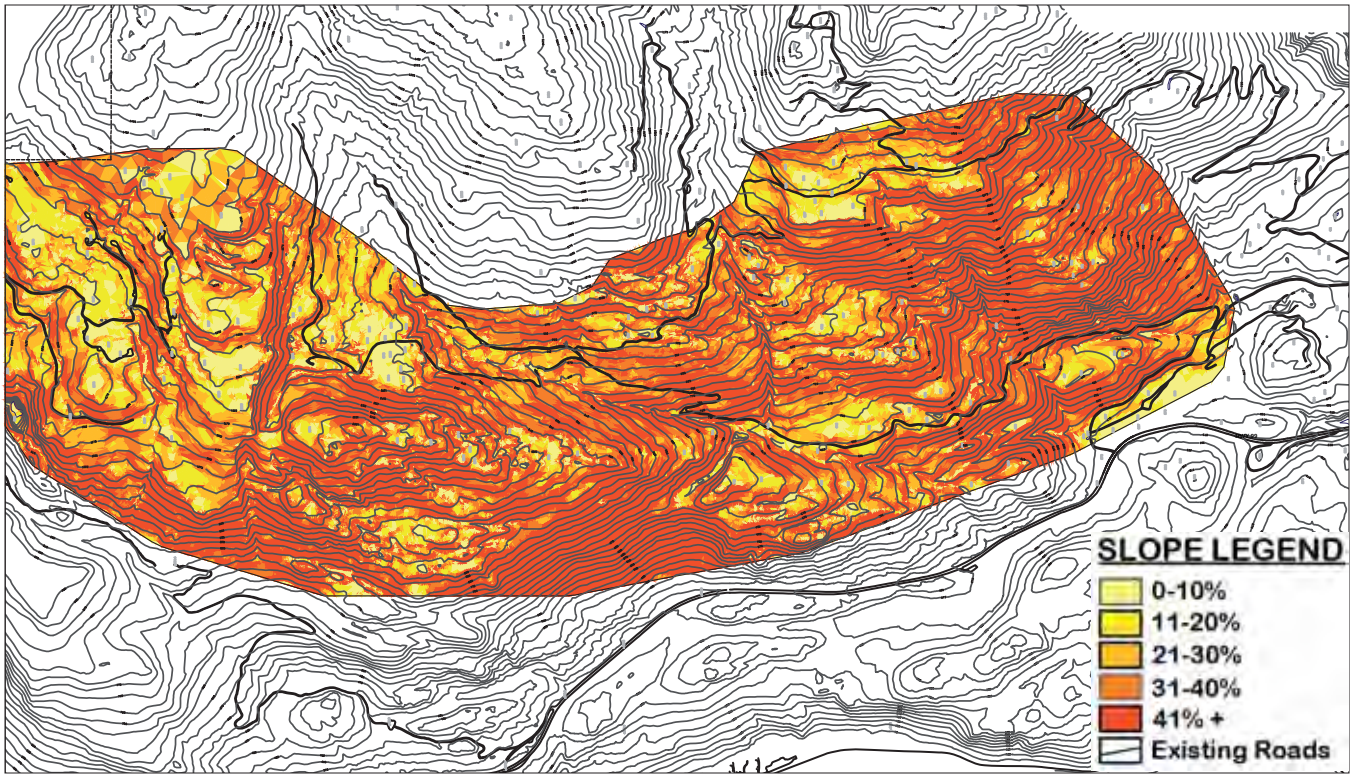
Existing Conditions

The full resort site including the mountain facility is 2,508 hectares in size, of which approximately 524 hectares are allocated for base area development. The site abuts Garibaldi Provincial Park on part of its east and north sides, while extending for a small portion on its west side to Sea to Sky Highway.

Existing human influenced elements on the site are minimal. There are several forest service roads: Brohm Forest Service Road (FSR) 652701 and its branches 02–05 from the south end, and Swift Creek FSR and branches from the north. Most of the base lands have been logged in cut block fashion and these are in states of regeneration ranging from several years to 100 years of re-growth.

There are two existing cabins at the 1,450 metre elevation, which are currently leased from the Province by Black Tusk Snowmobile Club, and an existing cabin at 1,700 metres elevation, currently leased from the Province to a private individual. There is an existing mineral claim (Spumoni) that obtains landscape stone from a quarry adjacent to the Main Village area. There is considerable abuse of the Alpine area by off-road vehicles that have created several mud bog sites and some hill climb areas in the fragile Alpine meadows.

Figure 11: Base Area Lands Slope Analysis



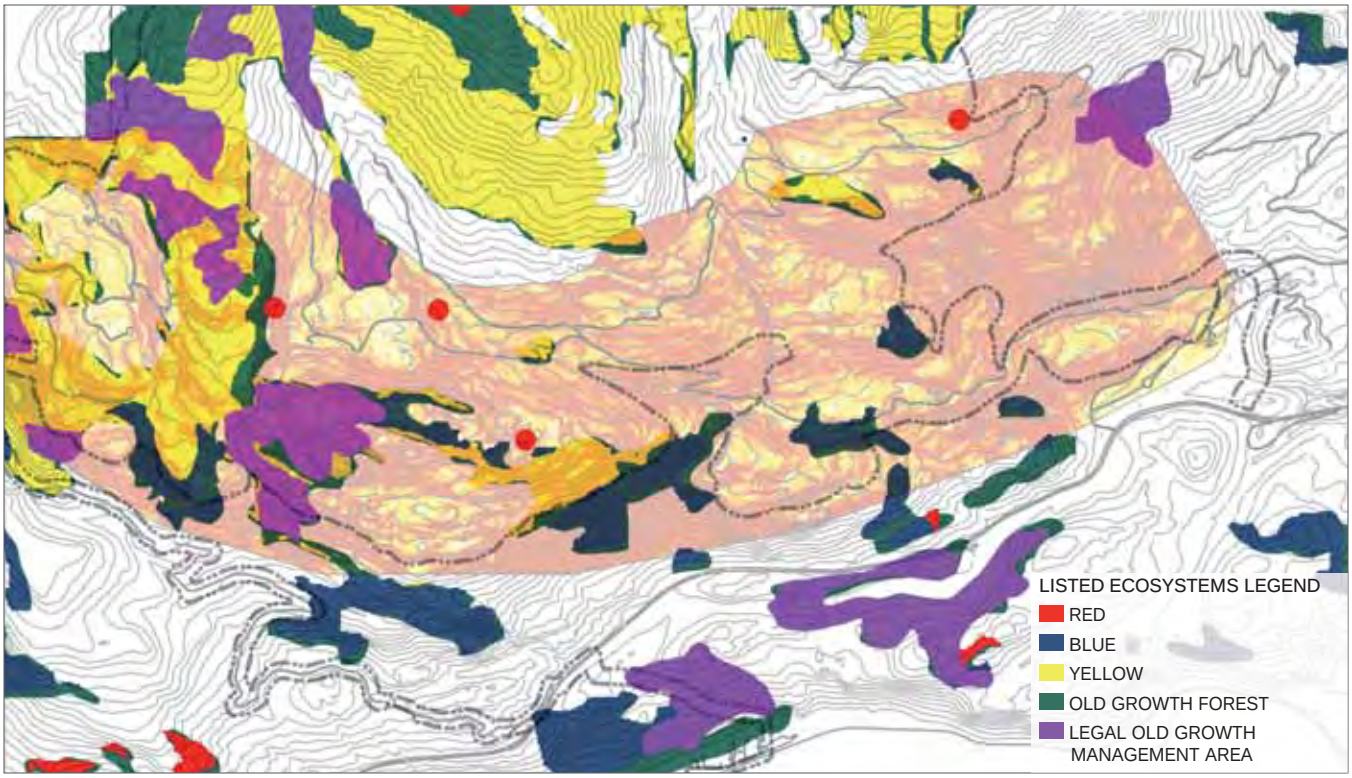
Base Lands Slope Analysis

A slope analysis of the base lands indicates areas suitable for various types of development. Areas with slope gradients up to 10% are ideal for intensive development of multi-floor overnight accommodation buildings in compact arrangements, parking lots and guest service facilities. Areas with slopes of 11–20% are suitable for less intensive development of carefully sited multi-floor buildings in less compact arrangements, ground-oriented townhomes and single-family homes. Slope gradients of 21–30% are suitable for carefully sited ground-oriented townhomes and single-family homes. Areas over 30% up to approximately 40% may be suitable for less compact arrangements of carefully sited single family homes.

The analysis shows that there are several large contiguous parcels of land under 10% gradient where major portions of the mountain converge. These parcels are ideal for the most intensive forms of development, including base area staging portals and a central village.

Other large parcels of land with slopes ranging from 11–30% are best for less intensive development. Multi-family is most suitable in the lower band of this range while single family is suitable in the full range.

Figure 12: Base Area Lands Environmental Analysis



Existing Environmental Conditions

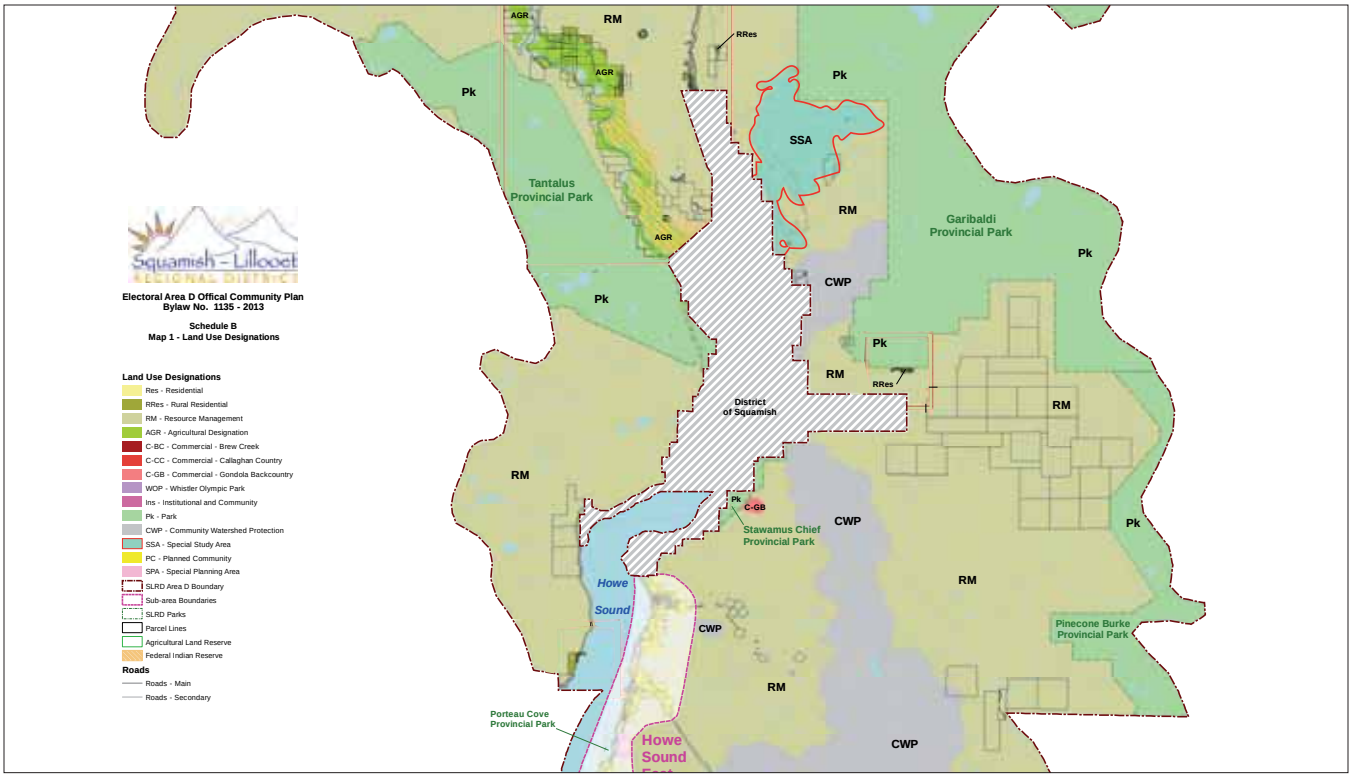
Forest cover in the lower base lands elevations is primarily dense second growth coniferous trees, having been logged from the turn of the 20th century to the past decade. There are some small pockets of old growth as shown in the environmental report, that will be managed as outlined in Condition 31 of the EA Certificate.

There are a number of small streams that flow into the Brohm River. Natural, undeveloped buffer areas surrounding these streams will be applied according to provincial regulations.

The site was issued an Environmental Certificate by the Provincial EAO in January 2016 with forty conditions, many of which are currently being undertaken by Garibaldi.

https://projects.eao.gov.bc.ca/p/garibaldi-at-squamish/detail

Figure 13: Base Area Lands Development Regulations Analysis



Development Regulations

The site is located on traditional Squamish First Nation territory. It is currently administered by the Province of British Columbia with consultations and approvals by the SFN.

Development of the base areas is mostly under the jurisdiction of the Squamish Lillooet Regional District (SLRD) within its Electoral Area D. A small portion of the site near Highway 99 is within and regulated by the District of Squamish (DOS) as is the proposed well site in Paradise Valley.

Current zoning of the SLRD Electoral Area D lands is Rural Resource (RR) 4, while zoning of the DOS lands is split between Resource and C-3 Tourist Commercial (20.3 ha). The site's SLRD land use designation is Special Study Area.

The SLRD's Regional Growth Strategy (RGS) establishes the high-level strategic direction that the regional district and member municipalities will follow to achieve a shared vision and meet broad social, economic, and environmental objectives. Guided by a set of smart growth principles, the RGS outlines nine goals to address growth management challenges, including: accommodating growth in compact communities; achieving a sustainable economy; and encouraging the sustainable use of parks and natural areas. The RGS identifies areas targeted for future development, primarily in urban, serviced residential, and master planned communities, but also recognizes circumstances where development may occur in non-settlement areas.

Within this context, the RGS identifies destination resorts as *"self-contained, master planned tourism developments in areas of significant natural amenity"* and states that *"tourism and resort development is a major part of the regional economy"* and that the SLRD *"with its spectacular scenery, the success of Whistler, proximity to Vancouver International Airport and the major population concentrations of the Georgia Basin has the potential for development of a variety of destination resort types, including mountain (alpine ski) resorts…"*

The RGS sets out a number of principles that must be demonstrated in the development of destination resorts, summarized below. They should:

- Be based on significant recreation and natural features that support tourism activity and the economy of the region
- Apply smart growth principles to ensure compact, complete communities with a minimal ecological footprint
- Have a minimal ecological impact and utilize best management practices in environmental hazards, sustainable design and forest management
- If in remote location, have self-sufficient infrastructure
- Be tourism and commercially based rather than residentially based
- If adjacent to urban area, be supported by that area's growth management policies
- Promote a variety of low impact transportation options
- The RGS also sets out a number of principles which must be demonstrated in the development of destination resorts, summarized below. They should:
- Be based on significant recreation and natural features that support tourism activity and the economy of the region
- Apply smart growth principles to ensure compact, complete communities with a minimal ecological footprint
- Have a minimal ecological impact and utilize best management practices in environmental hazards, sustainable design and forest management
- If in remote location, have self-sufficient infrastructure
- Be tourism and commercially based rather than residentially based
- If adjacent to urban area, be supported by that area's growth management policies

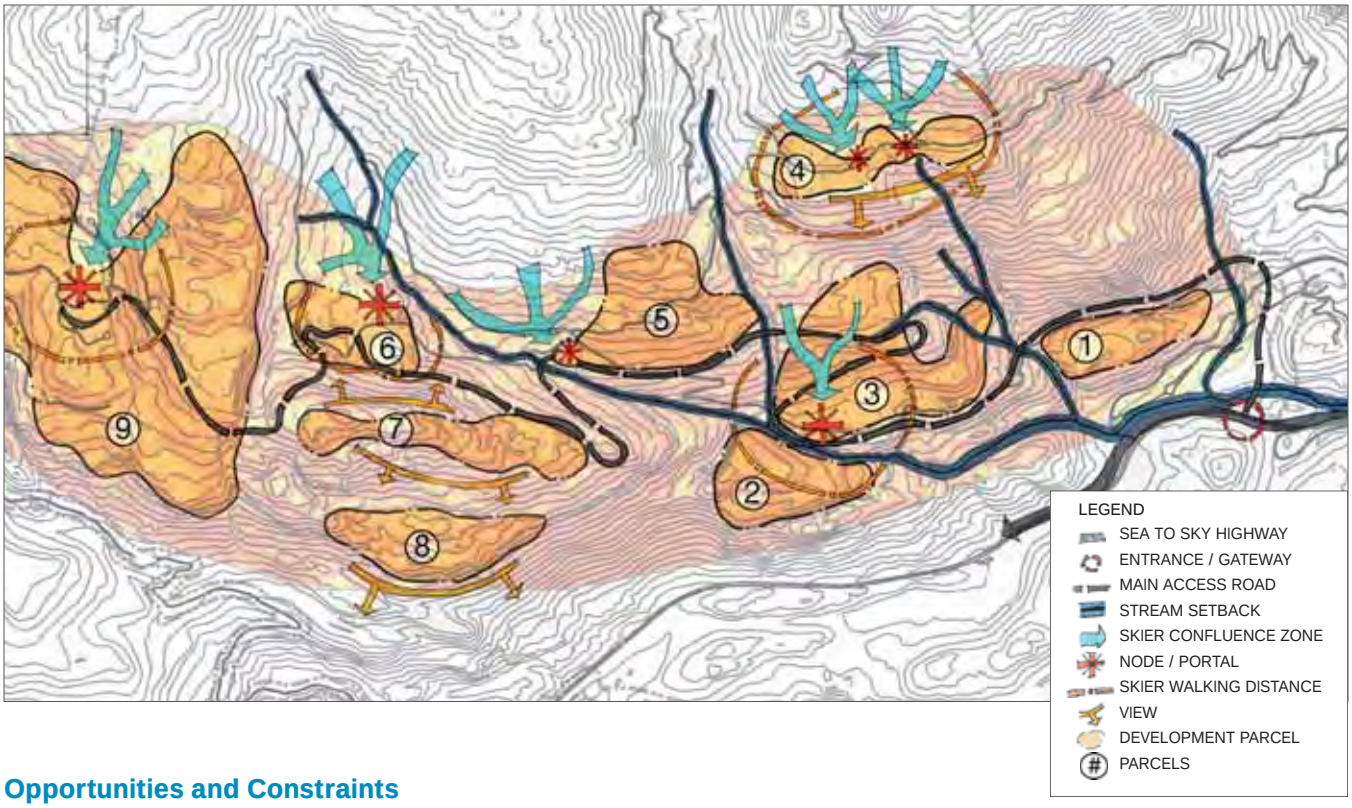
The high-level directions established in the RGS are reflected and reinforced within Official Community Plans for the Electoral Areas and member municipalities. Both the Electoral Area D and District of Squamish OCPs provide policy direction to guide future planning and development for destination resorts. The SLRD Official Community Plan (OCP) for Electoral Area D designates the site as a Special Study Area, recognizing the unique values and development potential of the area. The Special Study Area designation requires more detailed planning to be undertaken to develop Sub Area Plan policies for the development of a destination resort. Similarly, the District of Squamish OCP includes provisions to define a Destination Resort Special Study Area and prepare a Sub Area Plan to outline development parameters before changes to existing OCP or zoning will be considered.

Current zoning of the Electoral Area D lands is Rural Resource (RR) 4, while zoning of the DOS lands is split between Resource and C-3 Tourist Commercial (20.3 ha).

The master plan for Garibaldi aligns with the SLRD's principles for destination resorts and is consistent with the corresponding OCP policies of Electoral Area D and the District of Squamish. More detailed planning will be undertaken in consultation with the SLRD and District as part of the master planning process.

All planning will follow Smart Growth principles and use the Canada West Ski Areas Association and National Ski Areas Association guidelines, as well as the 40 Conditions of the EA Certificate.

Figure 14: Base Area Lands Opportunities & Constraints Analysis



Opportunities and Constraints

Based on the above analyses in relation to the intended development program, the base lands provide excellent potential for development of infrastructure that is supportive of the mountain recreation facility. The topography provides several large flat or gently sloping areas at the lower mountain confluence zones which are ideally suited to the positioning of lift bottom terminals, guest services, parking and overnight accommodation.

The most centrally located of these zones offers the potential to develop a nucleus for the base lands, the Main Village (Parcel 6) and a major portal to the mountain. Several main ski lifts and trails converge in this natural, sheltered bowl with excellent views east to the mountain and south to Squamish and Howe Sound. The land slopes very gently, ideal for creating a compact, full service, mixed-use development that is supportive of the mountain recreation facilities.

The other mountain portals—the North Portal (Parcel 9) and the South Portal (Parcel 3)—lie on gently sloping, west-facing terrain. Both offer a natural ski trail confluence zone adjacent a broad bench ideal for the location of guest services, parking and some overnight accommodation. Parcel 9 also offers large, gently sloping areas that facilitate ski to/from accommodation with slopes that are steep enough to provide ski trails yet gentle enough to be suitable for road and building development.

The other parcels offer varying opportunities: parcels 1 and 2 are located along the main road for convenient access to Sea to Sky Highway; parcels 4 and 5 are clustered around the base of ski lifts for convenient ski to/from access; and, parcels 7 and 8 feature outstanding views amidst a more secluded setting and are at a high elevation.

II.3.9 MOUNTAIN RESORT CONCEPT

The Mountain Resort Concept includes two primary components: the Mountain Recreation Concept and the Base/Village Concept.

Formulation of the Mountain Recreation Concept was influenced by a variety of ski facility design criteria that help to create a quality ski experience. Likewise, the Base/Village Concept also follows design criteria that follow mountain resort development best practices.

This section will briefly discuss these factors as they apply to Garibaldi.

II.3.9.1 LIFT NETWORK DESIGN

Lift alignments should be oriented to take maximum advantage of the terrain while creating a complete area interconnection. In accordance with the ASRG, ski lifts should be aligned to serve the available ski terrain in the most efficient manner possible, while taking the following factors into consideration:

- Create a balance between uphill lift capacity and downhill terrain capacity
- Attempt to avoid areas that are adversely affected by prevailing and storm winds
- Provide sufficient out-of-base staging capacity that will prevent long, morning lift-lines
- Align lifts to create enjoyable repeat skiing opportunities while satisfying access and circulation requirements
- Align certain lifts to maximize other recreation uses year-round, including download capability
- Orient lifts to optimize skiing for each of the six skier ability levels (beginner through expert).
- Locate lift terminals on flat sites that are of sufficient size to accommodate the terminal structure, circulation and milling space, lift line mazes, and loading/off-loading space
- Locate lift terminals on terrain where the following design features can be met: 1) provide a 0 to 1% slope down from the maze area to the lower lift terminal loading platform; and 2) provide a 5 to 10% slope down from the upper lift terminal unload platform to the surrounding milling area

Additionally, it should be understood that the vertical rise and length of ski lifts for a particular mountain are the primary measures of overall attractiveness and marketability of a ski area.

II.3.9.2 SKI TERRAIN

The following points summarize the salient features for a successful trail network.

- The natural configuration of the land should be utilized to its greatest potential to support the optimum capacity of the site, while creating a pleasurable skiing experience
- A variety of slopes, ranging in gradient from 10 to 80%, should be incorporated into the trail network in order to provide a distribution of terrain (by ability levels) that matches the skier market profile as closely as possible
- The ski trail alignments should allow a variety of trail widths, which will be designed in response to topographic conditions, the calibre of skier for whom they are intended, exposure to the sun and prevailing wind currents
- A network of skiways ideally should be designed to allow the novice level skier to travel throughout the ski area. The network of skiways makes it possible to ski from any point on the mountain back to the base area, without the need to ride a lift. Lower ability trails should not be accessed by trails with higher ability classifications
- The trail layout should be designed to minimize cross-traffic occurrences and bottleneck convergence zones
- The trail network should be configured as much as possible to follow the natural fall-line, thus creating trails that are more enjoyable to ski

- The ski trails should be aligned to avoid potential avalanche hazards or be located in areas where known slide hazards can be controlled
- Ski trails should be located to avoid issues raised within the Environmental Assessment Certificate and Squamish Nation approval process
- Ski Trails should look attractive from various vantage points especially from first points of view as visitors approach the resort, no straight lines, flowing with the terrain and a variety of widths

II.3.9.3 SKI TERRAIN CAPACITY

Ski terrain capacity is a function of the acceptable, skiers-per-hectare density ratio, which is rated by skier skill class. These density figures account for the skiers that are actually populating the ski trails and do not account for other guests, who are either waiting in lift lines, are riding the lifts, or are using the milling areas and support facilities.

TABLE II.3-1. SKIER DENSITY RATIOS BY ABILITY LEVEL

ABILITY LEVEL	ASRG SKIER DENSITY RATIOS
Beginner	35–75 skiers/hectare
Novice	30–60 skiers/hectare
Low Intermediate	20– 50 skiers/hectare
Intermediate	15–35 skiers/hectare
Advanced Intermediate	10–25 skiers/hectare
Expert	5–15 skiers/hectare

The range of acceptable densities for the ski trails by skill class is summarized below. Typically, urban ski areas will fall within the high end of this range and destination areas will be at the low end.

TABLE II.3-2. ACCEPTABLE TERRAIN GRADIENTS

ABILITY LEVEL	SLOPE GRADIENT
Beginner	8 to 12%
Novice	to 25% (short pitches to 30%)
Low Intermediate	to 30% (short pitches to 35%)
Intermediate	to 40% (short pitches to 45%)
Advanced Intermediate	to 50% (short pitches to 55%)
Expert	over 50% (maximum of 80%)

II.3.9.4 SKIER SKILL CLASS

The skier marketplace is divided into skill classes ranging from beginner to expert. The following gradients should be used to determine the skier ability level of the mountain terrain:

The ability level distribution of the developed ski trails (as defined by the skier capacity for each skill level) should generally match the distribution within the skier marketplace, accounting for the type of ski area in question (urban, regional, regional/destination, destination). The ASRG skill level distribution outlined below reflects the destination-oriented marketplace's expectations for resorts in Western Canada. The design criteria used by SE Group are based on current trends that indicate lower percentages of advanced and expert skiers in the market place.

II.3.9.5 VERTICAL DEMAND

Vertical demand is a critical parameter for calculating a resort's aggregate daily lift capacity (which is used to define a resort's "Comfortable Carrying Capacity" as described below). The amount of vertical that the average skier is anticipated to ski over the course of a day increases as skier ability level increases. The vertical demand is estimated on a lift-by-lift basis and can be calculated as a function of the skiers' "round-trip interval" on each lift. Round-trip interval is the amount of time it takes to make one complete circuit on a lift (i.e., waiting in the lift line, riding the lift, and then skiing one run). The amount of time it takes to make one round-trip is used to determine the total number of runs that can be made over the course of the day, which is then multiplied by the total vertical of the lift to derive the total vertical demand. For example, if the round-trip interval on a lift is estimated to be 30 minutes, and the average skier is actively skiing for five hours over the course of the day, then that skier will complete ten runs (two runs per hour over five hours). If the lift has a vertical rise of 300 metres, then the skier will consume 3,000 metres over the course of the day (ten runs at 300 metres per run).

The ASRG acceptable range of vertical demand values are outlined below, by skier skill class.

Garibaldi's mountain planning consultants, the SE Group, has guidelines for vertical demand that are slightly higher than the ASRG criteria to account for resort areas—like Garibaldi—that have higher than average vertical rise for a given length. This allows skiers to consume a higher than average amount of vertical per day. The higher numbers also account for ski areas that keep lift lines at a minimum, allowing for more runs per hour and more vertical skied. A higher vertical demand results in a lower CCC. Therefore, using a higher vertical demand will result in less crowded conditions.

TABLE II.3-3. ABILITY LEVEL DISTRIBUTION OF THE MARKETPLACE

ABILITY LEVEL	SE GROUP GUIDELINES VERTICAL DEMAND	ASRG VERTICAL DEMAND
Beginner	1,000 metres	500–750 metres
Novice	2,500 metres	750–1,500 metres
Low Intermediate	3,500 metres	1,500–2,250 metres
Intermediate	4,500 metres	2,250–3,000 metres
Advanced Intermediate	7,500 metres	3,000–5,500 metres
Expert	9,000 metres	5,500–7,500 metres

II.3.9.6 WEIGHTED VERTICAL DEMAND

To determine the weighted vertical demand, all trails serviced by each lift are inventoried and the vertical demand for each lift is weighted by percentage of ability levels served.

II.3.9.7 COMFORTABLE CARRYING CAPACITY

By definition, Comfortable Carrying Capacity (CCC) is the optimum number of guests accommodated by a mountain facility, at any one time, which affords a high-quality recreational experience and helps ensure sound stewardship of the land. In essence, CCC is a daily guest population, which is serviceable by the resort (i.e., an attendance level where operations remain functional and optimal). CCC is calculated based upon a resort's daily lift capacity. Once the CCC is calculated (based upon the proposed lift network), other resort facilities are sized to create a balance with the CCC. If certain components of the proposed development cannot be balanced with the CCC (e.g., parking lots, resort access, utilities infrastructure, real estate development, etc.) due to physical, environmental, and/or economic constraints, then the lift network and CCC must be down-sized to account for identified limitations. In summary, CCC is a planning parameter that is used as the basis for designing a balanced resort development. The CCC should not be considered as an absolute figure that defines or limits resort visitation but should be considered a dynamic number.

The CCC for each lift system is calculated using the following formula:

$$\textbf{CCC} = \frac{\textit{Vertical Rise of the Lift x Hourly Capacity of the Lift x Operating Hours of the Lift x Loading Efficiency of the Lift}}{\textit{Weighted Vertical Demand of the Ski Trails associated with the Lift}}$$

II.3.9.8 SKIER AT ONE TIME (SAOT)

At any one time, the aggregate skier population is dispersed throughout the resort, either at guest services buildings and milling areas, waiting in lift mazes, riding lifts, or skiing on the trails. SAOT represents the proportion of skiers that will be using the trail network at any given time, based upon the CCC calculation. Once the SAOT is estimated, it can be compared to the estimated capacity of the ski terrain to determine if a sufficient amount of terrain has been proposed to balance trail capacity with the SAOT.

Of the total skier population, 15 to 40% of each lift's capacity will be using guest service facilities or milling areas at any one time (i.e., over the course of the day, skiers will be actively skiing 60 to 85% of the time – the equivalent of 4 to 6 hours). Thus 15 to 40% of the skier population is the resort's inactive population. The remaining 60 to 85% of visitors at the resort make up the active skier population who are either in lift lines, on lifts, or on trails. As set forth in the ASRG document, 30 to 40% of the resort's skier population will be on the slopes while the remaining skiers will be riding the lifts or waiting in lift lines. The number of skiers waiting in line at each lift is a function of the uphill hourly capacity of the lift and the assumed length of wait time at each lift. The number of guests riding on each lift is the product of the number of carriers on the uphill line and the capacity of the lift's carriers. The remainder of the skier/snowboarder population (i.e., the CCC minus the number of guests using guest facilities, milling in areas near the resort portals, waiting in lift mazes, and actually riding lifts) is assumed to be skiing/riding.

II.3.9.9 ADDITIONAL GUESTS

In addition to skiing guests, there are typically guests who use the mountain's guest service facilities but do not ski. For example, parents may bring their children to the mountain, and spend the day in the lodge reading or watching the children ski. These additional guests must be accommodated for when determining guest service space that they may utilize during the day (e.g., restaurant seating, restroom, retail). As a ratio of the CCC, the number of additional guests can be estimated as follows:

TABLE II.3-5. ADDITIONAL GUESTS MULTIPLIERS

TYPE OF SKI AREA	ASRG ADDITIONAL GUESTS
Community	1.00–1.05
Regional	1.05–1.10
Destination	1.10–1.25

At Garibaldi, it is assumed that these non-skiing guests using the mountain facilities equate to an additional 15% of the CCC, based on ASRG criteria for Destination areas.

II.3.9.10 BUILDINGS

Particular consideration should be given to the relationship of the base area to the mountain facilities. Upon arrival at the ski area, skiers should be able to move directly from parking or arrival, through ticketing or rentals, to the base of the lifts. Walking distance and vertical differential between the base area facilities and lifts should be minimized, or mechanically assisted, to move skiers directly onto the mountain. Vehicle, pedestrian, and skier circulation should be coordinated to create an organized and pleasant base area experience.

Alpine skiing guest service facilities should be sized as a function of the resort BRC. The amount of guest service space in square metres per BRC, based on ASRG criteria, is as follows:

TABLE II.3-6. SPACE USE MULTIPLIERS

TYPE OF SKI AREA	ASRG SPACE USE
Community	0.4–0.8
Regional	0.8–1.0
Destination	1.5–1.8

At Garibaldi, the proposed guest service space ranges between 1.6–2.0 square metres per BRC. This is slightly higher than the range for destination space that is suggested by ASRG, reflecting the spatial requirements currently being seen in the destination resort marketplace.

The BRC and CCC is distributed between facilities according to specific guest service needs:

Skier Staging Distribution – This number represents the distribution of the total number of skiers (CCC) between the guest service facilities where guests can access the mountain at the beginning of their day (known as base area portals). This number is used to determine the amount of guest service space needed for skier staging functions (e.g., tickets, rentals).

All Guests Staging Distribution – This is like skier staging, but includes guests participating in non-alpine skiing recreation and those additional guests who use the mountain facilities but do not actively recreate. This number is used to determine the amount of guest service space needed for functions that may be used by both skiing and non-skiing guests throughout the day (e.g., retail, restaurant seating, restrooms). At Garibaldi, it is assumed that these non-skiing guests equate to an additional 15% of the BRC.

Ski School Operations Distribution – This number represents the distribution of the total number of skiers (CCC) between the guest service facilities that provide ski school services. This number is used to determine the amount of guest service space needed for ski school functions (e.g., reservations desk, instructor lockers).

Lunch Distribution – This number represents the distribution of the total number of skiers and non-skiers between the guest service facilities where guests can have lunch. This number is used to determine the amount of guest service space needed for food service functions (e.g., restaurant seating, kitchen/scramble).

Administration/Employee Distribution – This number represents the distribution of the total number of skiers and non-skiers between the guest service facilities. This number is used to determine the amount of administration and employee space needed in all guest service locations.

Operations service buildings will be required for maintenance of equipment for lifts, snow-machines, snow clearing machinery and snowmaking. There will be two main buildings for this purpose one in the Alpine area and one near the Main Village. There will also be several water pumphouses and treatment facilities for potable water as well as waste water.

II.3.9.11 BASE/VILLAGE DESIGN CRITERIA

Type of Mountain Resort

The concept for the Garibaldi base area lands is drawn from the type of guest market the resort will cater to. Garibaldi is designed to be both a destination market and a day-use market and the composition, character and size of its base lands facilities will reinforce this strategy.

General Layout

At a site-wide scale the arrangement of base land facilities should reflect Smart Growth principles that advocate a concentrated, mixed-use development footprint that reduces automobile dependency while facilitating an engaging community experience. The development should be organized into a series of compact nodes ranging from a main village and mountain access portals to other less intensive neighbourhoods, each of a unique character and hierarchy that reinforces legibility and heightens place making. The connective road and multi-use trail network should have a complementary hierarchy so that it has strong legibility and efficiency. Provision of as much ski to/ski from residences as possible will assist with reducing reliance on vehicle use.

Relationship to Mountain Facilities

Nodes of development should be located at or near the base of mountain facilities to produce a ski to/from relationship that reduces the need for vehicular trips. The development nodes are the focal points for community life, and their size and character should produce a legible hierarchy in coordination with the intensity of mountain facilities. That is, the main village node and the other portals to the mountain should be in areas of the mountain where significant lift and trail facilities congregate. Other factors should be considered in their location and layout to produce a strongly identifiable character; these can include views, natural features such as streams and rock formations, solar orientation, topography and more.

Integration of lifts, accommodation and amenities

Relations to Ski Lift, Trails

Base land facilities in the main village and portals should be organized in a logical and intuitive sequence leading from the access road to the base of the lifts and trails. Parking should be close enough to facilitate walking to the lift terminals, and drop off areas should be located adjacent day-use buildings that are in turn adjacent lift terminal loading zones. Services and amenities for non-skiers or post-skiing users may be located slightly further from the lifts.

Walking Distance

Day-use parking, drop offs and services should all be located with 400 metres of lift terminals, reduced by 100 metres for every 25 metres of elevation difference. Application of this parameter essentially creates a ring around the lift terminals within which most activity should be concentrated.

Additional Guests

Mountain resorts appeal to both skiers and non-skiers. Some of the non-skiing guests will pursue other recreation such as snowplay, sightseeing, snowshoeing, winter hiking and skating or summer bicycling or hiking, while other non-skiing guests will be drawn to non-recreational activities such as health and spa facilities, shopping, eating, entertainment, conferences and other services. The quantity and character of these facilities should be based on sound market research and their arrangement in conjunction with the other facilities and open spaces should together form an interesting and memorable village and base portal environment.

Space Use Requirements

The quantity of non-accommodation building space should reflect the needs of day use and destination guests. For day users, this includes such recreation supportive uses as food and beverage, equipment rentals, retail, snow school, safety patrol and others. For destination users, which can include skiers and non-skiers, facilities can include additional food and beverage, grocery and other essential service shops, leisure-based shops, spa and health services, conference facilities and more.

In mixed use environments, delivery and service access must be carefully considered to ensure efficient delivery and removal of goods with minimal impact to overnight guests.

Parking

Parking for day-use guests should be located within walking distance of lifts or be serviced by shuttle bus if located further afield. Its quantity will be determined by the ratio of guests arriving by private vehicle versus public transportation. Parking for destination guests should be supplied within their overnight accommodations at rates that also reflect the ratio arriving by private vehicle versus public transportation. Additional convenience parking for village services should be supplied in nearby public parking facilities. The exact configuration and operational strategies related to parking and intra-resort transportation will be determined in subsequent detailed planning exercises.

Staging

Staging for mountain facilities should be balanced so that no portal has a capacity exceeding approximately 6,000 guests in order that it can move all guests onto the mountain within a period of approximately two hours during the morning. This strategy also helps to balance guest loads across the mountain's lift and trail network, reducing congestion.

Overnight Accommodation, Public/Private

A supply of overnight accommodation in the form of public and private beds increases the duration of a guest's visit which increases utilization, particularly during mid-week, making more efficient use of the resort's recreation and utility infrastructure. A destination market orientation requires a high proportion—over 50%—of public beds. These are mostly hotels and condominiums with high occupancy rates, which should be positioned for convenient access to ski lifts/trails, other recreational offerings and services. Private beds, often in the form of ground-oriented single and multi-family homes with lower occupancy rates, can be positioned further from the main village and portals, but should be located adjacent ski or other multi-use recreational trails wherever possible to discourage vehicle use.

Ski to/ski from trails and accommodation

Bed units

The proportion of overnight accommodation to mountain recreation capacity should be based on the type of resort market envisioned. A resort appealing to a large destination market should have a higher ratio of overnight accommodation than a resort oriented to a day use or weekend only market. The quantity of overnight accommodation is measured in terms of bed units, differing by the unit type and ranging from 2 bed units for a hotel room to 6 bed units for a single-family home.

Employee/Resident Restricted Housing

Employee housing and the form of rental and deed-restricted ownership should be supplied at a rate that ensures an adequate number of employees can live on site, thereby adding to the richness of the community and reducing vehicle dependence. When destination resorts are proximate to existing full-service communities, it is typical that a proportion

Mountain bikers above proposed village site with Howe Sound in background

of its employees live in this nearby community and commute by public transportation to the resort.

Garibaldi will explore other successful models, including the Whistler Housing Authority, as possible methods of managing the housing of employees.

Year-round Development

Destination resort facilities should encourage balanced use of the resort throughout the year, thereby making efficient use of the resort's infrastructure. In addition to the winter facilities, there should be a robust menu of summer recreational facilities, and other services and amenities that entice guests through spring and fall seasons. The capacity of these facilities should be as closely matched as possible to each other and to the overnight accommodations so that the resort's utilization is relatively evenly distributed throughout the year.

With Garibaldi, it is also anticipated that guests will make use of all other recreational opportunities in Squamish and the Region, likely through a central adventure booking system.

II.3.9.12 BALANCE OF FACILITIES

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

Mid-mountain slopes with Howe Sound in background

Rendering of Garibaldi's high alpine lifts and trails

II.4 THE MOUNTAIN RECREATION CONCEPT PLAN

Garibaldi's high alpine terrain and stunning views of Garibaldi massif

II.4.1 INTRODUCTION

Garibaldi is poised for development as a modern, 21st Century mountain resort community designed to add variety to the tourism product mix for the regional, destination and international destination market that will increasingly be attracted to the Sea to Sky corridor. A key ingredient in the design and development of this plan has been a thorough analysis and understanding of the past and present conditions of the site that are inherent to originating a comprehensive mountain resort complex. The past and present plans have continually preserved and proudly solidified the unique attributes and distinguishing characteristics in comparison to other regional and destination mountain resorts. As discussed below, the alpine ski facilities and comprehensive on-mountain recreation are defining and differentiating characteristics of Garibaldi.

Note that all of the names and numbers used in this document represent working document descriptions. As the resort nears opening there will be a naming convention developed for lifts, trails and villages that will fit with the marketing plans.

As proposed, the Garibaldi mountain recreation area will consist of 624 hectares of land within a 2,508 hectare parent parcel. The mountain development will offer recreational activities during all seasons, including 130 ski/snowboard trails, 21 aerial lifts, a network of multi-use trails, a variety of other multi-season recreation offerings, and 3 on-mountain guest service facilities. A highlight will be the availability of lift accessed mountain hiking, biking, sightseeing and snowshoeing in a spectacular alpine setting. The mountain recreation will be staged from two main base area portals (the Village Portal and the South Portal) as well as a smaller North Portal for local accommodations in the northwest corner of the resort. According to industry standards, the ski and snowboard terrain has been estimated to support a CCC of 15,250 skiers/riders at one time. The non-alpine ski recreation offerings will support a summer capacity of 14,000 guests and a winter capacity of 680 guests.

Garibaldi's main village will be situated slope side, on a southwest facing plateau at an elevation of 1,130 metres. Access will be via a newly constructed

Rendering of Garibaldi's lift P and lift O trail systems and North Summit Lodge

resort access road, which will connect to the Sea to Sky Highway at an intersection approximately 13 kilometres north of downtown Squamish. The South day use Portal will be located along the resort access road at the 650-metre elevation.

This Section II.4 of the 2017 Master Plan describes the proposed mountain recreation facilities, which include Alpine Skiing and a wide variety of other Alpine Resort Activities. This description of the Mountain Recreation Concept Plan follows the outline and directives of the British Columbia 2006 Alpine Ski Resort Guidelines (ASRG). There have been minor changes as a result of public and other input during the Environmental Assessment process, but the 2017 plan respects the capacity calculations established through the earlier plans. These approved capacities include:

- Comfortable Carrying Capacity (CCC) = 15,250
- Balanced Resort Capacity (BRC) = 17, 538
- Bed Units (BU) = 21,922.

The continuation of these capacities is intentional, to maintain conditions and agreements outlined in the 2008 MTCA approval letter, 2016 EA Certificate and Project Description, and other past documentation.

ALPINE SKIING FACILITIES SUMMARY

Alpine skiing and snowboarding at Garibaldi will be served by 21 aerial lifts, and several surface conveyor lifts for first-time beginner skiers. The flagship lift out of the Village (Lift L) will be a two-section enclosed gondola that will carry guests to the North Summit area and would be used for sightseeing as well as other alpine activities year round. From the North Summit 1,096 vertical metres of continuous skiing would be possible to the lowest point of the resort at the bottom of Lift A. While the North Summit is the effective summit of the mountain at 1,746 metres

[1] The 2017 Mountain Recreation Concept Plan is fundamentally similar to the 2003 Mountain Master Plan. Changes to the plan include the removal of Lift S, the addition of terrain associated with Lift W, and the lengthening and/or realignment of lifts B, C, D, K, L, O, P and Q. While these relatively minor changes do not significantly change the mountain infrastructure, in theory the lengthening of the lifts could result in an increased CCC. Instead of increasing the CCC it is intentionally being held to the previously agreed upon 15,250, which will result in shorter lift lines and lower trail densities

elevation, the highest point on the resort will be top of Lift Q at 1,868 metres elevation

The proposed formal ski trail network at Garibaldi will be made up of 130 trails, covering 594 hectares. The ski trail network will offer a variety of terrain that closely matches the destination skier market's profile of beginner, intermediate and expert skiers and snowboarders. Additionally, the downhill skier capacity of the trail network is closely balanced with the uphill capacity of the lift systems that serve it.

There will be two base areas providing all ski-related guest services in multiple buildings. The Village Portal buildings will total between 11,064 and 14,106 square metres of space, and include 2,571 restaurant seats. The guest services at the day skier base area, or South Portal, will total between 5,455 to 6,988 square metres, and will include 455 restaurant seats. A small staging area (the North Portal), providing tickets and restrooms, will be located at the base of Lift R for the convenience of guests staying in adjacent accommodation.

There will also be three on-mountain lodges, at North Summit, South Summit and North Brohm Ridge. The lodge at North Summit will include 788 restaurant seats, rest rooms, retail and a ski school registration desk, and will be between 2,733 and 3,341 square metres. The lodge at South Summit will include 801 restaurant seats, restrooms, retail and a ski school registration desk, and will be between 2,777 and 3,395 square metres. The North Brohm Ridge lodge will include 668 restaurant seats, restrooms and retail, and will be between 2,523 and 3,209 square metres.

The build-out plan for Garibaldi's snowmaking system provides coverage for approximately 141 hectares of alpine terrain. The emphasis of the snowmaking program will be coverage for low elevation trails, coverage for critical trails that return to the resort village, high use/critical connections and coverage for the terrain that provides return routes from each of the mountain top restaurants.

Garibaldi's main Operations and Maintenance Facility (1,000 square metres) is located north of the base of Lift G, on the downhill side of Run G15, near the intersection with Run G13 (see Figure II-1), a location with all-weather road access and snow frontage.

In addition, a 550-square metre on-mountain Operations and Maintenance facility will be located near the North Summit facility in the vicinity of the tops of lifts L, H and I.

Installation and maintenance of most of the lift terminals and all the on-mountain guest service facilities at Garibaldi will necessitate the construction of access routes suitable for concrete trucks and cranes. A total of 17.5 kilometres of existing logging roads, providing access to the North and South summits, will be improved and used for construction and on-going maintenance. In addition, 21.3 kilometres of new mountain work roads will be created; 9.3 kilometres of these proposed roads will be along skiways.

Every effort will be made to locate buried infrastructure within the roads and skiways to reduce the area of disturbance. All of the mountain infrastructure work that requires disturbance are generally described, mapped and included in the EA Certificate and conditions, and Conditions 12 and 17 includes a requirement to develop a Construction Environmental Management Plan with a Qualified Environmental Professional who will also monitor compliance with the plan.

The Mountain Master Plan (Figure 15) was generated from 1:5,000 scale topographic mapping with a 5-metre contour interval.

II.4.2 SKI LIFT ALIGNMENTS AND TERMINAL SITES

In total, one two-section enclosed gondola, one cabriolet gondola, 14 detachable chairlifts, six fixed grip chairlifts and several surface lifts will service the ski trail network. The proposed lift system will provide a total vertical drop of approximately 1,213 metres (3,980 feet) and will support a comfortable carrying capacity of 16,010 skiers.

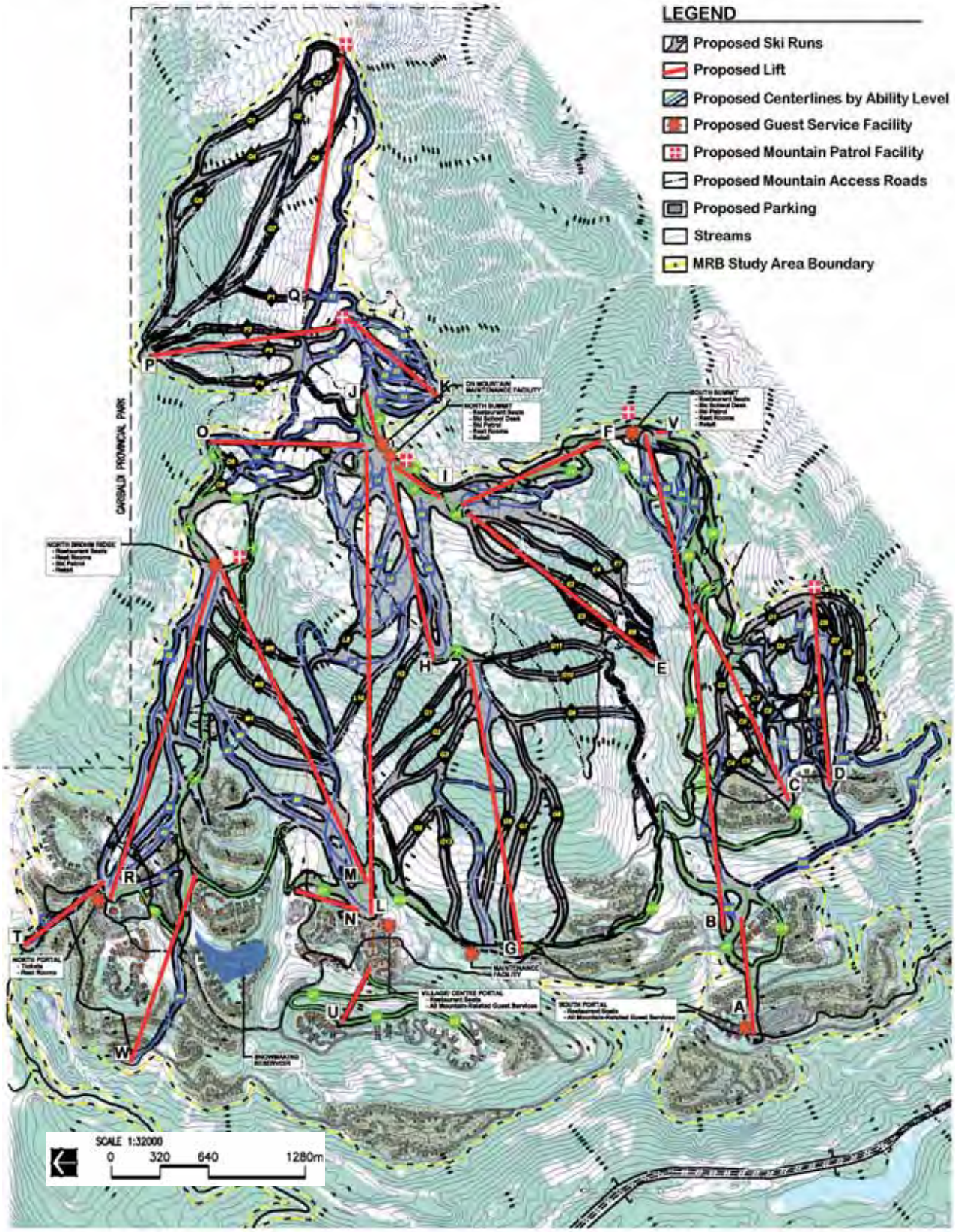
Note: the total vertical drop is not skiable in one continuous run.

Following are the preliminary lift specifications of the proposed lift network layout for the Mountain Master Plan for Garibaldi.

Table II.4-1. Lift Specifications

Map Ref.	Lift Type	Top Elevation (m)	Bottom Elevation (m)	Vertical Rise (m)	Plan Length (m)	Slope Length (m)	Avg. Grade (%)	Hourly Capacity (persons/hr)
A	Cabriolet	878	650	227	620	667	37%	2,600
B1	DC6	1,285	880	405	1,987	2,028	20%	2,800
B2	DC6	1,485	1,285	200	1,140	1,157	18%	2,800
C	DC4	1,400	1,107	293	925	986	32%	2,400
D	DC4	1,567	1,142	425	1,111	1,204	38%	2,400
E	DC4	1,728	1,137	591	1,539	1,681	38%	1,800
F	DC6	1,712	1,464	248	1,011	1,073	25%	2,600
G	DC4	1,521	890	631	1,883	2,016	34%	2,400
H	DC4	1,740	1,475	265	1,250	1,278	19%	2,400
I	C3	1,741	1,696	45	353	357	13%	1,800
J	C3	1,733	1,705	29	373	376	8%	1,800
K	DC4	1,782	1,608	175	761	786	23%	2,000
L1	Gondola – Lower	1,480	1,037	443	1,784	1,838	25%	2,800
L2	Gondola – Upper	1,746	1,480	266	1,145	1,175	23%	2,800
M	DC6	1,558	1,011	547	2,187	2,283	25%	2,600
N	C3	1,112	1,044	68	428	438	16%	1,200
O	DC6	1,740	1,475	265	998	1,050	27%	2,600
P	DC4	1,770	1,166	604	1,247	1,403	48%	1,800
Q	C3	1,868	1,642	226	1,494	1,567	15%	500
R	DC4	1,556	1,148	408	2,184	2,259	19%	2,400
T	C3	1,143	1,038	104	661	678	16%	1,800
U	C3	1,200	1,041	159	436	486	36%	1,800
V	Surface	1,485	1,479	6	54	54	11%	1,800
W	DC4	1,282	1,020	262	1,260	1,312	21%	1,800

Figure 15: Mountain Master Plan – Full Build-out (Phase 4)



II.4.3 SKI TRAILS AND SLOPES

The following tables outline the terrain specifications of the proposed trail network layout for the revised 2017 Master Plan. Following is a summary of the terrain specifications.

Table II.4-2. Terrain Specifications Summary

Ability Level	Trail Area (ha.)	Terrain Breakdown (%)
Beginner	18.5	3%
Novice	75.4	11%
Low Intermediate	109.7	16%
Intermediate	211.5	31%
Adv. Intermediate	132.5	20%
Expert	128.8	19%
TOTAL	**676.3**	**100%**

Table II.4-3. Terrain Specifications

Map Ref.	Top Elev. (m.)	Bottom Elev. (m.)	Vertical Drop (m.)	Plan Length (m.)	Slope Length (m.)	Avg. Width (m.)	Plan Area (ha.)	Slope Area (ha.)	Avg. Grade (%)	Max. Grade (%)	Ability Level
A01	866	625	241	807	848	75.1	6.1	6.4	30%	44%	Intermediate
B01	1,462	1,370	92	861	875	29.0	2.5	2.5	11%	18%	Novice
B02	1,483	1,322	162	746	767	45.6	3.4	3.5	22%	30%	Low Intermediate
B03	1,481	1,367	114	513	530	44.9	2.3	2.4	22%	33%	Low Intermediate
B04	1,486	1,287	199	1,186	1,210	46.4	5.5	5.6	17%	28%	Low Intermediate
B05	1,435	1,335	100	440	453	38.6	1.7	1.7	23%	26%	Low Intermediate
B06	1,352	1,294	58	390	395	48.9	1.9	1.9	15%	18%	Novice
B07	1,490	880	610	4,251	4,328	45.6	19.4	19.8	14%	25%	Novice
B08	1,301	1,289	12	179	181	33.6	0.6	0.6	7%	10%	Novice
B09	1,385	1,332	53	280	286	47.7	1.3	1.4	19%	24%	Novice
B10	945	883	62	235	245	40.0	0.9	1.0	26%	28%	Low Intermediate
C01	1,400	1,301	99	652	663	52.2	3.4	3.5	15%	21%	Novice
C02	1,399	1,135	263	683	739	51.6	3.5	3.8	39%	51%	Advanced Intermediate
C03	1,239	935	304	962	1,018	63.4	6.1	6.5	32%	45%	Intermediate
C04	1,175	1,134	41	379	382	53.1	2.0	2.0	11%	12%	Advanced Intermediate
C05	1,204	1,135	69	284	293	35.9	1.0	1.1	24%	30%	Advanced Intermediate
C06	1,306	1,192	114	394	411	50.7	2.0	2.1	29%	33%	Advanced Intermediate
C07	1,394	1,136	258	831	880	42.1	3.5	3.7	31%	52%	Advanced Intermediate
C08	1,322	1,162	160	462	496	61.3	2.8	3.0	35%	49%	Advanced Intermediate
C09	1,383	1,130	252	1,766	1,798	54.4	9.6	9.8	14%	22%	Intermediate
C10	1,230	1,147	83	272	285	58.9	1.6	1.7	31%	35%	Intermediate
C11	1,129	1,115	14	153	154	40.8	0.6	0.6	9%	9%	Novice
C12	1,103	1,088	16	158	160	25.2	0.4	0.4	10%	13%	Novice

Table II.4-3. Terrain Specifications

Map Ref.	Top Elev. (m.)	Bottom Elev. (m.)	Vertical Drop (m.)	Plan Length (m.)	Slope Length (m.)	Avg. Width (m.)	Plan Area (ha.)	Slope Area (ha.)	Avg. Grade (%)	Max. Grade (%)	Ability Level
C13	1,124	1,016	108	1,022	1,034	18.6	1.9	1.9	11%	16%	Novice
C14	874	746	128	605	626	27.9	1.7	1.7	21%	36%	Intermediate
D01	1,557	1,377	180	506	562	84.6	4.3	4.8	36%	73%	Expert
D02	1,486	1,352	135	239	279	71.1	1.7	2.0	56%	61%	Expert
D03	1,566	1,160	406	1,461	1,538	40.4	5.9	6.2	28%	45%	Intermediate
D04	1,446	1,143	303	876	945	44.5	3.9	4.2	35%	60%	Expert
D05	1,564	1,440	125	230	266	56.4	1.3	1.5	54%	65%	Expert
D06	1,348	1,154	194	564	600	31.9	1.8	1.9	34%	45%	Intermediate
D07	1,558	1,380	178	400	444	46.1	1.8	2.0	45%	60%	Expert
D08	1,498	1,310	188	536	574	52.2	2.8	3.0	35%	52%	Advanced Intermediate
D09	1,566	1,145	422	1,512	1,589	47.0	7.1	7.5	28%	49%	Advanced Intermediate
D10	1,162	980	182	1,683	1,710	19.8	3.3	3.4	11%	27%	Low Intermediate
D11	1,162	1,120	42	220	225	61.9	1.4	1.4	19%	22%	Novice
D12	1,110	883	228	1,073	1,117	32.6	3.5	3.6	21%	53%	Advanced Intermediate
E02	1,711	1,138	573	1,610	1,735	56.5	9.1	9.8	36%	69%	Expert
E03	1,463	1,200	263	538	602	49.1	2.6	3.0	49%	60%	Expert
E04	1,714	1,160	555	1,452	1,588	50.3	7.3	8.0	38%	71%	Expert
E05	1,726	1,697	29	181	185	67.9	1.2	1.3	16%	17%	Low Intermediate
E06	1,199	1,154	44	213	220	37.5	0.8	0.8	21%	26%	Expert
E07	1,504	1,140	364	1,022	1,119	84.2	8.6	9.4	36%	75%	Expert
F01	1,715	1,464	251	1,654	1,695	28.9	4.8	4.9	15%	29%	Low Intermediate
F02	1,709	1,513	196	922	952	47.7	4.4	4.5	21%	35%	Low Intermediate
F03	1,703	1,555	148	592	612	59.1	3.5	3.6	25%	32%	Low Intermediate
G01	1,520	968	552	2,008	2,112	43.8	8.8	9.3	28%	52%	Advanced Intermediate
G02	1,509	1,181	328	870	937	57.5	5.0	5.4	38%	53%	Advanced Intermediate
G03	1,484	1,094	390	1,009	1,087	64.4	6.5	7.0	39%	50%	Advanced Intermediate
G04	1,525	918	607	2,527	2,626	55.0	13.9	14.4	24%	42%	Intermediate
G05	1,224	1,051	174	392	430	57.8	2.3	2.5	44%	50%	Advanced Intermediate
G06	1,307	1,007	300	762	830	61.6	4.7	5.1	39%	55%	Advanced Intermediate
G07	1,478	906	572	1,690	1,820	63.3	10.7	11.5	34%	55%	Advanced Intermediate
G08	1,355	914	440	1,137	1,235	62.4	7.1	7.7	39%	54%	Advanced Intermediate
G09	1,462	1,139	323	788	866	57.0	4.5	4.9	41%	65%	Expert
G10	1,498	1,190	308	786	858	50.7	4.0	4.4	39%	67%	Expert
G11	1,523	1,021	502	2,124	2,215	50.0	10.6	11.1	24%	55%	Advanced Intermediate
G13	1,225	938	287	816	870	64.1	5.2	5.6	35%	45%	Intermediate
G14	1,014	891	122	1,503	1,522	33.3	5.0	5.1	8%	13%	Novice
G15	1,029	890	139	1,546	1,563	44.4	6.9	6.9	9%	18%	Novice
H01	1,738	1,490	248	1,292	1,323	63.5	8.2	8.4	19%	32%	Low Intermediate
H02	1,610	1,494	116	821	836	76.7	6.3	6.4	14%	22%	Low Intermediate

Table II.4-3. Terrain Specifications

Map Ref.	Top Elev. (m.)	Bottom Elev. (m.)	Vertical Drop (m.)	Plan Length (m.)	Slope Length (m.)	Avg. Width (m.)	Plan Area (ha.)	Slope Area (ha.)	Avg. Grade (%)	Max. Grade (%)	Ability Level
H03	1,490	1,145	345	870	949	59.8	5.2	5.7	40%	58%	Expert
H04	1,706	1,592	114	324	346	126.8	4.1	4.4	35%	44%	Intermediate
H05	1,520	1,489	31	259	262	45.3	1.2	1.2	12%	15%	Novice
I01	1,743	1,696	47	369	373	70.0	2.6	2.6	12%	12%	Beginner
I02	1,740	1,698	42	351	354	54.3	1.9	1.9	12%	12%	Beginner
J01	1,736	1,703	33	374	377	94.4	3.5	3.6	9%	12%	Beginner
J02	1,730	1,705	25	357	359	80.7	2.9	2.9	7%	11%	Beginner
K01	1,770	1,586	184	1,462	1,488	56.8	8.3	8.5	13%	35%	Intermediate
K02	1,763	1,706	56	433	440	64.7	2.8	2.8	16%	20%	Low Intermediate
K03	1,723	1,610	113	581	594	44.8	2.6	2.7	16%	31%	Low Intermediate
K04	1,699	1,616	83	327	338	49.7	1.6	1.7	25%	27%	Low Intermediate
K05	1,732	1,611	121	470	487	56.8	2.7	2.8	26%	30%	Low Intermediate
K06	1,755	1,666	89	387	400	45.8	1.8	1.8	23%	31%	Low Intermediate
K07	1,746	1,644	102	372	388	51.5	1.9	2.0	27%	28%	Low Intermediate
K08	1,781	1,610	170	769	793	60.2	4.6	4.8	22%	29%	Low Intermediate
L01	1,741	1,129	612	5,078	5,150	39.6	20.1	20.4	12%	25%	Novice
L02	1,742	1,479	264	1,343	1,382	62.5	8.4	8.6	20%	38%	Intermediate
L03	1,741	1,605	136	511	532	94.0	4.8	5.0	27%	38%	Intermediate
L04	1,736	1,683	53	184	192	92.1	1.7	1.8	29%	31%	Intermediate
L05	1,657	1,508	150	656	682	170.4	11.2	11.6	23%	43%	Intermediate
L06	1,599	1,498	101	504	518	112.3	5.7	5.8	20%	32%	Low Intermediate
L07	1,575	1,485	90	462	475	117.3	5.4	5.6	20%	31%	Low Intermediate
L08	1,494	1,384	110	272	300	53.3	1.5	1.6	40%	52%	Advanced Intermediate
L09	1,536	1,040	496	3,029	3,104	51.1	15.5	15.9	16%	36%	Intermediate
L10	1,399	1,154	245	610	671	63.3	3.9	4.2	40%	73%	Expert
M01	1,557	1,017	541	2,418	2,498	48.0	11.6	12.0	22%	45%	Intermediate
M02	1,232	1,044	189	746	778	83.0	6.2	6.5	25%	43%	Intermediate
M03	1,436	1,133	304	922	975	59.9	5.5	5.8	33%	45%	Intermediate
M04	1,413	1,145	268	738	791	47.6	3.5	3.8	36%	54%	Advanced Intermediate
M05	1,528	1,145	384	1,166	1,255	58.0	6.8	7.3	33%	65%	Expert
M06	1,548	1,278	271	701	760	67.0	4.7	5.1	39%	67%	Expert
N01	1,114	1,046	69	690	693	40.0	2.5	2.5	10%	12%	Beginner
O01	1,734	1,473	261	1,230	1,276	66.7	8.2	8.5	21%	44%	Intermediate
O02	1,709	1,613	96	279	302	89.6	2.5	2.7	34%	49%	Advanced Intermediate
O03	1,642	1,473	169	654	664	30.6	2.0	2.0	13%	35%	Intermediate
O04	1,569	1,522	47	146	157	82.0	1.2	1.3	32%	35%	Low Intermediate
O05	1,664	1,479	185	671	707	28.6	1.9	2.0	28%	44%	Intermediate
O06	1,558	1,479	79	170	191	117.5	2.0	2.2	47%	51%	Advanced Intermediate
O07	1,576	1,547	28	470	477	81.8	3.8	3.9	12%	15%	Low Intermediate

Table II.4-3. Terrain Specifications

Map Ref.	Top Elev. (m.)	Bottom Elev. (m.)	Vertical Drop (m.)	Plan Length (m.)	Slope Length (m.)	Avg. Width (m.)	Plan Area (ha.)	Slope Area (ha.)	Avg. Grade (%)	Max. Grade (%)	Ability Level
O08	1,576	1,503	73	329	343	66.9	2.2	2.1	22%	46%	Advanced Intermediate
O09	1,488	1,470	18	455	459	45.3	2.1	2.1	4%	14%	Novice
P01	1,646	1,365	281	485	573	34.2	1.7	2.0	58%	81%	Expert
P02	1,770	1,175	595	1,309	1,458	48.5	6.3	7.1	45%	67%	Expert
P03	1,620	1,164	456	973	1,091	63.5	6.2	6.9	47%	64%	Expert
P04	1,715	1,191	524	1,544	1,673	44.5	6.9	7.4	34%	73%	Expert
P05	1,780	1,651	128	425	448	54.5	2.3	2.4	30%	34%	Low Intermediate
Q01	1,710	1,176	534	2,117	2,220	52.5	11.1	11.7	25%	73%	Expert
Q02	1,869	1,170	699	2,578	2,696	48.5	12.5	13.1	27%	54%	Advanced Intermediate
Q03	1,859	1,697	162	327	373	54.8	1.8	2.0	49%	74%	Expert
Q04	1,644	1,348	296	709	781	56.1	4.0	4.4	42%	63%	Expert
Q05	1,414	1,280	134	395	424	53.2	2.1	2.3	34%	51%	Advanced Intermediate
Q06	1,845	1,560	285	798	875	44.1	3.5	3.9	36%	77%	Expert
Q07	1,650	1,282	368	1,235	1,313	44.6	5.5	5.9	30%	43%	Advanced Intermediate
Q08	1,869	1,642	227	1,787	1,814	42.4	7.6	7.7	13%	33%	Low Intermediate
R01	1,555	1,519	36	391	395	104.8	4.1	4.1	9%	11%	Beginner
R02	1,555	1,145	410	2,268	2,332	50.3	11.4	11.7	18%	42%	Intermediate
R03	1,534	1,366	168	911	930	56.0	5.1	5.2	18%	27%	Intermediate
R04	1,451	1,147	304	1,301	1,352	57.7	7.5	7.8	23%	36%	Intermediate
R05	1,311	1,149	162	607	634	56.0	3.4	3.6	27%	39%	Intermediate
R06	1,271	1,173	98	318	336	56.7	1.8	1.9	24%	41%	Intermediate
R07	1,269	1,150	119	981	993	60.1	5.9	6.0	12%	22%	Novice
T01	1,139	1,035	104	625	639	48.2	3.0	3.1	17%	33%	Low Intermediate
U01	1,234	1,037	198	1,325	1,366	16.0	2.1	2.2	15%	37%	Intermediate
U02	1,071	1,032	38	628	661	17.3	1.1	1.1	6%	34%	Low Intermediate
U03	1,240	1,113	127	550	574	29.8	1.6	1.7	23%	35%	Intermediate
W01	1,206	1,017	189	883	910	50.9	4.5	4.6	19%	41%	Intermediate
W02	1,179	1,013	166	604	637	31.7	1.9	2.0	27%	40%	Intermediate
TOTAL					119,521		594.0	622.4			

Source: SE Group

In addition to the formal ski trail network, Garibaldi is made up of vast areas of open bowls and tree glade areas that will be accessible to skiers when conditions are favorable. Many of the tree stands adjacent to the ski trails will be thinned and brushed to enhance glade skiing opportunities. These “off-piste” areas will add to the level of terrain variety, causing the resort to be a more desirable destination for adventurous skiers.

SNOWMAKING

One of the most discussed variables in the ski industry is the weather. The amount and timing of natural snowfall, and the degree to which temperatures are cold enough for snowmaking, often dictate the overall success of a resort's winter operation. Compounding the weather risk is the fact that most resorts receive a significant portion of their wintertime visitation during a few, relatively short vacation periods – a factor that exerts extreme pressure on resorts to provide a quality snow product during those important holiday periods. Thus, snowmaking coverage for Garibaldi has been designed to ensure a reliable, high quality snow surface for key portions of the resort.

The following coverage objectives helped determine which trails to include in the snowmaking coverage strategy:

- During years of low natural snowfall, guarantee terrain in time for the U.S. Thanksgiving holiday (i.e., terrain appropriate for beginner through advanced levels).
- Provide snowmaking coverage for critical, connector and return trails.
- Provide snowmaking coverage (i.e., maintain acceptable trail surface conditions) for trail segments where high-use negatively impacts trail snow surfaces.
- Provide durable snow cover on trails and slopes where sun or wind exposure wears on the snowpack, or where trails have abnormal subsurface trail conditions.

The build-out plan for Garibaldi's snowmaking system provides coverage for approximately 202 hectares of alpine terrain. The emphasis of the snowmaking program will be coverage for low elevation trails, coverage for critical trails that return to the resort village, high use/critical connections, and coverage for the terrain that provides return routes from each of the mountain top restaurants. In short, the proposed coverage strategy will help ensure a skiable product for the regions that are absolutely necessary for the operation of the resort. Trails that merit snowmaking coverage are summarized in Table II.4-4. The proposed, resort-wide snowmaking plan is graphically depicted in Figure 16.

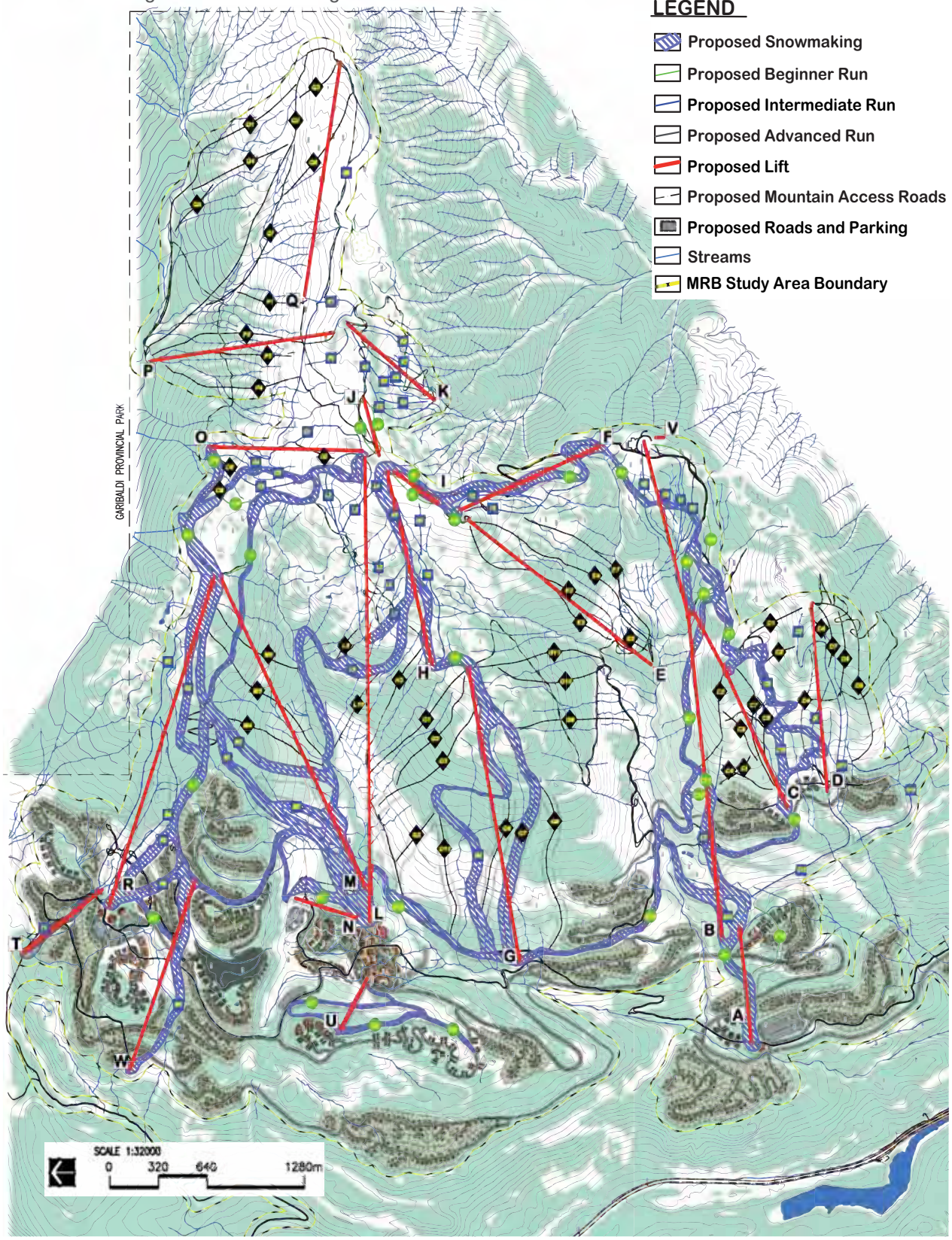
With an average coverage depth of 0.75 metre, the total production requirement will be 1,515,000 cubic metres of snow per year. According to snowmaking engineers, 1.0 cubic metre of water will produce 1.86 cubic metres of snow; so approximately 815,000 cubic metres of water will be required per year for snowmaking at Garibaldi.

The distribution of snowmaking coverage by ability level corresponds proportionately to the target distribution of the skier market at 35% beginner/novice, 57% lower intermediate/intermediate, and 8% advanced/expert.

TABLE II.4-4. SNOWMAKING

MAP REF.	SNOWMAKING AREA HECTARES	SKIER/RIDER ABILITY LEVEL
A01	5.9	Intermediate
B01	2.5	Novice
B06	1.4	Novice
B07	14.9	Novice
B10	1.0	Low Intermediate
C01	3.5	Novice
C03	4.6	Intermediate
C09	8.6	Intermediate
C10	1.6	Intermediate
C11	0.6	Novice
C12	0.3	Novice
C13	1.9	Novice
F01	4.9	Low Intermediate
F03	0.8	Low Intermediate
G04	13.8	Intermediate
G07	10.7	Advanced Intermediate
G11	4.6	Advanced Intermediate
G14	4.6	Novice
G15	6.5	Novice
H01	7.4	Low Intermediate
HO5	1.2	Novice
I02	2.4	Beginner
L01	18.8	Novice
L04	0.8	Intermediate
L07	2.8	Low Intermediate
L09	15.9	Intermediate
M01	11.6	Intermediate
M02	4.5	Intermediate
M03	5.5	Intermediate
N01	2.5	Beginner
O03	1.8	Intermediate
O05	0.4	Intermediate
O07	1.2	Low Intermediate
O08	0.0	Advanced Intermediate
R01	4.1	Novice
R02	3.4	Intermediate
R03	4.3	Intermediate
R05	3.6	Intermediate
R06	1.9	Intermediate
R07	6.0	Novice
U01	2.2	Intermediate
U02	1.1	Low Intermediate
U03	1.7	Intermediate
W01	4.6	Intermediate
Sum:	202.2	

Figure 16: Snowmaking Plan



Snowboarder enjoying powder in Garibaldi's North facing bowls

II.4.4 SNOWBOARDING

Nearly all modern ski resorts include terrain features and facilities that are designed specifically for snowboard riders. The layout and configuration of terrain parks at Garibaldi will be dependent on current trends and will likely change over time. Accordingly, the design of snowboard terrain parks has not been completed for Garibaldi. However, the general slope characteristics and location (near the North Summit Lodge) of the terrain served by upper Lift L, Lift H, and Lift O is ideal for development of snowboard parks. It would also be possible and desirable to develop snowboard parks on the lower slopes of Lift M near the Village Portal. The upper-elevation bowls and off-piste terrain at Garibaldi will also be attractive to snowboard riders.

II.4.5 SKI TRAIL CAPACITY

Ski terrain capacity is a function of the acceptable skiers-per-hectare density ratio, which is rated by skier ability level. The skier densities that have been used for Garibaldi are in the middle of the ranges specified in the ASRG (as set forth below) because the majority of skiers at Garibaldi will be destination visitors who expect lower density, uncrowded skiing. These density figures account for the skiers that are actually populating the ski trails and do not account for other guests who are either waiting in lift lines, are riding the lifts or are using the milling areas and support facilities. The last column in the following table indicates the Skier Density Ratio of guests distributed throughout the mountain facilities (i.e., including those guests that are waiting in lift lines, riding lifts or using milling areas and support facilities). The skier density ratios in this column are used to assess the balance between ski area capacity based on the amount of ski terrain and ski area capacity based on CCC.

TABLE II.4-6. TERRAIN CAPACITY

Ability Level	Trail Area (ha.)	Terrain Capacity (skiers)
Beginner	17.6	353
Novice	75.6	1361
Low Intermediate	96.2	1347
Intermediate	187.5	1875
Adv. Intermediate	123.0	861
Expert	122.4	490
TOTAL	**622.4**	**6287**

Source: SE Group

TABLE II.4-5. SKIER DENSITY RATIOS BY ABILITY LEVEL

Ability Level	Garibaldi Design Criteria Skier Density Ratios (on slopes only)	ASRG Skier Density Ratios (on slopes only)	Garibaldi Design Criteria Skier Density Ratios (total ski area facility)
Beginner	20 skiers/hectare	35–75 skiers/hectare	50 skiers/hectare
Novice	18 skiers/hectare	30–60 skiers/hectare	45 skiers/hectare
Low Intermediate	14 skiers/hectare	20–50 skiers/hectare	35 skiers/hectare
Intermediate	10 skiers/hectare	15–35 skiers/hectare	25 skiers/hectare
Adv. Intermediate	7 skiers/hectare	10–25 skiers/hectare	17 skiers/hectare
Expert	4 skiers/hectare	5–15 skiers/hectare	10 skiers/hectare

Source: SE Group

The following table shows that the trail design for Garibaldi has a terrain capacity of 6,793 skiers, on the slopes, at one time. (As discussed above, the overall ski area capacity includes the terrain capacity - 6,793 skiers - as well as the number of skiers waiting in lift lines, riding the lifts, or using visitor service facilities and milling areas.) This downhill terrain capacity figure will be compared with the skiers at one time (SAOT) estimate made in Section II.4.11, which represents the proportion of skiers who are expected to be on the slopes at one time based upon the uphill capacity of the lifts. A balance between terrain capacity and SAOT represents a balance between uphill lift capacity and downhill terrain capacity.

II.4.6 SKIER SKILL CLASSES

The skier marketplace is divided into skill classes ranging from beginner to expert. The ability level distribution of the developed ski trails (as defined by the ski area capacity for each ability level) should generally match the distribution within the skier marketplace. The estimated ability level distribution for the Garibaldi marketplace is given below. This ability level distribution reflects the destination-oriented marketplace's expectations for resorts in Western Canada. The ability level distribution used by SE Group is based on recent trends that indicate lower percentages of advanced and expert skiers in the market place compared with the ASRG and higher percentages of novice and low intermediate skiers.

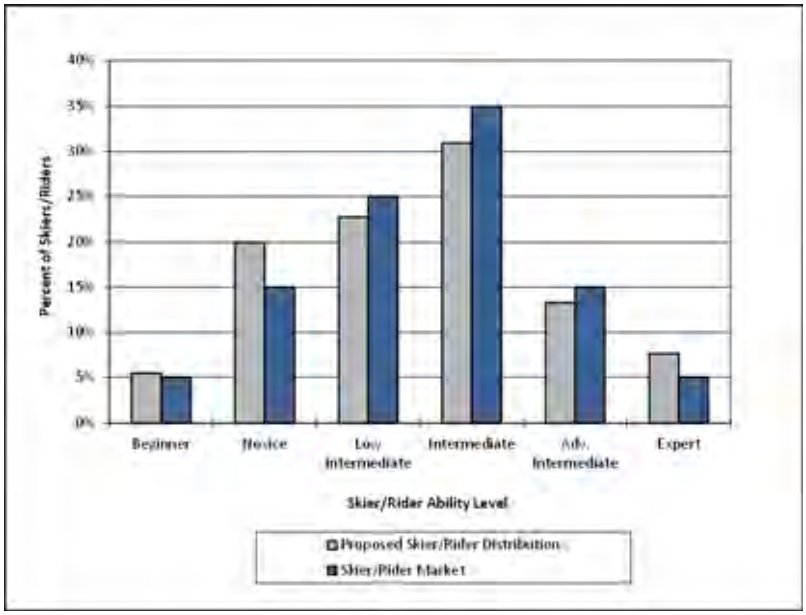
TABLE II.4-7. ESTIMATED ABILITY LEVEL DISTRIBUTION OF THE MARKETPLACE

Ability Level	Estimated Ability Level Distribution For Garibaldi's Marketplace	ASRG Ability Level Distribution
Beginner	5%	2–6%
Novice	15%	11–15%
Low Intermediate	25%	18–22%
Intermediate	35%	33–37%
Adv. Intermediate	15%	18–22%
Expert	5%	8–12%

The following table shows that the proposed trail design for Garibaldi offers a variety of terrain that is responsive to current trends in the marketplace.

TABLE II.4-8. SKI AREA CAPACITY DISTRIBUTION BY ABILITY LEVELS

Ability Level	Trail Area	Ski Area Capacity	Garibaldi's Skier Capacity Distribution	Garibaldi's Market Distribution	Distribution per ASRG
	(ha.)	(skiers)	(%)	(%)	(%)
Beginner	17.6	882	6%	5	2–6
Novice	75.6	3403	22%	15	11–15
Low Intermediate	96.2	3368	22%	25	18–22
Intermediates	187.5	4687	30%	35	33–37
Adv. Intermediate	123.0	2091	13%	15	18–22
Expert	122.4	1224	8%	5	8–12
TOTAL	**622.4**	**15,656**	**100%**	**100**	



II.4.7 VERTICAL DEMAND

Vertical demand is a critical parameter for calculating a resort's aggregate daily lift capacity (which is used to define a resort's CCC as described in Section II.4.10). The amount of vertical that the average skier is anticipated to ski over the course of a day increases as skier ability level increases. The vertical demand is estimated on a lift-by-lift basis and can be calculated as a function of the skiers' "round-trip interval" on each lift. Round-trip interval is the amount of time it takes to make one complete circuit on a lift (i.e., waiting in the lift line, riding the lift, and then skiing one run). The amount of time it takes to make one round-trip is used to determine the total number of runs that can be made over the course of the day, which is then multiplied by the total vertical of the lift to derive the total vertical demand. For example, if the round-trip interval on a lift is estimated to be 30 minutes, and the average skier is actively skiing for five hours over the course of the day, then that skier will complete ten runs (two runs per hour over five hours). If the lift has a vertical rise of 300 metres, then the skier will consume 3,000 metres over the course of the day (ten runs at 300 metres per run).

The average vertical demand values used for the Garibaldi project are outlined below, by skier ability class.

The vertical demand figures used for Garibaldi are slightly higher than the values set forth in the ASRG. This is because most of the proposed lifts at Garibaldi have higher than average vertical rise for a given length, allowing skiers to consume a higher

TABLE II.4-9. VERTICAL DEMAND BY SKIER ABILITY LEVEL

Ability Level	Garibaldi Design Criteria For Vertical Demand	ASRG Vertical Demand
Beginner	1,000 metres	500–750 metres
Novice	2,500 metres	750–1,500 metres
Low Intermediate	3,500 metres	1,500–2,250 metres
Intermediate	4,500 metres	2,250–3,000 metres
Adv. Intermediate	7,500 metres	3,000–5,500 metres
Expert	9,000 metres	5,500–7,500 metres

Source: SE Group

than average amount of vertical per day. Additionally, a goal of management is to keep lift lines at a minimum. This has the effect of increasing vertical demand (i.e., shorter lift lines equates to more runs per hour and more vertical skied).

It should be noted that a higher vertical demand results in a lower CCC. Therefore, using a higher vertical demand will result in less crowded conditions at Garibaldi.

II.4.8 WEIGHTED VERTICAL DEMAND

The trails serviced by each lift have been inventoried and the vertical demand for each lift has been weighted by percentage of ability levels served. The following table is an example of how weighted vertical demand has been calculated for each lift at Garibaldi, using Lift G as the example.

TABLE II.4-10. WEIGHTED VERTICAL DEMAND FOR LIFT G

Ability Level	Area (ha.)	Trail Capacity	Percentage Use	Vertical Demand	Weighted Demand
Beginner	0.0	0	0%	1,000	0
Novice	12.0	540	22.55%	2,500	564
Low Intermediate	0.0	0	0%	3,500	0
Intermediate	22.0	550	22.97%	4,500	1,034
Adv. Intermediate	66.8	1,136	47.42%	7,500	3,557
Expert	16.9	169	7.05%	9,000	635
TOTAL	**111.7**	**2,395**			**5,765**

II.4.9 ALPINE SKIING COMFORTABLE CARRYING CAPACITY

By definition, CCC is the optimum number of guests accommodated by a mountain facility, at any one time, which affords a high-quality recreational experience and helps ensure sound stewardship of the land. In essence, CCC is a daily guest population, which is serviceable by the facility (i.e., an attendance level where operations remain functional and optimal). CCC is calculated based upon a resort's daily lift capacity. Once the CCC is calculated (based upon the proposed lift network), other resort facilities are sized to create a balance with the CCC. If certain components of the proposed development cannot be balanced with the CCC (e.g., parking lots, resort access, utilities infrastructure, real estate development, etc.) due to physical, environmental, and/or economic constraints, then the lift network and CCC must be down-sized to account for identified limitations. In summary, CCC is a planning parameter that is used as the basis for designing a balanced resort development. The CCC should not be considered as an absolute figure that defines or limits resort visitation but should be considered a dynamic number.

The CCC for each lift system is calculated using the following formula:

$$\textbf{CCC} = \frac{\textit{Vertical Rise of the Lift x Hourly Capacity of the Lift x Operating Hours of the Lift x Loading Efficiency of the Lift}}{\textit{Weighted Vertical Demand of the Ski Trails associated with the Lift}}$$

The resort CCC is the sum of the CCC calculations of each lift system. The following table outlines the CCC calculation for the proposed lift network, using assumed hourly lift capacities.

As illustrated in the CCC calculation table, the proposed mountain master plan could support a potential CCC of about 15,250 guests.

TABLE II.4-11. CALCULATION OF CCC

Map Ref.	Slope Length	Vert. Rise	Hourly Capacity	Oper. Hours	Up-Mtn. Access Role	Misloading Lift Stop.	Adjusted Hrly. Cap.	VTM/Day	Weighted Vertical Demand	CCC
	(m)	(m)	(per./hr)	(hrs)	(%)	(%).	(pers./hr)	(000)	(m/day)	(skiers)
A	667	227	2,600	7.00	100	0	-	0	0	-
B1	2,028	405	2,800	7.00	100	0	-	0	0	-
B2	1,157	200	2,800	7.00	10	5	2,380	3,332	3,075	1,080
C	986	293	2,400	7.00	10	5	2,040	4,190	5,354	780
D	1,204	425	2,400	7.00	5	5	2,160	6,431	6,582	980
E	1,681	591	1,800	6.50	0	5	1,710	6,571	8,203	800
F	1,073	248	2,600	6.50	50	5	1,170	1,887	3,500	540
G	2,016	631	2,400	7.00	0	5	2,280	10,070	5,735	1,760
H	1,278	265	2,400	6.50	0	5	2,280	3,927	3,721	1,060
I	357	45	1,800	6.50	15	10	1,350	397	1,000	400
J	376	29	1,800	6.50	5	10	1,530	286	1,000	290
K	786	175	2,000	6.25	0	5	1,900	2,076	3,720	560
L1	1,838	443	2,800	7.00	100	0	-	0	0	-
L2	1,175	266	2,800	7.00	25	5	1,960	3,650	3,952	920
M	2,283	547	2,600	7.00	5	5	2,340	8,954	4,460	2,010
N	438	68	1,200	7.00	0	10	1,080	512	1,000	510
O	1,050	265	2,600	6.75	5	5	2,340	4,180	4,253	980
P	1,403	604	1,800	6.00	50	5	810	2,936	7,188	410
Q	1,567	226	500	6.00	0	10	450	610	8,190	70
R	2,259	408	2,400	7.00	5	5	2,160	6,162	4,176	1,480
W	1,312	262	1,800	7.00	25	10	1,170	2,148	3,486	620
TOTAL	26,932		46,300				31,110	68,319		15,250

Source: SE Group

II.4.10 SKIERS AT ONE TIME (SAOT)

At any one time, the aggregate skier population is dispersed throughout the resort, either at guest services buildings and milling areas, waiting in lift mazes, riding lifts, or skiing on the trails. SAOT represents the proportion of skiers that will be using the trail network at any given time, based upon the CCC calculation. Once the SAOT is estimated, it can be compared to the estimated capacity of the ski terrain (as determined in Section II.4.6) to determine if a sufficient amount of terrain has been proposed to balance trail capacity with the SAOT.

Of the total skier population, 15 to 40% of each lift's capacity will be using guest service facilities or milling areas at any one time (i.e., over the course of the day, skiers will be actively skiing 60 to 85% of the time—the equivalent of four to six hours). This 15 to 40% of the skier population is the resort's inactive population. The remaining 60 to 85% of visitors at the resort make up the active skier population who are either in lift lines, on lifts, or on trails. As set forth in the ASRG, 30 to 40% of the resort's skier population will be on the slopes while the remaining skiers will be riding the lifts or waiting in lift lines. The number of skiers waiting in line at each lift is a function of the uphill hourly capacity of the lift and the assumed length of wait time at each lift. (For purposes of master planning, lift lines at Garibaldi have been estimated to range from one to twelve minutes.) The number of guests riding on each lift is the product of the number of carriers on the uphill line and the capacity of the lift's carriers. The remainder of the skier/snowboarder population (i.e., the CCC minus the number of guests using guest facilities, milling in areas near the resort portals, waiting in lift mazes, and actually riding lifts) is assumed to be enjoying downhill descents.

Based upon the CCC of 15,250 guests, the estimated disbursement of Garibaldi's skiers is illustrated in the following table.

TABLE II.4-12. DISBURSEMENT OF THE SKIER POPULATION

Lift Number	Daily Capacity (CCC)	Disbursement of Skier/Rider Population			
		Support Fac./Milling (skiers)	Lift Lines (skiers)	On Lift (skiers)	SAOT (skiers on trails only)
A	0	0	0	0	0
B1	0	0	0	0	0
B2	1,080	270	228	139	443
C	780	195	272	110	203
D	980	245	189	142	404
E	800	200	78	157	365
F	540	135	156	68	181
G	1,760	440	352	250	718
H	1,060	265	133	159	503
I	400	100	101	53	146
J	290	73	13	63	141
K	560	140	32	81	307
L1	0	0	0	0	0
L2	920	230	180	116	394
M	2,010	503	449	291	767
N	510	128	203	52	127
O	980	245	312	134	289
P	410	103	41	62	204
Q	70	7	15	37	11
R	1,480	370	126	266	718
U	0	0	0	0	0
W	620	155	59	85	321
Total:	**15,250**	**3,804**	**2,939**	**2,265**	**6,242**

Source: SE Group

This table shows that of the total 15,250 CCC, 6,242 skiers (40%) are anticipated to be on the ski trails at one time. As calculated in Section II.4.5 above, the proposed trail network has an estimated skier capacity of 6,287 skiers at one time. This illustrates that the trail capacity is balanced very closely with SAOT, with a slight surplus of terrain capacity (i.e., average skier density on trails remains slightly less than the proposed criteria and thus trails will be less crowded).

ALPINE RESORT ACTIVITIES SUMMARY

In recent years, the mountain resort industry has witnessed significant change from economic forces as well as new and emerging development and consumer trends. Presently, we are at a moment of time that is "ripe" for innovation within the field of development and the mountain resort/tourism industry. Much like how Whistler started a new trend in resort village design many decades ago, the changing landscape of demographics and resort development yield new opportunities for Garibaldi to provide a unique year-round resort environment and experience that is developed in concert with the market characteristics of British Columbia. In this context, while the winter season and winter visitation is an important element of the Garibaldi project, the activities, events and programs offered during the summer and shoulder seasons may play a much greater role in the ultimate success of Garibaldi. This fact has been proven by resort operators throughout the world as a new means to increase year-round utilization, revenues and profitability.

These activities also expand the year round employment possibilities for resort staff. For example at other resorts many ski instructors become bike instructors as the snow melts and rental and repair staff switch from sliding toys to rolling toys.

It is also likely that Garibaldi will offer links to other adventure possibilities in the region through a booking desk that encourages guests to explore other areas and experiences of the Sea to Sky region.

An important aspect of the multi-season recreation industry is that it serves a much broader and more robust demographic market than its alpine skiing counterpart. While skiers/snowboarders represent a small portion of the population (estimated to be 6% for Canada), people that can engage in other recreational offerings in mountain resort communities represent more than 90% of the population.

Accordingly, there are ample opportunities for all providers that compete in this broader tourism market as each unique area can brand and define its market through various product, service and activity offerings.

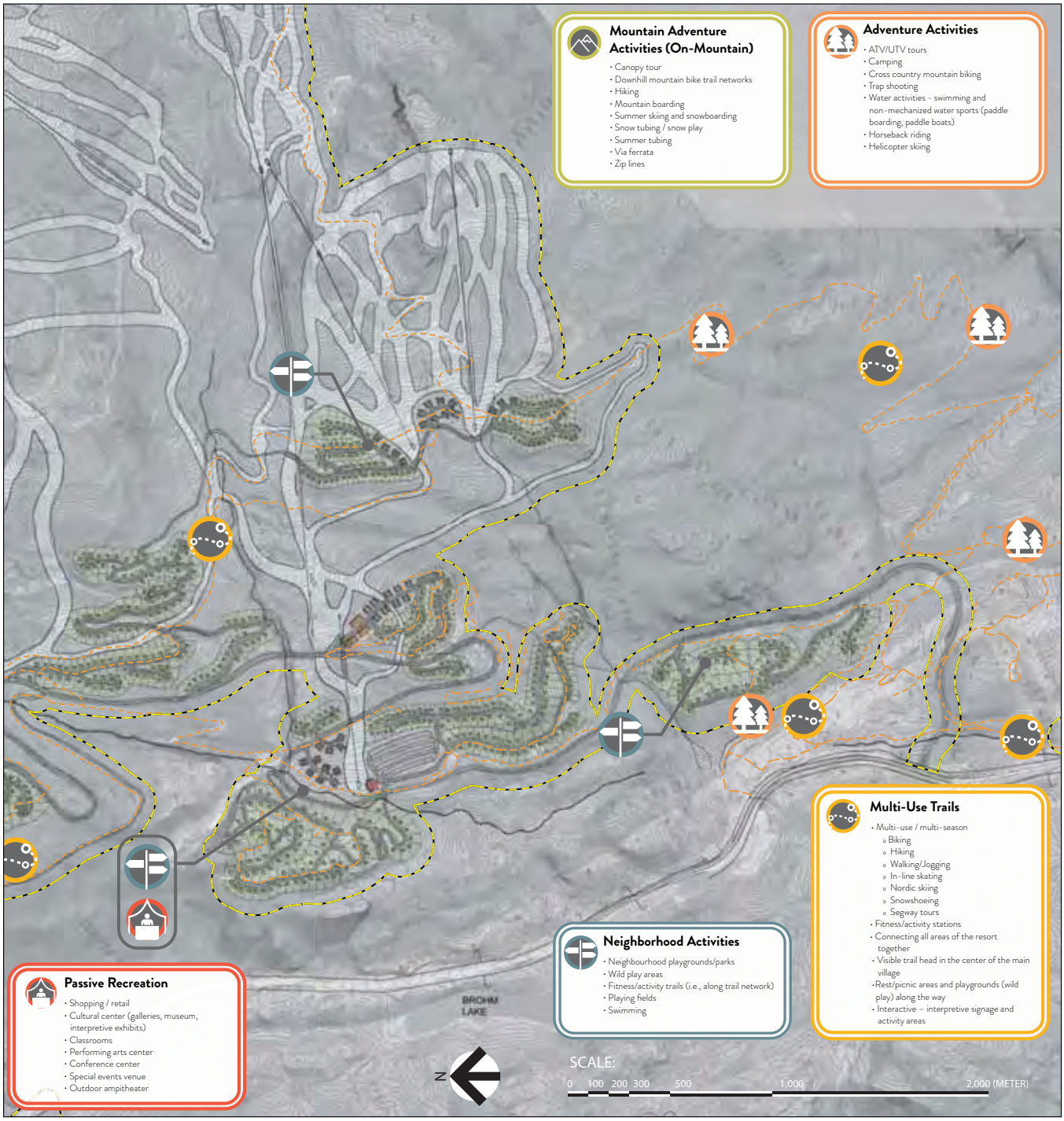
The mountain resort activities proposed for Garibaldi are comprised of both winter and summer venues that are designed to provide experiential opportunities for a wide range of local, regional and destination guests.

Garibaldi will offer a season pass to local residents that will allow use of facilities at a discounted rate on a year round basis. This is a goodwill gesture for the community that upholds Garibaldi's objective of becoming a local playground. Local residents will be encouraged to bring their guests up to show off 'their' backyard mountain playground. There will be a transit/shuttle bus system that will reduce vehicular traffic and offer access to youth to head up on their own for a day of mountain recreation.

As seen on the Recreational Activities Plan, Figure 16, year-round activities are planned throughout the resort: the mountain, base areas and surrounding neighbourhoods. The associated year-round activities, programs and events will utilize amenities and terrain features inherent with the adjacent infrastructure and natural resources, such as alpine skiing infrastructure, base area facilities, wooded areas and natural water features. Many activities (i.e., mountain biking, hiking, Nordic skiing, snowshoeing, etc.) will utilize existing and proposed multi-use trails prevalent throughout the resort and base area with ample connections to the proximal residential neighbourhoods. Connectivity to the adjacent residential areas will increase the convenience and utilization of all proposed activities, programs and events from residents and destination guests.

Many of the listed activities will take place out of the resort, primarily through existing tourism operators in the region. For example river sports, kite-surfing, heli-skiing and snowmobiling already occur locally and will be utilized by resort guests.

Figure 17: Recreation Activities Plan


Mountain Adventure Activities (On-Mountain)
• Canopy tour
• Downhill mountain bike trail networks
• Hiking
• Mountain boarding
• Summer skiing and snowboarding
• Snow tubing / snow play
• Summer tubing
• Via ferrata
• Zip lines
Adventure Activities
• ATV/UTV tours
• Camping
• Cross country mountain biking
• Trap shooting
• Water activities - swimming and non-mechanized water sports (paddle boarding, paddle boats)
• Horseback riding
• Helicopter skiing
Multi-Use Trails
• Multi-use / multi-season
o Biking
o Hiking
o Walking/Jogging
o In-line skating
o Nordic skiing
o Snowshoeing
o Segway tours
• Fitness/activity stations
• Connecting all areas of the resort together
• Visible trail head in the center of the main village
• Rest/picnic areas and playgrounds (wild play) along the way
• Interactive – interpretive signage and activity areas
Neighborhood Activities
• Neighbourhood playgrounds/parks
• Wild play areas
• Fitness/activity trails (i.e., along trail network)
• Playing fields
• Swimming
Passive Recreation
• Shopping / retail
• Cultural center (galleries, museum, interpretive exhibits)
• Classrooms
• Performing arts center
• Conference center
• Special events venue
• Outdoor ampitheater
BROHM LAKE
N
SCALE:
0 100 200 300 500 1,000 2,000 (METER)

WINTER ACTIVITIES

Nordic Skiing

Nordic Skiing, also known as cross-country skiing, entertains all types of recreationalists from the competitive to the leisure enthusiasts. This family friendly activity is typically located on a valley floor, an open meadow, or navigating rolling hills as, traditionally, a level trail or gently sloping surface is desired. Nordic skiing maybe practiced on groomed trails, with or without two parallel “tracks” to guide the skiers route, or in undeveloped backcountry areas.

It is anticipated that Garibaldi will also offer areas in the alpine zone where Nordic Skiing can take place well into the late spring season.

Leisure enthusiasts of all ability levels fondly pursue the activity as even novice alpine skiers may apply their skiing skills as they venture through natural landscapes at their own pace. While some Nordic skiers pursue the activity for leisure, Nordic skiing is also pursued for physical fitness, as the activities strengthen a variety of muscle groups, as well as for organized Nordic skiing competitions.

Snow Tubing

Snow tubing is a fun winter activity, offering an exciting ride on an inner tube down a prepared track, along with a small lift to tow the rider back to the top. Snow tubing continues to be a popular activity at numerous resorts throughout North America. It does not require any level of participatory skill, so it is a fun pastime for individuals and families to engage in a winter activity. In addition, ski area operators view snow tubing favorably; it provides significant use and revenue on a small amount of land and exposes newcomers to the sport of skiing/snowboarding.

Ice Skating

Ice skating, and particularly ice hockey, is an important recreational activity in Canada. Beyond hockey, ice skating rinks can provide opportunities for a variety of sports and activities, including casual skating, figure skating, curling, broomball and others.

Ice skating rinks provide guests with the opportunity to feel young and daring all over again, but they can also serve an important function in the design of mountain resort villages. Ice rinks can serve as iconic gathering areas and focal points for the village, promoting an inviting shopping experience, as well as a lively après ski setting. An iconic gathering space that is active, energized and inviting is found in every successful resort village. It sets the tone for the space and everything builds off of its design. Beaver Creek Village, Whistler Village and Northstar Village have exceptional examples of ice skating rinks that truly create this energy and they have created the gold standard of resort villages. Combined with attractive seating (cabanas with fire pits in the case of Northstar), pedestrian-oriented walkways and landscaping, adjacent restaurants and shopping, the gathering space is symbolic of the experience that visitors are seeking is today’s competitive destination resort market.

The prinicipals of Garibaldi both own NHL hockey teams. These connections create unique marketing, entertainment and recreational opportunities (senior and youth hockey camps, etc.) and possibly even NHL training camps, that will appeal to locals and resort guests.

Fat-Tire Biking

Fat-Tire Biking has brought conventional summer mountain biking into an exciting new element - winter operations. Most guests will have minimal to zero experience on fat-bikes, however bikers of all ability levels experience a friendly learning curve as they utilize their conventional biking skills on these slightly modified bicycles. Equipped with larger tires, designed to aid in shock absorption and control on snowy surfaces, riders have the opportunity to descend a wide variety of tracks from groomed ski trails to single-track and Nordic trails. By adapting existing skill sets, guests have the unique opportunity to experience the winter resort in a new way while maintaining the familiarity and comfortability of their existing skills.

While this activity is new to most resorts, it is quickly gaining popularity in mountain resort communities and as a resort activity. Resorts across North America are beginning to understand the minimal operational requirements of Fat-Tire Biking and how seamless the addition of this activity is within the existing characteristics and operations of a ski area.

Sleigh Rides

A winter sleigh ride at a mountain resort can make for a memorable experience for the whole family. Being pulled by beautiful horses offers a unique way to enjoy the scenery and wildlife in a pristine winter habitat. Hot drinks, thick wool blankets and the warm welcome of knowledgeable wranglers ensure guests enjoy themselves while in the outdoors.

Many resorts offer the sleigh ride as part of their guests dining experience. The dinner experiences often highlight cultural or historical themes and offer rustic meals prepared by a cast of themed characters. Some the resorts offer a range of options, from scenic rides with light refreshment to full five course dinner rides, and many segment prices based on children and adults, holiday periods and group rates.

Snowshoeing

Enticing for guests of all ages and ability levels, winter snowshoeing is the epitome of casual family fun. Guests have the ability to explore their winter environment, moving at their own pace as they utilize existing trail networks and open space. Resorts require minimal investment to support this activity, such as maintaining trails for novice snowshoers, providing directions to and through trail networks and offering rental equipment. Guided tours and night adventures are also possible with themes around native flora and fauna as well as highlighting Squamish Nation culture and heritage.

Snowshoeing is proposed for all multi-use trails, as displayed on the Recreational Activities Plan figure. These multi-use trails are prevalent throughout the resort and base area with ample connections to the proximal residential neighborhoods. Connection to the adjacent residential areas will increase the utilization from patrons as well as enhance the connectivity to local amenities within and adjacent to the resort property.

MULTI-SEASON ACTIVITIES, PROGRAMMING AND EVENTS

There have been many discussions among winter resort operators and developers about the need for creating a vibrant four-season business at mountain resorts. It is increasingly difficult to maintain a sustainable business operation with just a winter product. In addition, changing climatic conditions demand flexibility in the resort business model to create demand for year-round activities.

There are a number of different drivers for summer business, including:

- Attract day visitors;
- Increase the off-winter appeal as a destination;
- Fill beds in the summer/shoulder seasons;
- Increase short term visits (part of a day/whole day);
- Encourage multi-day stays; and
- Encourage repetitive visitation

In addition, many of the activities that make up the summer business may be offered on a year-round basis, driving additional shoulder season visits and rounding out low points in winter visitation.

As a destination resort located within a marketplace that has strong potential for both day and overnight visitation, all the above drivers are important for Garibaldi. As such, there will need to be a broad array of activities, programs and events offered at the resort.

It is important to note the evolving nature of the summer marketplace. Staying competitive will require the same diligence and adaptability we have seen with winter operations, in order to continually respond to changing habits of the consumer trends and leisure time preferences.

The following summarizes the potential complexion of multi-season activities, programs and events offered at Garibaldi. In many cases the “season” is predominantly summer (the typical summer operating season extends from May through October), though there are several multi-season activities, such as mountain biking and hiking, that may be enjoyed year-round. Many of these activities already take place in the adjacent District of Squamish year-round, particularly closer to sea level.

Activities

Aerial Adventure Course (a.k.a. Challenge Course)

An aerial adventure course is defined as a series of activities, sometimes on or close to the ground (usually referred to as a low course) and sometimes built on utility poles or trees, or in the rafters of a building (a high course). A course is comprised of many different elements, including ladders, nets, swings, bridges and zip lines. The number and sequencing of elements will vary according to specific site conditions and the desired degree of difficulty. It is typical to combine a number of courses of varying length and difficulty to appeal to a broad audience and provide something for everyone.

Aerial adventure course participants wear harnesses during their time on the course and are always secured via safety lines. Groups may be accompanied through the course by a trained guide or may be self-guided. In either case, the challenge course experience is always initiated with some level of training to ensure that participants are familiar with their safety equipment and are able to navigate the various elements of the course.

Aerial adventure courses are very complementary to both the naturally wooded environments of mountain resorts, as well as the “adventurous” nature of many mountain-oriented recreational pursuits.

Alpine Coaster

The alpine coaster is an evolution of the alpine slide. Riding an alpine coaster involves traveling in a self-braking, two-person sled that travels on two tubular rails. This allows for a closed loop system, so that participants begin and end their ride in the same location. The ride is exciting and varied, and may include curves, corkscrews and downhill stretches, yet it is appropriate for all ages. Centrifugal brakes control maximum speeds and riders may control their speed at all times allowing for a unique, hands-on experience.

Alpine coasters may operate year-round. The track’s supporting structure sits directly on the ground (from 3 to 20 feet off the ground) without foundations and is held in place with steel pegs. Track placement is uncomplicated, allowing a high degree of flexibility of installation especially in wooded areas. Streams, ravines, uneven/steep sections, even ski trails may be easily crossed as needed.

ATV/UTV/Snowmobile Tours

All-Terrain Vehicle (ATV)/Utility Task Vehicles (UTV) Tours at ski resorts allow guests to experience the rugged terrain and spectacular views of the mountain from the comfort of a guided vehicle tour.

Some resorts also rent vehicles for self-guided trips, but mountain driving experience is highly recommended for all guests venturing out on their own. Existing mountain access and maintenance roads are generally utilized in the tours to feature mountain vistas, alpine lakes, waterfalls, wildflowers and historic resources in the area. Operationally, programs often include using resort hiking trails to provide interpretation for guests. Although there is an advantage to separate trails ATV/UTV tours can be an efficient way to increase a resort's summer activity offerings by leveraging resort roads, trails and facilities for multiple uses.

Snowmobile tours could be offered on the mountain for evening views and food experiences in the Alpine, as well as more extensive tours off the mountain to some of the established world renowned snowmobiling areas in the Sea to Sky Region.

Canopy Tour

With an environmentally conscious design, a Canopy Tour course combines the adventure of zip lines and the quiet splendor of sky bridges to give participants a unique experience with views of the forest from the tree tops. On guided tours small groups can gain a new perspective on nature and life from high above the ground. Tour guides will not only provide supervision of safe operations, but will also provide interpretation of the history of the nearby landscape, information about forest management and details about the wildlife and vegetation that inhabit the region.

Canopy tours provide a unique experience of the mountain resort environment, as well as showcase long-distance views as the tour works its way down the mountain.

Climbing Walls

A climbing wall is an artificially constructed wall with interchangeable/repositionable holds for hands and feet. In addition to the textured surface and holds, the wall may contain surface structures such as indentions (incuts) and protrusions (bulges), or take the form of an overhang or crack. The wall typically has places to attach belay ropes or auto-belay devices at the top. Climbing walls may be located inside or outdoors.

Climbing walls have become popular over recent years and, like the challenge course, may be used for both recreational purposes and as educational/training tools. Climbing walls are often used in conjunction with a challenge course and can be indoor or outdoor.

Disc Golf

Disc Golf is a Frisbee based game where players throw specialized flying discs at a target and the goal being that the fewer number of throws needed to reach the target the better. Disc Golf courses generally feature a series of 'holes' or targets, in a format similar to golf courses. Disc golf participation is increasing worldwide. The increasing popularity of Disc Golf provides a nice complement to the

summer recreation opportunities at many ski areas, although is often done in winter as well, and can also provide opportunities to host tournament events and competitions.

Horseback Riding

Guided horseback tours at ski areas allow guests to explore the mountain environment through a natural and engaging experience. Horses can take guests to remote locations that cars cannot and they travel at a speed that lets the participants soak in the spectacular Garibaldi scenery. Both group and private rides are typically offered and guests are matched with a horse appropriate to their riding experience. Charismatic wranglers generally lead guests on the tours and share riding tips and the history of the area. Tours can vary in length and often include a meal and other interpretive opportunities. Shorter, corral-based pony rides are often offered for younger children, and other programming or activities, such as wagon rides, may also be offered.

Mini Golf

Mini golf is a subset of traditional golf, focusing on the putting aspect of the game. Mini golf courses are generally defined by their short length (about 10 yards per hole), unique surfaces, and layouts that often require putts that maneuver around obstacles. At mountain resorts the natural geography, local culture, and mountain landscape often inspire the design of the courses and set them apart from traditional mini-golf courses found elsewhere. Mini golf obstacles at mountain resorts often take the form of natural features, such as waterfalls or downed trees, rather than more amusement type obstacles found in other locations (windmills, etc.). Some courses wind through the forest environment, taking on the feel of a forested hiking trail, rather than an artificially designed course.

Mountain Biking

The Squamish region is world renowned for mountain biking and lift serviced mountain biking will be a key component of the recreational mix for Garibaldi. Lift served mountain biking allows mountain bikers of all abilities to descend the mountain resort's trails which can be graded in a similar manner as ski runs for novice, intermediate and expert riders; and may include both traditional downhill trails and the more moderate "flow" trails. Lift-served mountain biking attracts a wide range of abilities and ages that enjoy the thrill of riding downhill, the beauty of an alpine resort in the summer and the exercise associated with mountain biking. In this way, lift-served flow trails can serve as a "gateway experience" for many riders, stimulating further interest in mountain biking.

Many resorts offer Mountain Bike Parks, a combination of trail networks and bike skill development areas such as Pump Tracks and Jump Parks. Development of these parks has allowed bike operations at ski areas and mountain resorts to evolve beyond lift-accessed technical single-track trail systems into areas that bring people of different skills and fitness into the sport, expanding the market

appeal and financial viability of the operation.

As part of mountain biking operations, ski areas typically rent activity-appropriate bikes and associated gear, as well as offer lessons and group tours. Mountain biking as a distinct recreational product is rapidly evolving and has the potential to be a key part of the summer experience at Garibaldi, although in the Squamish area it has become a year round activity.

One aspect in the evolution of mountain biking in recent years has been its shift from a localized recreational activity to a tourism product. Recognizing this evolution, the Ministry of Tourism, Culture and the Arts and Tourism British Columbia created the 2010 Mountain Bike Tourism Plan to transition the current world-class mountain bike offerings in BC into a globally recognizable and desirable entity in the world-wide mountain biking tourism industry. Given the overwhelming success of lift-served mountain biking at BC mountain resorts, the 2010 Mountain Bike Tourism Plan identified the development of additional lift-served mountain bike products as a key strategy for achieving this goal—which is exactly what is being proposed at Garibaldi.

Mountain Bike Trail Networks

A mountain bike facility must serve a broad range of ability and fitness levels. A mountain bike trail network can be developed in phases, while maintaining the balance of offerings for riders of different abilities. The network should include both downhill and cross-country trails of varying widths to provide a range of experiences for different ability levels.

Trails on the mountain that require lift access will require buying a lift ticket or pass, those on the lower slopes will be available to all.

Bike Skills Park

A bike skills area usually includes a variety of natural obstacles such as rocks and logs, imaginatively constructed features like teeters and ladder bridges, and dirt jumps. These areas provide a place for riders of all abilities to hone their skills, making the technically challenging sport more available to the general public. Riders return to these areas repeatedly to improve their riding. Bike skills areas serve as an additional outlet for riders who are technically oriented and are convenient as well as controlled.

Bike Pump Track

A Pump Track is a continuous bicycle trail loop with dirt berms and rollers. The goal is to ride around the track without pedaling by gaining momentum from a pumping motion as you ride up and down. This facility provides a fun ride for riders of any skill level. Pump Tracks are ideal exercise grounds for mountain biking, but the workout is also effective for training for other sports like skiing, snowboarding and track sports. Mountain bikes, BMX bikes, other types of bicycles can be used on a Pump Track for training at any skill level, especially to increase bike handling skills for younger and beginner riders.

Road Riding

Similar to the roads up to Seymour and Cypress the Garibaldi access road will allow an off highway climbing experience for those up for the challenge

Mountain Boarding

A mountainboard is part snowboard and part skateboard. Mountainboards include a snowboard-like deck, adjustable turning system, air-filled knobby tires and an open-heel binding system. Mountainboards can be outfitted with a hand-held V brake.

Mountainboarding is essentially snowboarding but done on grass, dirt or pavement, on gently sloping gradients that are similar to beginner ski terrain. Although it draws a lot of similarity from snowboarding, surfing and skateboarding, mountainboarding has developed into a sport in its own right with its own culture and history and includes racing, freestyle, free-ride and kiting disciplines.

Multi-Use Trails

Multi-use trails accommodate a variety of activities throughout the year, such as hiking, biking and equestrian in the summer, and Nordic (cross-country skiing and snowshoeing) in the winter. To meet the needs of different users, multi-use trails may be as narrow as a single-track trail or up to 2 to 3 metres wide along busy sections, and either gravel or paved. Trails may be formal, with hardened surfaces and boardwalks. They may also be informal "social" trails, or worn paths in the terrain caused by repetitive access to a popular destination such as a lake or scenic view.

Many of the trails that can be utilized without the benefit of lift access will be free and available to anyone.

Some of these trails will be wheelchair and baby stroller rideable in order to allow the greatest number of people to experience the mountain environment; and some main commuter trails would be plowed of snow to encourage wheeled use.

The ability to be "car-free" is an integral part of the resort experience. As such, multi-use trails are an important function of any resort community, as they provide connectivity between all aspects of the resort. Such trail networks are utilized by virtually all resort visitors and provide the ability for less active guests to simply go for a walk and enjoy the mountain environment.

Segway Tours

Segway tours provide a unique recreation activity for people of all ages and abilities. A "Segway" is a two-wheeled, personal electric vehicle that allows riders to maneuver and balance the machine while standing up. Typically used in urban environments, the development of Segway's X2 machine opened up new opportunities to ride on a variety of natural terrain. People now enjoy Segways on beaches, bike trails and paths. The maximum speed of the Segway X2 is 20 kmh and can travel up to 20 km before re-charging is required.

Segway tours especially appeal to the tourism market because they allow people to interact with the environment with very little risk or exertion, and are fun, fast-paced and group-oriented. Similar to zip lines and alpine coasters, it is not everywhere that people have the chance to glide through nature, in a gorgeous alpine setting.

Tours can include some stopping, sight-seeing and photo-opportunities. They usually cover 2 to 4 kilometres, which is usually enough to delight people, offer a variety of scenery, and balance their wishes for plenty of riding versus becoming tired of standing. Tours usually stick to gentle and moderate slopes.

Summer Skiing and Snowboarding

In the past, the summer skiing experience has been offered at a handful of ski areas that have high altitude glaciers or snowfields. In the Northwest, both Timberline, Oregon, and Whistler have developed successful summer ski programs through hosting ski camps and catering to daily visitors. These venues have a limited season due to snow quality and duration of snowpack.

Garibaldi may be able to extend the snow season with the north facing gentle slopes in the alpine area that receive the wind drifted snow from the south side of the ridge. With some extra snow management it will be possible to utilize this well into summer.

More recently, artificial surfaces such as SnowFlex® have been installed at a number of sites near metropolitan areas throughout Europe and have become important recreational outlets. SnowFlex® is a high performance synthetic snow surface system which enables year-round skiing and riding. It is low maintenance, requires no grooming and is softer to fall on than hard packed snow. SnowFlex® is attractive to a wide range of users—from beginners who will appreciate the fully engineered slope gradients and softer surface to truly addicted skiers and riders who will search out the year-round opportunity to hone their skills.

SnowFlex® terrain can vary greatly, responding to the skill set and preferences of the target market, and may include beginner slopes as well as more advanced terrain features. In the case of Garibaldi, due to the large metropolitan market, coupled with the tourism activity during the summer months and shoulder seasons, there is a tremendous opportunity to develop a SnowFlex® Centre as another recreational venue that would attract many users and sightseers due to its uniqueness.

Summer Tubing

Winter tubing is a very successful “complement” to ski area operations. Tubing appeals to a much broader market than skiing and riding as it requires little skill, can be enjoyed in a short time frame and is less expensive. In the past five years a number of synthetic materials have appeared in the marketplace, as an alternative “summer” surface for this popular activity.

Summer tubing utilizes the same tubes as the winter counterpart, with the addition of a hard surface bottom that allows better movement on the synthetic surface and an inner foam seat to protect the rider from the heat generated by the tube. Tubing lanes are defined by low “walls” to keep tubes on track. Surface lifts used for winter tubing may also be utilized in the summer. The summer tubing surface is typically installed for summer use only.

Water Activities

Water is a big part of the summer experience. Water activities at resorts can function as signature attractions that can draw a lot of customers in to the greater resort and generate substantial income.

Water features can include water play areas, such as water slides, splash pads, spray-grounds (water playgrounds), or other recreational bathing, swimming and barefooting environments.

Water activities at resort areas can also include a wide range of boating and watersport activities, taking advantage of the many local lakes. Garibaldi has committed to working with the Forest Recreation department and the Squamish Nation on plans to improve facilities at nearby lakes as needed.

Proximity to ocean based activities is a feature of Garibaldi that is not found at other major mountain resorts. Sea Kayaking, Standup Paddleboard, Kite and Windsurfing are all adventure sports currently available out of Squamish. Ocean and river salmon fishing, motor and sailboating, as well as walks along the ocean in the estuary are also popular and will be utilized by Garibaldi resort guests.

Water activity offerings at mountain resorts can also take advantage of other regional opportunities, such white water rafting and other guided experiences, that are often operated by independent operators outside of the resort. The ability to plan and book such out-of-resort outings through the resort website or adventure centre can provide additional value to guests and help create a seamless destination experience.

Variations of hot tubs and swimming pools, such as the natural hot and cold pools, may provide an alternative water experience that is more consistent with the mountain atmosphere. An example of this are the Scandinav facilities found at a number of resorts (Whistler, Tremblant, Blue Mountain). The Scandinavian/Nordic bath and hydrotherapy concept includes hot and cold pools, steam, sauna and relaxations rooms, which provides guests a unique spa experience perfectly suited for mountain resorts.

Garibaldi has numerous opportunities to provide water activities throughout the summer. An integral part of the resort experience, virtually every guest will participate in some type of water activity during their summer visit. In addition, many of the hot tub/ swimming pool alternatives are operated all year, and provide additional activities for both skiing and non-skiing guests.

Zip Lines

A zip line is a popular thrill ride found at ski areas and mountain resorts. Participants wear a harness which is suspended from an overhead cable, and are propelled by gravity down an incline to a controlled finish area. As an element that is part of a larger activity, such as a challenge course or canopy tour, zip lines typically begin and end on small platforms and are designed with minimal inclines to self-moderate speed. Larger zip lines, designed as stand-alone attractions, vary greatly in length and incline, and begin and end on larger platform areas that are designed to accommodate a greater volume of participants and have the ability to “break” steeper lines.

Base Area “Fun Zone” and Adventure Centres

Many mountain resorts include a “Fun Zone” in the base area to serve as the “staging area” for summer activities and to provide additional activities for guests who are looking for something else to do once finished participating in one or more of the main activities.

Fun Zones include a variety of activities such as inflatables, Euro-Bungy, Space Bike, Gyro Xtreme, and Trapeze. The Fun Zone activities typically have

a diverse appeal: some of the activities appeal to families (i.e., inflatables) while others attract youth (Gyro Extreme, Trapeze) and can be used as a training tool for sports teams. They may be located outside taking advantage of the base area "flats," as well as inside base area facilities that are underutilized during the summer months.

In a continued effort to provide more family-friendly activities, many destination resorts are creating one-stop-shop amenity or "Adventure" centres. Adventure Centres are flexible by design, with spaces that morph between functions depending on the time of day, time of year or type of user. Typically serving the traditional Snowsports School needs during the winter days, at other times these facilities become the venue for family-oriented activities, programs and events. There are a number of variations on this theme: kids clubs, kids shacks, family barns, game rooms.

Adventure Centres may also include a "Toy Box" or "Toy Barn" component. Adjacent to a basic outdoor playing field, the Toy Box is full of sporting goods that may be used by resort guests for spontaneous family fun.

Scenic Lift Rides

Utilizing existing infrastructure, ski resorts have the opportunity to operate chairlifts or gondolas in the summer season to support on-mountain facilities and provide access to on-mountain recreation amenities. One bi-product of this operation is the guest's enjoyment of comfortably travelling up the mountain and through the forest canopy. Commonly taken for granted by the skiing community, this experience may be a unique "once in a lift time" opportunity to non-skiers. Guests of all ages and fitness levels have the unique opportunity to access areas of the mountain that would be otherwise unattainable while experiencing a wide variety of alpine vegetation and scenic vistas.

Hiking and Walking

Garibladi places a high value on the recreational use of public lands throughout the year. The unique history and heritage of the Squamish Nation will be a focal point of the trails. The resort will create a convenient and comfortable gateway into the natural environment. Many guests and community members will utilize the existing infrastructure of a resort's base area as a meeting point prior to enjoying the surrounding natural landscape. Hiking from a built environment into a natural setting is a fun and free activity for guests of all ages and ability levels. By using existing trail networks and service roads, Garibaldi will leverage the local expertise of hiking groups to design advanced trails. The trails can include maps, on-mountain signage, rest areas, mini-playgrounds, picnic areas, fitness stations, and informative placards to enrich the walking and hiking experience. The trail system will also be intergrated where allowed to encourage broader exploration into the natural environment.

The unique nature of the open alpine meadows at Garibaldi combined with the tremendous 360 degree views will attract many visitors, from those desiring a short walk close to the top of the lift to those seeking a much more challenging adventure.

Camping

With a wide array of camping styles, from traditional minimally disturbed camp sites to developed sites consisting of platforms, lavatories, water pipelines, barbeque and fire pits, and more, camping is viewed as the corner stone to experiencing the natural environment. Camp sites attract recreationalists of all ability and skill levels and is regarded by many as a nostalgic escape into the natural environment. Camp sites may be reservation based or simply used on a first-come-first-serve basis pending the location and the associated developments.

Fishing

Garibaldi will utilize the nearby water resources, lakes, creeks, oceans and ponds, to increase the recreation opportunities for guests. Whether visiting existing notable fishing areas within the region which, in the Squamish area is carried out year-round, or stocking a pond in the base lands, many recreationalists inclined to visit a mountain resort are interested in fishing experiences. The offering may be as minimal as sharing information of recommended areas and providing rental equipment to booking guided tours with experienced anglers.

Playing Fields

From organized sporting events to relaxing open space for a family picnic, playing fields have the ability to host a wide variety of events and activities in the summer months. Although these fields do require various levels of investment, many resort communities have adopted artificial turf fields to reduce the on-going maintenance and investment of resources while extending the fields usefulness into the shoulder seasons. Playing fields are excellent venues for events, such as music performances, festivals, and sporting tournaments, which results in strong economic stimulators for resort base area amenities and the surrounding communities.

Paintball/Adventure Games

Paintball and other outdoor adventure games are exciting alternative uses of a natural setting which can attract individuals of all ages. These activities typically require investment of resources such as minimal natural environment alterations (vegetation thinning, fencing, etc.), purchasing and maintenance of equipment, and training staff appropriately to facilitate the activities.

PROGRAMMING

A series of programmed activities is often a successful driver for resort visitation and adds depth to the resort experience. They may also be scheduled to drive visitation during typically low tourism periods (i.e., the spring and fall). Today's resort consumers are demanding unique, authentic and extraordinary experiences—and lots of them. Shorter attention spans and a broader audience mean heightened requirements for an extensive menu of programs: programs to keep the kids happy when apart from their parents, the parents happy when away from their kids and the family happy when they are together. The diversity of options for programming topics and timing is almost endless. Depending on the target marketplace, topics may be oriented toward recreation, education or creativity: and programs may be multi-day or one-time "drop-in" to appeal to the destination guest, or a repetitive series to foster local participation.

As a destination resort, programs will be a critical component of the multi-season recreational offering at Garibaldi. There are many possibilities for the focus of programming, including mountain recreation, the natural surroundings of the resort environs, and the history and culture of the region.

Educational Classes

Mountain resorts are perfectly suited to be outdoor classrooms throughout the year for many different subjects. The most apparent opportunity is environmental education, utilizing trail networks to experience the unique alpine ecosystems and

Squamish Nation heritage. Students of all ages can have an up-close, hands-on experience with unique plant and wildlife species, and ecosystem processes. Indoor guest services spaces may be used as "classrooms" or meeting areas for classes and groups. Partnering with area schools and universities such as Quest University, will provide recreational and educational opportunities throughout the year.

Environmental research can also occur in very select, isolated areas of a ski area. These could range anywhere from basic science projects for an elementary school, to more advanced, multi-year research studies on weather and snow conditions carried out as part of University level research projects.

In addition to environmental education, educational classes can have a broader appeal and include courses in arts and crafts, cooking/food, cultural, life-long learning and wellbeing (i.e., yoga, fitness, nutrition).

Garibaldi could offer a broad array of educational classes as part of the resort programming on a year round basis. It would be advantageous to work with the local university, Quest, to facilitate programs that would provide a unique learning experience for students and offer some level of participation to guests.

Kids Camps

With the growth of on-mountain activities, particularly those focused towards kids and families, many resorts host summer camps (full-day or half-day), either as independent day camps or as a partner with other camps. On-mountain activities will provide attractive options for local youth and nearby summer camps. Hiking and mountain biking trails, and nature-focused venues can/will provide outdoor education opportunities and a balanced range of summer camp activities. Base area attractions often complement the gravity and nature inspired attractions at other ski areas with more sport oriented activities.

Kids Camps at Garibaldi could/will serve both the day and destination guest, as well as the local Squamish community. Additional kids camps may be offered during the winter months to complement the snowsports school offerings. In fact at many areas the kids camps provide licensed daycare facilities with a focus on outdoor mountain activities.

Skills Camps

Many resorts offer drop-in activities, lessons and multi-day workshops on various skills to supplement their activities and facilities and further attract loyal guests. These may include off-season training and other fitness oriented programs. Guided nature walks, photography, orienteering courses, mountain biking lessons and other activities can further complement the range of attractions offered at the resort and especially engage an active, local demographic.

Garibaldi will provide a perfect venue for a wide array of skills camps. Winter-oriented skills may be the focus for additional camp programming during the winter months, such as avalanche awareness and winter camping.

Group/Team Building Activities

Mountain resorts often host group events, such as corporate retreats, team-building exercises, school field trips, family reunions, weddings and other group events. As well, local youth groups such as Boy Scouts, Boys and Girls Clubs, church groups and others could be targets for summer group activities. Resorts have the base infrastructure to host such groups and, depending on the specific types of activities offered at the resort, it will be an attractive place to have such group events.

The broad range of summer activities at Garibaldi will make the resort an attractive destination for groups. For example, aerial adventure courses are known to be great for corporate team building exercises and mountain resorts are desired venues for weddings. Additional group visitation may be achieved during the shoulder seasons and winter months.

Nature-Based Tours

Mountain resorts often provide nature tours that allow guests to learn about the forest, wildlife ecology, and the geology of the surrounding ecosystem from a trained naturalist. In addition to wildflowers, wildlife and geology, the spectacular mountain views of Garibaldi will get top billing. Some resorts offer such tours as a free value-added service to guests while others package in meals, lift service, equipment, and basic instruction for a ticketed experience. Some resorts rely on in-house staff, while others partner with environmental education organizations or even governmental agencies (e.g., Ministry of Forests , BC Parks) to provide the activity.

Garibaldi anticipates working with the Squamish Nation on tours that would highlight their traditional use of this area and well as recognize a significant cultural and archeological component. There are also opportunities to showcase the sustainable harvesting of trees, which continues as an ongoing part of the region's economy for generations past and future.

Many of these tours generally utilize the lift service and involve easy to moderate terrain suitable for all ages and abilities.

The unique geology, flora and fauna of Garibaldi's volcanic mountain environment provides an ideal backdrop for nature-based tours. Squamish has some other significant and unique possibilities including the annual fall and early winter salmon spawning that attracts thousands of bald eagles to the local rivers.

EVENTS

Mountain resorts have always hosted special events. The facilities are well suited as event venues, as the winter operations demand much of the necessary infrastructure: indoor seating for several hundred guests, large expanses of outdoor space, significant capacity for parking and, in many cases, adjacent lodging. Like programs, events can also attract visitation to the resort during the off-season.

Nature-themed and gravity-fueled activities are a perfect complement to the sloping terrain and natural woodland features of mountain resorts. Likewise, "off-road" races, such as trail running, mountain biking or adventure-themed races, are at home in the mountain environment. In addition to providing the perfect terrain for the race, resorts have the necessary support infrastructure—parking, food and beverage, lodging and a volunteer base.

While special events may not realize significant direct profits, the secondary revenue (i.e., lodging and F&B) gained from drawing large numbers of participants to the resort can be substantial. Given the proximity to Vancouver and the robust tourism visitation of the Seas to Sky, hosting events at Garibaldi could greatly contribute to the annual visitation of the resort and the region.

Banquets and Weddings

Many resorts take advantage of their unique alpine surroundings, supply of lodging and meeting spaces, and food and beverage services to host banquets and weddings. Resorts often orient the wedding and banquet experiences toward the uniqueness of the venue: the beautiful and scenic mountain environment.

Festivals

Like the other gatherings, festivals at resorts can also benefit from the unique activities, opportunities, and infrastructure available on the mountain. Festivals often include arts/cultural/music, food and drink, recreation, and wellbeing (i.e., Wanderlust).

The weekly scheduling of festivals throughout the summer season will be an attractive addition to Garibaldi. Additional festivals could be offered throughout the winter and shoulder seasons.

Races

Resorts also provide the perfect venue for many types of races throughout the summer. Trail infrastructure and the mountain environment can be utilized for increasingly popular adventure races, marathons, triathlons, mountain biking and trail running. Many ski areas host both larger, annual events and smaller-scale weekly race series.

Garibaldi may offer both destination races and weekly race series.

II.4.11 CAPACITY OF OTHER FACILITIES AND ATTRACTIONS

The following table summarizes the total number of visitors over the course of a day that will participate in the additional winter and multi-season or “summer” activities, programs and events proposed for Garibaldi.

It is important to note that, unlike winter capacity, which is largely derived from the participation in one activity (predominantly alpine skiing), the daily “summer” capacity at Garibaldi is not determined by simply adding together the potential capacity for each activity, program and event. Overall summer capacity reflects the number of “unique visits” over the course of a day and factors in the assumption that guests will do more than one thing while at the resort. As such, the multi-season capacities shown in the table below consider that guests may participate in more than one activity over the course of the day and thus, represent the general contribution to overall daily capacity provided by each group of activities.

TABLE II.4-13. SUMMER ACTIVITIES CAPACITY

SUMMER USE	Capacity	SUMMER USE	Capacity
BASE AREA ACTIVITIES Adventure Centre (indoor activity centre) Climbing Walls Mini Golf Base Area "Fun Zone" Mountain Coaster/Alpine Slide Water slides/recreation water environments Summer Tubing	1,000	**MOUNTAIN ACTIVITIES** Scenic Lift Rides Hiking Mountain Boarding Summer Skiing and Snowboarding Zip Lines	2,000
MOUNTAIN BIKING Bike Skills Park Bike Pump Track Downhill Mountain Bike Trail Networks Cross Country Mountain Biking	1,000	**MULTI-USE TRAIL NETWORK** Walking/jogging In-line skating Neighbourhood playgrounds/parks Wild play areas Fitness/activity stations	2,000
RESORT TOURS Horseback Riding Segway Tours Canopy Tour Via Ferrata ATV/UTV Tours Helicopter/Airplane tours	500	**RESORT ACTIVITIES** Camping Disc Golf Aerial Adventure Course Fishing Playing fields Water Activities – non-mechanized water sports (paddle boarding, paddle boats) Paintball	2,000
PASSIVE RECREATION Shopping/Retail Restaurants/Bars Cultural Centres (gallery/museum/interpretive exhibits) Spa/Nordic Baths	3,000	**PROGRAMMING** Education Classes Kids Camps Skills Camps Group/Team Building Activities Nature-Based Tours	500
EVENTS Banquets and Weddings Festivals Races Conventions Performing Arts	2,000		
TOTAL MULTI-SEASON (Summer) ACTIVITIES	14,000		

TABLE II.4-14. NON-ALPINE SKIING WINTER RECREATION CAPACITY

Non-Alpine Skiing Winter Recreation Use	Capacity
Ice Skating (indoor/outdoor)	100
Sleigh Rides	50
Fat-Tire Biking	80
Snowshoeing	50
Nordic Skiing	200
Spa/Nordic Baths	100
Snow Tubing/snow play	100
TOTAL NON-SKIING WINTER ACTIVITIES	**680**

II.4.12 BALANCED RESORT CAPACITY

The Balanced Resort Capacity (BRC) is defined as the optimum number of visitors 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.

The winter use capacity includes the alpine skiing CCC (15,250) plus an additional 15% of non-alpine skiing guests. This additional 15% includes the participants of non-alpine skiing winter recreation activities (Table II.4.14) as well as non-participants who are accompanying those participating in winter activities both on and off the mountain.

The complexion of summer/multi-season activities proposed for Garibaldi has been compiled to both round out the winter experience as well as create an attraction that will drive summer visitation to the same degree that the alpine skiing facility drives winter visits. In addition, a robust schedule of programs and events will create additional reasons to visit the resort during the non-skiing months. While the winter capacity remains higher than the summer capacity, it is envisioned that, over time, the visitation throughout the non-skiing months will achieve, or even surpass the same levels as winter visitation.

As summarized in the table above, a BRC of 17,538 is based on the higher winter use capacity. This BRC was initially calculated in the 2008 MTCA letter and provides the basis for the Bed Unit (BU) number accepted as part of the 2016 EA Certificate (Schedule A).

TABLE II.4-15. BALANCED RESORT CAPACITY

Summer Use	Capacity	Winter Use	Capacity
Base Area Activities	1,000	Alpine Skiing (Lift-served)	15,250
Mountain Activities	2,000	Additional Non-Alpine Skiing Guests (15% of CCC)	2,288
Mountain Biking	1,000		
Resort Activities	2,000		
Resort Tours	500		
Multi-Use Trail Network	2,000		
Passive Recreation	3,000		
Programming	500		
Events	2,000		
TOTAL	**14,000**	**TOTAL**	**17,538**
BRC = 17,538			

Rendering of the proposed village

II.5 THE BASE/VILLAGE DEVELOPMENT CONCEPT

Rendering of resort viewed from Southwest

II.5.1 INTRODUCTION

The Garibaldi base area/village development concept is guided by ASRG and the strategic direction set out in the SLRD's Regional Growth Strategy (RGS), as well as the DOS OCP, which set forth principles for Destination Resort and Smart Growth development.

In addition, the National Ski Areas Association and the Canada West Ski Areas Association have developed Sustainable Growth Principles that are part of the design strategy of the resort.

II.5.1.1 CONFORMANCE WITH REGIONAL GROWTH STRATEGY

At a regional scale, the proposed development aligns with the Regional Growth Strategy (RGS) goals to support a sustainable and diverse economy, encourage the sustainable use of natural areas, and accommodate growth in compact, complete, sustainable communities.

Garibaldi is located adjacent to the District of Squamish, an ideal proximate relationship compared to many other BC mountain destination resorts, which tend to be isolated in remote areas. The resort is located in the Sea to Sky corridor only minutes from the Sea to Sky highway, thereby augmenting and reinforcing this important tourism zone.

Yet, other than the infrastructure associated with the resort's entrance there is no development adjacent the Sea to Sky highway.

Garibaldi is a self-contained, master planned tourism development, as defined by the RGS. The arrangement of development at the resort is concentrated in clusters adjacent the main access road. A full range of services is located in three main portals, each centrally located relative to neighbouring development. This compact, mixed-use arrangement results in all public beds and over three-quarters of the private beds being located within walking distance of services and recreational amenities.

The RGS identifies tourism and resort development as a vital component of the regional economy. The range of economic opportunities to be created at Garibaldi reflect the Region's commitment to diversify the economy and support a transition away from traditional resource industries.

Developed in accordance with Provincial environmental regulations and best management practices, the resort will enhance multi-season access to active and passive alpine recreational activities; promoting the sustainable use of natural areas and contributing to building the reputation of the region as a world-class outdoor recreation and all-season tourism destination.

Garibaldi's close proximity to the Sea to Sky corridor, Squamish and Howe Sound

II.5.1.2 CONFORMANCE WITH DESTINATION RESORT PRINCIPLES

The SLRD's RGS states that there is significant potential for mountain destination resorts in the region and sets forth principles by which these should be developed. Garibaldi's development applies these principles.

The resort makes available to visitors the considerable recreation opportunities afforded by its spectacular mountain location supporting a tourist-based economy. Alpine skiing terrain and other related mountain recreation such as mountain biking, hiking and sightseeing are the primary activities, attractive to both destination and day-use visitors. Its proximity to Squamish and Howe Sound adds to the available recreation opportunities. These include kite-boarding and board sailing at Squamish's waterfront, sightseeing, mountain biking and hiking along the many trails, rock climbing on the Stawamus Chief and the Smoke Bluffs and cycling in the Squamish River valley.

Smart growth principles have been employed throughout the design of Garibaldi so that the resort has a compact footprint that is mostly mixed-use and walkable, minimizing transportation needs and impact to the environment. The three main portals have a high proportion of public beds in multi-family, often mixed use, buildings that are arranged in compact configurations beside mountain recreation and services. These high use areas consolidate much of the resort activity within a very small footprint. Transportation between the portals and other clusters of development is efficient since the developments mostly lie along the main access road where a transit service will operate.

Garibaldi is committed to working with other regional partners in the development of a regional transit system that will enable resort access that does not depend on cars, and may supplement that system with private shuttle busses.

Environmental best management planning practices will be employed in the planning and operation of Garibaldi, including those of the Canada West Ski Areas Association and National Ski Areas Association. These include generous stream setbacks, large and contiguous forest corridors for wildlife movement, siting of most accommodations on west and south facing slopes for solar gain. Additionally, since much of the development in the base area will be located on lands that have been recently logged, this minimizes the impact to pristine forests and creates the opportunity to repair these areas with planned landscaping to regenerate the forest areas.

South Portion of base area looking from south west

II.5.2 BASE AREA DEVELOPMENT BY TYPE OF MOUNTAIN RESORT

Garibaldi is envisioned as a resort with a wide range of services that will appeal to both destination and day-use markets. This diversity of markets leads to a more resilient operation as has been demonstrated in many resorts including Whistler which serves destination guests as well as the Vancouver area day-use market; Copper Mountain in Colorado which serves destination guests along with the Denver/Front Range day-use market; Park City in Utah serving destination guests along with Salt Lake City day-users; and Squaw Valley in California which serves destination guests in addition to the San Francisco Bay area day-use market.

Within this destination/day-use typology, Garibaldi is unique. Its location, size and character set it apart from other resorts in the North American market including nearby Whistler and Vancouver's North Shore mountains. This unique character adds choice within the current cluster of mountain resorts in southwestern BC.

Garibaldi's location, only a few kilometres north of the District and community of Squamish, makes it very convenient to the gateway city of Vancouver and its international airport. Its range of highly accessible mountain experiences add an extra dimension to the existing tourism opportunities in Squamish and Howe Sound, reinforcing the area's year-round tourism viability. Garibaldi is close to Whistler so that destination guests may stay at either resort while conveniently accessing the other as a day trip, a mutually beneficial relationship that other resort clusters worldwide employ as a business strategy.

The size of Garibaldi's mountain and base lands is generally comparable to BC interior resorts like Sun Peaks, Big White and Silver Star. It has much more mountain capacity than Vancouver's North Shore ski hills and unlike those hills has on-mountain services and accommodations. On the other hand, being one mountain, not two, it understandably is more

North Portion of base area looking from north west

boutique in size with less mountain and base lands than Whistler/Blackcomb. This scale, large enough to provide varied on-mountain, slope-side experiences over a multi-day trip, but small enough to feel familiar and warm, sets it apart from other southwestern BC resorts.

Garibaldi naturally provides a secluded feeling due to the location of its main village set on a sheltered mountain vale that faces southwest down to the community of Squamish in the valley below as well as the meandering islands in Howe Sound all the way to Vancouver Island in the distance. Northward facing ski lifts and trails look up at the spectacular massif of Mount Garibaldi, the Garibaldi Provincial Park and the Tantalus Range to the West. Especially unique to Garibaldi and distinct from Whistler, Garibaldi's base lands are on the mountain rather than in the valley.

Garibaldi's unique characteristics augment the range of resort experiences available in southwestern BC, adding vital critical mass to this cluster that will attract new destination traffic to the Sea to Sky Region. Like Trois Valles in France and numerous other resort clusters around the world, this critical mass makes the cluster more competitive with other North American resort regions such as Banff, Alberta; Lake Tahoe, California and; Summit County, Colorado.

Figure 18: Base Area Lands – Overall Plan

II.5.3 RELATIONSHIP OF BASE AREA TO MOUNTAIN FACILITIES

II.5.3.1 GENERAL ARRANGEMENT

The base area development is comprised of guest services, recreational amenities, parking and overnight beds organized in a series of development parcels. The most concentrated parcels are situated at the base of mountain ski lifts, while less concentrated development parcels are situated along the primary roads that connect these concentration zones. This pattern of development limits the base area footprint and preserves large areas of natural terrain. It also provides convenient, mostly walkable or skiable access between parking, overnight beds, lifts, services and amenities.

To provide sufficient overall staging capacity to the mountain facilities and spread guests evenly across the resort, there are three primary staging points, referred to as portals. The portals have a high concentration of guest services and publicly available overnight accommodation. Each caters to a unique blend of destination and day use guests, which is reflected in their composition of services and overnight accommodations. Other development parcels provide additional private overnight accommodation that is suited to private ownership and employees. These parcels are comprised of a high proportion of townhomes and single-family homes and in some instances of condominiums, all in less concentrated arrangements than accommodations in the portals.

Figure 19: Base Area Lands – North Side

Figure 20: Base Area Lands – South Side

Figure 21: Base Area Lands – Road Network Plan

II.5.3.2 ROAD NETWORK

The road network provides the backbone for the pattern of development. A main access road connects the resort with the Sea to Sky Highway approximately 13 km north of Squamish. The 10.5 kilometre access road connects most major development parcels including all three mountain portals, one of which is the full-service village. The main access road has minimal intersections and no accommodation access points so that its safety and efficiency are prioritized. Branching from the access road are a series of primary and secondary roads that provides access to clusters of development and individual units.

Figure 22: Parcel 6 / Village Site Plan

II.5.3.3 DEVELOPMENT PARCELS

Parcel 6 – Village Portal

The nucleus of activity in the base area lands is the main Village, a 25-hectare parcel located on a 1035m elevation bench at the lower confluence of lifts L, M, N. The village is connected directly to the alpine area via Lift L, a gondola providing year-round, multi user access.

The Village is full service and pedestrian-oriented with all elements being situated within ten minute's walking distance of each other. It contains approximately one-quarter of all overnight beds, all in rental tenure form, a high concentration of shops, services and amenities, guest services related to mountain activities, and other recreational activities. This area is included in Phase 1 so as many tourist beds as possible fall early in the resort plan, yet will be completed over several Phases. The street and block pattern in the central core of the Village is compact yet porous. A pedestrian-only spine serves as the structuring element and it is flanked by parallel streets that provide service access. The 400-metre-long spine is oriented perpendicular to the mountain to focus views on mountain activity and facilitate pedestrian travel from village amenities and accommodations to the mountain. There is 23,225 square metres of shops, services and other amenities flanking each side of the spine at ground level making it an energetic environment and the focus of village life, especially for evening socializing.

Key Plan

Village from Northwest

Overnight rental accommodation is situated in mixed-use buildings above the ground level shops and services along the spine and in buildings along the flanking streets. Additional overnight accommodation is situated in the Upper Village on a gentle slope above the central core that is connected through a network of minor streets and paths. The development pattern on the slope is more open than the core, providing a naturalistic setting and generous mountain views. In total, there are 780 hotel rooms and 924 condominiums in the Village. Condominiums will be available for nightly tourist rental.

Guest services of between 11,064 and 14,106 square metres and a large drop off zone is conveniently located adjacent the lift terminals. Parking for day users (approximately 517 car spaces and 6 bus spaces) is provided at the top of Lift N with direct access to trails that connect to the Village and lifts M and L. Additional day user parking and employee parking (210 spaces) is provided in remote lots that have shuttle connection to the main village drop off zone and guest services buildings. The mountain shuttle bus/transit will also deliver guests to the drop off zone.

Village Drop Off and Guest Services

Parking for overnight guests is in underground structures associated with the buildings. Parking for convenience use of village shops, services and amenities is in structured parking underneath the Village.

Village's south facing outlook to Howe Sound

Village Pedestrian Spine

Parcel 3 – South Portal

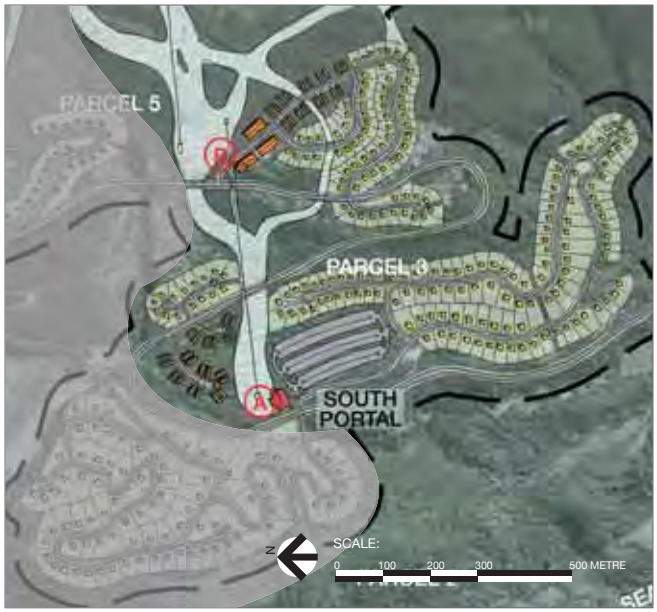
The 50-hectare Parcel 3 contains the South Portal, catering mainly to day users. It provides convenient and dependable vehicle access, being only 2 kilometres from the resort entrance on the Sea to Sky Highway at a relatively low elevation of 630 metres. The portal's proximity to the highway shortens travel distances for many day users resulting in reduced congestion on the upper portions of the main access road, and the low elevation means that the road will be free of snow for much of the year.

Guest facilities at the portal are located adjacent the main access road at the base of the high capacity Lift A, which, in conjunction with Lift B, provides direct access to the high alpine and a variety of terrain and other lifts. These lifts will also be fully capable of downloading skiers during periods of low snow early and late in the season. There is between 5,455 and 6,988 square metres of day user services (food service, equipment rentals, etc.), approximately 899 car spaces and 11 bus spaces of day use parking, and 182 employee parking spaces.

Several looped primary roads branch off the main access road to provide access to nearby overnight accommodation. There are also several secondary roads that service small clusters of accommodation.

The most compact forms of overnight accommodation in Parcel 3 are situated around the bases of Lifts A and B, including all the 240 condominium units and 160 townhomes. About half of the 204 single-family lots are located at the top of the parcel and have ski to/from access; the other half are located south of the day guest parking lots. Single-family lots range in frontage size from approximately 15 metres to 40 metres to provide a variety of building sizes and affordability levels.

Figure 23: Parcel 3 / South Portal Site Plan



Rendering looking from west

Key Plan

Parcel 9 – North Portal

Parcel 9 is a large parcel covering approximately 130 hectares. At its centre is the North Portal which caters to a balance of destination and day users. The portal's facilities, which consist of between 445 and 548 square metres of day user services and approximately 200 spaces of day use car parking (2 bus parking spaces and 134 employee spaces), are clustered around the high capacity Lift R which provides access to the high alpine and a variety of terrain and other lifts, while also contributing to very good intermediate terrain with some north facing slopes mid-mountain.

Overnight accommodation consists of a similar proportion of public and private beds. In total, there are 520 hotel rooms, 890 condominiums, 328 townhomes and 407 single-family lots. Public beds in the form of hotel and condominium beds are clustered near the base of Lift R. Lift T provides additional mountain access through a multitude of connector trails that provide ski to/from access to approximately 80–90% of the accommodations.

Rendering looking from North

Rendering looking from South

Figure 24: Parcel 9 / North Portal Site Plan

Key Plan

Rendering looking from south west

Figure 25: Parcel 1 Site Plan

Key Plan

Parcel 1

Parcel 1 is situated at the edge of the main access road at elevations from 300 to 450 metres, only 1.5 kilometres from the resort entrance on the Sea to Sky Highway. The parcel is approximately 12 hectares and is comprised of 71 single-family lots served from a single primary loop road and several short secondary roads. The lots range in frontage size from approximately 15 metres to 40 metres to provide a range of building sizes and affordability levels. Due to its convenient access to the highway and its detachment from the ski trail network, which will make it more affordable, the housing is expected to appeal to full-time residents.

Rendering looking from south west

Figure 26: Parcel 2 Site Plan

Key Plan

Parcel 2

Parcel 2 is approximately 15 hectares and located on a 600–750 metre elevation bench on the main access road. Its south-facing orientation provides excellent solar exposure and good views to Howe Sound and the Tantalus Range. The lower half of the 88 single-family lots are served from a primary loop road while the upper half are served by a smaller secondary loop road. The lower lots are within a five-minute walk of Lift A at the Parcel 6 portal.

Rendering looking from north

Figure 27: Parcel 4 Site Plan

Key Plan

Parcel 4

Parcel 4, at 15 hectares in size, is situated at the base of Lifts C and D at approximately 1,125 metres elevation on gently sloping, west-facing terrain with excellent views, solar exposure and direct access to lifts and trails. The parcel is approximately 15 hectares and is comprised of 120 townhomes and 114 single-family lots. Due to its high and peripheral location, the tenure of overnight accommodation is focused primarily towards private ownership.

Rendering looking from south west

Figure 28: Parcel 5 Site Plan

Key Plan

Parcel 5

Parcel 5 is adjacent the main access road near the base of Lift G ranging between 830-1,080 metres elevation. Lift G in conjunction with Lift H provides direct access to the alpine with download capability on Lift G for early/late season if there is insufficient snow coverage. The parcel is approximately 65 hectares and is comprised of 147 single-family lots accessed by a primary loop road and another primary road that continues to Parcel 4. The west-facing terrain offers mostly ski in/ski out access and excellent views to the Tantalus Range. Most of the accommodation is expected to be private ownership tenure.

Rendering looking from northwest

Figure 29: Parcel 7 Site Plan

Parcel 7

Parcel 7 is situated on a hilltop at the 950-1240 metre elevation overlooking the main village. Lift U and its associated trail provides direct access to the village from the parcel's main cluster of overnight accommodation. The parcel is approximately 18 hectares and is comprised of mostly private accommodation that is accessed via a primary road that connects on each end to the main access road as well as two short secondary loop roads. Accommodations are comprised of 160 condominiums, 232 townhomes and 47 single-family lots along with 1,394 square metres of convenience commercial space. Over half of the accommodation has convenient ski to/from access. Views to the west and south are excellent for most of the parcel and there are 360 degrees' views at the top of the parcel. Solar exposure is excellent throughout.

Key Plan

Rendering looking from south west

Figure 30: Parcel 8 Site Plan

Parcel 8

Parcel 8 is situated below Parcel 7 on a bench at the 850 to 1,000-metre elevation. The parcel is approximately 45 hectares, west-facing, and comprised of 106 single-family lots all with good solar exposure and views to the Tantalus Range. Access is provided with a primary road that continues to Parcel 9 and a looped secondary road. Due to its peripheral location, the tenure of the overnight accommodation is focused primarily towards private ownership.

Key Plan

II.5.4 RELATIONSHIP OF SKI LIFTS TO TRAILS AND SKIER CIRCULATION

Major out-of-base lifts rise out of the Village Portal (lifts L, M and N), the North Portal (Lift R) and the South Portal (Lift A). In the Village, the gondola (Lift L) base terminal will be positioned at the edge of the village plaza area. This will afford direct hardscape access for pedestrians coming from the village, as well as snow access for skiers returning to the base of the gondola from a ski run. The remaining out-of-base lifts have been positioned a minimum of 30 metres from the nearest building or hardscape edge to allow adequate space for queuing areas, milling areas, skier circulation, and grooming operations. Lift M is a unique situation in which skiers departing from the village centre plaza area will ski downhill over about 200 metres to access the lift base terminal.

Lift queuing areas at all lift base terminals, and the surrounding milling and circulation spaces, have been sized to account for the maximum waiting times and skier flows throughout the day. The out-of-base lifts typically experience the longest line-ups during the morning staging period, and in some cases following the lunch period, while primarily repeat-ski lifts usually have longest lines between 9:00AM and noon. Lift loading zones for out-of-base lifts have been sized to account for lineups that relate to the total skier staging requirement of the base portal and the total anticipated duration of the staging period. Repeat ski lift loading areas have been sized based on the assumed maximum wait time on a typical busy weekend day.

The lower mountain lifts will be designed with full download capability to allow easy egress if there is insufficient snow early or late in the season.

Broad snowfront areas have been incorporated into the base area portal programming with direct and convenient access from the ski trails above. The wide and unencumbered interface between snow surface and hardscape will facilitate free movement of skiers exiting the mountain at the end of their day.

II.5.5 SKIER WALKING DISTANCE

The maximum distance a guest is expected to comfortably walk from parking to guest services is 400 metres or less, with reductions of approximately 100 metres for every 10 metres of vertical difference. At Garibaldi, the parking at all portals is located within this range to provide convenient access to guest services and ski lift terminals. In one location near the village a parking area is located about 800 metres from the lifts due to topographic constraints, so this will be served by shuttle bus linking the parking lot to the village drop off zone at the base of the lifts and services. Skier services and vehicular drop off zones at all portals are situated conveniently less than 100 metres of lifts terminals.

II.5.6 ADDITIONAL GUESTS

In addition to skiing guests, there are typically guests who use the mountain's guest service facilities but do not ski. For example, parents may bring their children to the mountain, and spend the day in the lodge reading or watching the children ski. These additional guests must be accommodated when determining guest service space that they may utilize during the day (e.g., restaurant seating, rest room, retail).

At Garibaldi, it is expected that these non-skiing guests using the mountain facilities equate to an additional 15% of the BRC, based on ASRG criteria for Destination areas.

II.5.7 GUEST SERVICES SPACE USE REQUIREMENTS

Due to its location, Garibaldi will cater to both day and destination guests. To be competitive in the marketplace, guest services and other resort facilities must reflect the requirements and expectations of the discerning destination guest. This includes comprehensive ticketing and information areas, equipment storage and valet services, state-of-the-art rental and learning centres, child care, a variety of retail outlets and food service venues.

Guest services will be provided at six primary locations at the resort, in three base area or "portal" facilities and three on-mountain facilities.

Base area staging locations, or portals, are "gateway" facilities that have three main functions:

- Receiving arriving guests (from a parked car, a bus, or from adjacent accommodations)
- Distributing the skiers onto the mountain's lift and trail systems and back at the end of day
- Providing the necessary services for the guest's day at the resort (tickets, rentals, food)

Staging related skier services (tickets and information, learning facilities, rentals, retail, lockers) will be offered in three base area staging locations at Garibaldi: the Village, North and South portals.

Additional services are provided on-mountain in three locations:

- North Summit
- South Summit
- North Brohm Ridge

Service functions include:

- Restaurant Seating: All areas designated for food service seating, including restaurants, cafeterias, and brown bag areas.
- Kitchen/Scramble: Includes all food preparation, food service, and food storage.
- Bar/Lounge: All serving and seating areas designated as restricted use for the serving and consumption of alcoholic beverages.
- Restrooms: All space associated with restroom facilities .
- Guest Services: Services including resort information desks, kiosks, and lost and found.
- Adult Ski School: Includes ski school booking area and any indoor staging areas. Storage and employee lockers directly associated with ski school are included in this total.
- Kid's Ski School: Includes all daycare/nursery facilities, including booking areas and lunch rooms associated with ski school functions. Storage and employee lockers directly associated with ski school are included.
- Rentals/Repair: All rental shop, repair services, and associated storage areas.
- Retail Sales: All retail shops and associated storage areas.
- Ticket Sales: All ticketing and season pass sales areas and associated office space.
- Public Lockers: All public locker rooms. Any public lockers located along the walls of circulation space are included.
- Ski Patrol/First Aid: All first aid facilities, including clinic space. Storage and employee lockers directly associated with ski patrol are included in this total.
- Administration/Employee Lockers & Lounge/ Storage: All administration/employee/storage space related to the operations of the recreational facilities that are not included in any of the above functions.

II.5.7.1 GUEST SERVICES SPACE USE RECOMMENDATIONS

Sufficient guest service space should be provided to accommodate the resort's BRC of 17,538 guests per day. The BRC is the design standard and planning tool defined as the number of daily visitors a resort can comfortably or efficiently accommodate at one time without overburdening the resort infrastructure. BRC is a guest attendance level that can be serviced by the resort while operations remain optimally functional. As such, it is the distribution of the BRC which is utilized to determine guest service capacities and space requirements for skier services at base area portals and on-mountain facilities. The BRC should be distributed between each guest service facility location per the number of guests that would be utilizing the lifts and terrain, as well as other non-alpine skiing activities, associated with each facility.

Based on a BRC of 17,538 skiers, the tables below summarize the space use allocations of the guest service functions to industry standards for a resort of similar market orientation and regional context as Garibaldi. The resort will have approximately 24,997 to 31,587 square metres of space for skier services (1.6 to 2.0 square metres per guest). This is slightly higher than the range for destination space that is suggested in the ASRG for Destination areas (1.5–1.8), reflecting the spatial requirements currently being seen in the destination resort marketplace.

The BRC considers non-alpine skiing guests who are participating in other forms of winter recreation, as well as non-participating guests that accompany guests that are engaged in alpine skiing or the other winter recreational options offered at the resort. The resort is estimating that an additional 15% of the CCC will be non-skiing guests, which corresponds to the ASRG recommendation for destination resorts. As such, the resort's guest service facilities have been sized to also account for these "non-skiing" guests.

Table II-5.1. Space Use Recommendations – Resort Total

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	315	390
Public Lockers	736	900
Rentals/Repair	1,258	1,601
Retail Sales	733	896
Bar/lounge	819	1,001
Adult Ski School	510	623
Kid's Ski School	918	1,122
Restaurant Seating	6,598	8,065
Kitchen/Scramble	5,132	6,273
Rest rooms	1,760	2,151
Ski Patrol	510	623
Administration	733	896
Employee Lockers/Lounge	293	358
Storage	936	1,338
Mechanical/Circulation/Walls	3,744	5,350
TOTAL SQUARE METRES	**24,997**	**31,587**

Source: SE Group

Table II-5.2. Space Use Recommendations – Village Portal

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	126	154
Public Lockers	378	462
Rentals/Repair	497	632
Retail Sales	408	499
Bar/lounge	440	538
Adult Ski School	332	405
Kid's Ski School	663	810
Restaurant Seating	2,902	3,547
Kitchen/Scramble	2,257	2,759
Rest rooms	645	788
Ski Patrol	179	218
Administration	147	179
Employee Lockers/Lounge	59	72
Storage	406	609
Mechanical/Circulation/Walls	1,626	2,434
TOTAL SQUARE METRES	**11,064**	**14,106**

Source: SE Group

Table II-5.3. Space Use Recommendations – South Portal

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	120	146
Public Lockers	359	438
Rentals/Repair	761	969
Retail Sales	253	309
Bar/lounge	379	464
Adult Ski School	128	156
Kid's Ski School	255	312
Restaurant Seating	600	733
Kitchen/Scramble	466	570
Rest rooms	133	163
Ski Patrol	179	218
Administration	587	717
Employee Lockers/Lounge	235	287
Storage	200	301
Mechanical/Circulation/Walls	802	1,206
TOTAL SQUARE METRES	**5,455**	**6,988**

Source: SE Group

Table II-5.4. Space Use Recommendations – North Portal

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	70	90
Public Lockers	-	-
Rentals/Repair	-	-
Retail Sales	-	-
Bar/lounge	-	-
Adult Ski School	-	-
Kid's Ski School	-	-
Restaurant Seating	-	-
Kitchen/Scramble	-	-
Rest rooms	293	358
Ski Patrol	-	-
Administration	-	-
Employee Lockers/Lounge	-	-
Storage	16	20
Mechanical/Circulation/Waste	65	80
TOTAL SQUARE METRES	**445**	**548**

Source: SE Group

Table II-5.5. Space Use Recommendations – North Summit

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	-	-
Public Lockers	-	-
Rentals/Repair	-	-
Retail Sales	24	29
Bar/lounge	-	-
Adult Ski School	31	37
Kid's Ski School	-	-
Restaurant Seating	1,037	1,268
Kitchen/Scramble	807	986
Rest rooms	231	282
Ski Patrol	102	125
Administration	-	-
Employee Lockers/Lounge	-	-
Storage	100	123
Mechanical/Circulation/Waste	402	491
TOTAL SQUARE METRES	**2,733**	**3,341**

Source: SE Group

Table II-5.6. Space Use Recommendations – South Summit

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	-	-
Public Lockers	-	-
Rentals/Repair	-	-
Retail Sales	24	29
Bar/lounge	-	-
Adult Ski School	20	25
Kid's Ski School	-	-
Restaurant Seating	1,054	1,289
Kitchen/Scramble	820	1,002
Rest rooms	234	286
Ski Patrol	26	31
Administration	-	-
Employee Lockers/Lounge	-	-
Storage	120	146
Mechanical/Circulation/Waste	479	586
TOTAL SQUARE METRES	**2,777**	**3,395**

Source: SE Group

Table II-5.7. Space Use Recommendations – North Brohm Ridge

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	-	-
Public Lockers	-	-
Rentals/Repair	-	-
Retail Sales	24	29
Bar/lounge	-	-
Adult Ski School	-	-
Kid's Ski School	-	-
Restaurant Seating	1,005	1,228
Kitchen/Scramble	782	955
Rest rooms	223	273
Ski Patrol	26	31
Administration	-	-
Employee Lockers/Lounge	-	-
Storage	93	138
Mechanical/Circulation/Waste	371	554
TOTAL SQUARE METRES	**2,523**	**3,209**

Source: SE Group

II.5.7.2 GUEST SERVICE SEATING

The following table utilizes the lunchtime distribution of the BRC to determine the number of food service seats recommended at five of the six guest service facilities (there will be no food and beverage service at the North Portal). Consideration is given to the fact that guests staying in ski to/from lodging may return to their units at lunchtime. It is assumed that 10% of these guests will have lunch in their units.

Table II-5.8. Seating Recommendations

	Village Portal	South Portal	North Summit	South Summit	N. Brohm Ridge	Total Resort
Lunchtime Capacity (BRC = CCC + 15% non-participants guest)	7,714	1,594	2,757	2,802	2,671	17,538
Guests returning to units (10% of ski to/from skiers)	867	64				
Required Seating	6,847	1,530	2,757	2,802	2,671	
Average Seat Turnover	3	3.5	3.5	3.5	4	
Required Seats	**2,571**	**455**	**788**	**801**	**668**	**5,283**

Source: SE Group

A key factor in evaluating restaurant capacity is the turnover rate of the seats. That is, the number of times a seat will be utilized in a day. Several factors influence the turnover rate including the ski resorts' climate, market orientation, and the type of food service provided. The changing complexion of the ski "day," and the resulting length of the lunch "hour" is also considered. Due to the higher speeds of modern lifts and the resulting ability to ski more vertical in a shorter period, the length of time spent on the mountain is shorter for many participants. This creates a longer lunch period, accommodating guests who choose to stop early for lunch or ski through the noon hour and stop their day with a late lunch. While this may also mean that some guests may spend more time in restaurants at lunch, this changing behavior also results in a higher turnover rate in mountain food and beverage venues.

At Garibaldi, a seat turnover rate of 3 has been utilized for the Village facilities, 3.5 at the South Portal and the North and South Summit lodges, and 4 at North Brohm Ridge.

Outdoor seats are not considered for this analysis, as climatic conditions indicate that they cannot be used on a regular basis at Garibaldi. However, the resort will provide a certain amount of outdoor seating for occasions when warmer temperatures prevail as well as for use beyond the winter season.

II.5.8 DESTINATION SPACE USE REQUIREMENTS

In addition to the guest service space being developed for alpine skiing and other winter recreation users, an additional amount of space will be developed to accommodate more "passive" recreation and leisure pursuits. These facilities will include restaurants, shops, spas, other activities and services that will be attractive to both day and destination guests.

This additional space–located primarily within the village–will amount to an additional 20 to 40% of the space use recommendations outlined above as per the ASRG.

North Portal

Village Portal

LEGEND
PARKING
DROP-OFF

II.5.9 PARKING

Parking requirements for winter day users reflect the parking needed to accommodate the BRC as well as the needs of non-participating guests (i.e., those who accompany guests who are actively engaged in mountain recreation). The parking calculation considers resort guests staying in ski to/from properties, where self-contained parking is already provided. The use of resort shuttles for resort guests not able to ski to/from their accommodations, and the use of public transportation for day use guests, is also considered.

Day user parking requirements discount those participants (both alpine skiers as well as those participating in non-alpine skiing activities) that are staying at the resort, and can directly access their chosen form of recreation from their units. For non-alpine skiing recreational participants, it is assumed that 50% are staying at the resort, and that 50% of these overnight guests will have direct access to their chosen recreational activity (i.e., 25% of total non-alpine skiing recreation participants). For alpine skiers, this ski to/from calculation considers the location, number, type (private or public), and occupancy rates of bed units relative to lifts or terrain. The details of this calculation may be found in Section II.5.15 (Table II-5.9)

Day use parking is provided at each of the three base area portals (Village, North and South). The parking capacity at each location reflects the distribution of the BRC to provide a comfortable and efficient staging experience for guests. These lots are generally located within 400 metres or 5 minutes' walk of ski lift terminals, and where this is not possible due to topographic constraints a shuttle service will be provided. Parking for overnight guests staying in either rental or private beds is provided on the building's site, typically in underground structures.

Required day-use parking is based on an anticipated ratio of 48% of BRC being day users. This equates to

Key Plan

South Portal

8,077 day users, 30% of whom are anticipated to arrive by inter-resort shuttle or public transit (2,423 guests) and 10% by charter bus (808 guests). The remaining 4,846 day use guests will arrive by car.

The requirement for private vehicle parking spaces is calculated at an average of 3.0 guests per car resulting in a total requirement for 1,615 cars. These are distributed per the capacity of each of the three portals and result in a total 899 cars in the South Portal, 517 cars in the Village Portal, and 200 cars in the North Portal. Bus parking spatial requirements are calculated at an average 40 guests per bus resulting in a total 20 buses distributed as 11 in the South Portal, 6 in the Village Portal and 2 in the North Portal.

Additional employee parking will be required for approximately 2,631 employees, which is 15% of the BRC and within the 10-20% range specified in the ASRG. These spaces will be distributed between the three base area portals.

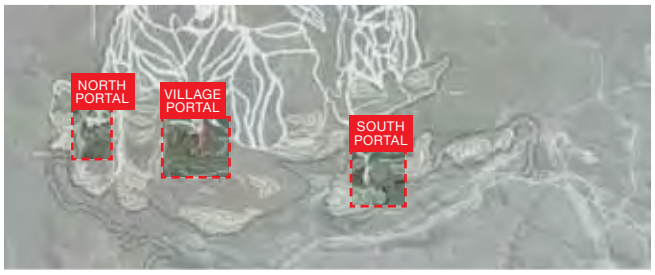
[1] For parking calculations, a day user is defined as anyone who arrives at the base area portals in some form of transportation (car, shuttle, public transit, charter bus). This includes overnight guests staying in non-ski to/from units.

II.5.10 BASE AREA STAGING

Staging capacity for the overall CCCC of 15,250 is distributed evenly between the three base area portals to provide a comfortable and efficient staging experience for guests and distribute guests evenly across the mountain. The capacities of the portals, which is based on their lift capacity, is approximately: 5,719 for the South Portal, 6,024 for the Village Portal, and 3,507 for the North Portal. Guest service and parking capacities are sized to match these lift capacities. The portal capacities do not exceed a maximum of approximately 6,000 guests, allowing each to serve guests' arrival needs and move them up the mountain within a typical morning staging period of 1.5 to 2.0 hours.

North Portal

Village Portal



Key Plan

South Portal

Table II-5.9. Recommended Parking at Staging Portals

	Multiplier	Village Portal	North Portal	South Portal	Total
BRC (CCC + 15% other guests)	15%	7,015	4,472	6,050	17,538
Employees	15%	1,052	671	908	2,631
# of skiing guests staying in ski to/from units		3,927	3,474	1,266	8,668
# of "direct to lift" skiing guests staying in ski to/from units		164		289	453
Total ski to/from skiing guests		4,091	3,471	1,555	9,120
Total guests with direct access to non-alpine skiing recreation	25%	340			340
Remaining day skier guests		2,584	998	4,495	8,077
# of day guests arriving by shuttle or public transit	30%	775	299	1,349	2,423
# of day guests arriving by charter bus	10%	258	100	450	808
# of day guests arriving by car		1,550	599	2,697	4,846
# of employees arriving by car	60%	631	402	545	1,578
Required guest car parking spaces	3.0	517	200	899	1,615
Required employee car parking spaces	3.0	210	134	182	526
Required charter bus parking spaces	40.00	6	2	11	20
Equivalent car spaces	4.5	29	11	51	91
Total required spaces		**756**	**345**	**1,131**	**2,232**

[1] Notes: Parking for non-alpine skiing recreation activities (680 participants) is provided in the Centre/Village Portal" Direct to lift" skiing guests are those that do not need services and may directly access lifts G (from Parcel 5), C and D (Parcel 4) from their units

II.5.11 OVERNIGHT ACCOMMODATION

Overnight accommodation in a range of building typologies and tenure models is situated in proximity to lifts and other amenities. The maximum amount of overnight accommodation is based upon the BRC by utilizing a calculation model that is described in the following section, II.5.12.

The units within each building typology have a “bed unit” (BU) equivalency for measuring accommodation capacity. Hotel rooms are assigned 2 BU’s; condominium and apartment units are assigned 4 BU’s; townhome and other ground-oriented multi-family housing units are assigned 4 BU’s, and; single-family homes are assigned 6 BU’s.

In total, there are 5,538 units of overnight accommodations equivalent to 21,920 BU’s. These are comprised of 1,300 hotel room units (2,600 BU’s), 2,214 condominium units (8,856 BU’s), 840 townhome units (3,360 BU’s), and; 1,184 single-family home units (7,104 BU’s).

PARCEL	HOTEL			RESORT CONDO			TOWNHOME			SINGLE FAMILY			
	UNITS (ROOMS)	BU / UNIT	TOTAL BU	UNITS	BU / UNIT	TOTAL BU	UNITS	BU / UNIT	TOTAL BU	UNITS	BU / UNIT	TOTAL BU	TOTAL BU
1	0	2	0	0	4	0	0	4	0	71	6	426	426
2	0	2	0	0	4	0	0	4	0	88	6	528	528
3	0	2	0	240	4	960	160	4	640	204	6	1,224	2,824
4	0	2	0	0	4	0	120	4	480	114	6	684	1,164
5	0	2	0	0	4	0	0	4	0	147	6	882	882
6	780	2	1,560	924	4	3,696	0	4	0	0	6	0	5,256
7	0	2	0	160	4	640	232	4	928	47	6	282	1,850
8	0	2	0	0	4	0	0	4	0	106	6	636	636
9	520	2	1,040	890	4	3,560	328	4	1,312	407	6	2,442	8,354
TOTAL	**1,300**		**2,600**	**2,214**		**8,856**	**840**		**3,360**	**1,184**		**7,104**	**21,920**

Bed Units by Parcel

Figure 31: Overnight Accommodations Plan – North Side

Figure 32: Overnight Accommodations Plan – South Side

LEGEND
- SINGLE FAMILY HOME
- TOWNHOME
- CONDO
- HOTEL
- BASE LODGE
- PARK BOUNDARY
- SITE BOUNDARY

II.5.12 BED UNIT CALCULATION MODEL

The determination of allowable BU's is calculated using the ASRG points rating system and associated BU allowance table. The rating system allocates points for a variety of destination resort attributes and the number of points achieved then corresponds to an allowable ratio of BU's to BRC.

Total Points Rating	Total % of BRC
30	79%
31	84%
32	89%
33	95%
34	100%
35	105%
36	110%
37	115%
38	120%
39	125%
40	130%
41	136%
42	141%
43	146%
44	151%
45	156%
46	160%

II.5.13 USE OF THE BED UNIT CALCULATION MODEL

MTCA evaluated and determined the ASRG point allocation as explained in their October 9, 2008 letter and summarized in the table below. This evaluation yielded a total of 41 points, which, when applied to the ASRG guidelines corresponds to an allowable BU ratio of 136% to BRC. This is equivalent to 23,851 BU's, which is 136% of the 17,538 BRC.

ASRG Section	Criterion	MTCA Ranking per October 9, 2008 letter	ASRG point allocation
2.7.1.1	Ski terrain	Close to ideal	3
2.7.1.2	Skier density	15/hectare	4
2.7.1.3	Accessibility	1.5–2.0 hours from market	3
2.7.1.4	Access reliability	Somewhat reliable	2
2.7.1.5	Population within 250 kilometres	500,000+	5
2.7.1.6	Unique qualities	National attraction	3
2.7.1.7	All season facilities	Excellent	4
2.7.1.8	Length of season	130–150 days	3
2.7.1.9	Type of snow	Dry 50–75%	2
2.7.1.10	Weather conditions	1500–2000 hours of sun	3
2.7.1.11	Express lifts	<50% total	2
2.7.1.12	Employee housing	12.6% of employee beds at resort	3
Per ASRG amendment	First Nations' participation	High involvement	4
ASRG Total Ranking			41

Regardless of this calculation, the 2017 Master Plan Update respects the lower BU calculation of 21,922 (rounded to 21,920) established through the earlier plans, as outlined in the October 9, 2008 MTCA letter and referred to in the 2016 EA Certificate (Schedule A). The continuation of this capacity is intentional, to maintain conditions and agreements outlined in the 2008 MTCA letter, 2016 EA Certificate, and other past documentation.

II.5.14 PUBLIC VERSUS PRIVATE OVERNIGHT ACCOMMODATIONS

The proportion of public to private accommodations strikes a balance between supplying sufficient public rental beds to meet destination visitor needs and generate a consistent revenue stream, and private for-sale beds which help to fund capital improvements including utility and amenity infrastructures.

Approximately 54% of the accommodations are public rental beds and 46% are private for-sale beds, a proportion consistent with destination resort targets. The public beds are comprised of 100% of the hotel rooms, 80% of the condominiums, 40% of the townhomes and 10% of the single-family homes. Public beds, which have higher nightly usage rates than private beds, are concentrated around lift terminals and other amenities and services. The table below illustrates the proportion of public to private units/BU's.

The overall average occupancy rate is approximately 79% for public beds and 38% for private beds. The average occupancy rates for each unit type vary, with public bed use being higher than private bed use.

Table II.5-11. Public and Private Overnight Accommodations

	Hotel				Condominium				Townhome				Single-Family				Total	
	%	number	occ rate	occupancy	%	number	occ rate	occupancy	%	number	occ rate	occupancy	%	number	occ rate	occupancy	%	number
Public	100%	2,600	85%	2,210	80%	7,085	60%	4,251	40%	1,344	50%	672	10%	710	30%	213	54%	11,739
Private	0%	0	0	0	20%	1,771	40%	708	60%	2,016	30%	605	90%	6,394	20%	1,279	46%	10,181
TOTAL	**100%**	**2,600**		**2,210**	**100%**	**8,856**		**3,360**	**100%**	**3,360**		**3,360**	**100%**	**7,104**		**3,360**	**100%**	**21,920**

Table II.5-12. Public and Private Occupancy Rates

	Hotel				Condominium				Townhome				Single-Family				Total	
	%	number	occ rate	occupancy	%	number	occ rate	occupancy	%	number	occ rate	occupancy	%	number	occ rate	occupancy	%	number
Public	100%	2,600	85%	2,210	80%	7,085	80%	5,668	40%	1,344	75%	1,008	10%	710	60%	426	54%	11,739
Private	0%	0	0	0	20%	1,771	55%	974	60%	2,016	50%	1,008	90%	6,394	30%	1,918	46%	10,181
TOTAL	**100%**	**2,600**		**2,210**	**100%**	**8,856**		**6,642**	**100%**	**3,360**		**2,016**	**100%**	**7,104**		**2,344**	**100%**	**21,920**

Figure 33: Ski to/from Accommodations Plan

II.5.15 SKI TO/FROM ACCOMMODATION

Approximately 84% of all overnight accommodation units are located within ski to/from distance to either ski lifts or ski trails that provide access to lifts. Every attempt will be made to increase this ratio as part of the detail design of each base area. The distance considered comfortable between accommodation and ski lift or trail is 400 metres, reduced by 100 metres for every 10 metres of vertical change.

All publicly available rental units are situated within ski to/from distance so their high occupancy rates maximize resort walkability and minimize vehicle trips. In addition, several private beds are located within this distance. Collectively, the skiers staying within these units may be discounted from the day use parking needs (as outlined in the parking discussion in Section II.5.9). By contrast, when calculating day use parking needs the skiers staying in units not considered ski to/from would be considered day use guests, as they would have to take a resort shuttle or drive to one of the three staging portals to begin their day on the mountain.

Table II-5.13. Ski to/from Accommodation

Parcel	Total BU's	% BU's ski to/from	Total BU's ski to/from
1	426	0%	0
2	528	25%	132
3	2,824	75%	2,118
4	1,164	100%	1,164
5	882	100%	882
6	5,256	100%	5,256
7	1,850	75%	1,388
8	636	0%	0
9	8,354	90%	7,519
TOTAL	**21,920**	**84%**	**18,458**

Table II.5-14. Alpine Skier Ski to/from Occupancy

Parcel	total BU	percent ski to/from bed units	total ski to/from bed units	total hotel ski to/from occupancy	total condo ski to/from occupancy	total Townhome ski to/from occupancy	total Single Family ski to/from occupancy	Overall ski to/from occupancy	Skier occupancy rate (number of skiers per unit)	Total skier occupancy	Total ski to/from skier occupancy	Total skiers with direct-to-lift access for G (Parcel 5) C and D (Parcel 4). Assume 75% of total.	Total ski to/from skiers	Total non-ski to/from skier occupancy (i.e., on-property day skiers)
1	426	0%	0	0	0	0	0	0	75%	105	0			105
2	528	25%	132	0	0	0	44	44	75%	131	33			98
3	2,824	75%	2,118	0	540	288	303	1,131	75%	1,131	848			283
4	1,164	100%	1,164	0	0	288	226	514	75%	385	385	289		0
Sub-total South Portal				0		0	0			***1,752***	***1,266***	***289***	***1,555***	***486***
5	882	100%	882	0	0	0	291	291	75%	218	218	164		0
6	5,256	100%	5,256	1,326	2,772	0	0	4,098	75%	3,074	3,074			0
7	1,850	75%	1,388	0	360	418	70	847	75%	847	636			212
8	636	0%	0	0	0	0	0	0	75%	157	0			157
Sub-total Village Portal				0		0	0			***4,297***	***3,927***	***164***	***4,091***	***369***
9	8,354	90%	7,519	796	2,403	708	725	4,632	75%	3,860	3,474			386
Sub-total North Portal				0		0	0			***3,860***	***3,474***	***0***	***3,474***	***386***
TOTAL	**21,920**		**18,458**	**2,122**	**6,075**	**1,702**	**1,658**	**11,557**	**75%**	**9,909**	**8,668**	**453**	**9,120**	**1,241**

II.5.16 EMPLOYEE/RESIDENT RESTRICTED HOUSING

Garibaldi recognizes that employee housing is a critical element in the success of the resort and must cover the range of staff from those here for a season to those who choose to make the mountain a home and career, so commits to meeting these important requirements of the MRB and the EA. An additional 2,740 beds (12.5% of the 21,920 tourism-oriented bed units) will be designated for employee housing, as per the 10 and 20% range recommended in the MRB requirements. Employee housing units are not counted as part of the 21,920 bed unit total as they are for non-commercial use.

Garibaldi is unique amongst mountain resorts in having an existing community that is a short bus ride away. Squamish has existing housing and recent surveys show that about 15% of workers commute to work in other communities on a regular basis. Many of these people will likely decide to work closer to home, especially with an efficient local bus service.

The Whistler Housing Authority model works well for that resort and it and other models will be studied to see if they can be able to be modified for Garibaldi. There are short and long term rentals in the mix as well as owned condominium, townhouse and single family homes all of which have controls on price increases. All agreements also include the proviso that the resident must be an employee of an employer at the resort. This allows a homeowner, for example, to leave to attend school for a year and rent their home out to an employee. https://whistlerhousing.ca

Garibaldi understands that staff who have affordable, quality housing that is close to where they work is part of the formula for a successful resort. Garibaldi commits to working with the District of Squamish, whether they are the local government having jurisdiction or not, to determine what is the best mix of on mountain and in town housing and how that is to be funded and operated. Garibaldi also intends to undertake further studies on what the best mix of on mountain staff housing would be, and how it is distributed through the resort as part of the detailed planning process.

II.5.17 YEAR-ROUND DEVELOPMENT AND USE

The changing landscape of demographics and resort development yield new opportunities for Garibaldi to provide a unique year-round resort environment and experience that is developed in concert with market characteristics. While the winter season and visitation is an important element of the Garibaldi project, the activities, events and programs offered during the summer and shoulder seasons may play a much greater role in the ultimate success of Garibaldi.

Year-round activities are planned throughout the resort: the mountain, base areas, and surrounding neighbourhoods. To minimize disturbance and to showcase the natural features of the spectacular mountain setting, activities will be located to minimize disturbance and “fit in” to the existing terrain. Critical habitat and other environmentally sensitive areas will be avoided, to protect these valuable natural assets.

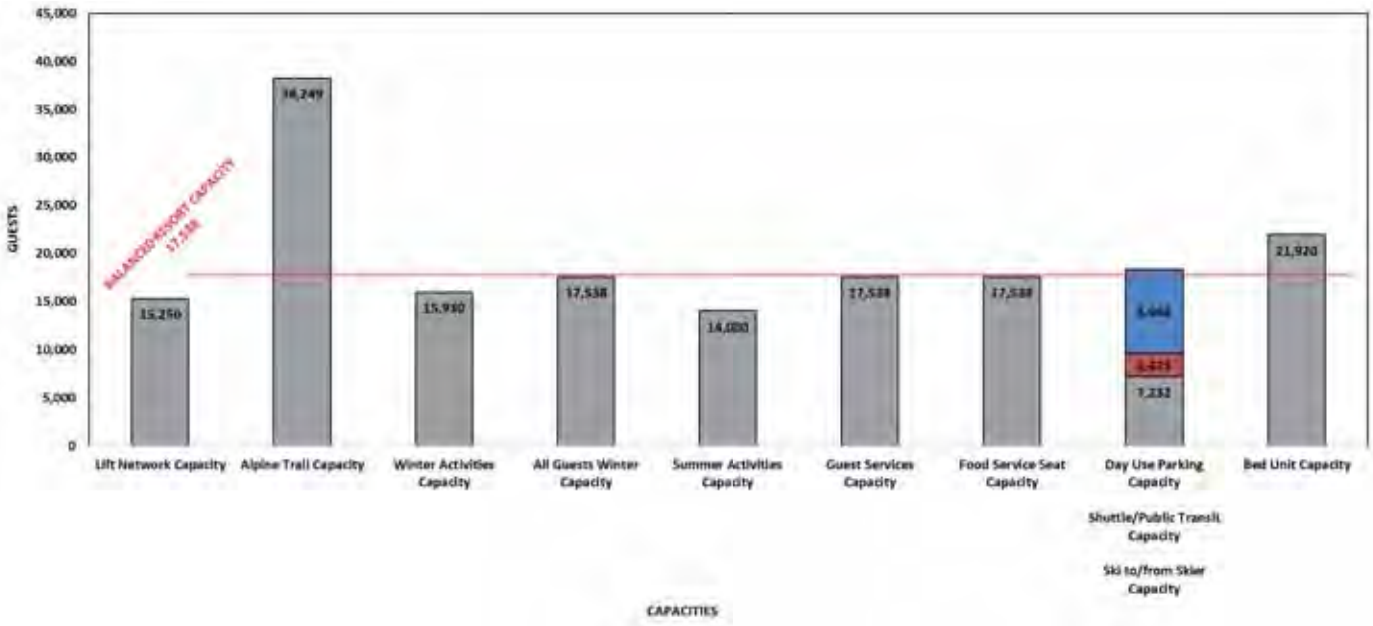
Guest service facilities utilized as part of the alpine skiing operation will also be utilized to support the multi-season activities and programming. Many activities (i.e. mountain biking, hiking, Nordic skiing, snowshoeing, etc.) will utilize existing and proposed multi-use trails prevalent throughout the resort with ample connections to the proximal residential neighbourhoods. Connectivity to the adjacent residential areas will increase the convenience and utilization of all proposed activities, programs and events from residents and destination guests, as well as minimize the need for vehicle use within the resort. Studies completed as part of the Environmental Assessment process also help to ensure the resort is designed in an efficient and well-balanced manner for year-round use.

II.5.18 BALANCE OF FACILITIES

All aspects of the resort development at Garibaldi have been collectively designed to be in balance. As the chart below illustrates, the capacities of both winter and summer recreation, associated guest services, day use parking and public and private accommodations are consistent with the Balanced Resort Capacity, as well as considering additional guests who are not "active" participants of the recreational offerings.

Programs and special events hosted at the resort will be scheduled to drive visitation throughout the year, maximizing the utilization of all resort infrastructure.

Chart II.5-1. Balance of Facilities



II.5.19 PHASED DEVELOPMENT CONCEPT

II.5.19.1 MOUNTAIN PHASING

The phasing plan for Garibaldi Resort responds to a number of factors. The primary intention is to create discrete phasing units so that each phase ends with a fully functional, well balanced resort. It is vital that the integrity of the resort be maintained in each phase. Through reviewing industry examples and rethinking the strategy, it was determined that the main gondola, Lift L, should be built in the very initial stage of the resort, to give functionality, versatility, and credibility to the resort while accessing the highest quality terrain and best views at the resort. Focusing the first phase on this lift allows a very beneficial base village scenario where all facilities are concentrated in one distinct area. The gondola will also allow for full, all-season use from the very beginning of the resort. Additional lifts in the upper part of the resort in the first phase will allow access to the best terrain available. The following phases would then fill out from that central point, adding capacity as needed and giving access to additional terrain extent and variety.

The development plan must ensure that adequate support equipment and facilities (e.g., guest services and facilities, utility infrastructure, and parking) accompany the mountain development at each phase of construction. A carefully balanced mountain and support facility development program will ensure a sustainable resort operation. It is anticipated that Garibaldi would be developed in three initial phases followed by longer-term build-out of the resort. Economic constraints, or yet to be identified business development opportunities, may lengthen or accelerate the phasing of improvements. Each phase features built-in flexibility, which provides management with the option of extending the implementation period to reflect those key market and financial conditions.

Mountain Phasing

PHASE 1

The initial phase will create a fully-functional, respectably-sized mountain resort. With a CCC of 3,800 people and a BRC 4,370 (115% of CCC) at the completion of the phase, its size will put it in the mid-level range across the industry. The terrain will be well balanced to the lift network, and the terrain ability level distribution very closely matches the skier market. Terrain densities will be low, but well matched to the lifts' capacities. The relatively low number of lifts, compared to the relatively high CCC indicates a highly efficient resort layout. The following details summarize the specifications of Phase 1:

- Lifts. The main gondola, Lift L, will provide direct access to the North Summit facility and the terrain accessed from the higher lifts. Additionally, it will provide repeat-ski access to almost all of the lower mountain terrain during this phase. A very large quantity of terrain will be available to be skied off the gondola, both by skiing the entire length of the lift and by skiing the variety of intermediate terrain using the upper section only. Lifts J, O, P, and Q will be installed to access the high-altitude, high-quality, north facing terrain available on the upper mountain. Lift J will also provide some lower level repeat skiing on the upper mountain. Lift N will provide the majority of the beginner and first-time teaching terrain just out of the base area.
- Terrain. With almost 267 hectares of developed terrain, as well as much more back-country style and gladed areas available for skiing, there will be a large quantity and excellent variety of terrain available in this first phase. The trail network has been designed to closely match the overall skier market and provide a high-quality, low-density ski experience. With a terrain capacity of 2,647 and an SAOT of 1,487 terrain densities will be quite low in this initial phase.
- Non-alpine ski recreation. Many facilities will be built in this phase, including: Nordic skiing, snow tubing, snowshoeing, mountain biking, hiking, and snowplay.
- Guest support services. At between 6,354 and 7,966 square meters, enough guest service and skier support space will be built to comfortably accommodate the needs of the guests in this phase. This total will include space at the Village and in the on-mountain facility at the top of the gondola, the North Summit.

Phase 1 is anticipated to take 5 years to build the on-mountain facilities and the related accommodation and service buildings.

Figure 34: Mountain Master Plan – Phase 1

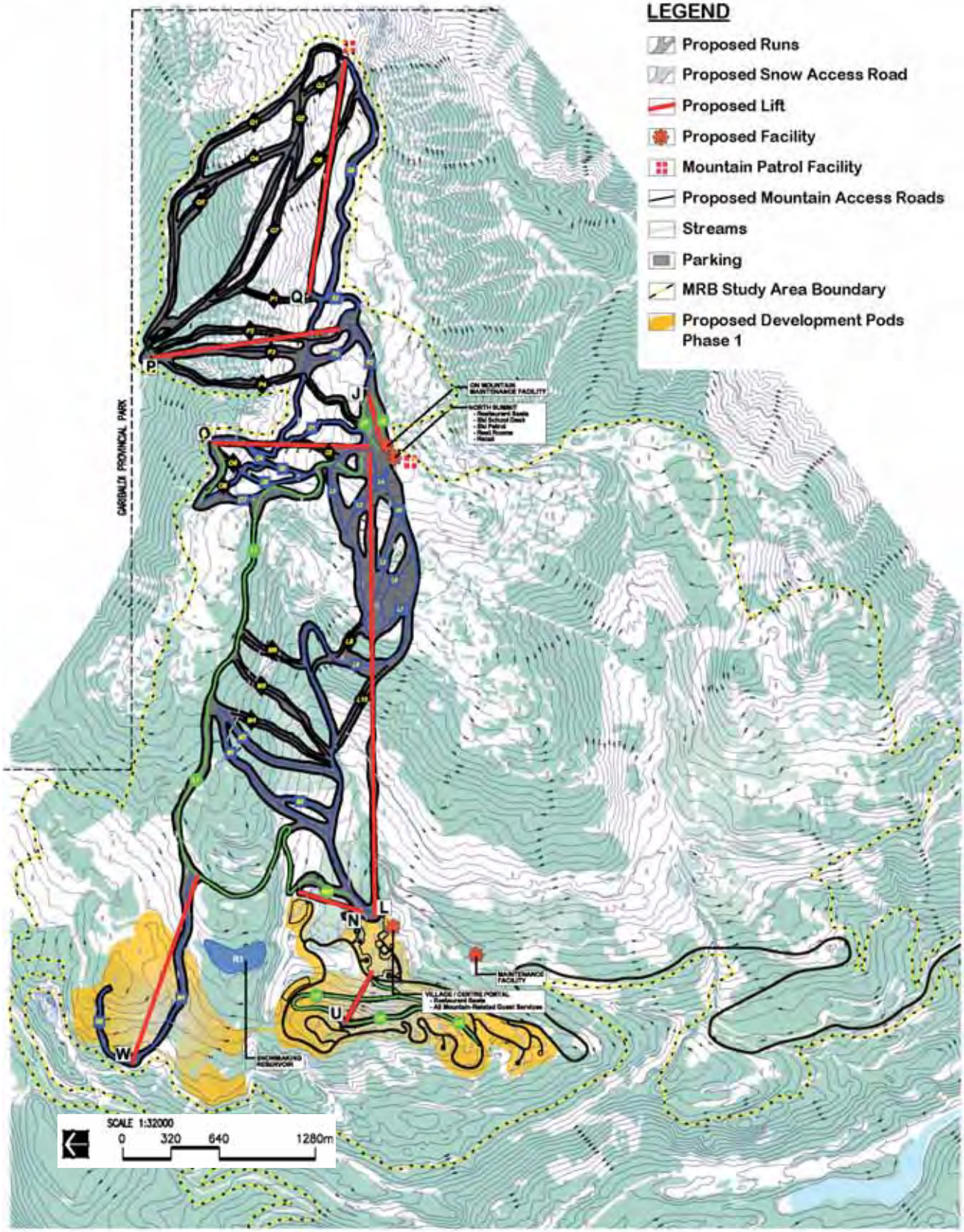


Table II-5.15. Lift Specifications – Phase 1

Map Ref.	Lift Type	Top Elev. (m.)	Bot. Elev. (m.)	Vert. Rise (m.)	Horiz. Length (m.)	Slope Length (m.)	Avg. Grade (%)	Hourly Capacity (persons/hr)
J	C3	1,733	1,705	29	373	376	8%	1,800
L1	Gondola - Lower	1,480	1,037	443	1,784	1,838	25%	2,800
L2	Gondola - Upper	1,746	1,480	266	1,145	1,175	23%	2,800
N	C3	1,112	1,044	68	428	438	16%	1,200
O	DC6	1,740	1,475	265	998	1,050	27%	2,600
P	DC4	1,770	1,166	604	1,247	1,403	48%	1,800
Q	C3	1,868	1,642	226	1,494	1,567	15%	500
U	C3	1,200	1,041	159	436	486	36%	1,800
W	DC4	1,282	1,020	262	1,260	1,312	21%	1,800

Source: SE Group

Table II-5.16. Terrain Specifications Summary – Phase 1

Ability Level	Trail Area (ha.)	Terrain Breakdown
Beginner	11.6	4%
Novice	22.5	9%
Low Intermediate	39.1	15%
Intermediate	98.7	37%
Adv. Intermediate	33.6	12%
Expert	62.0	23%
Total:	**267.5**	**100%**

Source: SE GROUP

Table II-5.17. Terrain Capacity – Phase 1

Ability Level	Trail Area (ha.)	Terrain Capacity (skiers)
Beginner	11.6	232
Novice	22.5	404
Low Intermediate	39.1	547
Intermediate	98.7	987
Adv. Intermediate	33.6	229
Expert	62.0	248
Total:	**267.5**	**2,647**

Source: SE GROUP

Table II-5.18. Skier Capacity Distribution by Ability Levels – Phase 1

Ability Level	Trail Area (ha.)	Ski Area Capacity (skiers)	Garibaldi Resort's Skier Capacity Distribution (%)	Garibaldi Resort's Market Distribution (%)	Distribution per CASP Guidelines (%)
Beginner	11.6	579	9%	5%	2-6%
Novice	22.5	1011	15%	15%	11-15%
Low Intermediate	39.1	1368	21%	25%	18-22%
Intermediate	98.7	2469	37%	35%	33-37%
Adv. Intermediate	33.6	572	9%	15%	18-22%
Expert	62.0	620	9%	5%	8-2%
Total:	**267.5**	**6,618**	**100%**	**100%**	

Source: SE GROUP

Chart II-5.2 Terrain Distribution by Ability Levels – Phase 1

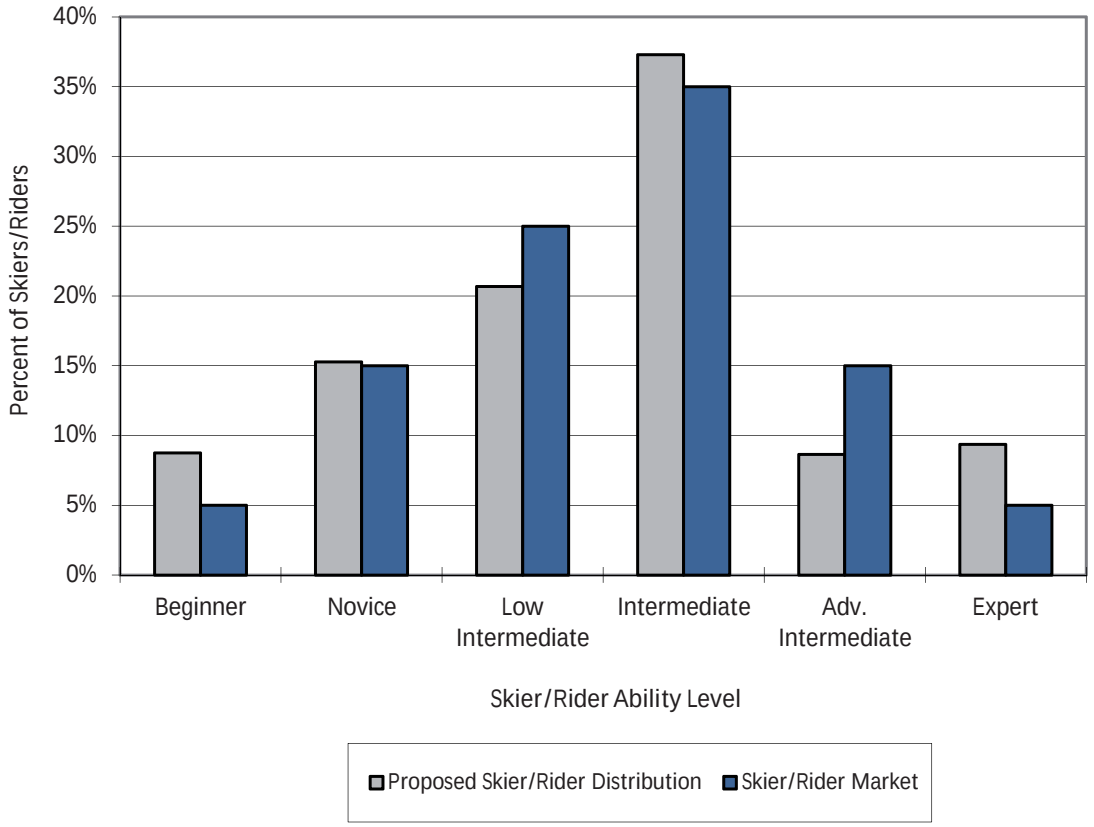


Table II-5.19. Calculation of CCC – Phase 1

Map Ref.	Slope Length (m.)	Vert. Rise (m.)	Hourly Capacity (persons/hr.)	Oper. Hours (hrs.)	Up-Mtn. Access Role (%)	Misloading Lift Stop. (%).	Adjusted Hrly. Cap. (persons/hr.)	VTM/Day (000)	Weighted Vertical Demand (m./day)	CCC (skiers)
J	376	29	1,800	6.50	5	10	1,530	286	1,000	290
L1	1,838	443	2,800	7.00	100	0	-	0	0	-
L2	1,175	266	2,800	7.00	25	5	1,960	3,650	3,952	920
N	438	68	1,200	7.00	0	10	1,080	512	1,000	510
O	1,050	265	2,600	6.75	5	5	2,340	4,180	4,253	980
P	1,403	604	1,800	6.00	50	5	810	2,936	7,188	410
Q	1,567	226	500	6.00	0	10	450	610	8,190	70
W	1,312	262	1,800	7.00	25	10	1,170	2,148	3,486	620
Total:	**9,159**		**15,300**				**9,340**	**14,322**		**3,800**

Source: SE GROUP

Table II-5.20. Disbursement of the Skier Population – Phase 1

Lift Number	Daily Capacity (CCC)	Disbursement of Skier/Rider Population			
		Support Fac./Milling (skiers)	Lift Lines (skiers)	On Lift (skiers)	SAOT (skiers on trails)
J	290	73	13	63	141
L1	0	0	0	0	0
L2	920	230	180	116	394
N	510	128	203	52	127
O	980	245	312	134	289
P	410	103	41	62	204
Q	70	7	15	37	11
U	0	0	0	0	0
W	620	155	59	85	321
Total:	**3,800**	**941**	**823**	**549**	**1,487**

Source: SE GROUP

Table II-5.21. Space Use Recommendations – Resort Total (Phase 1)

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	79	97
Public Lockers	238	291
Rentals/Repair	314	399
Retail Sales	179	219
Bar/lounge	274	335
Adult Ski School	158	193
Kid's Ski School	254	311
Restaurant Seating	1,644	2,010
Kitchen/Scramble	1,279	1,563
Rest rooms	365	447
Ski Patrol	146	179
Administration	183	223
Employee Lockers/Lounge	73	89
Storage	233	322
Mechanical/Circulation/Walls	934	1,289
TOTAL SQUARE METRES	**6,354**	**7,966**

Source: SE GROUP

Table II-5.22. Space Use Recommendations – Village (Phase 1)

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	79	97
Public Lockers	238	291
Rentals/Repair	314	399
Retail Sales	155	190
Bar/lounge	274	335
Adult Ski School	127	155
Kid's Ski School	254	311
Restaurant Seating	603	737
Kitchen/Scramble	469	573
Rest rooms	134	164
Ski Patrol	44	54
Administration	183	223
Employee Lockers/Lounge	73	89
Storage	133	199
Mechanical/Circulation/Walls	531	796
TOTAL SQUARE METRES	**3,611**	**4,613**

SOURCE: SE GROUP

Table II-5.23. Space Use Recommendations – North Summit (Phase 1)

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	-	-
Public Lockers	-	-
Rentals/Repair	-	-
Retail Sales	24	29
Bar/lounge	-	-
Adult Ski School	31	37
Kid's Ski School	-	-
Restaurant Seating	1,041	1,273
Kitchen/Scramble	810	990
Rest rooms	231	283
Ski Patrol	102	125
Administration	-	-
Employee Lockers/Lounge	-	-
Storage	101	123
Mechanical/Circulation/Walls	403	493
TOTAL SQUARE METRES	**2,743**	**3,353**

Source: SE Group

Table II-5.24. Seating Requirements – Phase 1

	Village	North Summit	Total Resort
Lunchtime Capacity (BRC=CCC+15% non-participant guests)	1,602	2,768	4,370
Guests returning to units for lunch (10% of ski to/from skiers)	260		260
Required Seating Capacity	1,342	2,768	4,110
Average Seat Turnover	3	3.5	-
Required Seats	**534**	**791**	**1,325**

Source: SE GROUP

Table II-5.25. Recommended Parking at Staging Portals (Phase 1)

	Multiplier	Village Portal
BRC (CCC + 15% other guests)	15%	4,370
Employees	15%	656
# of skiing guests staying in ski to/from units	-	2,603
# of "direct to lift" skiing guests staying in ski to/from units	-	0
Total ski to/from skiing guests	-	2,603
Total guests with direct access to non-alpine skiing recreation	25%	170
Remaining day skier guests	-	1,597
# of day guests arriving by shuttle or public transit	30%	479
# of day guests arriving by charter bus	10%	160
# of day guests arriving by car	-	958
# of employees arriving by car	60%	393
Required guest car parking spaces	3.00	319
Required employee car parking spaces	3.00	131
Required charter bus parking spaces	40.00	4
Equivalent car spaces (1 bus=4.5 car)	4.5	18
Total required spaces	**-**	**468**

Source: SE GROUP

PHASE 2

The second phase will expand on the first phase and create some significant improvements in terms of mountain capacity, access, and circulation. With a CCC of 7,850 people and a BRC of 9,028 at the completion of the phase, Garibaldi will start to be a relatively large resort. The terrain will be well balanced to the lift network, and the terrain ability level distribution very closely matches the skier market. Terrain densities will be higher than in Phase 1, as the lifts will be serving much of the same terrain. The following details summarize the specification of Phase 2:

- Lifts. From a mountain circulation standpoint, the most significant feature of this phase is the addition of Lift M. This high capacity lift will provide an additional out-of-base access lift for the resort, reducing demand for the use of the gondola as a repeat-ski lift. Since Lift M directly serves the terrain off North Brohm Ridge, the entire length of the gondola will likely not be used for repeat-skiing. Since fewer skiers will be loading at the bottom, it will allow for increased use of the upper section for repeat-skiing. The installation of Lift M, when used in series with Lift O, will also allow for an additional route to access the North Summit facility. Lift R will allow for access to the mountain from the north side of the resort, as well as providing access to several high quality intermediate ski trails. Lift K will also provide access to additional intermediate level terrain.
- Terrain. With a modest increase, of about 56 hectares, to around 323 total hectares, the terrain network capacity will not increase as much as the lift network capacity. This is primarily because a large amount of terrain was available off the gondola in Phase 1 that will be skied off Lift M in this phase. All the same back-country style and gladed areas will be available, with a few additional areas off Lifts K and R. The trail network will still closely match the overall skier market. With a terrain capacity of 3,359 and an SAOT of 3,279 terrain densities will be slightly higher in this phase, but still quite low on average and continue to provide a high-quality, low-density ski experience.
- Non-alpine ski recreation. Several facilities will be built or expanded in this phase. The Nordic skiing and snowshoeing facility and trail network will be expanded, and the Sleigh ride and zip lines will be added.
- Guest support services. The Village and North Summit facilities will be expanded to between 12,342 and 15,568 square meters, enough guest service and skier support space to comfortably accommodate the needs of the guests in this phase.

Phase 2 is anticipated to be completed in the second 5 year period.

Figure 35: Mountain Master Plan – Phase 2

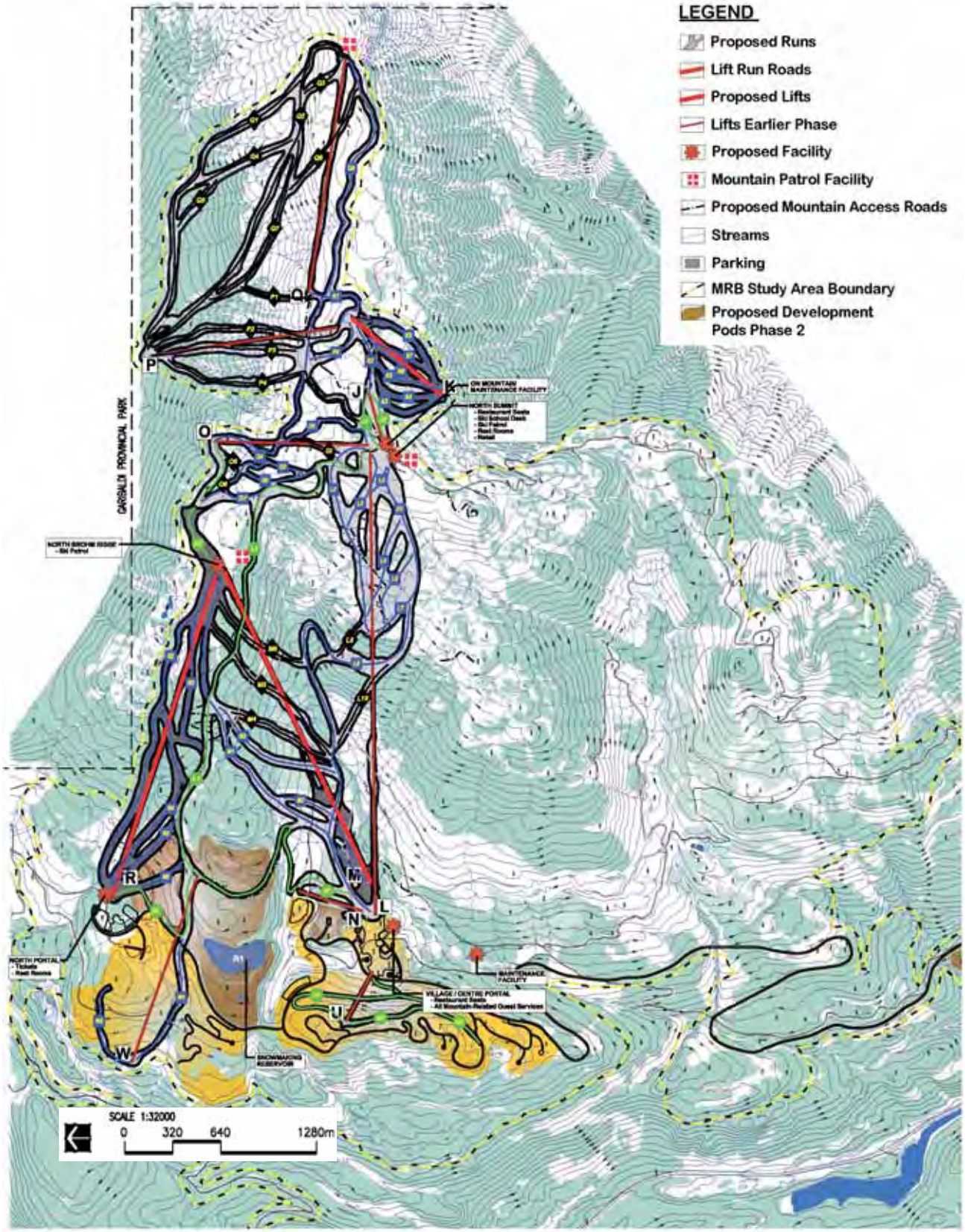


Table II-5.26. Lift Specifications – Phase 2

Map Ref.	Lift Type	Top Elev. (m.)	Bot. Elev. (m.)	Vert. Rise (m.)	Horiz. Length (m.)	Slope Length (m.)	Avg. Grade (%)	Hourly Capacity (persons/hr)
J	C3	1,733	1,705	29	373	376	8%	1,800
K	DC4	1,782	1,608	175	761	786	23%	2,000
L1	Gondola - Lower	1,480	1,037	443	1,784	1,838	25%	2,800
L2	Gondola - Upper	1,746	1,480	266	1,145	1,175	23%	2,800
M	DC6	1,558	1,011	547	2,187	2,283	25%	2,600
N	C3	1,112	1,044	68	428	438	16%	1,200
O	DC6	1,740	1,475	265	998	1,050	27%	2,600
P	DC4	1,770	1,166	604	1,247	1,403	48%	1,800
Q	C3	1,868	1,642	226	1,494	1,567	15%	500
R	DC4	1,556	1,148	408	2,184	2,259	19%	2,400
U	C3	1,200	1,041	159	436	486	36%	1,800
W	DC4	1,282	1,020	262	1,260	1,312	21%	1,800

Source: SE GROUP

Table II-5.27. Terrain Specifications Summary – Phase 2

Ability Level	Trail Area (ha.)	Terrain Breakdown
Beginner	15.7	5%
Novice	28.4	9%
Low Intermediate	54.8	17%
Intermediate	128.9	40%
Adv. Intermediate	33.6	10%
Expert	62.0	19%
Total:	**323.5**	**100%**

Source: SE GROUP

Table II-5.28. Terrain Capacity – Phase 2

Ability Level	Trail Area (ha.)	Skier/Rider Capacity (skiers)
Beginner	15.7	314
Novice	28.4	512
Low Intermediate	54.8	767
Intermediate	128.9	1,289
Adv. Intermediate	33.6	229
Expert	62.0	248
Total:	**323.5**	**3,359**

Source: SE GROUP

Table II-5.29. Skier Capacity Distribution by Ability Levels – Phase 2

Ability Level	Trail Area (ha.)	Ski Area Capacity (skiers)	Garibaldi Resort's Skier Capacity Distribution (%)	Garibaldi Resort's Market Distribution (%)	Distribution per CASP Guidelines (%)
Beginner	15.7	786	9%	5%	2-6%
Novice	28.4	1,280	15%	15%	11-15%
Low Intermediate	54.8	1,918	23%	25%	18-22%
Intermediate	128.9	3,223	38%	35%	33-37%
Adv. Intermediate	33.6	572	7%	15%	18-22%
Expert	62.0	620	7%	5%	8-12%
Total:	**323.5**	**8,398**	**100%**	**100%**	

Source: SE GROUP

Chart II-5.3. Terrain Distribution by Ability Levels – Phase 2

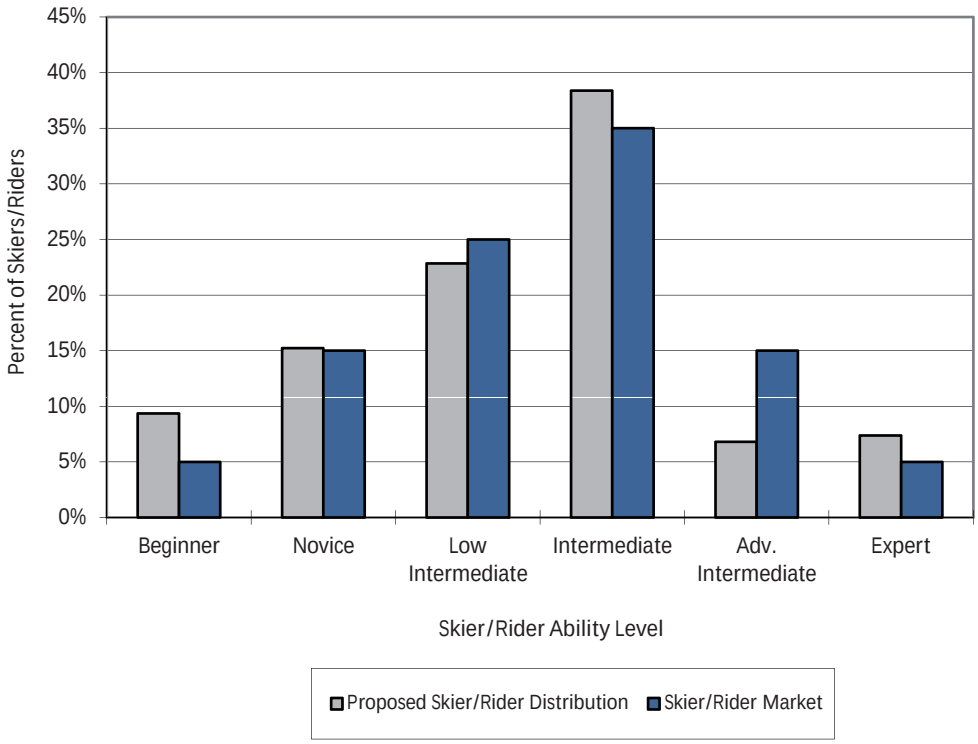


Table II-5.30. Calculation of CCC – Phase 2

Map Ref.	Slope Length (m.)	Vert. Rise (m.)	Hourly Capacity (pers/hr)	Oper. Hours (hrs.)	Up-Mtn. Access Role (%)	Misload. Lift Stop. (%).	Adjusted Hrly. Cap. (pers/hr)	VTM/Day (000)	Weighted Vertical Demand (m./day)	CCC (skiers)
J	376	29	1,800	6.50	5	10	1,530	286	1,000	290
K	786	175	2,000	6.25	0	5	1,900	2,076	3,720	560
L1	1,838	443	2,800	7.00	100	0	-	0	0	-
L2	1,175	266	2,800	7.00	25	5	1,960	3,650	3,952	920
M	2,283	547	2,600	7.00	5	5	2,340	8,954	4,445	2,010
N	438	68	1,200	7.00	0	10	1,080	512	1,000	510
O	1,050	265	2,600	6.75	5	5	2,340	4,180	4,253	980
P	1,403	604	1,800	6.00	50	5	810	2,936	7,188	410
Q	1,567	226	500	6.00	0	10	450	610	8,190	70
R	2,259	408	2,400	7.00	5	5	2,160	6,162	4,176	1,480
W	1,312	262	1,800	7.00	25	10	1,170	2,148	3,486	620
Total:	**14,487**	**-**	**22,300**	**-**	**-**	**-**	**15,740**	**31,514**	**-**	**7,850**

Source: SE GROUP

Table II-5.31. Disbursement of the Skier Population – Phase 2

Lift Number	Daily Capacity (CCC)	Disbursement of Skier/Rider Population			
		Support Fac./Milling (skiers)	Lift Lines (skiers)	On Lift (skiers)	SAOT (skiers on trails)
J	290	73	13	63	141
K	560	140	32	81	307
L1	0	0	0	0	0
L2	920	230	180	116	394
M	2,010	503	449	291	767
N	510	128	203	52	127
O	980	245	312	134	289
P	410	103	41	62	204
Q	70	7	15	37	11
R	1,480	370	126	266	718
U	0	0	0	0	0
W	620	155	59	85	321
Total:	**7,850**	**1,954**	**1,430**	**1,187**	**3,279**

Source: SE GROUP

Table II-5.32. Space Use Recommendations – Resort Total (Phase 2)

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	160	200
Public Lockers	271	331
Rentals/Repair	356	453
Retail Sales	345	421
Bar/lounge	345	422
Adult Ski School	283	345
Kid's Ski School	504	616
Restaurant Seating	3,397	4,151
Kitchen/Scramble	2,642	3,229
Rest rooms	1,050	1,284
Ski Patrol	194	237
Administration	377	461
Employee Lockers/Lounge	151	185
Storage	453	646
Mechanical/Circulation/Walls	1,813	2,586
TOTAL SQUARE METRES	**12,342**	**15,568**

Source: SE GROUP

Table II-5.33. Space Use Recommendations – Village (Phase 2)

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	90	110
Public Lockers	271	331
Rentals/Repair	356	453
Retail Sales	321	392
Bar/lounge	345	422
Adult Ski School	252	308
Kid's Ski School	504	616
Restaurant Seating	2,358	2,882
Kitchen/Scramble	1,834	2,241
Rest rooms	524	640
Ski Patrol	92	112
Administration	377	461
Employee Lockers/Lounge	151	185
Storage	336	503
Mechanical/Circulation/Walls	1,346	2,014
TOTAL SQUARE METRES	**9,157**	**11,672**

Source: SE GROUP

Table II-5.34. Space Use Recommendations – North Portal (Phase 2)

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	70	90
Public Lockers		
Rentals/Repair		
Retail Sales		
Bar/lounge		
Adult Ski School		
Kid's Ski School		
Restaurant Seating		
Kitchen/Scramble		
Rest rooms	295	361
Ski Patrol		
Administration		
Employee Lockers/Lounge		
Storage	16	20
Mechanical/Circulation/Walls	66	80
TOTAL SQUARE METRES	**448**	**551**

Source: SE GROUP

Table II-5.35. Space Use Recommendations – North Summit (Phase 2)

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	-	-
Public Lockers	-	-
Rentals/Repair	-	-
Retail Sales	24	29
Bar/lounge	-	-
Adult Ski School	31	37
Kid's Ski School	-	-
Restaurant Seating	1,039	1,270
Kitchen/Scramble	808	987
Rest rooms	231	282
Ski Patrol	102	125
Administration	-	-
Employee Lockers/Lounge	-	-
Storage	101	123
Mechanical/Circulation/Walls	402	491
TOTAL SQUARE METRES	**2,737**	**3,345**

Source: SE GROUP

Table II-5.36. Seating Requirements (Phase 2)

	Village	North Summit	Total Resort
Lunchtime Capacity (BRC=CCC+15% non-participant guests)	6,267	2,761	9,028
Guests returning to units for lunch (10% of ski to/from skiers)	534		534
Required Seating Capacity	5,733	2,761	8,494
Average Seat Turnover	3	3.5	-
Required Seats	**2,089**	**789**	**2,878**

Source: SE GROUP

Table II-5.37. Recommended Parking at Staging Portals (Phase 2)

	Multiplier	Village Portal	North Portal	Total
BRC (CCC + 15% other guests)	15%	5,507	3,521	9,028
Employees	15%	826	528	1,354
# of skiing guests staying in ski to/from units		2,111	3,226	5,337
# of "direct to lift" skiing guests staying in ski to/from units		0		0
Total ski to/from skiing guests		2,111	3,226	5,337
Total guests with direct access to non-alpine skiing recreation	25%	170		170
Remaining day skier guests		3,226	294	3,520
# of day guests arriving by shuttle or public transit	30%	968	88	1,056
# of day guests arriving by charter bus	10%	323	29	352
# of day guests arriving by car		1,936	177	2,112
# of employees arriving by car	60%	496	317	812
Required guest car parking spaces	3.00	645	59	704
Required employee car parking spaces	3.00	165	106	271
Required charter bus parking spaces	40.00	8	1	9
Equivalent car spaces (1 bus=4.5 car)	4.5	36	3	40
Total required spaces		**847**	**168**	**1,014**

Source: SE GROUP

PHASE 3

The third phase will effectively build out most of the northern section of the resort, about two thirds of the total. An additional access point to the resort will be added, providing significant additional terrain and improved circulation. With a capacity of 10,670 people at the completion of the phase, Garibaldi will be a large resort. The terrain will be well balanced to the lift network, and the terrain ability level distribution will very closely match the skier market. Terrain densities will be higher than in previous phases, but will remain below average target ranges. The following details summarize the specification of Phase 3:

- Lifts. The significant additions in the phase are Lifts G and H, which run in series and constitute an additional access point to the top of the mountain. Lift G is the lower lift and will provide access to a significant quantity of higher ability level terrain on the lower mountain. Lift H runs from the top of Lift G to the North Summit facility and provides access to additional intermediate terrain in the vicinity of the upper section of the gondola. A small access lift, Lift T, will also be built that connects to the bottom of Lift R. In addition to these new lifts, this phase will see many of the other lifts upgraded to their full design capacity.
- Terrain. The terrain accessed off Lift G is extensive and quite varied. With few exceptions, it is all advanced intermediate or expert terrain, but the terrain has aspects ranging from due south, through west facing, to due north. This terrain will provide lower elevation, less exposed upper ability level runs that will be used extensively when conditions are not optimal on the high elevation terrain. A few additional intermediate runs will be available off Lift H. Terrain area will increase by about 122 hectares, to around 445 total hectares. All of the same back-country style and gladed areas will be available, with significant additional areas off Lift G. The trail network will very closely match the overall skier market. With a terrain capacity of 4,438 and an SAOT of 4,500, the resort will be well balanced and will continue to provide a high-quality, below average density ski experience.
- Non-alpine ski recreation. Several facilities will be built or expanded in this phase. The Nordic skiing and snowshoeing facility and trail network will be expanded, and the mountain-top events and interpretive center will be made fully functional.
- Guest support services. In addition to bringing Village and North Summit facilities up to their full size and function, and additional on-mountain facility will be built on North Brohm Ridge, and some services will be available at the base of Lift G. Total space will be between 16,933 and 21,425 square meters, enough guest service and skier support space to comfortably accommodate the needs of the guests at the completion of this phase.

Phase 3 is anticipated to be completed in the third 5-year period.

Figure 36: Mountain Master Plan – Phase 3

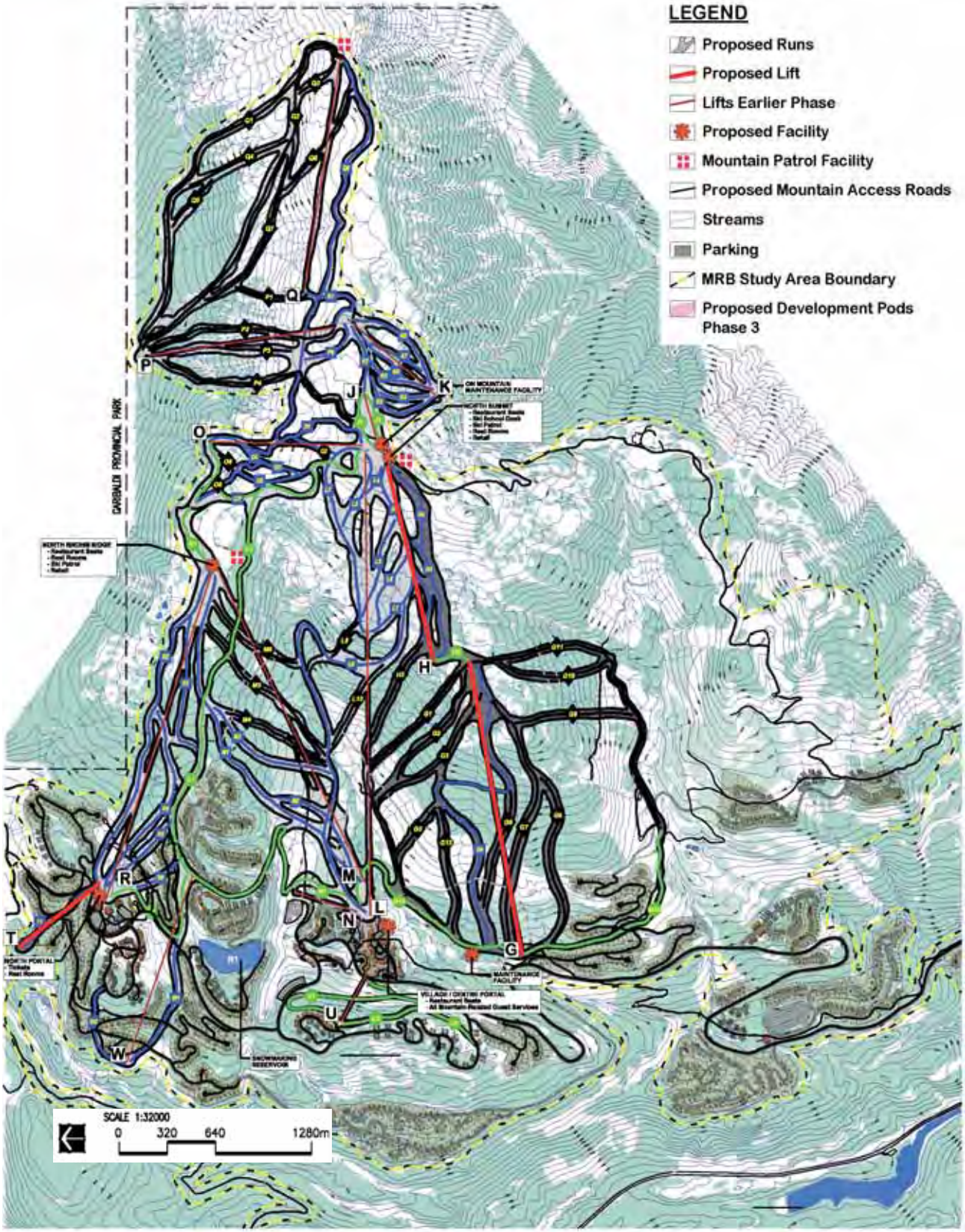


Table II-5.38. Lift Specifications – Phase 3

Map Ref.	Lift Type	Top Elev. (m.)	Bot. Elev. (m.)	Vert. Rise (m.)	Horiz. Length (m.)	Slope Length (m.)	Avg. Grade (%)	Hourly Capacity (persons/hr)
G	DC4	1,521	890	631	1,883	2,016	34%	2,400
H	DC4	1,740	1,475	265	1,250	1,278	19%	2,400
J	C3	1,733	1,705	29	373	376	8%	1,800
K	DC4	1,782	1,608	175	761	786	23%	2,000
L1	Gondola - Lower	1,480	1,037	443	1,784	1,838	25%	2,800
L2	Gondola - Upper	1,746	1,480	266	1,145	1,175	23%	2,800
M	DC6	1,558	1,011	547	2,187	2,283	25%	2,600
N	C3	1,112	1,044	68	428	438	16%	1,200
O	DC6	1,740	1,475	265	998	1,050	27%	2,600
P	DC4	1,770	1,166	604	1,247	1,403	48%	1,800
Q	C3	1,868	1,642	226	1,494	1,567	15%	500
R	DC4	1,556	1,148	408	2,184	2,259	19%	2,400
T	C3	1,143	1,038	104	661	678	16%	1,800
U	C3	1,200	1,041	159	436	486	36%	1,800
W	DC4	1,282	1,020	262	1,260	1,312	21%	1,800

Source: SE GROUP

Table II-5.39. Terrain Specifications Summary – Phase 3

Ability Level	Trail Area (ha.)	Terrain Breakdown
Beginner	15.7	4%
Novice	41.6	9%
Low Intermediate	64.3	15%
Intermediate	153.3	34%
Adv. Intermediate	93.2	21%
Expert	76.9	17%
Total:	**445.1**	**100%**

Source: SE GROUP

Table II-5.40. Terrain Capacity – Phase 3

Ability Level	Trail Area (ha.)	Skier/Rider Capacity (skiers)
Beginner	15.7	314
Novice	41.6	749
Low Intermediate	64.3	900
Intermediate	153.3	1,533
Adv. Intermediate	93.2	634
Expert	76.9	308
Total:	**445.1**	**4,438**

Source: SE GROUP

Table II-5.40. Skier Capacity Distribution by Ability Levels – Phase 3

Ability Level	Trail Area (ha.)	Ski Area Capacity (skiers)	Garibaldi Resort's Skier Capacity Distribution (%)	Garibaldi Resort's Market Distribution (%)	Distribution per CASP Guidelines (%)
Beginner	15.7	786	7%	5%	2-6%
Novice	41.6	1874	17%	15%	11-15%
Low Intermediate	64.3	2251	20%	25%	18-22%
Intermediate	153.3	3833	35%	35%	33-37%
Adv. Intermediate	93.2	1584	14%	15%	18-22%
Expert	76.9	769	7%	5%	8-12%
Total:	**445.1**	**11,096**	**100%**	**100%**	

Source: SE GROUP

Chart II-5.4. Terrain Distribution by Ability Levels – Phase 3

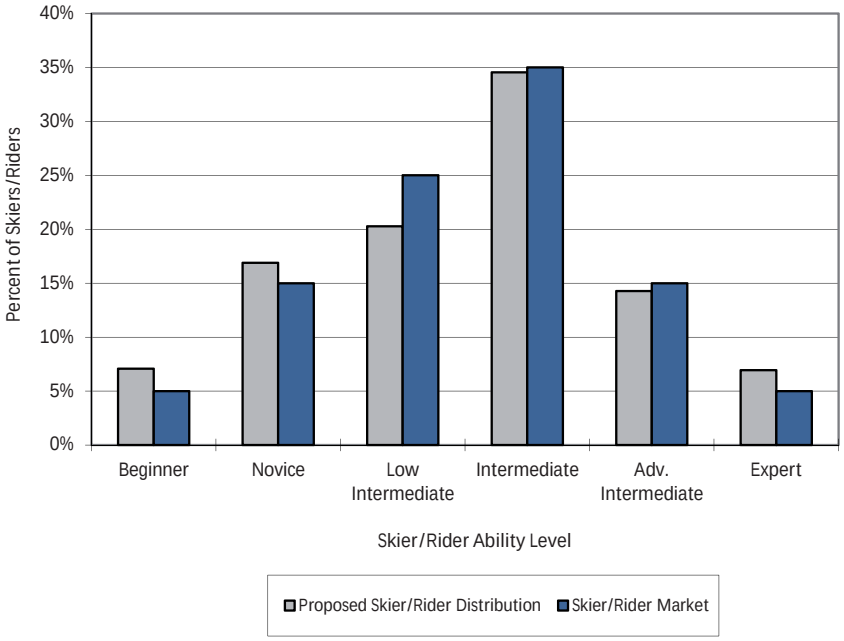


Table II-5.41. Calculation of CCC – Phase 3

Map Ref.	Slope Length (m.)	Vert. Rise (m.)	Hourly Capacity (pers./hr.)	Oper. Hours (hrs.)	Up-Mtn. Access Role (%)	Misloading Lift Stop. (%).	Adjusted Hrly. Cap. (pers./hr.)	VTM/Day (000)	Weighted Vertical Demand (m./day)	CCC (skiers)
G	2,016	631	2,400	7.00	0	5	2,280	10,070	5,735	1,760
H	1,278	265	2,400	6.50	0	5	2,280	3,927	3,721	1,060
J	376	29	1,800	6.50	5	10	1,530	286	1,000	290
K	786	175	2,000	6.25	0	5	1,900	2,076	3,720	560
L1	1,838	443	2,800	7.00	100	0	-	0	0	-
L2	1,175	266	2,800	7.00	25	5	1,960	3,650	3,952	920
M	2,283	547	2,600	7.00	5	5	2,340	8,954	4,445	2,010
N	438	68	1,200	7.00	0	10	1,080	512	1,000	510
O	1,050	265	2,600	6.75	5	5	2,340	4,180	4,253	980
P	1,403	604	1,800	6.00	50	5	810	2,936	7,188	410
Q	1,567	226	500	6.00	0	10	450	610	8,190	70
R	2,259	408	2,400	7.00	5	5	2,160	6,162	4,176	1,480
W	1,312	262	1,800	7.00	25	10	1,170	2,148	3,486	620
Total:	**17,781**		**27,100**				**20,300**	**45,511**		**10,670**

Source: SE GROUP

Table II-5.42. Disbursement of the Skier Population – Phase 3

Lift Number	Daily Capacity (CCC)	Disbursement of Skier/Rider Population			
		Support Fac./Milling (skiers)	Lift Lines (skiers)	On Lift (skiers)	SAOT (skiers on trails)
G	1,760	440	352	250	718
H	1,060	265	133	159	503
J	290	73	13	63	141
K	560	140	32	81	307
L1	0	0	0	0	0
L2	920	230	180	116	394
M	2,010	503	449	291	767
N	510	128	203	52	127
O	980	245	312	134	289
P	410	103	41	62	204
Q	70	7	15	37	11
R	1,480	370	126	266	718
U	0	0	0	0	0
W	620	155	59	85	321
Total:	**10,670**	**2,659**	**1,915**	**1,596**	**4,500**

Source: SE GROUP

Table II-5.43. Space Use Recommendations – Resort Total (Phase 3)

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	219	273
Public Lockers	448	548
Rentals/Repair	590	751
Retail Sales	484	592
Bar/lounge	546	668
Adult Ski School	366	447
Kid's Ski School	671	820
Restaurant Seating	4,617	5,643
Kitchen/Scramble	3,591	4,389
Rest rooms	1,320	1,614
Ski Patrol	252	308
Administration	513	627
Employee Lockers/Lounge	205	251
Storage	622	899
Mechanical/Circulation/Walls	2,488	3,597
TOTAL SQUARE METRES	**16,933**	**21,425**

Source: SE GROUP

Table II-5.44. Space Use Recommendations – Village (Phase 3)

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	149	183
Public Lockers	448	548
Rentals/Repair	590	751
Retail Sales	436	533
Bar/lounge	546	668
Adult Ski School	335	410
Kid's Ski School	671	820
Restaurant Seating	2,571	3,143
Kitchen/Scramble	2,000	2,444
Rest rooms	571	698
Ski Patrol	125	153
Administration	513	627
Employee Lockers/Lounge	205	251
Storage	412	617
Mechanical/Circulation/Walls	1,649	2,470
TOTAL SQUARE METRES	**11,223**	**14,315**

Source: SE GROUP

Table II-5.45. Space Use Recommendations – North Portal (Phase 3)

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	70	90
Public Lockers		
Rentals/Repair		
Retail Sales		
Bar/lounge		
Adult Ski School		
Kid's Ski School		
Restaurant Seating		
Kitchen/Scramble		
Rest rooms	294	360
Ski Patrol		
Administration		
Employee Lockers/Lounge		
Storage	16	20
Mechanical/Circulation/Walls	66	80
TOTAL SQUARE METRES	**446**	**550**

Source: SE GROUP

Table II-5.46. Space Use Recommendations – North Summit (Phase 3)

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	-	-
Public Lockers	-	-
Rentals/Repair	-	-
Retail Sales	24	29
Bar/lounge	-	-
Adult Ski School	31	37
Kid's Ski School	-	-
Restaurant Seating	1,035	1,265
Kitchen/Scramble	805	984
Rest rooms	230	281
Ski Patrol	102	125
Administration	-	-
Employee Lockers/Lounge	-	-
Storage	100	123
Mechanical/Circulation/Walls	401	490
TOTAL SQUARE METRES	**2,728**	**3,335**

Source: SE GROUP

Table II-5.47. Space Use Recommendations – North Brohm Ridge (Phase 3)

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services		
Public Lockers		
Rentals/Repair		
Retail Sales	24	29
Bar/lounge		
Adult Ski School		
Kid's Ski School		
Restaurant Seating	1,010	1,235
Kitchen/Scramble	786	960
Rest rooms	224	274
Ski Patrol	26	31
Administration		
Employee Lockers/Lounge		
Storage	93	139
Mechanical/Circulation/Walls	373	557
TOTAL SQUARE METRES	**2,536**	**3,226**

Source: SE GROUP

Table II-5.48. Seating Requirements (Phase 3)

	Village	North Summit	N. Brohm Ridge	Total Resort
Lunchtime Capacity (BRC=CCC+15% non-participant guests)	6,834	2,752	2,685	12,271
Guests returning to units for lunch (10% of ski to/from skiers)	754			754
Required Seating Capacity	6,080	2,752	2,685	11,517
Average Seat Turnover	3	3.5	4	-
Required Seats	**2,278**	**786**	**671**	**3,735**

Source: SE GROUP

Table II-5.49. Recommended Parking at Staging Portals (PHASE 3)

	Multiplier	Village Portal	North Portal	Total
BRC (CCC + 15% other guests)	15%	8,712	3,558	12,271
Employees	15%	1,307	534	1,841
# of skiing guests staying in ski to/from units	-	3,927	3,444	7,372
# of "direct to lift" skiing guests staying in ski to/from units	-	164		164
Total ski to/from skiing guests	-	4,091	3,444	7,535
Total guests with "direct access" to non-alpine skiing recreation	25%	340		340
Remaining day guests requiring parking	-	4,281	114	4,395
# of day guests arriving by shuttle or public transit	30%	1,284	34	1,319
# of day guests arriving by charter bus	10%	428	11	440
# of day guests arriving by car	-	2,569	69	2,637
# of employees arriving by car	60%	784	320	1,104
Required guest car parking spaces	3.00	856	23	879
Required employee car parking spaces	3.00	261	107	368
Required charter bus parking spaces	40.00	11	0	11
Equivalent car spaces (1 bus=4.5 car)	4.5	48	1	49
Total required spaces		**1,166**	**131**	**1,297**

Source: SE GROUP

II.5.19.2 BASE AREA LANDS PHASING

Garibaldi's base area lands will be developed at the same pace as mountain facility development so that at all phases there will be a balance between the mountain and the base lands, which are comprised of the guest services, parking and overnight accommodation. The progression of development of overnight accommodations is shown in the table below.

The timing of each phase will depend on market forces and the successful implementation of the previous phase. Per the ASRG, the MRB will review development progress and success prior to approval of each subsequent phase. In all cases the capacities of Base Area and Mountain Developments must remain in balance as per the ASRG.

The phasing of other base lands facilities such as guest services and parking is indicated in the Sections II.5.7–9. The phasing of mountain development is detailed in Section II.4.

As noted earlier in the BU calculation model discussion (Section II.5.13), the 2017 Draft Master Plan will continue to respect the lower BU calculation of 21,922 (rounded to 21,920) established through the earlier plans, rather than follow more recent calculations (e.g. a BRC of 17,538 would result in a BU calculation of 23,852)

Table II.5-15. Bed Unit Phasing

	Hotel			Resort condo			Townhome			Single Family			Total
Area	units (rooms)	BU / unit	total BU	units	BU / unit	total BU	units	BU / unit	total BU	units	BU / unit	total BU	total BU
Ph. One, RCC = 4,370 (Cumm. 4,370)													
6	234	2	468	277	4	1,108	0	4	0	0	6	0	1,576
7	0	2	0	160	4	640	232	4	928	47	6	282	1,850
9	157	2	314	268	4	1,072	99	4	396	123	6	738	2,520
subtotal	*391*		*782*	*705*		*2,820*	*331*		*1,324*	*170*		*1,020*	*5,946*
Ph. Two, RCC = 4,658 (Cumm. 9,028)													
1	0	2	0	0	4	0	0	4	0	71	6	426	426
6	140	2	280	166	4	664	0	4	0	0	6	0	944
9	309	2	618	529	4	2,116	195	4	780	242	6	1,452	4,966
subtotal	*449*		*898*	*695*		*2,780*	*195*		*780*	*313*		*1,878*	*6,336*
Ph. Three, RCC = 3,243 (Cumm. 12,271)													
5	0	2	0	0	4	0	0	4	0	147	6	882	882
6	406	2	812	480	4	1,920	0	4	0	0	6	0	2,732
9	50	2	100	85	4	340	31	4	124	39	6	234	798
subtotal	*456*		*912*	*565*		*2,260*	*31*		*124*	*186*		*1,116*	*4,412*
Ph. Four, RCC = 5,267 (Cumm. 17,538)													
2	0	2	0	0	4	0	0	4	0	88	6	528	528
3	0	2	0	240	4	960	160	4	640	204	6	1,224	2,824
4	0	2	0	0	4	0	120	4	480	114	6	684	1,164
8	0	2	0	0	4	0	0	4	0	106	6	636	636
9	5	2	10	8	4	32	2	4	8	4	6	24	74
subtotal	*5*		*10*	*248*		*992*	*282*		*1,128*	*516*		*3,096*	*5,226*
Total	1,301		2,602	2,213		8,852	839		3,356	1,185		7,110	21,920

Figure 37: Base Area Lands – Phasing

II.5.20 IMPLEMENTATION AND MANAGEMENT CONCEPT

Garibaldi intends to begin construction of the mountain access road as soon as practical after approval of the Master Development Agreement. There is a fixed milestone of 5 years from the date of the EA Certificate issuance to have significantly started construction. This will be January of 2021 for Garibaldi. Depending on the timing of the next stage of approval process this may require an extension request and this possibility has been discussed with the EAO and the MRB.

Initial scheduling shows a potential 3-year construction period with the Resort open for business in the fall of the third year.

Garibaldi will contract with or form a company that will oversee the design and construction, and will sub-contract work packages as required.

It is intended that there will be an operating company that would look after all parts of the operational and maintenance side of the Resort and coordinate with the construction group to ensure that ongoing construction projects co-ordinate with the resort needs.

The resort will open with the main gondola (lift L) plus 2-3 of the lifts outlined in Phase 1, have guest service needs met in the Main Village, along with some accommodation, likely in the form of condominiums available for rent. It is anticipated that these condominiums would be part of a pre-sale program.

In order to open all portions of the resort together it is likely that there will be a request for bonding to establish that mountain facilities and base areas are completed and open together. This will ensure that this will be a complete small resort right from the start.

The first phase of the North Summit guest service building will be constructed and the Alpine and Base area maintenance facilities will be usable.

Snowmaking infrastructure will be in place and equipment installed on several of the main runs and the Village base area.

There will be snowshoeing and some of the other non-ski activities ready for the first winter as well as hiking and biking trails and some other activities ready for the first summer. The intention is for this to be a complete small resort in the first year of operation that will be so attractive that it will draw curious visitors back and build interest through word of mouth.

The infrastructure will be in place allowing expansion of base area facilities and allow for continued expansion of more accommodation as the demand increases and as approved by the MRB.

The mountain facilities will also expand as the market demands. It is anticipated that each of the 4 main phases of construction will take 5 years to complete, always dependent on market conditions and approvals.

II.5.21 ACCESS AND TRAFFIC

Webster Engineering in 2009 reviewed the work of two previous engineering concepts for routing of the main access road and their proposed alignment is the road shown on the current Base Area maps. One recommendation of that review was that further study takes place once LIDAR mapping is available. LIDAR mapping has now been completed and review of the concepts is anticipated to take place in spring/summer 2017. Garibaldi intends to have a pre-design alignment available for the final Master Plan application. This existing study is attached as an appendix to this document.

Bunt Engineering in 2014 reviewed highway traffic, forecast traffic growth to buildout and recommended some improvements be undertaken on Highway 99. These will be discussed with Ministry Engineers, as well as a review of the location of the main intersection of the access road with highway 99, plus the forecast timing of other works. Garibaldi commits to working with other private and public partners in improving alternatives to the car for moving workers and guests to the resort and throughout the region. The Traffic study is attached as an appendix to this document.

Part of the approval of the EA Certificate included a Minister's reasons for decision letter, explaining the technical report from staff and other input to the Traffic study. The Ministers stated that:

"In light of the anticipated growth in the Sea to Sky Corridor which is likely to occur regardless of this Project proceeding and recognizing that the Government of British Columbia has the responsibility to manage transportation infrastructure throughout the Province, we accept the uncertainty identified by EAO."

II.5.22 INFRASTRUCTURE

Urban Systems Consulting Engineers reviewed power supply and routing as well as options for sewage treatment. There is sufficient power available from BC Hydro, with a new main feeder line to be built from the Cheekye substation. Details of this work will be updated for the Master Plan.

Hydrology engineers Piteau, and civil engineers Creus did further research on groundwater, water use and storage and pumping options. The EA accepted this plan, and Conditions 4-10 of the Environmental Certificate outline solutions around remaining groundwater issues. Work is underway on clarifying several of those issues.

Condition 34 of the EA Certificate requires a Liquid Waste Management Plan and this normally takes several years to complete. This plan will need to be in place in time for detailed engineering to be completed.

All infrastructure planning will include options for modular construction, that is it will work well in phase 1, but be capable of efficiently expanding as the resort grows. This would specially apply to large and expensive items such as a waste water treatment facility.

II.5.23 ENVIRONMENTAL ASSESSMENT ACT PROJECTS

An Environmental Assessment Certificate was issued in January of 2016, with 40 Conditions to be undertaken as part of construction and operations. Included is a requirement for a Construction Environmental Management Plan along with an Environmental Monitor who is a Qualified Environmental Professional.

Further information is available through the link below to EAO website with Certificate, Certified Project Description and Conditions under the folder of - Certificate issued.

https://projects.eao.gov.bc.ca/p/garibaldi-at-squamish/docs

II.5.24 MARKET ANALYSIS

SE Group "Skier Demand Analysis" of 2014 showed that the mountain resort market for winter snowplay is strong in North America and especially in BC, with a forecast of continued growth. This matches all of the forecasts submitted to the MRB for recent Mountain Resort approvals. Those forecast levels have been exceeded in the years since 2014, due to the high US dollar, some excellent snow coverage and an increased focus on international visitation. This study is attached as an appendix to this document.

Price Waterhouse Cooper performed a study for the Ministry of Culture, Tourism, Sports and the Arts (the precursor of the MRB) in 2009 titled "A Review of Updated Information" and commented on the input from Garibaldi. This study is attached as an appendix to this document.

It is important to note that the comment on 'aggressive' forecast visits in the SE study, raised in the PWC analysis have been exceeded in subsequent years by outstanding year-round tourism visitation numbers throughout the region. This includes the Sea to Sky Gondola in Squamish which has reported far exceeding their projections for the first two years of operation.

PKF reviewed the accommodation forecasts in an "Accommodation Impact Study" in 2014. This study is attached as an appendix to this document.

II.5.25 CAPITAL COSTS PROJECTIONS

An updated proforma is currently underway and will be ready for the final Master Plan Application. The most recent Capital Cost Projection was for the Supplementary Application to the EAO in 2014 and included total costs of $2.9 billion which includes Mountain and Base area costs of $800,000,000. It is estimated that the project will be built in 4 main phases over a 20-year period.

II.5.26 ECONOMIC FEASIBILITY

All of the analyses done to date show that there is a market in this region for this type of resort and that it can succeed as a year-round facility, while recognizing that there are technical issues to be solved as design progresses.

MMK in 2010 performed a "Socio-economic and Fiscal Impact" study that was independently managed by the District of Squamish. This was focused on the impact of the resort on the District of Squamish and studied all possible issues. Included in that was the impact of failure of the resort on the taxpayers of Squamish if Garibaldi was part of the District. The report concluded that only in early failure of the resort would there be a negative taxation impact on citizens, and that it would be a minor impact. This study is attached as an appendix to this document.

Garibaldi will propose and discuss several means of reducing that impact with Squamish, including the possibility of a private utility for all infrastructure to reduce the potential for negative impacts.

All other scenarios explored produced a net positive impact on Squamish taxpayers, if the resort is a part of the District of Squamish through boundary extension.

The 2010 MMK report stated that "The successful development of GAS represents a potentially enormous engine for economic, population, and employment growth in the District of Squamish.", and suggested several technical issues that would need to be resolved to ensure this success, all of which can be accomplished as part of the detailed planning and design process.

The PWC report that reviewed the 2009 amended Master Plan by SE Group and comments are in included in the Market Analysis section. This study is attached as an appendix to this document.

The updated proforma will include an analysis of capital and operating costs against revenue that will further illustrate the economic viability of the resort.

II.5.27 SOCIAL AND ECONOMIC IMPACT

2010 MMK report managed by the District of Squamish showed the economic value of the resort to the local and overall economy on page 7 and then outlined several of the issues that will need to be solved as part of the ongoing detailed planning process. All of the issues raised have a solution available through good design and planning. This study is attached as an appendix to this document.

The report reads as follows:

"Garibaldi's potential impacts on direct economic activity levels are projected to be very significant:

- *Capital construction – In addition to the $838 million (2009 dollars) in capital expenditures planned by GAS, the full resort development proposed by GAS would involve $1.8 billion in additional residential construction and $689 million in additional commercial construction. Thus, the total direct expenditures on capital construction would be more than $3.3 billion over 20 years. Capital expenditures would be higher in initial years but would still average $133 million annually during the final years of development.*
- *Operating revenues – GAS-related expenditures by residents and visitors are projected as $3.6 billion over 20 years. They are projected to grow over time, reaching $87 million by 2016 and $366 million by 2031. These figures are conservative in that they do not include non-GAS related expenditures (e.g. Squamish area shopping) by permanent GAS residents. When indirect (supplier activities) and induced (employee payroll spending) impacts ("multiplier effects") are also considered, the projected 20-year economic impacts are even greater:*
- *Capital construction – The $3.3 billion in 20-year direct construction expenditures is estimated to generate $5.7 billion in total expenditures, resulting in (1) $2.3 billion in additional GDP (value added to the economy) in BC, (2) 38,331 person-years of employment, and (3) $462 million in government revenues: $164 million federal, $258 provincial, and $40 million municipal.*
- *Operating revenues – The $3.6 billion in direct expenditures over the first 20 years of operation is estimated to generate $6.1 billion in total expenditures, resulting in (1) $3.2 billion in additional GDP in BC, (2) 80,579 person-years of employment, and (3) $525 million in government revenues: $228 million federal, $232 million provincial, and $64 million municipal.*
- *While these economic impact figures are for British Columbia as a whole, a very significant portion of the impacts are expected to occur in Squamish."*

The Reasons for Minister's Decision letter explaining the EA Certificate approval also noted that:

"With this as background, we agree with EAO's Assessment Report which notes that further assessment or additional information would not necessarily provide greater certainty on socio-economic effects. We agree that tourism projects are different than many natural resource projects which we regularly consider, as many success factors are beyond control of the Proponent".

The Squamish First Nation is a full partner in Garibaldi through a Memorandum of Understanding signed in 2007. There are significant economic and social benefits that will flow to the Nation as the resort begins construction and operations, including training and employment for members, a share of long term profits, provision of serviced fee simple lots for use by the Nation as well as a commitment to highlight cultural and heritage values throughout the resort.

II.5.28 FINANCIAL CAPABILITY

Both Canadian principals of Garibaldi at Squamish are headquartered in Vancouver and together employ over 15,000 Canadians, the majority in British Columbia.

Aquilini Investment Group is one of Canada's most diversified companies that owns and manages an international real estate portfolio of commercial properties, office buildings, hotels, restaurants, golf courses, cranberry and blueberry farms, as well as a commercial and residential construction company. Entertainment and hospitality brands include the Top Table restaurant group, Rogers Arena, and the Vancouver Canucks hockey team.

Northland Properties is recognized throughout Canada as one of the most trusted names in hotels, restaurants, sports, and construction. Northland Properties Corporation is the force behind such brands as Sandman Hotel Group, The Sutton Place Hotels, Moxie's Grill & Bar, Chop Steakhouse & Bar, Denny's Restaurants, The Dallas Stars, Revelstoke Mountain Resort and Northland Asset Management Company. Proud to be 100% Canadian-owned and operated, with over 40 locations across Canada and over 50 hotels worldwide, Northland's head offices are located in both Calgary and Vancouver and employ over 10,000 talented individuals.

Appendices included under separate cover

FEBRUARY, 2018

AQUILINI DEVELOPMENT

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