

**GUIDELINES TO  
ALPINE SKI AREA DEVELOPMENT  
IN BRITISH COLUMBIA**

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Ministry of Environment, Lands and Parks

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**(Note:** The BC Ski Area Guidelines were written in 1996 when LWBC was known as BC Lands.)

## EXECUTIVE SUMMARY

### Introduction

Based on the Ski Area Guidelines document originally assembled by B.C. Lands in 1979, the following are new revised guidelines that take into account an orderly planning process for ski area development in British Columbia. They are intended for use by developers and government personnel, to assist in the process of planning and evaluating new ski area proposals and expansions to existing ski resort developments on Crown land.

The structure of the new Ski Area Guidelines adhere to the requirements defined within Commercial Alpine Skiing Policy. The guidelines describe the increasing detail necessary to determine and illustrate a site's development potential, leading to the creation of appropriate plans and proposed actions that should result in the establishment of a successful ski area. Throughout, an emphasis has been placed on the necessity to recognize that, in order to maintain a sustained high level of environmental quality while offering a dynamic resort experience, any prospective ski area development site has maximum capacities and absolute limits to growth. These capacities must be calculated and respected.

Although the guidelines appear to be focused on the creation and establishment of brand new ski area developments, they are also intended for application to the expansion of existing ski resorts. At each stage of ski area planning, regardless of whether the project is a new ski area or the expansion of an existing resort, the same effort and considerations must be undertaken by the proponent. Further, it should be noted that any expansion of a ski area must be done in the context of the whole resort.

### **Purpose of the Ski Area Guidelines**

The Ski Area Guidelines should **encourage and foster well balanced, environmentally sensitive ski area development that responds to the needs and expectations of the skier marketplace while having a positive social and economic impact on the community, region and province.**

In addition, the Ski Area Guidelines should:

- Act as a public document to complement the Commercial Alpine Skiing Policy, for use by the province, regional districts and local governments;
- Act as a guide to prospective ski area developers on both public and private lands, establishing criteria for the creation of their proposals and giving applicants a process from which to approach development;
- Provide evaluation criteria for Ski Area Expressions of Interest and Formal Proposals, that enable methodical review without stifling creativity and new approaches to development;

- Provide a methodology for consideration of alpine skiing on Crown land where it is deemed in the public interest and meets the requirements of all provincial agencies;
- Ensure that skiing is the highest and best use of the subject area;
- Ensure that development is environmentally sustainable and economically viable;
- Provide a process for the creation and evaluation of Ski Area Master Plans and;
- Assist in the development of new and expanded skiing facilities within the province, recognizing the existing ski resorts as a baseline from which to continue in the collective establishment of British Columbia as a world renowned ski area destination.

### **Ski Area Planning**

Effective ski area planning should ensure the creation of innovative, well balanced ski area developments that take into account the physical capacities of the land to support skiing, followed by an understanding of the impact (environmental, social and economic) such a development might have. As such, the planning process of a ski area moves through a sequence of events beginning with the **Vision (the Expression of Interest)**; followed by the generation of the **Concept (the Proposal)**; culminating in the creation of the **Master Plan**. At each of these stages, as the level of detail increases, the act of planning a successful ski area should result in a positive response to the following four questions:

1. **Physical Reality:** Does the study area have the physical capability and right climatic conditions to support the development of a ski resort?
2. **Environmental Reality:** Can a ski area be developed within the study area in an environmentally sustainable and responsible fashion?
3. **Social Reality:** Should a ski area be established in light of the existing development, community needs, alternative proposals, and competing facilities?
4. **Economic Reality:** Does it make economic sense to develop the ski area in light of capital costs and the ability of the market to support such development?

## **Capacity, Balance and Impact**

Understanding the capacity of the land to accommodate a ski area, in terms of the development goals and objectives, is the cornerstone to creating and evaluating plans for a proposed ski area development. Once the various capacities of a prospective ski area site have all been brought into balance, the physical limits to growth have been defined. This then becomes the baseline to establishing a phased development process that, in turn, enables the determination of the capacity for the skier marketplace to support the development in light of distances to market and competition. Subsequently, the economic feasibility of the ski area development can be initiated and development impact analyses (environmental, economic, social and competitive) can be completed. The results of the impact analyses are the basis for refinements to the plans and ultimately to the economic and financial feasibility studies of the proposed ski area development.

## **Ski Area Planning: The Vision Stage (Expression of Interest)**

The first stage of planning for the development of a ski area is for the proponent to define the idea or the Vision. As per the Commercial Alpine Skiing Policy (CASP), an Expression of Interest to develop a ski area on Crown Land should be submitted to BC Lands of the Ministry of Environment, Lands and Parks (the Ministry) for consideration. The Expression of Interest should effectively describe the applicant's Vision of the proposed project. In it, the applicant should present BC Lands with the following:

- The nature of the applicant's intentions;
  - An outline of the project goals and objectives;
  - Study area mapping (1:20,000 with 20 meter contour interval);
  - Preliminary environmental analysis;
  - Preliminary site inventory and analysis;
  - Identification of opportunities and constraints;
  - Preliminary concept describing the basic size and scope of the envisioned ski area;
  - Preliminary market analysis;
  - Preliminary economic analysis;
  - Provide evidence of the applicant's financial capability to create the proposed development, and;
  - Provide evidence of the applicant's management capability to carry out the proposed project.
- Once submitted, the Expression of Interest will be reviewed by BC Lands personnel and then referred to other agencies. Typically, such a review will take 30 days to complete.

Following the review, if positive, BC Lands may advertise for additional Expressions of Interest. Over the course of the next 30 to 60 days, other parties will be given the opportunity to submit.

## **Ski Area Planning: The Concept Stage (The Formal Proposal)**

The Concept Stage of Ski Area Planning takes the preliminary concepts developed in the Vision Stage as part of the Expression of Interest to a higher level of detail. A Formal Proposal to develop or expand a ski area will be evaluated according to the site specific merits and should include all of the following components:

- A discussion of the proponent's vision, concept and project description for the ski area including their development goals and objectives.
- A technical inventory and analysis of the proposed mountain and base area utilizing the appropriate topographic mapping. It should be noted that if the project proceeds to the Master Plan Stage, topographic mapping of the mountain and the base area will be required at a scale of 1:5,000 with a 5 meter contour interval and 1:1,000 with a 1 meter contour interval respectively.
- An environmental audit (inventory) of the proposed development lands.
- Development concepts for the mountain with a determination of the Comfortable Carrying Capacity (CCC) of the ski area in terms of skiers per day.
- Development concepts for the base area lands balanced to the CCC of the mountain in conjunction with site specific attributes.
- A determination of the type of ski area development (community, urban, regional, regional/destination and, destination) and whether overnight accommodation should be incorporated into the concept.
- If warranted, based on the type of ski area, perceived attributes and the CCC, the number and type of accommodation, in the form of bed units (BUs) can be determined.
- Phased development and implementation concepts (phase 1 in detail, with subsequent phases in conceptual form).
- Infrastructure concepts (phase 1 in detail, with subsequent phases in conceptual form).
- A discussion of environmental issues/hazards, as impacted by the development concept, and remedial measures.
- A discussion of the economic and social impact, land use issues and proposed resolution of conflicts.
- Servicing and economic feasibility, including detailed proforma, cash flow projections, development cost estimates and formal market study.
- Summary of ownership and management structure in a detailed prospectus.
- Discussion of social and economic impact.
- Evidence of financial capability of the applicant to undertake the master planning process.
- Evidence of resort development and management experience of the applicant.

Upon submission, the Regional Director will coordinate a provincial interagency and local government review of the proposals. As per the Commercial Alpine Skiing Policy, a "successful proposal will be judged to make the best use of the available Crown land, with the least environmental impact and best remedial measures for impact mitigation. The Ministry is not obligated to select or approve any formal proposal". If a proponent is chosen, an interim agreement is signed with the Ministry, making a commitment for the proponent to prepare a ski area master plan on the basis of the approved formal proposal and to proceed to obtain all necessary approvals from other regulatory agencies.

### **Ski Area Planning: The Master Plan Stage**

With the Interim Agreement in place, the Master Planning of the ski area can be initiated. This will effectively be a detailed refinement of the Concept Plans submitted as part of the Formal Proposal. As summarized in the interim agreement, any issues identified during the concept review, the interagency review, and public meetings, must be rectified within the Master Plan.

The final Master Plan document will act as the reference point from which the Master Development Agreement and all other approvals, permits and tenure will be based. Further, performance evaluations of operations and subsequent requests for amendments and expansion will look to the Master Plan as the starting point of review. The Master Plan should be divided into sections leading methodically through the planning process from, and including, a description of the project goals and objectives, site inventory and analysis, concept generation, the ski area plans, implementation, economic feasibility, and financial capability.

Once the Master Plan has been approved, the applicant should make any final requested refinements and submit the plans as a basis for the Master Development Agreement (MDA) and for all development permits. With the MDA and all permits are in place, an Operating Agreement can be applied for, tenures can be issued and the applicant may proceed to initiate construction and subsequently open the ski area for operations.

A Five Year Development Plan must be filed with B.C. Lands and updated on an annual basis. This is essentially a work plan for each summer, identifying all construction projects (i.e. new ski lift lines, ski runs, licenses to cut, etc.) to be considered during each of the next five years.

### **Implementation**

Finally, the Ski Area Guidelines are intended to be a living document, changing over time to reflect the need to make ongoing improvements to ski resorts throughout B.C.

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## **I. INTRODUCTION**

### **I.1 Background**

Ski area development in British Columbia follows a basic process leading from the initial idea or vision, to the creation of a concept and a master plan, followed by approvals, permitting, and construction. Subsequently, once in place and operating, the successful resort constantly re-evaluates and refines its master plan to respond to ongoing changes in the demands and expectations of the skier and tourist marketplace (i.e. the emergence of snowboarding and the increasing expectation for express lift serviced ski terrain). This creates a need for new approvals and permits prior to new development.

In the late 1970's, a Ski Area Guidelines document was assembled by B.C. Lands to assist them in the evaluation of ski resort proposals that were being received at the time. The following are revised guidelines, loosely based on the original guidelines that take into account an orderly planning process for ski area development in British Columbia. They are intended for use by developers and government personnel, to assist in the process of planning and evaluating new ski area proposals and expansions to existing developments on Crown land.

The guidelines have been developed to:

1. Provide more detailed information about the Commercial Alpine Skiing Policy (CASP) objectives;
2. Define the ski area development and review process;
3. Identify the ski area master plan components for development of skiing on Crown land;
4. Provide design criteria for the planning process;
5. Identify evaluation criteria for ski area development proposals.

The structure of the new Ski Area Guidelines adhere to the requirements defined within CASP. Moving in stages from the Vision to the Concept to the Master Plan, the guidelines describe the increasing detail acquired in the inventory and analysis necessary to determine and illustrate a site's development opportunities and constraints. This leads to the creation of appropriate plans and proposed actions that should result in the establishment of a successful ski area.

Throughout, an emphasis has been placed on the necessity to recognize that, in order to maintain a sustained high level of environmental quality while offering a dynamic resort experience, any prospective ski area development site has maximum capacities and absolute limits to growth. These capacities must be calculated and respected. However, to ensure creativity as well as a positive visitor experience, and to discourage the establishment of repetitive and similar ski area developments throughout the province, a range of flexibility and interpretation has been built into the guidelines.

Although the guidelines appear to be focused on the creation and establishment of brand new ski area developments, they are also intended for application to the expansion of existing ski resorts.

It is recognized that the bulk of new development in the future will likely be in the form of resort expansion. Regardless, the same basic ski area development principles described herein apply to both the new area and expansion area scenarios.

## **I.2 Commercial Alpine Skiing Policy**

Ski areas operate on both Crown land and private land in British Columbia. Crown land ski operations are administered by BC Lands within the Ministry of Environment Lands and Parks. This Ministry is responsible for implementing the CASP and managing the ski area tenures.

The approval process for ski development (Commercial Alpine Skiing Policy Review, Environmental Assessment, and Community Planning) is to be overseen by the Regional Director of the Ministry of Environment, Lands and Parks. During the initial stages of their planning, parties interested in ski area expansion or development of new ski areas are encouraged to contact the appropriate BC Lands Regional Director, for preliminary discussions.

Crown land, under the jurisdiction of the Ministry of Environment, Lands and Parks, can be made available for community and commercial alpine skiing development governed by the Commercial Alpine Skiing Policy (CASP). As stated in that policy;

"the provision of Crown land for alpine skiing facilities is intended to support the provincial goal of expansion of employment, revenue and recreational opportunities. Further, the strategic objectives of CASP are:

1. To provide for orderly, rational development and use of Crown land for commercial alpine ski purposes;
2. To minimize environmental conflicts and encourage continued compatible resource use on Crown lands; and,
3. To provide a fair return to the Crown for the use of public land."

### **I.3 Purpose of the Ski Area Guidelines**

In support of the above, the Ski Area Guidelines should **encourage and foster well balanced, environmentally sensitive ski area development that responds to the needs and expectations of the skier marketplace while having a positive social and economic impact on the community, region and province.**

In addition, the Ski Area Guidelines should:

- Act as a public document to complement the Commercial Alpine Skiing Policy, for use by the province, regional districts and local governments;
- Act as a guide to prospective ski area developers on both public and private lands, establishing criteria for the creation of their proposals and giving applicants a process from which to approach development;
- Provide evaluation criteria for Ski Area Expressions of Interest and Development Proposals, that enable methodical review without stifling creativity and new approaches to development;
- Provide a methodology for consideration of alpine skiing on Crown land where it is deemed in the public interest and meets the requirements of all provincial agencies;
- Ensure that skiing is the highest and best use of the subject area;
- Ensure that development is environmentally sustainable and economically viable;
- Provide a process for the creation and evaluation of Ski Area Master Plans and;
- Assist in the development of new and expanded skiing facilities within the province, recognizing the existing ski resorts as a baseline from which to continue in the collective establishment of British Columbia as a world renowned ski area destination.

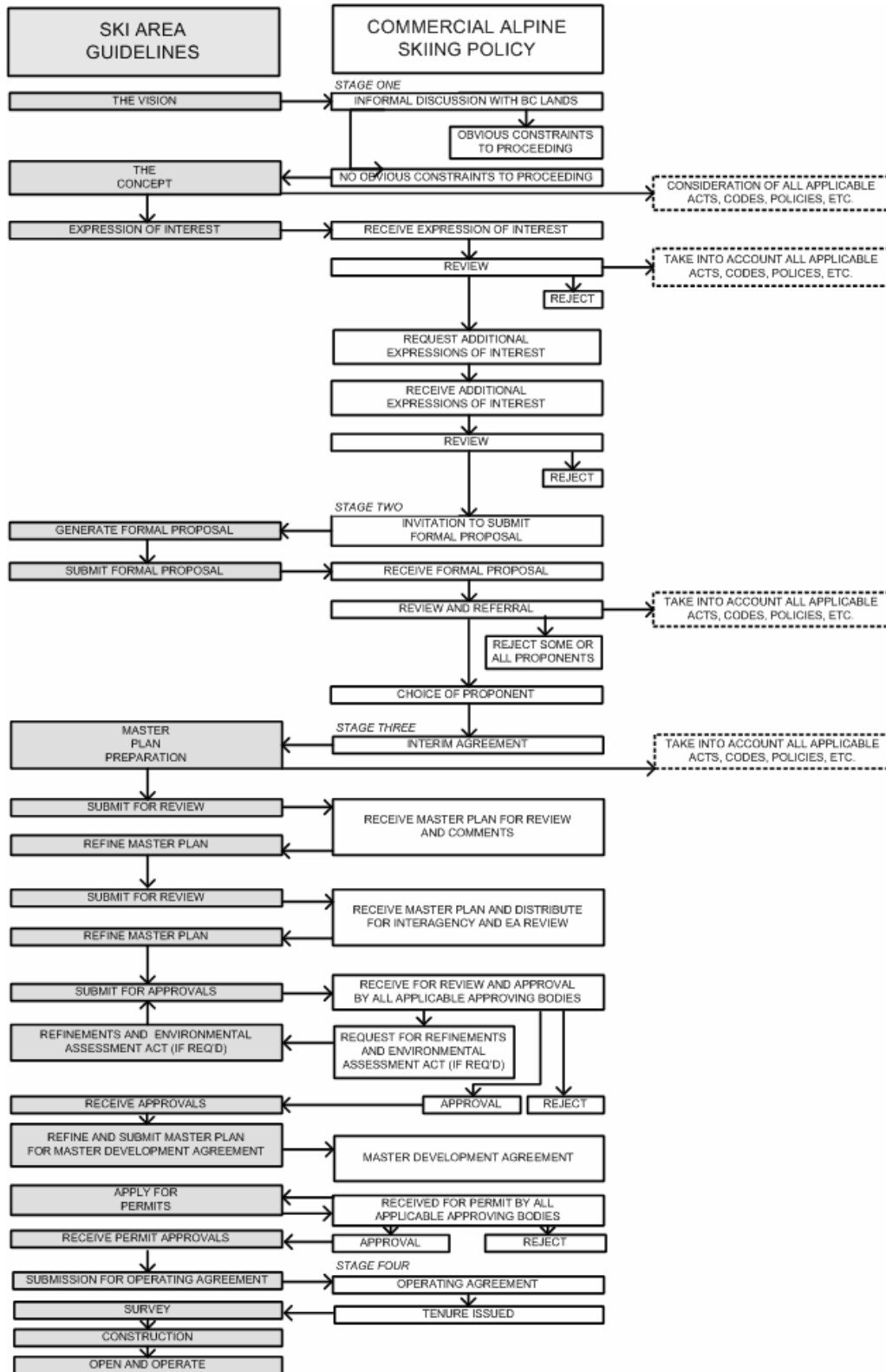
## **I.4 The Approval Processes**

Under the Land Act, the Commercial Alpine Skiing Policy is intended for use to evaluate and regulate development of ski areas on Crown land. The Ski Area Guidelines should act as a baseline reference to assist with the planning process.

Throughout the generation and evaluation of the plans for a ski area development, from inception to final agreement, as applied to the approvals, both the applicant and approving officers should be constantly asking the question "Does the project make sense to proceed"? The Ski Area Guidelines have been structured to support and complement CASP. It should be noted that, as a ski area's plans progress in relation to that policy, the approval processes begin to involve an increasing number of other policies, plans, acts, and development codes within a variety of other ministries and government bodies. These include but are not limited to the following:

- Land Act
- Environmental Assessment Act
- Waste Management Act
- Water Act
- Mountain Resort Association Act
- Municipal Act
- Growth Strategy Act
- Forest Land Reserve
- Fisheries Act
- Forest Practices Code of BC Act
- Community Master Plan
- Land Use Zoning
- Official Community Plan
- Comprehensive Development Plan

The following flow chart attempts to illustrate, in a simplified fashion, the steps within the Ski Area Guidelines and its relationship specifically to CASP as well as to the other approval and permitting requirements.



#### **I.4.1 First Nations**

A legal relationship between the Government of British Columbia and First Nations has been defined by the Courts. Aboriginal rights continue to exist today and are protected under Canada's constitution.

Procedures for avoiding infringement rights to work within this legal relationship have been developed and are followed by BC Lands in the disposition of Crown lands. For this purpose, BC Lands, with the help of the project proponent, will make its best efforts to determine if aboriginal rights exist in the area under application and if the proposed activity will infringe upon these rights prior to making a final decision on the proposed land use. The determination that aboriginal rights do exist can impact on the final outcome of the proposal.

#### **I.4.2 Local Government**

The proponent must make all effort to assess how the plans for ski area development will impact on and be impacted by local, municipal and regional plans, zoning bylaws and the area's Official Community Plan (OCP). Dialogue with the officials of these governing bodies should be initiated early in the planning process in order to determine exact requirements for approval. Further consideration should be given to requirements for public participation and input throughout the exercise of developing the plans.

#### **I.4.3 Public Participation**

Throughout the planning process, it is the proponent's responsibility to elicit comments from the public. It is important for the public to have an opportunity to review and comment on the plan before it is approved. This provides a means of identifying and mitigating potential problems.

#### **I.5 Ski Area Planning**

Effective ski area planning should ensure the creation of innovative, well balanced ski area developments that take into account the physical capacities of the land to support skiing, followed by an understanding of the impact (environmental, social and economic) such a development might have. As such, the planning process of a ski area moves through a sequence of events beginning with the **Vision**; followed by the generation of the **Concept**; culminating in the creation of the **Master Plan**. At each of these stages, as the level of detail increases, the act of planning a ski area encompasses the following four basic issues:

1. **Physical Reality:** Does the study area have the physical capability and right climatic conditions to support the development of a ski resort?
2. **Environmental Reality:** Can a ski area be developed within the study area in an environmentally sustainable and responsible fashion?
3. **Social Reality:** Should a ski area be established in light of the existing development, community needs, alternative proposals, and competing facilities?
4. **Economic Reality:** Does it make economic sense to develop the ski area in light of capital costs and the ability of the market to support such development?

## **I.6 Capacity, Balance and Impact**

Understanding the capacity of the land to accommodate a ski area, in terms of the development goals and objectives, is the cornerstone to creating and evaluating plans for a proposed ski area development.

The first issue is to have a strong understanding of the vision (the desired size, type and scale) of the prospective ski area. This defines the development goals and objectives, and acts as a baseline to delimit the capacity of a particular site, to support the ski area development proposal. Capacities come in many forms:

- Environmental capacity of the study area to support any development.
- Comfortable Carrying Capacity (CCC).
- Seasonal Capacity.
- Base area capacity to stage skiers onto the mountain.
- Highway capacity to deliver skiers to the mountain.
- Infrastructure capacity to accommodate the demand for water, power and sewer.
- Market capacity to support the ski resort.
- Off-season development capacity to enable year round use of the resort.

The challenge is to bring these capacities into a balance with one another. For example, a particular mountain may have a large capacity to support skiing where the uphill capacity of the ski lifts are in balance with the downhill capacity of the ski trails. However, if there is insufficient capacity in the base area to provide for the necessary staging facilities, parking and infrastructure, there is no point in proceeding with a proposed development that maximizes the development potential on the mountain. Conversely, if a site has excellent potential for base area and residential development, with a capacity that far exceeds the number of skiers the mountain can comfortably accommodate, the limits defined by the mountain should be the determining factor in defining the amount of acceptable development for the base area.

The planning and design of summer attractions should incorporate the location and capacities of the ski area base facilities. All effort should be made to effect efficient development that avoids duplication and single season use.

**Once the various capacities of a prospective ski area site have all been brought into balance, the physical limits to growth have been defined. This then becomes the baseline to establishing a phased development process that, in turn, enables the determination of the capacity for the skier marketplace to support the development in light of distances to market and competition. Subsequently, the economic feasibility of the ski area development can be initiated.**

With a preliminary understanding of the size and scale of development, which appears to be economically viable, the following development impact analyses can be completed:

- Environmental Impact: Evaluating the effect the proposed development would have if implemented, devising the measures necessary to ensure the long term maintenance of the ski area's natural environment and aesthetic values.
- Economic Impact: Estimate of the investment; the type and number of direct and indirect new jobs that will be created; streams of income; potential multiplier effects; the resultant effect on the community, region and province.
- Social Impact: Estimate of the various changes that may affect character, cultures, recreation, community services, housing, schools, etc. of the community and region.
- Competitive Impact: Estimate of the positive and negative effect the proposed development may have on other ski areas.

The results of the impact analyses are the basis for refinements to the plans and ultimately to the economic and financial feasibility studies of the proposed ski area development.

## **I.7 Types of Ski Areas**

There are currently five types of alpine ski areas in British Columbia. These are:

1. Community Ski Areas
2. Urban Ski Areas
3. Regional Ski Areas
4. Regional/Destination Ski Areas
5. Destination Ski Areas

There are no exact criteria to define any ski area, but generally the following are the basic features and facilities that might be expected at each type of area.

### **I.7.1 Community Ski Area**

Typically, a Community Area has the following criteria or features:

- Serves the local population.
- Low capacity ski lifts, such as surface lifts or fixed grip double chairlifts.
- Limited ski trail area of +/- 50 hectares within a controlled recreation area of +/- 150 hectares.
- Vertical drop of +/- 250 to 500 meters.
- Comfortable Carrying Capacity of +/- 500 to 1,000 skiers per day.
- Often managed by a ski club with only the absolute minimum number of employees.
- +/- 30 minutes driving distance from the market.
- Focused on weekend use and local needs.
- No overnight accommodation.

Two current examples of community ski areas are Whitetooth Ski Area in Golden, and Purden Ski Village at Prince George.

### **I.7.2 Urban Ski Area**

The Urban Ski Area would have the following criteria or features:

- Serves a large urban population.
- Oriented toward beginner skiers/snowboarders, ski/snowboard teaching facilities, night skiing, practice facilities, occasional skiers, school programs, etc.
- Very easy access (+/- 15 to 30 minutes from the city core).
- Comfortable Carrying Capacity of +/- 1,000 to 5,000 skiers per day.
- The full range of ski lift types from low capacity surface lifts to high capacity express lifts.
- A ski trail area of +/- 200 hectares and a total area of +/- 800 hectares.
- Vertical drop of +/- 250 to 500 meters.
- Focused on short-term use often acting as a feeder area to larger ski areas.
- There would be no bed units or bed base at the ski area.

Two current examples of urban ski areas are Grouse Mountain and Cypress Bowl in Vancouver.

### **I.7.3 Regional Ski Area**

The Regional Ski Area has the following criteria or features:

- Serves the local to regional population.
- Low capacity ski lifts, such as surface lifts or fixed grip double chairlifts.
- Limited ski trail area of +/- 50 hectares within a controlled recreation area of +/- 150 hectares.
- Vertical drop of +/- 250 to 500 meters.
- Comfortable Carrying Capacity of +/- 1,000 to 1,500 skiers per day.
- Often managed by a ski club with only the absolute minimum number of employees.
- 30 minutes to 1 hour driving distance from the market.
- Focused on regional weekend use, holiday periods and local needs.
- Depending on the circumstances, the area could have a limited number of beds attached to it in a cabin-based type of development in the base area.
- Depending on changes to regional population bases, the area might have potential of becoming a Regional/Destination Ski Area. In which case additional development on the mountain and in the base area may be warranted at some point in the future.

Two current examples of regional ski areas are Mt. Baldy, near Osoyoos, and Ski Smithers, near Smithers.

### **I.7.4 Regional/Destination Ski Area**

The Regional/Destination Ski Area would have the following criteria or features:

- Serves local, regional and destination skiers with an emphasis on catering to regional needs.
- Comfortable Carrying Capacity of +/- 3,000 to 5,000 skiers per day.
- A full range of ski lift types from low capacity surface lifts to high capacity express lifts.
- A ski trail area of +/- 400 hectares and a total area of +/- 2,000 hectares.
- A vertical drop of +/- 600 to 1,000 meters.
- 30 minutes to 2.5 hour driving distance from the market.
- By definition, the area has overnight accommodation, available for commercial, private and employee use.
- Major airport with scheduled commercial service within a two hour drive.
- With increased demand, combined with the physical potential of the lands within the controlled recreation area and the surrounding lands, the area might have the potential of attaining Destination Ski Area status, in which case additional development in the base area may be warranted at some point in the future.

Two current examples of regional/destination ski areas are Silver Star Mountain near Vernon and Sun Peaks near Kamloops.

#### **I.7.5 Destination Ski Area**

The Destination Ski Area would have the following criteria or features:

- Serves local, regional and destination skiers with an emphasis on catering to destination needs and services.
- Offers a unique and truly special skiing experience.
- Provides a full scope of tourist facilities, understanding that their guests are usually there for a total resort experience where skiing, although probably the cornerstone activity, is one of many attractions available.
- Comfortable Carrying Capacity of +/- 5,000 to 12,000 plus skiers per day.
- A full range of ski lift types from low capacity surface lifts to high capacity gondolas and express lifts.
- A ski trail area of +/- 1,000 hectares within a total area of +/- 3,500 hectares.
- A vertical drop of +/- 700 to 1,500 meters plus.
- 2 to 6 hour driving distance from market.
- Major international airport within a two to three hour drive.
- Significant bed base at the resort, including publicly available commercial beds, private bed subdivisions, and employee housing.

As of 1996, Whistler/Blackcomb is the only true destination ski resort in B.C.

## **I.7.6 Other Types of Ski Areas**

Proposals that do not fall exactly within one of the above five classifications are still encouraged to be submitted for consideration. These could include specialized concepts for resort development that have, as yet, been unanticipated and untried in this province.

Remote, low density ski area development serviced by ski lifts, and snowcats and/or helicopters, may be assessed as appropriate under both the Commercial Alpine Skiing Policy and the Commercial Backcountry Recreation Policy.

## **II. SKI AREA PLANNING: THE VISION STAGE (EXPRESSION OF INTEREST)**

### **II.1 Introduction**

The first stage of planning for the development of a ski area is for the proponent to define the idea or the Vision. In general terms, the prospective developer should be able to answer the following:

- Where is the planned development?
- Is the mountain skiable?
- Does it get sufficient snow?
- What type of ski area will it be?
- Is it accessible?
- Who will the ski area serve?
- Who will benefit from the ski area development?

### **II.2 Preliminary Project Overview**

The desire to build a ski resort on Crown Land and should then be communicated to BC Lands personnel prior to undertaking any significant work. As dialogue progresses, the amount of detail required will increase. The initial discussions will be very conceptual and should lead to a determination as to the whether or not there are any immediate and obvious reasons that the study area should not be considered for ski area development. However, if all early indications are positive, the applicant should be advised that the next step is to submit an Expression of Interest.

### **II.3 Expression of Interest**

As per the Commercial Alpine Skiing Policy (CASP), an Expression of Interest to develop a ski area on Crown Land should be submitted to BC Lands of the Ministry of Environment, Lands and Parks (the Ministry) for consideration. The Expression of Interest should effectively describe the applicant's Vision of the proposed project. In it, the applicant should present BC Lands with the following:

- The nature of the applicant's intentions;
- An outline of the project goals and objectives;
- Preliminary site inventory and analysis;
- Preliminary concept;
- Preliminary market analysis;
- Provide evidence of the applicant's financial capability to create the proposed development, and;

- Provide evidence of the applicant's management capability to carry out the proposed project.

The following describes the type of content that defines the Vision and would be expected in an Expression of Interest.

### **II.3.1 Project Introduction**

At this early stage of planning, all aspects of the project should be described in as much detail as possible. The preliminary overview should introduce BC Lands to the proposed development and should answer such questions as:

- What is the vision or the idea?
- Where is the project located (include Area Location Map)?
- How does it fit into the region/the province as a development project?
- What is it that the developer wants to do?
- What is the project mission statement?
- Who is the developer?

### **II.3.2 Preliminary Project Goals and Objectives**

The Project Goals and Objectives should describe, in progressively greater detail, the prospective developer's vision of the project. Included should be terms that talk about the basics of the scale, size and type of ski area (refer to Section I.7), along with a preliminary idea of market niche, environmental impact and financial viability.

### **II.3.3 Study Area Mapping**

In order to properly evaluate the ski area development potential of a site, topographic, planimetric and cadastral mapping of the study area must be utilized. The more detailed and accurate the mapping, the more representative the potential will be. At the very least, BCGS topographic mapping at a scale of 1:20,000 with a 20 meter contour interval should be utilized. Although such mapping is very coarse in detail and of quite a large scale, it is of sufficient quality to complete all preliminary inventory, analysis and planning. This mapping is readily available for all but the most northerly areas of British Columbia, making the act of map acquisition a relatively easy and inexpensive exercise for any proponent to explore and communicate the preliminary aspects of their ski area development Vision. It should be noted that although slightly more expensive, this same mapping is available in a digital format TRIM mapping, thus enabling the possibility of the preliminary studies to be easily completed utilizing computer analysis.

### **II.3.4 Preliminary Site Inventory and Analysis**

Once the mapping is in place, a preliminary site inventory and analysis must be completed to illustrate and define the following:

- Delineate study area;
- Delineate legal boundaries;
- Delineate and describe existing use;
- Delineate and describe adjacent land use;
- Research existing tenures, land claims and proposed uses with the applicable Ministry;
- Review accessibility. A prospective ski area development should have reasonably good road access to the staging point. It should be noted that all development and improvements of access roads to meet public winter use standards will be the responsibility of the proponent;
- Slope Analysis by skier skill classification breakdown;
- Elevation Analysis;
- Aspect Analysis;
- Fall Line Analysis;
- Skiing Potential Analysis;
- Climate/Snowpack Analysis (to prove that skiing is possible both with natural snow and augmented with man-made snow for at least 120 days a year.);
- Base Area Potential Analysis;
- Identify known/potential avalanche paths, and;

### **II.3.5 Preliminary Environmental and Inventory Analysis**

In conjunction with the preliminary inventory and analysis, all known and obvious environmental issues and features should be delineated on the base mapping.

All effort should be made to include data and commentary on the following:

- Water Quality and Quantity
- Soils
- Vegetation
- Wildlife and Fisheries
- Air Quality
- Scenic and Natural Resources.

Further, specifics as they relate to the Environmental Assessment Act, the Forest Practices Code, the Waste Management Act, and all other pertinent Acts, policies, codes, etc., should be given consideration and discussed.

### **II.3.6 Opportunities and Constraints**

A plan that summarizes all of the pros and cons as they relate to the study area's potential to support the development goals and objectives should be delineated on the base map.

### **II.3.7 Preliminary Concept**

Moving logically from the Opportunities and Constraints Plan, a preliminary concept, roughly showing the prospective ski area development, should be delineated on the base map. This concept, or concepts, should relate directly to the resort types defined in the first section. A discussion on the size and scale of development should include an indication of the rough comfortable carrying capacity of the mountain to support skiing and the capacity of the base area to act as a stage to complement the skiing. The mountain capacity should be in relative balance with the perceived skier marketplace. Generally, this reflects a bell curve with approximately 20% of the market being beginner/novice skiers, 60% being intermediate skiers, and 20% being advanced/expert skiers.

Further, the base area facilities (parking, day lodges, residential subdivision, and summer use facilities) should be roughly delineated and should be in balance with the mountain capacity.

Directly associated with the concepts for the mountain and base, there should be a preliminary indication of the servicing infrastructure; water, sewer and power, in balance with the preliminary estimates of capacity.

Finally, if there are similar resorts that can be cited as examples of what the developer envisions, then pictures, facts, and figures from those resorts should be presented as illustrations to help describe the concept.

### **II.3.8 Preliminary Market Analysis**

Utilizing the concept as a basis to describe the size and type of resort that the developer is considering, a preliminary market analysis should be completed to address the following:

- Who will the target market be for, both winter and summer use?
- Where is the market for the proposed ski area?
- Who is the competition?
- How will the competing resorts be impacted?

### **II.3.9 Preliminary Economic Analysis**

It is the proponent's responsibility to prove that the prospective ski area development makes economic sense. As such, a preliminary economic analysis should include the following:

- The estimated capital cost of development;

- The estimated annual number of skier visits;
- A preliminary proforma operating projection;
- A preliminary indication of potential fees to the Crown, and;
- A description of the anticipated socio-economic impact such a development may have on the local community, the region, and the province.

The objective of this analysis is to identify any potential social and economic shortcomings to the prospective development.

#### **II.4 Review and Referral**

Once submitted, the Expression of Interest will be reviewed by BC Lands personnel and then referred to other agencies. Typically, such a review will take 30 days to complete. If it is apparent that there is a fatal flaw to the preliminary conceptualization described in the Expression of Interest, the applicant will be so advised, and discouraged from continuing with that particular concept. However, if the review is positive, BC Lands will undertake the following:

- (i) Obtain status clearance;
- (ii) Designate the area under Section 13 of the Land Act as a Controlled Recreation Area, subject to regular 5 year review;
- (iii) Appraise the land value and improvements (if any), and;
- (iv) Request the Ministry of Energy, Mines and Petroleum Resources to establish a Staking Reserve over the Controlled Recreation Area.

This will effectively remove the land from consideration for purposes other than ski area development while an Expression of Interest is under review.

#### **II.5 Additional Expressions of Interest**

Following the review, if positive, BC Lands may advertise for additional Expressions of Interest. The advertisement or notification to the public will be made in the region of the intended application. A wider notification will be made when the apparent size of the project and proposed market warrants it. Over the course of the next 30 to 60 days, other parties will be given the opportunity to submit.

## **II.6 Preliminary Evaluation of Expressions of Interest**

The Ministry will receive all Expressions of Interest. Comment from the public will be solicited by advertisement based on the content of those submissions, the Ministry can require the proponent to hold public meetings and/or request public comment. From this, the evaluation will be completed and a decision will be made to approve or reject some or all of the submissions. If there are Expressions of Interest that have apparent merit, one or more of the interested parties will be invited to submit a Formal Proposal to generate a ski area development concept. The expected content of a Ski Area Development Proposal is described in Section III of the Ski Area Guidelines.

### **III. SKI AREA PLANNING: THE CONCEPT STAGE (THE PROPOSAL)**

#### **III.1 Introduction**

The Concept Stage of Ski Area Planning takes the preliminary concepts developed in the Vision Stage as part of the Expression of Interest to a higher level of detail. The following describes the basic content that would be expected to be found within proposal submissions responding to a formal proposal call to develop a ski area, regardless of the size, scale or type.

#### **III.2 Request for Proposals**

If there are Expressions of Interest that have apparent merit, one or more of the interested parties will be invited to submit a formal proposal to generate a ski area development concept. The following describes the content that should be found within the formal proposal. The issues pertaining to the capability of the project to satisfactorily respond to the physical, environmental, social and financial realities that define a successful ski area development should be addressed throughout. Each submission will be judged according to its individual merit and should include all of the following components:

1. A discussion of the proponent's vision, concept and project description for the ski area including their development goals and objectives.
2. A technical inventory and analysis of the proposed mountain and base area utilizing the appropriate topographic mapping. It should be noted that if the project proceeds to the Master Plan Stage, topographic mapping of the mountain and the base area will be required at a scale of 1:5,000 with a 5 meter contour interval and 1:1,000 with a 1 meter contour interval respectively.
3. An environmental audit (inventory) of the proposed development lands.
4. Development concepts for the mountain and base area lands.
5. Phased development and implementation concepts (phase 1 in detail, with subsequent phases in conceptual form).
6. Infrastructure concepts (phase 1 in detail, with subsequent phases in conceptual form).
7. A discussion of environmental issues/hazards, as impacted by the development concept, and remedial measures.

8. A discussion of the economic and social impact, land use issues and proposed resolution of conflicts.
9. Servicing and economic feasibility, including detailed proforma, cash flow projections, development cost estimates and formal market study.
10. Summary of ownership and management structure in a detailed prospectus.
11. Evidence of financial capability of the applicant to undertake the master planning process.
12. Evidence of resort development and management experience of the applicant.

### **III.3 Project Overview**

The overall project intent should be described, touching on the basics that will be found within the submission.

### **III.4 Project Goals and Objectives**

The preliminary goals and objectives outlined in the Expression of Interest should be refined to include more specific detail, recognizing the opportunities and constraints identified in the preliminary reviews.

### **III.5 Site Mapping**

In order to properly inventory and analyze the study area, detailed mapping must be utilized by the proponent. If the project proceeds to the Master Plan Stage, at a minimum, the topographic mapping of the mountain must be at a scale of 1:5,000 with a 5 meter contour interval. Base area lands mapping should be at a scale of 1:1,000 with a 1 meter contour interval.

### **III.6 Site Inventory**

The site inventory is the collation of all information about the entire study area and the adjacent lands. Tied directly to the site mapping, the existing physical character of the land, its current use, and its zoned or proposed use should be fully described and illustrated. The site inventory must utilize the 1:5,000 mapping to illustrate built structures, historic sites, roads, vegetation, streams, water bodies, power lines, etc. In addition, all property and legal boundaries must be attached to the site mapping. Finally, all existing use tenures for the study area and adjacent lands should be researched and mapped.

### **III.7 Environmental Audit**

The environmental audit is a baseline of inventory information that defines and impacts on the development opportunities and constraints. Tied directly to the site mapping, it coincides with the site inventory and should include graphic and verbal discussion that identifies, quantifies, and delineates the specific existing environmental components and impact issues that will affect potential future use. The audit should include, but not be restricted to the following:

1. Water Quality and Quantity
  - wetlands/riparian areas
  - lakes, ponds
  - existing and potential for septic systems and/or waste water treatment
  - existing and potential sources of drinking water
  - snowmaking.
2. Soils
  - classifications
  - stability and erosion
  - potential for degradation with the removal of forest cover
  - slumps, geological hazards (existing and potential).
3. Vegetation
  - delineation of species by size, age and health.
4. Wildlife and Fisheries
  - species
  - diversity and habitat requirements
  - migration corridors
  - biological relationships.
5. Air Quality
  - potential for pollutant concentrations
  - existing and potential problems.
6. Scenic and Natural Resources
  - scenic features and attractions
  - visual impact of existing and potential development.

### III.8 Site Analysis

All of the data assembled during the Site Inventory and Environmental Audit should then be applied to a detailed analysis that coincides directly with the development goals and objectives. The analysis should be broken into two basic components:

1. The skiing or mountain development component.
2. The staging area or base/village area component.

#### III.8.1 Mountain Development Analysis

The objective of the Mountain Development Analysis is to identify the full potential of the entire Study Area to accommodate the development of a ski resort such that the best mix of skiing will be established while also recognizing the need to ensure that sufficient land is preserved to provide for the necessary support facilities (arrival roads, skier drop-off zones, parking within acceptable walking distances, base lodges, village development, etc.). The analyses, to be completed at 1:5,000 scale, should include the following:

- **Elevation Analysis:** An illustration of the relative elevations within the Study Area, identifying potential land parcels of similar heights and the general flows of the land connecting those parcels.
- **Slope Gradient Analysis:** An evaluation of the topography of the Study Area in terms of the limits of the basic skier skill classifications (beginner, intermediate and expert) and of the sites' ability to accommodate ski facility development. The following breakdown generally applies:

0 - 8%	Too flat for skiing/good for base area development
8 - 25%	Beginner/Novice
25 - 45%	Intermediate
45 - 80%	Advanced/Expert
+80%	Too steep for normal skiing/potential avalanche zones/areas of high hazard.

- **Fall-Line Analysis:** An evaluation of the mountain terrain in terms of the natural fall-line. The fall-line is the path an object takes as it moves down a slope perpendicular to the contour lines. Fall-line skiing provides for the natural flow of skier routes which will serve all skier ability levels, from the top of the mountain to the base areas, on a consistent basis. Consistency of fall-line provides the best recreational skiing experience with the least amount of environmental disruption due to minimal requirements for earthwork during ski trail construction.
- **Solar and Slope Aspect Analysis:** The slopes of the Study Area should be inventoried, in terms of their orientation to the directions of the compass and their sun/shade relationship to the surrounding landscape. This will define areas of the mountain and the base lands that can be rated as ideal for development (avoiding areas that are too "hot" for reliable snow retention on ski trails or too "cold" for the comfortable outdoors participation of activities in the base areas).
- **Climatological Analysis:** Climatologic information of the site (temperature profiles, wind direction, wind strength, total precipitation, snowpack, percentage of clear days, etc.) must be analyzed in terms of the skiing and ski area development.
- **Existing Environmental Conditions:** An evaluation of the environmental conditions of the site, as they relate to the potential for ski area development. The purpose of this is to determine if any environmental constraints exist on the site which may restrict the development potential of the project. Such conditions as soils, geology, vegetation, water bodies, wet areas, and rare and endangered species would have to be considered in the basic environmental study.
- **Development Regulations:** A review, and if applicable, a delineation on a Study Area Map, of all development regulations in terms of development restrictions, zoning, setbacks, environmental assessments, etc., that must be taken into account during the planning process.
- **Adjacent Land Use:** Adjacent land use, existing and proposed, must be analyzed in terms of being complementary to the proposed resort development. This will help identify and potentially mitigate any problems that may negatively impact on the resort's development approval, implementation and ultimate success.

- **Mountain Opportunities and Constraints Plan:** Once complete, all of the key points of each of the analyses should be summarized and presented as a Plan that responds to, and reflects, the study goals and objectives. This will delineate the gross areas compatible with ski area development and base area/village development. It should act as the basis for determining the Base Lands Development Area and the Mountain Development Program.

### III.8.2 Base/Village Development Analysis

The results of the Mountain Development Analyses should fully delineate the areas of congregation that appear to be compatible for base area development. Subsequently, these areas should be analyzed in greater detail to ensure that they are of a size and scale necessary to complement the potential development of skiing facilities on the mountain. Utilizing topographic mapping at a scale of 1:1,000, the Base/Village Development Analysis should illustrate the capability of the potential base lands to establish a functional balance with the skiing facilities on the mountain. It must also relate to the ability of the lands to accommodate the project specific development goals and objectives (i.e. village development, residential subdivision, golf course development, year round attractions, etc.)

The base lands analyses should include:

- **Base Lands Slope Gradient Analysis:** An evaluation of the base lands topography in terms of slope gradients that coincide with the ability to support ski resort base area facilities, village development, on mountain development, auxiliary development/facilities, and residential development. Typically, the slope gradients for base area development are broken into categories up to a maximum of 40% slope as follows:

0 - 10%	Capable of accommodating all types of base area development with limited grading. Typically identifying parking potential as well as lands that may be wet and environmentally sensitive to development.
10 - 20%	Lands that will require some grading to accommodate development. Upper limits to base area/village development.
20 - 30%	Upper limits to multifamily development with grading.
30 - 40%	Upper limits to single family development.
40%+	Effectively too steep for development.

- **Existing Environmental Conditions:** A delineation of environmental features in the base lands that should be carefully taken into account, preserved or mitigated in the development plan.
- **Existing Conditions:** A delineation of all planimetric features and cadastral information of the study area and adjacent lands
- **Base Lands Opportunities and Constraints Plan:** The Base Area Analyses should be summarized and presented as an Opportunity and Constraints Plan that fully responds to the development goals and objectives.

### **III.9 Ski Area Concept**

The Ski Area Concept should be the logical product of the potential defined by the various analyses. Typically, the inflexible nature of a mountain determines the best configuration of ski lifts and trails. This in turn defines where the base area facilities generally must be located. As with the analyses, the Ski Area Concept naturally breaks into two primary components: the Mountain Concept; and the Base/Village Concept. For larger regional and destination resorts, a third component to the concept may be the Total Resort Development Concept.

### **III.10 The Mountain Development Concept**

#### **III.10.1 Introduction**

The alpine skiing facilities should act as the primary attraction of a ski resort. The concept plans for the mountain must carefully tie the alignment of the ski lifts with the trails that serve those lifts, in a balanced fashion such that the uphill capacity of the ski lifts matches the downhill capacity of the trails.

The Mountain Development Concept should define the following:

- Ski Lift Alignment and Terminal Sites
- Ski Trails and Slopes
- Skier Skill Classes
- Snowboarding
- Ski Trail Capacity
- Vertical Demand
- Weighted Vertical Demand
- Comfortable Carrying Capacity

### **III.10.2 Ski Alignment and Terminal Site**

The alignment of the ski lifts, connecting the upper and lower terminal points should be identified in such a way that then take maximum advantage of the terrain as well as relate to a system of ski trails which should result in a complete area interconnection. Ski lifts should be placed to serve available ski terrain in the most efficient manner, while considering the following factors:

1. The downhill capacity of trails;
2. The prevailing and storm wind conditions;
3. Staging time;
4. Repeat skiing and access requirements;
5. Interconnectability between other lifts and ski courses;
6. Circulation, milling, lift line mazes and lift loading space requirements for lower ski lift terminals;
7. Circulation, milling, off-loading and down-loading space requirements for upper ski lift terminals;
8. 0 to 1% slope down to the lower lift terminal to achieve maximum lift loading efficiencies;
9. 5 to 10% off-load slope down from the upper terminal.

### **III.10.3 Ski Trails and Slopes**

The ski trails and slope design should focus on the following:

1. The natural configuration of the land should be utilized to its greatest potential and to support the optimum capacity of the site while creating a pleasurable skiing experience.
2. The appropriate variety of skiing should be developed, matching the mix of skiers found within the British Columbian marketplace. Typically this breakdown approximates 15% for beginner/novice skier facilities, 55% to 60% for intermediate skiers and 25% to 30% for advanced/expert skiers.

3. Ski trail widths should vary depending on topographic conditions and the calibre of skiers they are intended for.
4. Ski trails should be classified using the steepest 100 metre lineal section as the indicator. For example a trail may be largely within the acceptable grades for novice skier, but a 100 metre length at gradients matching intermediate levels requires that the entire trail be rated as intermediate. The ski trail network must minimize cross-traffic; avoid bottlenecks and convergence zones which might result in skier congestion.
5. A lower classification ski trail cannot be accessed by a higher classification trail.
6. The ski trails should be designed to avoid or eliminate off-fall-line conditions.
7. Run widths and trail location should consider wind exposure. It is preferable to have runs at right angles to the prevailing wind crust.
8. North, northeast and east facing slopes generally offer the best snow conditions for skiing.
9. The snow on steep, sun exposed trails will deteriorate, and generally be more difficult to maintain than trails with more protected orientations.
10. Skiable connections should be created to link all of the lift and trail systems, such that low intermediate skiers/snowboarders are able to comfortably circulate throughout the ski area in a timely manner.
11. All ski trails and slopes should be free of avalanche hazards, areas where slide hazards can be controlled. Community and Regional Ski Areas should avoid any avalanche prone areas as the cost of control is prohibitively expensive for small operations.

#### **III.10.4 Snowboarding**

Although the sport is still rapidly evolving, there are three basic types of snowboarding: freestyle, freeriding, and alpine. Freestyle snowboarding has been equated to skateboarding where, much like at a skateboard park, the freestyle snowboarders will gather at specialized, on-mountain facilities such as halfpipes and terrain gardens to do tricks and jumps. The freeriding and alpine snowboarders utilize the ski trails and off-piste areas of the mountain in a fashion similar to skiers. It is assumed that the skill class breakdown of freeriding and alpine snowboarders on the mountain equates to the same breakdown found within the skier marketplace.

### III.10.5 Ski Trail Capacity

Ski trail capacity is a function of the acceptable density per hectare, rated by skier skill class. Typically, the range of acceptable densities for the ski trails by skill class are as follows:

Beginner	35 - 75/ha
Novice	30 - 60/ha
Low Intermediate	20 - 50/ha
Intermediate	15 - 35/ha
Advanced Intermediate	10 - 25/ha
Expert	5 - 15/ha

It should be noted that the acceptable densities of skiers and snowboarders on ski trails by skier skill class vary for different types of ski areas. Urban ski areas will normally approximate the high end of the range of skiers per hectare, where destination ski areas will be at the low end of the range. The issue of what is acceptable, what is expected and what is desirable should be given careful consideration. Destination skiers expect a low density skiing experience. Areas that wish to cater to a powder skiing experience need to keep the density as low as possible. The urban skier may be willing to put up with higher numbers of skiers on the trails exchanging the less than desirable density for the convenience created by ease of access.

The ski trail capacity is determined as a product of the ski trail area times the acceptable density as per the trail skill classification. For example an intermediate rated ski trail with an area of 10 hectares at a Destination Ski Area would have a capacity of about 150 skiers (10 ha x 15 skiers/ha). The capacity of the ski trails for the whole ski area would be equal to the sum of the calculated number of skiers for each ski trail.

### III.10.6 Skier Skill Classes

The skier and snowboard marketplace breaks down into skill classes ranging from beginner to expert. The development of ski trails should generally match the distribution within the skier marketplace, taking into account the acceptable densities on the trails. In British Columbia, the breakdown approximates the following:

Beginner	2 - 6%
Novice	11 - 15%
Low Intermediate	18 - 22%
Intermediate	33 - 37%
Advanced	18 - 22%
Expert	8 - 12%

The best mix of facilities is a function of the type of ski area under consideration. (An urban ski area would typically be skewed toward the low end of the skier skill class spectrum; whereas a destination ski area would be more oriented to advanced skiers). It is important to note that in order for a ski area to be successful, all classifications must be represented and the breakdown should approximate a bell curve.

Whether or not an area matches the skier marketplace is determined by taking the sum of all of trail capacities as per their acceptable densities, and calculating the ratio of skiers for each skill class and comparing it to the perceived market breakdown. For example, the following shows an area with trails in relatively good balance.

Ability Level	Skiable Area (Ha)	Trail Capacity	Skier Distribution	Skier Market
Beginner	3.4	187	5%	5%
Novice	12.8	576	17%	15%
Low Intermediate	20.2	707	21%	20%
Intermediate	45.5	1138	34%	35%
Advanced	33.2	581	17%	20%
Expert	20.6	206	6%	10%
Totals	135.7	3395	100%	100%

### III.10.7 Vertical Demand

The amount of vertical, skiers/snowboarders by skill class can be expected to ski over the course of a day (typically a six to seven hour period). The average vertical demand by skier skill class is as follows:

Beginner	500 - 750 m
Novice	750 - 1,500 m
Low Intermediate	1,500 - 2,250 m
Intermediate	2,250 - 3,000 m
Advanced Intermediate	3,000 - 5,500 m
Expert	5,500 - 7,500 m

With the advent of high speed express lifts, skiers are able to satisfy their maximum demand for skiing in shorter time periods, thus increasing the demand for use of base area and on-mountain facilities over the course of the day.

### III.10.8 Weighted Vertical Demand

The demand calculated as a function of the ratio of different types of skiers the ski trails under consideration will service as they relate to a particular ski lift. For example if a ski lift services 5 hectares of low intermediate terrain, 5 hectares of intermediate terrain and 5 hectares of advanced terrain, the number of skiers can be calculated and their weighted demand to utilize the ski lift determined as per the following:

Ability Level	Area (Ha)	Trail Capacity	Percentage Use	Vertical Demand	Weighted Demand
Low Int.	5	175	31%	1875	581
Intermediate	10	250	46%	2625	1,208
Advanced	7	123	23%	4250	978
Total	22	548	100%		2,767

### III.10.9 Comfortable Carrying Capacity

The CCC is defined as the optimum number of skiers that can utilize the resort per day, while being guaranteed a pleasant recreational experience without causing a decline in the quality of the physical and sociological environment. This is the key figure in all subsequent planning, acting as the baseline to all development within the resort. It should be considered as a dynamic number, taking into account the actual use of the ski area throughout the day (including pre and post skiing activities). Issues of circulation, staging time to remote lifts, multiple periods of use during the day (i.e. night skiing), egress time from remote areas, the need for downloading, etc., must all be addressed when calculating the CCC. The CCC is the critical number in understanding annual capacity potential of the ski area, along with rates of utilization.

CCC for each lift and trail system is calculated as per the following model:

$$\text{CCC} = \frac{\text{Vertical Meters of the Lift} \times \text{Hourly Capacity of the Lift} \times \text{Hours of Operation of the Lift} \times \text{Lift Loading Efficiency}}{\text{The Weighted Vertical Demand of the ski trails associated with the ski lift}}$$

The ski area CCC is the sum of the CCC calculation of each lift and trail system.

For example, if an area has three ski lifts that operate 6 hours per day, servicing a variety of ski terrain, the CCC of the ski area would be calculated as follows:

Ski Lift	Vertical (M)	Hourly Capacity (Skiers/hr)	Hours of Operation	Lift Loading Efficiency	Vertical Demand (M/Day)	CCC
Detach-able Quad	536	2400	6	95%	4280	1713
Fixed Triple	208	1800	6	85%	2955	646
Fixed Double	131	1200	6	85%	1628	492
Total						2851

### III.10.10 Skiers At One Time (SAOT)

This is a static view of the number of skiers/snowboarders that the ski trails can accommodate at any given time. It is determined as a product of the ski trail area times the average slope density as per the ski trail skill classifications. The Acceptable Slope Density figures represent the number of skiers actually on the ski trails. At a well balanced skiing facility, depending on the type of ski lifts and the circulation patterns of the skiers, approximately 25% to 60% of the active skiers can be on the slopes while the remaining skiers will be riding the lifts or waiting in the lift lines. The SAOT calculation must take into account the types of ski lifts being utilized, the rope speed of those lifts, the skills of the skier, and the acceptable skier density on the ski trails, the type of terrain being accessed, and the expected circulation time to return to the ski lifts. These factors all impact on the calculation of the Average Ski Area Density. The product of the Average Ski Area Density and the skiable area gives the estimated ski area capacity based on skiable terrain.

## **III.11 The Base/Village Development Concept**

### **III.11.1 Introduction**

Regardless of the type of ski area, the base area should be designed to cater to the needs of all skiers/snowboarders/visitors throughout the day from the time of arrival to the point of departure. All facilities in the base (buildings, parking, maintenance, infrastructure, etc.) should be sized to balance with the CCC of the mountain. Within the context of the ski area types, careful consideration must be given to the base area design and layout as it relates to the following:

- Integration with the mountain
- Relationship to the ski lifts and trails
- Skier walking distance
- Additional guests
- Space use requirements
- Parking
- Staging
- Overnight accommodation
- Employee housing
- Balance of facilities

### **III.11.2 Base Area Development by Type of Ski Area**

#### **Community Ski Area**

The base area of a Community Ski Area is typically limited to a simple layout that includes a day lodge, maintenance garage and associated parking lot. The day lodge facilities should include a cafeteria/restaurant, rest rooms, ski patrol/first aid, tickets/administration, ski school and equipment rental. The mountain operations, staff lockers, maintenance shop, storage areas, grooming equipment, etc. are usually housed in the maintenance building.

As per the Commercial Alpine Skiing Policy, a Community Ski Area would be classified as a Type 1 Alpine Ski Operation and would contain no overnight accommodation.

#### **Urban Ski Area**

The base area for an Urban Ski Area should include a day lodge(s), associated parking lots and maintenance facilities. Urban Ski Areas typically offer facilities oriented to beginner skiers/snowboarders, ski/snowboard instruction, night skiing, occasional skiers, school programs, etc. As such, the day lodge building(s) should include restaurant/food service space, kitchen, bar/lounge, rest rooms, ski patrol/first aid, retail, tickets, administration, public lockers, day care, and a particular emphasis on the provision of space for ski school and equipment rental and repair.

Maintenance facilities should house mountain operations, staff lockers, storage areas, grooming equipment, etc. They should be located such that, while they are incorporated into the overall base area concept, the mix of maintenance activities with skiing should be negligible.

### **Regional Ski Area**

A Regional Ski Area typically services a larger district than Community or Urban Ski Areas. The base area facilities should include a day lodge(s), associated parking lots, and maintenance facilities.

The day lodge facilities should typically include restaurant/food service space, kitchen, bar/lounge, rest rooms, ski patrol/first aid, retail, tickets, administration, public lockers, day care, ski school, and equipment rental and repair.

Further, some residential and second home/cottage accommodation may be considered for development at a Regional Ski Area if demand for such accommodation can be demonstrated. All effort should be made to establish any accommodation development within a reasonable walking distance of the ski lifts or within skiing distance to and from the ski lifts and trails. Depending on the size and scale of the overnight accommodation development, there may be a need to operate some limited facilities (i.e. restaurant and retail) for non skiing times.

Maintenance facilities should house mountain operations, staff lockers, storage areas, grooming equipment, etc. They should be established such that they do not interfere with the skiing experience being offered and should take into account the impact that the maintenance area visual aesthetics and operations noise (i.e. night grooming) might have on the overnight accommodation developments.

### **Regional/Destination Ski Area**

The size and scale of the base area facilities for a Regional/Destination Ski Area should provide for the needs of day use skiers, overnight destination guests, and resort residents. The ski area related facilities in the base should include the base area buildings, parking lots, maintenance buildings, and overnight accommodation.

The day use, base lodge facilities should typically built space for restaurant/food service, kitchen, bar/lounge, rest rooms, ski patrol/first aid, retail outlets, tickets, administration, public lockers, day care, ski school, and equipment rental and repair. Because of the destination component of the ski area development, there should be base area facilities available to be utilized by destination guests and resort residents. Included should be such facilities as restaurants, retail, seminar/convention facilities, specialized recreation facilities, etc.

Overnight accommodation that is established would typically be in the form of hotels, condominiums and single family developments, but may also include other types of development, as applicable. All effort should be made to establish any accommodation development within a reasonable walking distance of the ski lifts or within skiing distance to and from the ski lifts and trails.

Maintenance facilities should house mountain operations, staff lockers, storage areas, grooming equipment, snowmaking equipment, etc. They should be established such that they do not interfere with the skiing experience being offered and should take into account the impact that the maintenance area visual aesthetics and operations noise (i.e. night grooming and snowmaking) might have on the overnight accommodation developments.

### **Destination Ski Area**

The base area facilities for a Destination Ski Area would typically be very similar to those of a Regional/Destination resort, differing only in the increased size and scale of the development, the expanded emphasis on destination guest oriented facilities, and the inclusion of facilities for residents.

The day use, base lodge facilities will often be integrated into a comprehensive village-like layout and should typically include built space for restaurant/food service, kitchen, bar/lounge, rest rooms, ski patrol/first aid, retail outlets, tickets, administration, public lockers, day care, ski school, and equipment rental and repair. Most of the same facilities would be expected to operate for the pre and post skiing activities of destination guests and residents. These should include such facilities as restaurants, retail, specialized guest services, seminar/convention facilities, specialized recreation facilities, as well as additional complementary facilities catering to the permanent residents such as office space, community services, government agencies, light industrial development, etc.

Overnight accommodation that is established should typically be in the form of hotels, condominiums and single family developments but may also include other types of development (pensions, bed and breakfasts, recreation vehicle/campgrounds, hostels, etc.), as applicable. All effort should be made to establish the majority of the accommodation development within a reasonable walking distance of the ski lifts or within skiing distance to and from the ski lifts and trails.

Maintenance facilities should house mountain operations, staff lockers, storage areas, grooming equipment, snowmaking equipment, etc. They should be established such that they do not interfere with the skiing experience being offered and should take into account the impact that the maintenance area visual aesthetics and operations noise (i.e. night grooming and snowmaking) might have on the overnight accommodation developments.

### **III.11.3 Relationship to Mountain Facilities**

Particular consideration must be given to the relationship of a base area to the mountain facilities. Skiers should be able to gravitate naturally from the village and residential base areas to the mountain facilities, allowing convenient access to any of the ski lift systems originating in the mountain staging areas.

The base area facilities of a resort act as the focal point for social and recreational activities. These facilities reinforce and complement the mountain facilities (the primary attraction during the ski season). Recognizing this, the base area facilities should provide the fundamental image of the resort, acting as a baseline for the visitor's experience. The resort experience begins the moment the resort is within sight. The organization of the base area facilities and the design of the "critical mass" determine the sense of arrival. The ease of approach, drop-off, and parking followed by the subsequent ease of discovery of the various services and activities determine the guest's initial impressions that, once established, dictate the general mood of the visit. The facilities must be structured in a logical fashion for the base area to function conveniently through the duration of a visit, while providing for the desired character and aesthetics of the resort.

The orientation of structures should be placed to take advantage of the natural attributes of the site, (framing specific vistas and views, positioning building heights and roof lines for solar access and complementing all natural features) while respecting the environment and mitigating any negative impact. Generally, service functions should be located in areas of low visibility and away from noise sensitive uses (i.e. overnight accommodation) so as to not affect the quality of the visitor experience being offered. Finally, the organization of the departure experience, in terms of direction, convenience, lack of conflict, etc., will impact the guest's overall evaluation and lasting impression of the resort.

The following are the key base area design objectives critical to the success of the resort:

- The total capacity of the base area village facilities must be in balance with the CCC of the mountain's ski lift and ski trail systems.
- The base area facilities must take into account the on-site overnight accommodation for public, private, and staff/employee beds as well as the resultant non-skiing time requirements and expectations (i.e. food services, groceries, retail outlets, recreation facilities, entertainment facilities, service station, etc).
- The base area developments must address skier/pedestrian/vehicle movement, parking, and circulation patterns. Where possible, conflicting interfaces must be eliminated.
- The base area facilities must accommodate the needs of winter use visitors in a direct relationship with the skiing, while being flexible enough to be easily converted to off-season use, thus avoiding the establishment of facilities that will stand idle throughout the summer.
- An identifiable "critical mass" or focal point should be created as a means of establishing the character of memorable images of the ski area.
- A variety of potential, complementary, and off-season uses for base area development must be considered. This can include facilities for such recreation activities as golf, equestrian facilities, tennis, cross-country skiing, mountain biking, walking, hiking, bike paths, skating, swimming, etc., as well as facilities for meetings, conventions, retreats, public functions, etc.
- Skier drop-off and pick-up zones for both cars and buses must be incorporated into the design of each base area.
- Parking lot capacities must be in balance with the day use capacities of the mountain facilities while taking into account the destination and residential parking capacities. Ideally, all parking should be within comfortable skier walking distances or with ski to/ski from capability.
- Large vertical transitions should be minimized.
- Environmentally sensitive areas must be avoided and mitigating action taken where necessary.

- The issues of visual attractiveness, site specific circulation, ease of accessibility, site grading, solar access, facility programming, hierarchy of use, etc., must be considered on a preliminary level during this stage of the process.
- Linked by the mountain access systems, particular consideration should be given to the relationship of the base/village area with the mountain facilities.

#### **III.11.4 Relationship to Ski Lifts, Ski Trails and Skier Circulation**

Ski lift locations and their associated queuing area requirements become the initial design parameter in the location of base area structures. The lift locations and size of queuing areas are the end result of a careful analysis of the ability of the mountain to accommodate a specific balance of skiers, both in an uphill and downhill capacity, matched to the perceived market blend of skier skill classes. The circulation of skiers to and from the mountain in conjunction with the lift queues and ski trails invariably defines the area that must be respected and maintained. These areas are referred to as the lift loading zones. The lift loading zones should be designed with 0 to 1% gradients sloping toward the lift terminal in order to maximize lift loading efficiencies. Lift loading efficiency is a measure that accounts for the inability of the ski lift to be fully loaded, thus reducing the lift's effective hourly capacity.

The off-loading ramps of the upper terminal must be carefully designed to move skiers/snowboarders away from the lift in an efficient manner. Typically, off-loading ramps should be about a 5% slope.

If down-loading is necessary, grades leading to the loading side of the upper terminal must be flat in order to affect efficient access to the lift. Carefully thought out grading plans for all lift terminals are the key to successfully establishing an efficient and enjoyable experience for the skiers.

In combination with a site analysis of the base area lands taking into account the specific factors of slopes, view, aspect, soils, hydrology, vegetation, solar access, manmade features, etc., the location of ski lifts and queuing areas will often define the base area focal point. This focal point should dictate the best location for the resort's staging and support facilities.

### III.11.5 Skier Walking Distance

Skier walking distance relates to the distance skiers are willing to walk from parking lots and/or overnight accommodation to initiate their skiing. Radiating out from the base area focal point or from a ski to/ski from ski trail, skiers will generally walk approximately 400 meters before they begin to reject the experience and think twice about doing it again the next time. This distance is further reduced (by 100 meters for every 25 meters of vertical slope) taking into account all obstacles (streams, water bodies, rock outcrops and manmade features) that will be encountered on route. The area defined by this acceptable skier walking distance is the most valuable land in terms of the development and operation of a ski resort. All effort should be made to establish parking lots and all skier staging activities within this area. If these essential facilities are located beyond this area, then problems with circulation and operational efficiency rise dramatically. This in turn increases costs, ultimately resulting in reduced profits and a less than satisfactory resort experience for the visitor.

### III.11.6 Additional Guests

The skier related space use requirements are a function of the CCC of the ski area. In addition, the number of non-skiing guests must be taken into account. As a ratio of the CCC, the additional guests can be estimated as per the following by type of ski area:

Community	1.00 - 1.05
Urban	1.10 - 1.25
Regional	1.05 - 1.10
Regional/Destination	1.10 - 1.20
Destination	1.10 - 1.25

It must be noted that these numbers are not absolute, but are intended to describe the approximate range of non skiing guests that could be expected to be found at a particular ski area. The applied ratio should be a function of the project specific goals.

### III.11.7 Space Use Requirements

The total amount of space and the placement of that space is a function of the actual base area plan, taking into account the efficiencies of the layout and the amount of on-mountain development. Skier related space includes the following: restaurants, kitchen, bar/lounge, rostrums, ski school, equipment rental/repair, retail sales, ski patrol/first aid, public lockers, day care/nursery, ticket sales, administration, employee lockers, storage, mechanical, circulation/wall, etc. Typically, the amount of built skier related space in square meters per CCC by ski area type is as follows:

Community	0.4 - 0.6
Urban	1.0 - 1.3
Regional	0.8 - 1.0
Regional/Destination	1.0 - 1.2
Destination	1.5 - 1.8

Further, site specific considerations must be taken into account, such as the following:

- The amount of public and private overnight accommodation on site: this impacts on the amount of pre and post skiing facilities that must be provided to offer a complete resort experience.
- The amount of duplication of facilities required as a result of multiple base areas.
- The amount of ski to/ski from private and public overnight accommodations located in close proximity to the base area. This impacts on the type and amount of support facilities and parking to be provided.
- The amount of on-mountain facilities, based on the physical potential of the mountain, expected skier circulation patterns, and preferred use of the mountain throughout the day.

### III.11.8 Destination Space Use Requirements

The amount of destination oriented space designed to take into account the needs of destination guests. This destination space will be approximately as follows:

Type of Resort	In Addition To Space Use Requirements
Regional Resort	10 to 15% of the space use requirements
Regional/Destination	10 to 25% of the space use requirements
Destination	20 to 40% of the space use requirements

### **III.11.9 Parking**

The amount of parking can be determined as a function of the CCC plus additional guests. Typically, 80 to 90 percent of the total guests will arrive in private car, with the remainder arriving by bus. However, every ski area is unique and must be reviewed, taking into account the area specific circumstances.

Parking lot capacities are determined based on a calculation of 2.8 to 3.0 passengers per car and 40 passengers per bus. The amount of parking must be in balance with the day use capacities of the mountain facilities, while taking into account the amount of destination and residential parking. Ideally, all parking lots should be located within the area defined by the acceptable skier walking distance.

The amount of day use parking developed at the resort can be reduced based on the amount and occupancy rates of ski to/ski from accommodation established with self contained provisions for parking. Visitors using accommodation beyond the acceptable skier walking distance are more likely to drive to the base area than they are to walk to and from the ski trails. As such, they must be considered as day use visitors; they will use the parking and base facilities in a fashion similar to day use guests.

### **III.11.10 Base Area Staging**

The comfortable capacity of a single base area portal to stage skiers onto the mountain is limited to between 5,500 and 6,000 skiers. This is due to the physical space requirements for base area buildings and parking, combined with:

- The fact that the majority of the skiers arrive and begin skiing within the first 1.5 to 2 hours of the day (the initial staging period).
- The time required for skiers to circulate through the base area facilities and into the ski lift queues.
- The uphill capacities of the out-of-base ski lifts.

- The probability of skiers returning to the out-of-base lifts within the initial staging period of the day.
- The downhill capacity of the ski trails returning to the base area.

### **III.11.11 Overnight Accommodation**

Overnight accommodations are measured in bed units (BUs). A bed unit is defined as the accommodation required for one person to stay overnight, publicly available on a night by night basis and privately available on a permanent basis for second home and residential use. The amount and type of overnight accommodations are largely dependent upon what the tourist user market will support in conjunction with the CCC of the skiing facilities. Based on the perceived attributes of a proposed ski area development, Regional, Regional/Destination, and Destination Ski Areas are eligible for bed units for use on base area lands that may be purchased from BC Lands as per CASP.

The amount of accommodation, in terms of the number of BUs established at any ski area must take into account the following:

- All existing, proposed and potential development within the surrounding region.
- The physical potential within the ski area's base lands. Overnight accommodation should only be contemplated if the environmental and physical capacity of the site is capable of such development, and provided that most development can take place within a reasonable walking distance of the ski lifts or within skiing distance to and from the lifts and trails.
- Perceived market demand and real estate absorption rates.
- Employee housing requirements.

It should be noted that the skiing facilities component of any successful ski resort should be economically viable in its own right, without having to depend on the potential ongoing economic support of real estate development and sales within the base lands. However, with careful planning, the development of overnight accommodation, both private and public can significantly add to the success of the overall resort in terms of direct economic value and the indirect value of a built-in market for the ongoing operation of the resort. That is, the visitors utilizing the base area accommodations, both public and private, act as a captured market supporting the operation of the resort.

### **III.11.12 Bed Unit Calculation Model**

The Bed Unit Calculation Model, (see Appendix V.2) is intended to prescribe a range of bed units that would be developed within a regional, regional/destination and destination ski area developments.

#### **Regional Ski Areas**

Some residential and second home/cottage accommodation may be considered at a Regional Ski Area if demand for such accommodation can be demonstrated. The bed unit calculation model specifies a ratio of Bed Units to Comfortable Carrying Capacity. The total points recorded within the model for both present and potential development should provide an understanding of the number of bed units that may be warranted. As defined, Regional Ski Areas may secure a number of bed units up to 56% of the CCC.

Upon calculation of the total number of bed units, they must then be classified as public, private or employee. Typically, a regional resort should have a bed unit ratio breakdown that approximates 20% to 25% public beds, 65% to 70% private beds, and 5% to 10% employee beds.

#### **Regional/Destination Ski Area**

By definition, Regional/Destination Ski Areas should have overnight accommodation, available for commercial, private and employee use. There should be significantly more publicly bed units available than at a Regional Ski Area in order to accommodate the visitors travelling a distance greater than what would typically be expected for a day use guest to travel (2 hours plus). As such, a regional/destination ski area should have residential and second home accommodation along with an emphasis on lodging available for short term stays (hotel, condominiums, pensions, bed and breakfast, hostel, etc.).

Within the bed unit calculation model, Regional/Destination Ski Areas may secure a number of bed units up to 111% of the CCC.

A regional/destination resort should have a bed unit ratio breakdown that approximates 25% to 35% public beds, 55% to 65% private beds, and 5% to 10% employee beds.

## **Destination Ski Areas**

A Destination Ski Area is based on truly unique attractions, features and facilities. It has the ability to draw visitors from long distances. The size and scope of the resort demands a developmental and operational focus on providing for the needs of destination guests. The destination resort provides a full scope of tourist facilities serving local, regional and destination skiers with an emphasis on catering to destination needs. This includes a significant bed base at the resort, consisting of publicly available commercial beds, private bed subdivisions, and employee housing.

As defined within the bed unit calculation model, Destination Ski Areas may secure a number of bed units up to 156% of the CCC.

A destination resort should have a bed unit ratio breakdown that approximates 40% to 60% public beds, 30 to 50% private beds, and 10 to 20% employee beds.

### **III.11.13 Use of the Bed Unit Calculation Model**

Every ski area, regardless of the type, is a unique situation. As such, **the number of bed units determined through the use of the bed unit calculation model should not be considered as absolute. Rather the results of the calculation should only be regarded as a guide to finalizing the amount of development to be incorporated in the formal proposal with Ministry officials.**

It should be clear that existing accommodation at the mountain site as well as existing or committed development outside the base area which provides accommodation for skiers and employees must also be considered when finalizing development rights within the Master Development Agreement (MDA).

Typically, regardless if the bed units are public, private or employee, the following number of bed units apply to the associated type of accommodation.

Single Family Unit = 6 Bed Units  
Condominium = 4 Bed Units  
Hotel Room = 2 Bed Units

### **III.11.14 Public Versus Private Overnight Accommodations**

The demand for public overnight accommodations versus private overnight accommodations impacts on the types of development to be established at a resort. Public accommodations can be defined as BUs available for anybody to rent on a short-term basis. These include hotels, hostels, condominiums, pensions and group club cabins. Private accommodations can be defined as BUs owned privately for use at the discretion of the owner. These include single family units and multi-family units.

Determining how much of each type of accommodation to develop is a challenging exercise, and should be based on a careful analysis of the resort marketplace and demand for primary and second home real estate. To maximize occupancy and operational predictions and to create a lively resort ambience, the objective is to establish "warm beds". A "warm bed" is defined as an accommodation that has a high percentage of use, as compared to a "cold bed" which can be typified as an accommodation that sits idle for much of the year. Public accommodations are typically considered warm beds.

### **III.11.15 Ski To/Ski From Accommodation**

Ski to/ski from overnight accommodation is real estate development that is located within an acceptable skier walking distance to ski trails which access and egress the mountain's skiing facilities. The most desirable ski to/ski from developments are immediately adjacent to the ski trails. Real estate development beyond an acceptable skier walking distance cannot be considered a ski to/ski from opportunity. Regardless of whether overnight accommodation is oriented to public or private use, if it is positioned such that it offers true ski to/ski from opportunities, a variety of significant design and planning issues come into play. These include the following:

- The amount of day use parking developed at the resort can be reduced based on the amount and occupancy rates of the ski to/ski from accommodation established with self contained provisions for parking.
- Visitors using accommodation beyond the comfortable skier walking distance are more likely to drive to the base area than they are to walk to and from the ski trails. As such, they must be considered as day use visitors; they will use parking and facilities in a fashion similar to day use guests.
- The most valuable type of real estate development at ski resorts has proven to be ski to/ski from developments.

### **III.11.16 Employee Housing**

It must be recognized that the employees, as residents of the resort, are key to the character and image presented to the visitors. They are the lifeblood and ambassadors of the operation. As such, they must be able to function and participate in all of the activities offered by the resort. Unfortunately, as a resort develops and becomes more successful, the cost of housing in a resort becomes progressively more expensive. It is more and more difficult for temporary and full-time employees, both directly employed by the ski area and indirectly employed in complementary activities, to afford to live at or even near the resort. To suggest that employees should live outside of the resort, in an effort to establish a more economical method of providing for the staffing of the resort, creates an "us versus them" scenario that invariably becomes counter productive. This point has often been overlooked in the past, but it must be recognized that, in order to avoid what has been termed "industrial tourism", and to ensure the ongoing success and prosperity of the resort, employees must be able to afford to live at the resort.

Employee housing ranges from dormitory style units (for temporary and seasonal use) to affordable fee simple housing (condominiums, apartments, and single family houses available for permanent staff and employees of the resort). Employee housing must be given careful consideration in the total resort concept. It should be carefully integrated into the overall layout of the resort, taking into account proximity to the resort focal point, necessary support facilities, transportation, and infrastructure.

In terms of the bed unit count, employee housing has to be directly incorporated into the overall concept of the phased development of the resort, as it has direct impact on land use and infrastructure (power, sewer and water) requirements. As part of the ski area concept, a provision for, and a mechanism to establish and sustain housing dedicated for employee use must be present. Depending on the size scale and situation of the resort, approximately 10% to 20% of the total bed units should be dedicated and preserved in perpetuity for employee housing. Any Crown Land sold for employee housing should be dedicated by covenant on the land title to ensure its establishment and maintenance.

### **III.11.17 Base Area Land Requirements**

Although creative solutions may be able to provide enough room to establish sufficient base area facilities on steep lands, generally the following standards (based on typical densities) should be utilized to determine the amount of land necessary to support the calculated base area land use requirements. This will illustrate whether or not there are sufficient base area lands to complement and balance with the CCC of the mountain.

TYPE OF DEVELOPMENT	GROSS AREA REQUIREMENTS (SQ. M)	MAXIMUM ACCEPTABLE SLOPE GRADIENTS
Ski Related Built Space (Base Area Buildings)	Total Built Space Use Required (sq. m) / 0.35	Land with slopes less than 10% gradient
Parking	Total number of cars required x 75 sq. m	Land with slopes less than 5% gradient
Overnight Accommodation	Total number of hotel bed units x 25 sq. m	Land with slopes less than 10% gradient
	Total number of condo bed units x 125 sq. m	Land with slopes less than 20% gradient
	Total number of SFU bed units x 200 sq. m	Land with slopes less than 30% gradient
Destination Use Related Built Space (Village)	Total destination space required (sq. m) / 0.35	Land with slopes less than 10% gradient

### III.12 Year Round Development and Use

Regardless of the type of ski area, a plan for the non-skiing periods of the year must be included in the concept. Generally, all effort should be made to ensure that the ski area's lands are utilized in an efficient and balanced sense on a year round basis.

### III.13 Balance of Facilities

In order to establish a successful ski area, it is imperative that the capacities of all facilities in the resort be in balance. On the mountain, the uphill capacity of the ski lifts must be in balance with the downhill capacity of the ski trails. The overall capacity of the skiing on the mountain must be in balance with the breakdown of the skier marketplace. The resultant Comfortable Carrying Capacity (CCC) of the mountain defines the built space capacity requirements (restaurants, rest rooms, ski school, patrol, retail, administration, etc.) to service the skiers' needs throughout the day both on the mountain and in the base area. This in turn defines the basic infrastructure (power, sewer, and water) requirements that the ski area needs to operate. The amount of parking is a direct function the mountain CCC in conjunction with skier walking distance and ski to/ski from accommodation.

All of these capacities are oriented to ski area use only. They have to be tied into the larger picture, taking into account pre and après skiing space use requirements, additional attractions, real estate developments, and other season use.

Ideally all complementary year-round facilities and recreational opportunities such as nordic skiing, ice skating, hiking, mountain biking, roller blading, tennis, swimming, golf, etc., should also be integrated into the resort plan in order to enhance the overall attractiveness of the resort environs.

### **III.14 Phased Development Concept**

The implementation of the ski area development plans should be described by phases. Each phase of development of any ski area should represent a finished and well balanced product to the targeted skier marketplace. Typically when a ski resort is achieving utilization rates of 30 to 40% it is time to consider expansion.

### **III.15 Implementation and Management Concept**

Implementation, timing and phasing sequence are largely driven by economic considerations. As such, phasing should be somewhat tied to financial trigger points, as defined by ski area utilization thresholds. Any specifics pertaining to the implementation and management of the ski area should be outlined. This information is an opportunity to describe unique approaches to operations, timing and marketing all in relation to phasing.

### **III.16 Access and Traffic Impact**

Access and traffic considerations are directly linked to the proposed capacity of development, and include the basic numbers of cars, buses, trains, planes and shuttles that would be expected to make the resort function efficiently. Access to the ski area should be discussed on a phase by phase basis, consistent with each phase of development of the ski area. Included should be simple analysis of skier volumes; travel times; peak use periods; estimates of the numbers of skiers arriving departing the base area portals, designated by mode of transportation (cars, bus, train, air, pedestrian). The ski area development plans should respond to the following questions:

1. Can this size of resort development be accessed by the existing road and highway network?
2. What, if any, improvements are necessary?
3. How will the ski area access and/or upgrades be created by the proponent?
4. What impact will each type of access have on the traffic network?

### **III.17 Infrastructure Assessment**

The infrastructure facilities must be engineered to match the proposed capacity of the ski area. Preliminary calculations for power, sewer and water must be determined and planned for, consistent with each phase of development of the ski area.

### **III.18 Environmental Assessment**

The consequences of the proposed ski area development on the environment should be fully described. If the planning process has taken into account all environmentally sensitive issues during the site inventory, environmental audit, and site analysis, followed by a complete and accurate delineation of the development opportunities and constraints, the ski area concept should reflect minimal disruption. The proponent's discussion of environmental impact should make reference to baseline studies, impact assessment, proposed mitigation and proposed ongoing monitoring.

#### **III.18.1 Environmental Assessment Act Projects**

The Environmental Assessment Act states that if the size and scale of the proposed development surpasses the prescribed threshold points, the proponent will be required to go through an environmental assessment review.

A reviewable ski area project includes the following:

1. New ski area facility construction where the facility is a ski resort and has, or when the construction phase is complete will have:
  - (a) A developed base area of 150 hectares or more, including infrastructure and facilities required at the base of the ski area to provide accommodation, meals entertainment, transportation facilities, parking and ancillary services, but not including ski runs;
  - (b) 2,000 bed units or more;
  - (c) A maximum rate of liquid discharge permitted under the Waste Management Act of 800 cubic meters or more per day.
2. The modification of an existing facility if the modification of the existing facility meets the described criteria for a new facility, with or without associated recreation facilities, and the modification results, or when construction of the modification is completed will result in:
  - (a) An increase in the developed base area of 150 hectares or more;

- (b) An increase in the number of bed units at the facility by 2,000 or more;
- (c) An increase in the maximum rate of liquid discharge permitted under the Waste Management Act of 800 cubic meters or more per day.

If a project does not surpass the prescribed threshold points of the Environmental Assessment Act, the project will be reviewed as described within these guidelines.

### **III.19 Market Analysis**

The market analysis will determine the impact that the proposed development will have on the skier marketplace consistent with each phase of the ski area development. The following should be included:

- Definition of the market area and characteristics, in terms of the local market, regional market and destination market.
- Discussion of the local and regional competition.
- Evaluation of historic visitation at competitive resorts.
- Projected skier volumes and ski area utilization on a phase by phase basis.
- Commentary on the ability of the market to support the proposed development in terms of market share, incidence of skiers, captive rate, demographics, geographic origins, skier characteristics.
- Projected skier visitation trends, in terms of day use visits, destination skier visits and summer visits.

### **III.20 Economic Feasibility**

Tied directly to the market analysis is the question of economic feasibility. This is best addressed by assessing the historic and existing economic environment that the ski area will be confronted by and projecting these economic relationships forward, incorporating the results of the market analysis. Once the economic relationships are established, financial tools such as breakeven analyses and cash flow or proforma operating projections should be utilized to interpret the impact of alternative operating scenarios based on the proposed development capacities on a phased basis.

### **III.20.1 Breakeven Analysis**

A breakeven analysis should determine the minimum revenue required to cover all costs, operating and economic. This should address the fact that many expenses vary with skier visits.

Thus, as a basis to complete the analysis, projections should be made for fixed expenses (expenses that are incurred regardless of the number of skier visits), semi-variable expenses (expenses that increase with skier volume but not in a direct, proportional relationship), and variable costs (expenses that have a direct relationship with skier visits).

A breakeven model provides a method to combine the physical and economic parameters of a proposed ski area development in a logical manner to evaluate the profitability of success. The breakeven refers to these levels of utilization that will generate revenues adequate to meet all costs. The starting point in creating models is to utilize and categorize all expenses according to their relationship with business volume. The following is a generalized breakdown of the categories:

- Fixed expenses are those that do not vary with different levels of business of skier visits, assuming the area is open for use. Primary licenses, legal and accounting fees, and contractual obligations.
- Semi-variable expenses are those that do increase with skier visit volume but not in a direct proportional relationship. The principal component of the semi-variable expense at resorts is labour. There is always a demand for a certain level of staffing, yet during peak periods of the season; part time help is added to accommodate the crowds. There are fixed and variable portions of these semi-variable expenses that are expense occurrences associated with peak vs. non-peak periods. In addition to labour, a portion of maintenance, supplies, energy and utilities are considered to be semi-variable.
- Variable costs are those that increase or decrease in direct proportion to the number of skier visits. The primary example of variable expense is the cost of goods sold. In many cases, variable expenses consisted of the costs of food and beverage products, Crown Land lease fees, credit card discount fees, the cost of goods sold in retail outlets, employee bonuses, etc. Gross Revenue per Skier Visit for the breakdown model includes all revenues from the ski area operation including lift ticket sales, ski school, food and beverage, retail sales, and equipment rental.

The formula used to depict the cash breakeven threshold is a standard business equation as follows:

$$X = \frac{(A + B)}{E - \frac{(C + D)}{E}}$$

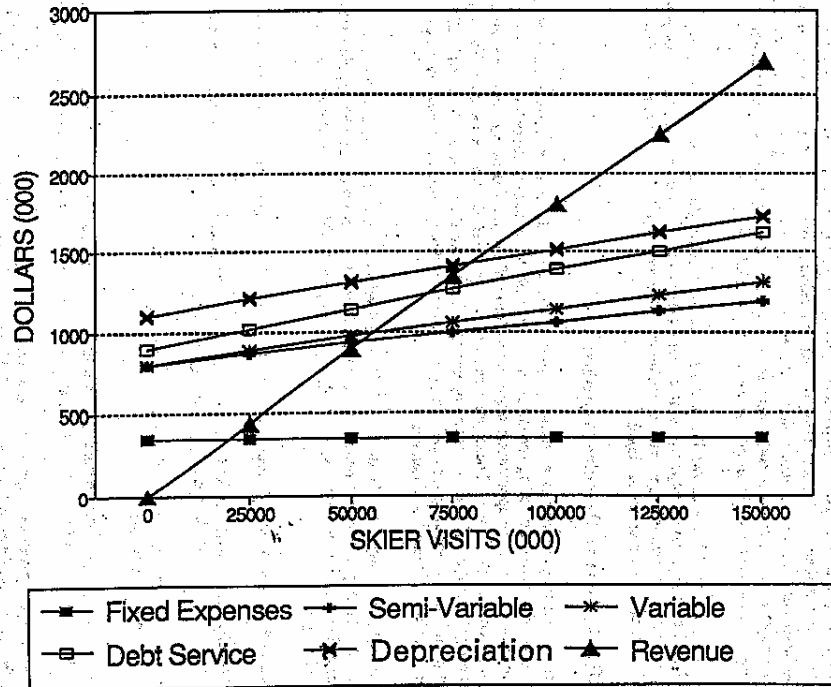
Where:

- X = Skier Visits
- A = Fixed Expense
- B = The Fixed Portion of Semi-Variable Expense
- C = The Variable Portion of Semi-Variable Expense per Skier Visit
- D = Variable Expense per Skier Visit
- E = Gross Revenue per Skier Visit

The Breakeven Analysis graphically illustrates the volume of skier visits required to reach financial goals, and allows for an evaluation of the probability of reaching required levels of utilization. When charted, the breakeven model shows three levels of breakeven. These are:

1. Cash Breakeven: The volume required to meet annual cash operating expenses. Principal payback and interest are not operating expenses.
2. Operating Breakeven: The volume required to meet annual operating expenses. It includes depreciation but not interest.
3. Economic Breakeven: The volume required to meet all operating and capital expenses, including the cost of capital

### SKI AREA BREAKEVEN ANALYSIS



Breakeven analysis has its end product a statement of utilization required to reach the various levels of breakeven. A successful ski area or a feasible potential ski area should demonstrate an ability to achieve the economic breakeven level during an average ski season. Utilization is expressed in skier visits and a percent of seasonal capacity (CCC times the length of the season) Skier visits divided by seasonal capacity equals utilization.

The Breakeven Model allows interested parties to visualize the probability of success. There should be a reasonable expectation that market demand, and competitive market penetration potential is sufficient to generate the skier visit volume required. Economic breakeven must also be at levels that are attainable.

### **III.20.2 Proforma Operating Projections**

Breakeven models provide a "static" picture of operation. In order to analyze the effects of various alternative operating scenarios, the results of the breakeven modeling need to be incorporated with the appropriate adjustments into a Proforma Operating Statement and projected into the future. These projections allow the determination of the cash flow and earnings potential related to a given operating scenario for the ski area. A general definition of each line presented in the operating projection is outlined below, followed by an example of a proforma operating statement.

**Comfortable Carrying Capacity (CCC)** is defined as the number of skiers that a resort can accommodate per day in a balanced fashion, offering the full spectrum of skier skill types as enjoyable resort experience, without negatively impact on the physical or sociological environment.

**Seasonal Capacity** is the product of the CCC multiplied by the length of the ski season.

**Projected Skier Visits** represents a conservative best judgement as to the future potential attractiveness of the ski area in the competitive marketplace.

**Seasonal Utilization** is the relationship between seasonal capacity and projected skier visits expressed as a percentage.

**Ticket Price** represents the cost of a weekend adult full day lift pass in year one. Subsequently the ticket price is increased based on estimated increases and inflationary trends.

**Realization Percentage** represents the gross revenue earned by a ski area for each skier visit expressed in the form of a percentage of the cost of a weekend full day lift pass. This percentage includes, not only revenue from lift ticket sales (which will typically be 65 to 70% of the ticket price due to discounting, half-day passes, etc.) but also, all other sources of revenue for the ski area (i.e. ski rentals, ski school, restaurant and bar operations). This percentage should be based upon actual performance of a variety of resorts throughout Western Canada.

**Revenue Per Skier Visit** is derived by multiplying the ticket price by the realization percentage.

**Operations Revenue** is calculated by simply multiplying revenue per skier visit by the projected number of skier visits.

**Operating Expenses** should be derived from operations records or resorts throughout Western Canada. All expenses should be categorized according to their relationship to business volume. These categories include Fixed Expenses, Semi-Variable Expenses and Variable Costs. Operating expenses should be inflated at a reasonable rate on an annual basis.

**Operating Income** represents the difference between revenues and expenses.

**Ordinary Capital Expenditures** represent the normal capital expenditures required to keep the physical plant in good operating condition. This figure should be based upon a review of typical expenditures (not including major asset additions or replacements) that would be found at ski areas of a similar size and nature to the proposed concept.

**Net Cash Flow** is the total annual income less ordinary capital expenditures before any debt is taken into account.

**Present Value** represents the value of the future earnings stream based on pre-tax and pre-debt cash flows. This amount is a conservative estimate of the earnings potential for the ski area at the end of a set period covered by the proforma projections. It assumes a predetermined capitalization rate.

**Terminal Cap Rate** is estimated based on expected future net cash flows. A rate typical for the particular ski area in consideration must be determined.

**Reversion Value** represents the market value of the property at the end of the investment term. This is the value of the ski area based on the projected incomes. To arrive at a reversion value, an additional year of income is projected. The net cash flow is capitalized at a terminal rate rather than discounted.

**Present Value of Reversion** is the market value in the base year's dollars.

**Total Net Present Value** is the sum of the present value of the net cash flow and the present value of the reversion value. If the total net present value is greater than the estimated capital costs, the project, as defined, should have merit.

**Capital Costs** is an estimate of the typical costs of ski area construction in terms of the comfortable carrying capacity of the mountain. Depending on the size and scale of the development, the capital costs can range from \$7,500 to \$9,000 (Can) per unit of comfortable carrying capacity.

Based on a comparison of capital costs and total net present value, it should be relatively apparent whether the proposed ski area development will be able to successfully sustain its existence. A key element to note is the projected skier visits and whether they can truly be achieved in light of competition, proximity to market and access to market.

SKI AREA PROFORMA OPERATING STATEMENT											
PROJECTION YEAR	1	2	3	4	5	6	7	8	9	10	11
<b>Winter Operations</b>											
Comfortable Capacity	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Seasonal Capacity	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000
Projected Skier Visits	54,000	84,000	114,000	144,000	180,000	196,000	210,000	216,000	216,000	216,000	216,000
% Seasonal Utilization	9%	14%	19%	24%	30%	33%	35%	36%	36%	36%	36%
Ticket Price	\$40.00	\$41.60	\$43.26	\$44.99	\$46.79	\$48.67	\$50.61	\$52.64	\$54.74	\$56.93	\$59.21
Realization %	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Revenue Per Skier Visit	\$42.00	\$43.68	\$45.42	\$47.24	\$49.13	\$51.10	\$53.14	\$55.27	\$57.48	\$59.78	\$62.17
Winter Operations Revenue	\$2,268,000	\$3,669,120	\$5,178,222	\$6,802,488	\$8,843,310	\$10,016,286	\$11,159,505	\$11,938,752	\$12,415,032	\$12,911,724	\$13,428,828
Operating expenses											
a) Fixed	\$378,000	\$612,000	\$864,000	\$1,135,000	\$1,444,000	\$1,687,000	\$1,861,000	\$1,992,000	\$2,069,000	\$2,151,000	\$2,238,000
b) Semi-Variable	\$693,000	\$1,121,000	\$1,584,000	\$2,080,000	\$2,647,000	\$3,093,000	\$3,411,000	\$3,651,000	\$3,794,000	\$3,944,000	\$4,103,000
c) Variable	\$189,000	\$306,000	\$432,000	\$567,000	\$722,000	\$843,000	\$930,000	\$996,000	\$1,035,000	\$1,076,000	\$1,119,000
Total Expenses	\$1,260,000	\$2,039,000	\$2,880,000	\$3,782,000	\$4,813,000	\$5,623,000	\$6,202,000	\$6,639,000	\$6,898,000	\$7,171,000	\$7,460,000
Winter Operating Income	\$1,008,000	\$1,630,120	\$2,298,222	\$3,020,488	\$4,030,310	\$4,393,286	\$4,957,505	\$5,299,752	\$5,517,032	\$5,740,724	\$5,968,828
<b>Summer Operations</b>											
Projected Visits	10,000	11,000	12,100	13,310	14,641	16,105	17,716	19,133	20,281	21,295	22,360
Ticket Price	\$10.00	\$10.40	\$10.82	\$11.25	\$11.70	\$12.17	\$12.65	\$13.16	\$13.69	\$14.23	\$14.80
Realization %	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%
Revenue Per Lift Ride	\$6.50	\$6.76	\$7.03	\$7.31	\$7.60	\$7.91	\$8.22	\$8.55	\$8.90	\$9.25	\$9.62
Food & Retail Per Summer Visit	\$8.00	\$8.32	\$8.65	\$9.00	\$9.66	\$9.73	\$10.12	\$10.53	\$10.95	\$11.39	\$11.84
Revenue per Summer Visit	\$14.50	\$15.08	\$15.68	\$16.31	\$17.26	\$17.64	\$18.34	\$19.08	\$19.85	\$20.64	\$21.46
Summer Operations Revenue	\$145,000	\$165,880	\$189,728	\$217,086	\$252,704	\$284,092	\$324,911	\$365,058	\$402,578	\$439,529	\$479,846
Operating Expenses											
a) Semi-Variable	\$70,000	\$77,000	\$85,000	\$93,000	\$102,000	\$113,000	\$124,000	\$134,000	\$142,000	\$149,000	\$157,000
b) Variable	\$35,000	\$39,000	\$42,000	\$47,000	\$51,000	\$56,000	\$62,000	\$67,000	\$71,000	\$75,000	\$78,000
Summer Operating Income	\$40,000	\$49,880	\$62,728	\$77,086	\$99,704	\$115,092	\$138,911	\$164,058	\$189,578	\$215,529	\$244,846
Total Annual Income	\$1,048,000	\$1,680,000	\$2,360,950	\$3,097,574	\$4,130,014	\$4,508,378	\$5,096,416	\$5,463,810	\$5,706,610	\$5,956,253	\$6,213,674
Less Ordinary Cap Expenditures	\$0	\$300,000	\$312,000	\$324,000	\$337,000	\$351,000	\$365,000	\$380,000	\$395,000	\$411,000	\$427,000
Net Cash Flow	\$1,048,000	\$1,380,000	\$2,048,950	\$2,773,574	\$3,793,014	\$4,157,378	\$4,731,416	\$5,083,810	\$5,311,610	\$5,545,253	\$5,786,674
Present Value(@15%)	\$17,176,000								Terminal Cap Rate		15%
Present Value of Reversion	\$9,538,000								Reversion		\$38,585,000
Total Net Present Value	\$26,714,000								PV Factor		0.25
Capital Costs Estimate	\$24,000,000	to	\$32,000,000						PV Reversion		\$9,538,000

### III.21 Social and Economic Impact

The predicted consequences of the proposed ski area development on the residents of B.C., on a local, regional and provincial basis, should be fully discussed. Even on the concept level, dialogue between the proponent and potentially affected parties should be initiated. A projection of the estimated effect and response the proposed development may have in terms of jobs, economic multipliers, the indirect and cumulative impacts on the community and the potential to complement any existing development. The following issues should be addressed:

- Existing demographic profile (age/sex/income, etc.);
- Predicted changes to the demographic profile;

- Changes to the labour market in terms of employment and unemployment;
- Housing availability and affordability ;
- Land and water use;
- Infrastructure;
- Transportation;
- Community services;
- Tax base;
- Development cost charges.

### **III.22 Financial Capability**

The proponent must describe and demonstrate their capability to develop phase one of the ski area as proposed. Specific reference should be made to capital costs of development, proposed financing, operations strategy and relevant development experience.

### **III.23 Submission of Proposal**

Upon submission, the Regional Director and the will coordinate a provincial interagency and local government review of the proposals.

### **III.24 Proponent Selection**

As per the Commercial Alpine Skiing Policy, "the successful proposal will be that judged to make the best use of the available Crown land, with the least environmental impact and best remedial measures for impact mitigation. The Ministry is not obligated to select or approve any formal proposal".

### **III.25 Interim Agreement**

As per the Commercial Alpine Skiing Policy, "upon approval of the formal proposal, the successful proponent will sign an interim agreement with the Ministry, making a commitment to prepare a ski area master plan on the basis of the approved formal proposal, and to proceed to obtain all necessary approvals from other regulatory agencies".

The detailed proposal and interim agreement will usually serve as the formal application for an environmental assessment, project approval certificate, and the EA process if such an exercise proves to be necessary.

## **IV. SKI AREA PLANNING: THE MASTER PLAN STAGE (THE SKI AREA MASTER PLAN)**

### **IV.1 Introduction**

With the Interim Agreement in place, the Master Planning of the ski area can be initiated. This will effectively be a detailed refinement of the Concept Plans and the formal proposal that were generated during the Proposal Call. As summarized in the interim agreement, any issues identified during the concept review, the interagency review, and public meetings, must be rectified within the Master Plan.

The final Master Plan document will act as the reference point from which the Master Development Agreement and all other approvals, permits and tenure will be based. Further, performance evaluations of operations and subsequent requests for amendments and expansion will look to the Master Plan as the starting point of review.

The Master Plan should be divided into sections leading methodically through the planning process from, and including, a description of the project goals and objectives, site inventory and analysis, concept generation, the ski area plans, implementation, economic feasibility, and financial capability. The following describes the key elements and product that should be included and taken into account by ski area type:

It must be emphasized that it is the proponent's responsibility to undertake public consultation for the proposed development. This provides a means to identifying and mitigating potential problems in advance of the formalization of the ski area plans.

### **Community Ski Areas**

#### **INTRODUCTION**

- Resort Development Description
- Area Location Map

#### **INVENTORY AND ANALYSIS**

- Mountain Development Analysis
- Elevation Analysis
- Slope Gradient Analysis
- Fall-Line Analysis
- Slope Aspect Analysis

- Climatological Analysis
- Mountain Opportunities and Constraints Plan
- Base Lands Development Area

#### DEVELOPMENT PROGRAM

- Mountain Development Potential
- Mountain Terrain Capacity Analysis
- Mountain Concepts
- Base Area Concepts

#### PRELIMINARY MASTER PLAN

- Ski Area Preferred Concept

#### SKI AREA MASTER PLAN

- Ski Area Master Plan
- Skier Service Space Allocations
- Building Footprints
- Detailed Grading Plans
- Operations Plan

#### **Urban Ski Areas**

#### INTRODUCTION

- Resort Development Description
- Competitive Resorts Analysis
- Area Location Map

#### INVENTORY AND ANALYSIS

- Mountain Development Analysis
- Elevation Analysis
- Slope Gradient Analysis
- Fall-Line Analysis
- Slope Aspect Analysis
- Climatological Analysis
- Mountain Opportunities and Constraints Plan
- Base Lands Development Area
- Base Slope Gradient Analysis
- Base Lands Opportunities and Constraints Plan

## DEVELOPMENT PROGRAM

- Mountain Development Potential
- Mountain Terrain Capacity Analysis
- Base Area Development Potential
- Base Area Development Area
- Ski Resort Development Concepts
- Mountain Concepts
- Base Area Concepts
- Ski Resort Preferred Concept
- Total Resort Development Concept

## PRELIMINARY MASTER PLAN

- Total Resort Preferred Concept

## RESORT MASTER PLAN

- Mountain Plan
- Digital Terrain Model
- Base Area Plan
- Skier Service Space Allocations
- Building Footprints
- Architectural Programs for Each Building
- Base Area Plan Phasing
- Total Resort Master Plan
- Landscape Features Plan
- Construction Documentation
- Detailed Grading Plans
- Resort Operations Plan

## FIVE YEAR DEVELOPMENT PLAN

### **Regional, Regional/Destination and Destination Ski Areas**

## INTRODUCTION

- Resort Development Description
- Competitive Resorts Analysis
- Area Location Map

## INVENTORY AND ANALYSIS

- Mountain Development Analysis
- Elevation Analysis
- Slope Gradient Analysis
- Fall-Line Analysis
- Slope Aspect Analysis
- Climatological Analysis
- Mountain Opportunities and Constraints Plan
- Base Lands Development Area
- Base Slope Gradient Analysis
- Base Lands Opportunities and Constraints Plan

## DEVELOPMENT PROGRAM

- Ski Resort Development Program
- Mountain Development Potential
- Mountain Terrain Capacity Analysis
- Base Area Development Potential
- Base Area/Village Development Area
- Non Ski Recreational Course Development Potential
- Resort Real Estate Development Potential
- Ski Resort Development Concepts
- Mountain Concepts
- Base Area/Village Concepts
- Ski Resort Preferred Concept
- Total Resort Development Concept
- Golf Course Concepts
- Resort Facilities and Residential Development Concepts

## PRELIMINARY MASTER PLAN

- Total Resort Preferred Concept

## RESORT MASTER PLAN

- Mountain Plan
- Digital Terrain Model
- Base Area/Village Plan
- Skier Service Space Allocations
- Building Footprints
- Architectural Programs for Each Building

- Computer Generated Base Area Form Studies
- Character Sketches
- Grading Plans
- Base Area/Village Plan Phasing
- Total Resort Master Plan
- Golf Course Routing Plan
- Phased Residential Subdivision Plans
- Recreation Facilities Plan
- Landscape Features Plan
- Construction Documentation
- Detailed Grading Plans
- Resort Operations Plan

## FIVE YEAR DEVELOPMENT PLAN

### **IV.2 Project Overview**

This is a summary of the project, its components and the contents of the Master Plan.

### **IV.3 Project Goals and Objectives**

The project goals and objectives should now be very focussed, having been refined with each stage of the planning process.

### **IV.4 Site Mapping**

The 1:5,000 (master plan) and 1:1,000 (base area plan) mapping utilized in the Concept Stage should be sufficient for the content found within the Master Plan.

### **IV.5 Site Inventory**

The information gathered during the Concept Stage will largely remain sufficient to describe the Master Plan content. If not already complete, it should be graphically illustrated and described, as this information is the basis for determining and describing the rationale behind the plans.

### **IV.6 Environmental Audit**

Like the site inventory, documentation already used describing the environmental components of the study area and its surroundings should be sufficient to act as a complement to the final plans.

The exception will be to complete a detailed review of specifics in response to any shortcomings identified in the concept review process. The provisions of the Environmental Assessment Act will apply to projects meeting one criterion under one Act.

#### **IV.7 Site Analysis**

The site analyses criteria utilized in the Concept Stage apply in the generation of the Master Plan. The content of the analyses should be carefully documented and included in the Master Plan as a description that rationally leads to the final plans.

#### **IV.8 The Mountain Plan**

The Mountain Plan should graphically and verbally describe the location of the ski lifts and ski trails in relation to all on-mountain and base area facilities, maintenance buildings, parking lots, roads, overnight accommodation (if applicable) and any other facilities (recreation, multi-season uses, adjacent uses, etc.). The plan should be complete, having fully explored all aspects of the design potential, accurately portraying the expected final development.

The details of the ski lifts (type of lift, alignments, terminal elevations, vertical, rated hourly capacity, slope distance, and horizontal distance) must be listed. The Comfortable Carrying Capacity, as it relates to the type of terrain, ski trails and ski lift service, should be outlined and described. Likewise, the details of the ski trails (top and bottom elevations, vertical drop, horizontal length, slope length, maximum and average gradients, average widths, area, and skier skill class) should be listed. The ski trails should also be listed in conjunction with the ski lift they are serviced by. A downhill capacity, based on acceptable densities per hectare relative to skier/snowboarder skill class, must be stated (see Section III.9 for details).

Snowboard facilities (terrain garden, half pipe) must be incorporated in the CCC calculation.

#### **IV.9 Base Area/Village Plan**

The base area space use requirements, parking and infrastructure calculations, bed unit calculations, overnight accommodations (public, private and employee) destination space, year round use, etc., all act as the basis for detailed base area plans. As part of the Master Plan, all aspects of these components must be fully explored, designed and documented.

#### **IV.10 Infrastructure Plan and Traffic Plan**

These plans must be fully developed, describing all aspects of the development tied directly to the balanced capacities established in the Mountain and Base Area Plans.

#### **IV.11 Phased Development Plan**

All aspects of the proposed development must be fully described on a phase by phase basis. Capacity developed on the mountain must match capacity developed in the base. All effort should be made for the plan to reflect an understanding by the proponent that each phase (and even each component within a phase) must sequentially lead toward build out. Currently and in the past, too many resorts have operated for years with obvious gaps in the resort facilities, waiting for the next threshold of development. This has a detrimental effect on the operation of a resort and the interim and ultimate success.

#### **IV.12 Environmental Protection Plan**

Regardless of the size and type of ski area, a full Environmental Protection Plan must be included within the Master Plan. This will describe all actions to be taken during and after construction of all facilities. All effort should be made to re-establish the original "feel" of the site, recognizing the natural environment that is one of the key attractions to all ski areas. The Environmental Protection Plan should include a landscape plan, revegetation plan construction specifications, etc.

#### **IV.13 Management Plan**

All specifics pertaining to the management of the ski area should be outlined.

#### **IV.14 Implementation Program**

The implementation of the ski area Master Plan should be described on a phase by phase basis.

#### **IV.15 Market Analysis**

Any shortcoming identified in the market analysis should be addressed and researched as discussed in Section III.19.

#### **IV.16 Economic Feasibility**

The economic feasibility discussed in Section III.20 should be refined to address any shortcomings or questions.

The increased detail of the plans should enable a more precise capital cost estimate, break even analysis and cash flow/proforma operating projections.

#### **IV.17 Financial Capability**

The proponent must describe and demonstrate their capability to develop a financially viable ski area as discussed in Section III.21. Positive cash flow must be exhibited. Specific reference must be made to capital costs of development infrastructure and access costs, financing, operations strategy, and relevant development experience to ensure a successful development that will be profitable on its own without the support of real estate sales.

#### **IV.18 Public Participation**

During the planning process, it is the proponent's responsibility to involve the public in order to identify and resolve problems in advance of implementation of the ski area plans. Evidence of taking into account such participation should be apparent in the Master Plan

#### **IV.19 Master Plan Submission**

Upon completion of all of the key elements of the final Master Plan, the document should be submitted to BC Lands for review. The Ministry will coordinate a provincial interagency and local government review of the submission.

#### **IV.20 Master Development Agreement**

Once the Master Plan has been approved, the applicant should make any final requested refinements and submit the plans as a basis for the Master Development Agreement (MDA) and for all development permits.

#### **IV.21 Operating Agreement**

Once the MDA and all permits are in place, an Operating Agreement can be applied for, tenures can be issued and the applicant may proceed to initiate construction and subsequently open the ski area for operations.

#### **IV.22 Five Year Development Plan**

Once a ski area is operating, a Five Year Development Plan must be filed with B.C. Lands and updated on an annual basis. This is essentially a work plan for each summer, identifying all construction projects (i.e. new ski lift lines, ski runs, licenses to cut, etc.) to be considered during each of the next five years. The current year's plan and the second year's plan would be more detailed than the following three years. The objective is to give B.C. Lands adequate time to approve tenures and other land authorizations on the priority basis that ski resorts usually expect. The plans must adhere to the B.C. Lands pre-determined format. They must be submitted with enough lead time for B.C. Lands to give the plans adequate consideration to all critical issues prior to construction.

## **V. APPENDICES**

**V.1 Commercial Alpine Skiing Policy**

[Commercial Alpine Ski Policy](#)

## **V.2 Bed Unit Calculation Model**

## **V.2 Bed Unit Calculation Model**

The Bed Unit Calculation Model is intended to prescribe a range of bed units that would be associated with a ski area development. Based on the perceived attributes of a proposed ski area development, Regional, Regional/Destination, and Destination Ski Areas are eligible for bed units for use on base area lands that may be purchased from BC Lands as per CASP.

### **V.2.1 Types of Ski Areas With Overnight Accommodation**

A determination must be made as to whether the ski area in consideration is can be classified as either a Regional Ski Area, or a Regional/Destination Ski Area, or a Destination Ski Area. The following are the basic criteria that apply to each of these types of resorts.

#### **Regional Ski Area**

The Regional Ski Area has the following criteria or features:

- Serves the local to regional population.
- Low capacity ski lifts, such as surface lifts or fixed grip double chairlifts.
- Limited ski trail area of +/- 50 hectares within a controlled recreation area of +/- 150 hectares.
- Vertical drop of +/- 250 to 500 meters.
- Comfortable Carrying Capacity of +/- 1,000 to 1,500 skiers per day.
- Often managed by a ski club with only the absolute minimum number of employees.
- 30 minutes to 1 hour driving distance from the market.
- Focused on regional weekend use, holiday periods, and local needs.
- Depending on the circumstances, the area could have a limited number of beds attached to it in a cabin based type of development in the base area.
- Depending on changes to regional population bases, the area might have potential of becoming a Regional/Destination Ski Area, in which case additional development on the mountain and in the base area may be warranted at some point in the future.

Two current examples of regional ski areas are Mt. Baldy, near Osoyoos, and Ski Smithers, near Smithers.

#### **Regional/Destination Ski Area**

The Regional/Destination Ski Area would have the following criteria or features:

- Serves local, regional and destination skiers with an emphasis on catering to regional needs.
- Comfortable Carrying Capacity of +/- 3,000 to 5,000 skiers per day.
- A full range of ski lift types from low capacity surface lifts to high capacity express lifts.
- A ski trail area of +/- 400 hectares and a total area of +/- 2,000 hectares.
- A vertical drop of +/- 600 to 1,000 meters.
- 30 minutes to 2.5 hour driving distance from the market.
- By definition, the area has overnight accommodation, available for commercial, private and employee use.
- With increased demand, combined with the physical potential of the lands within the controlled recreation area and the surrounding lands, the area might have the potential of attaining Destination Ski Area status, in which case additional development in the base area may be warranted at some point in the future.

Two current examples of regional/destination ski areas are Silver Star Mountain near Vernon and Sun Peaks near Kamloops.

### **Destination Ski Area**

The Destination Ski Area would have the following criteria or features:

- Serves local, regional and destination skiers with an emphasis on catering to destination needs and services.
- Offers a unique and truly special skiing experience.
- Provides a full scope of tourist facilities, understanding that their guests are usually there for a total resort experience where skiing, although probably the cornerstone activity, is one of many attractions available.
- Comfortable Carrying Capacity of +/- 5,000 to 12,000 plus skiers per day.
- A full range of ski lift types from low capacity surface lifts to high capacity gondolas and express lifts.
- A ski trail area of +/- 1,000 hectares within a total area of +/- 3,500 hectares.
- A vertical drop of +/- 700 to 1,500 meters plus.
- 2 to 6 hour driving distance from market.
- Major international airport within a two to three hour drive.
- Significant bed base at the resort, including publicly available commercial beds, private bed subdivisions, and employee housing.

As of 1996, Whistler/Blackcomb is the only true destination ski resort in B.C.

### V.2.2 Ski Area Attributes

The appropriate point value, as it applies to the type of ski area under consideration, should be assigned for each category. The total points determines the number of bed units that may be warranted for application to development.

#### Regional Ski Areas

Some residential and second home/cottage accommodation may be considered at a Regional Ski Area if demand for such accommodation can be demonstrated. The bed unit calculation model specifies a ratio of Bed Units to Comfortable Carrying Capacity. The total points recorded within the model for both present and potential development should provide an understanding of the number of bed units that may be warranted. As defined, Regional Ski Areas may secure a number of bed units up to 50% of the CCC.

#### A. Ski Terrain

The distribution of ski terrain by ability level:

Novice (10-25% slopes)	20% of ski area
Intermediate (25-45% slopes)	60% of ski area
Advanced (45-80% slopes)	20% of ski area

- 1 - Over 35% of area either advanced or novice terrain
- 2 - 25-35% of area either advanced or novice terrain
- 3 - Close to ideal slope ratio
- 4 - Ideal slope ratio

#### B. Accessibility

Travel time to the skier marketplace:

- 0 - less than ½ hour
- 1 - ½ to 1 hour
- 2 - 1 to 1½ hours
- 3 - 1½ to 2 hours
- 4 - 2 to 2½ hours

- 5 - 2½ to 3 hours
- 6 - greater than 3 hours

**C. Population within 250 kilometres**

- 1 - 0 to 30,000
- 2 - 30,000 to 100,000
- 3 - 100,000 to 250,000
- 4 - 250,000 to 500,000
- 5 - 500,000 +

**D. Unique Qualities other than Skiing**

This may include: a major provincial or national park, hot springs, convention facilities, etc.

- 0 - Nothing unusual
- 1 - Regional attraction
- 2 - National attraction

**E. Year Round Experience within 30 minutes of Ski Area**

- 0 - Limited (undeveloped with little potential)
- 1 - Fair (some potential for recreation facilities)
- 2 - Good (3-6 tennis courts, swimming pool, etc.)
- 3 - Very Good (18 hole golf course)
- 4 - Excellent (several 18 hole golf courses, 6 or more tennis courts, swimming pool, arena, hiking, mountain biking, beaches, etc.)

**F. Potential Length of Season (based on natural and manmade snow)**

Good to excellent snowpack for:

- 0 - Less than 100 days
- 1 - Less than 115 days
- 2 - 115 to 130 days
- 3 - 130 to 150 days
- 4 - More than 150 days

**G. Type of Snow**

- 0 - Dry less than 25% of season
- 1 - Dry 25 to 50% of season
- 2 - Dry 50 to 75% of season
- 3 - Dry 75 to 90% of season
- 4 - Dry over 90% of season

**H. Weather Conditions**

Number of hours of bright sunshine per year:

- 1 - Less than 1,000 hours
- 2 - 1,000 to 1,500 hours
- 3 - 1,500 to 2,000 hours
- 4 - Greater than 2,000 hours

**Potential Need for Overnight Facilities at a Regional Ski Area**

Rating from Analysis	Total % of CCC
25	11%
26	17%
27	22%
28	28%
29	33%
30	39%
31	44%
32	50%
33	56%

Upon calculation of the total number of bed units, they must then be classified as public, private or employee. Typically, a regional resort should have a bed unit ratio that approximates a 20% public, 70% private, and 10% employee breakdown.

**Regional/Destination Ski Area**

For Regional/Destination Ski Areas, the following accommodation evaluation guideline should be used to determine what percentage of the Comfortable Carrying Capacity of the mountain would relate to bed unit requirements. The total points scored for both present and potential development should provide the guidelines for the applicable number of bed units.

**A. Ski Terrain**

The distribution of ski terrain by ability level:

Novice (10-25% slopes)	20% of ski area
Intermediate (25-45% slopes)	60% of ski area
Advanced (45-80% slopes)	20% of ski area

- 1 - Over 35% of area either advanced or novice terrain
- 2 - 25-35% of area either advanced or novice terrain
- 3 - Close to ideal slope ratio
- 4 - Ideal slope ratio

**B. Average Skier Density per Hectare (Ski Trail Area/CCC)**

- 0 - < 15/ha, > 55 /ha
- 1 - 15 - 20 /ha, 50 -55/ha
- 2 - 20 - 25/ha, 45 - 50/ha
- 3 - 25 - 30/ha, 40 -45/ha
- 4 - 30 - 40/ha

**C. Accessibility**

Travel time to the skier marketplace:

- 0 - less than ½ hour
- 1 - ½ to 1 hour
- 2 - 1 to 1½ hours
- 3 - 1½ to 2 hours
- 4 - 2 to 2½ hours
- 5 - 2½ to 3 hours
- 6 - greater than 3 hours

Access to Ski Area:

- 1 - Reasonable access (main highway with short mountain road)
- 2 - Average access (some storm closures)

**D. Population within 250 kilometres**

- 1 - 0 to 30,000
- 2 - 30,000 to 100,000
- 3 - 100,000 to 250,000
- 4 - 250,000 to 500,000
- 5 - 500,000 +

**E. Unique Qualities other than Skiing**

This may include: a major provincial or national park, hot springs, convention facilities, etc.

- 0 - Nothing unusual
- 1 - Regional attraction
- 2 - National attraction

**F. Year Round Experience within 30 minutes of Ski Area**

- 0 - Limited (undeveloped with little potential)
- 1 - Fair (some potential for recreation facilities)

- 2 - Good (3-6 tennis courts, swimming pool, etc.)
- 3 - Very Good (18 hole golf course)
- 4 - Excellent (several 18 hole golf courses, 6 or more tennis courts, swimming pool, arena, hiking, mountain biking, beaches, etc.)

**G. Potential Length of Season (based on natural and manmade snow)**

Good to excellent snowpack for:

- 0 - Less than 100 days
- 1 - Less than 115 days
- 2 - 115 to 130 days
- 3 - 130 to 150 days
- 4 - More than 150 days

**H. Type of Snow**

- 0 - Dry less than 25% of season
- 1 - Dry 25 to 50% of season
- 2 - Dry 50 to 75% of season
- 3 - Dry 75 to 90% of season
- 4 - Dry over 90% of season

**I. Weather Conditions**

Number of hours of bright sunshine per year:

- 1 - Less than 1,000 hours
- 2 - 1,000 to 1,500 hours
- 3 - 1,500 to 2,000 hours
- 4 - Greater than 2,000 hours

**J. Express Lifts**

- 0 - None
- 1 - Less than 50% of total lifts
- 2 - More than 50% of total lifts

**K. Need for Employee Housing**

Generally, the total number of employees at a ski area represents 10% of the CCC. If there is an established bed base than can supply this size of work force within a 15 minute drive of the ski area core, then there is a reduced need for employee housing on site.

- 0 - 100% of employee bed base within a 15 minute drive
- 1 - 75% of employee bed base within a 15 minute drive
- 2 - 50% of employee bed base within a 15 minute drive
- 3 - 25% of employee bed base within a 15 minute drive
- 4 - 0% of employee bed base within a 15 minute drive

**Potential Need for Overnight Facilities at a Regional/Destination Ski Area**

Rating from Analysis	Total % of CCC
28	53%
29	57%
30	60%
31	63%
32	67%
33	70%
34	74%
35	77%
36	80%
37	84%
38	87%
39	91%
40	94%
41	97%
42	101%
43	104%
44	108%
45	111%

Upon calculation of the total number of bed units, they must then be classified as public, private or employee. A regional/destination resort should have a bed unit ratio that approximates a 35% public, 55% private, and 10% employee breakdown.

**Destination Ski Area**

In addition to the day lodge and other operational facilities, consideration would be given to residential and commercial land usage for Destination Ski Areas.

For Destination Ski Areas, the following accommodation evaluation guideline should be used to determine what percentage of the Comfortable Carrying Capacity of the mountain would relate to bed unit requirements. The total points scored for both present and potential development should provide the guidelines for the applicable number of bed units.

**A. Ski Terrain**

The distribution of ski terrain by ability level:

Novice (10-25% slopes)	15% of ski area
Intermediate (25-45% slopes)	55% of ski area
Advanced (45-80% slopes)	30% of ski area

- 1 - Over 35% of area either advanced or novice terrain
- 2 - 25-35% of area either advanced or novice terrain
- 3 - Close to ideal slope ratio
- 4 - Ideal slope ratio

**B. Average Skier Density per Hectare (Ski Trail Area/CCC)**

- 0 - < 15/ha, > 55 /ha
- 1 - 15 - 20 /ha, 50 -55/ha
- 2 - 20 - 25/ha, 45 - 50/ha
- 3 - 25 - 30/ha, 40 -45/ha
- 4 - 30 - 40/ha

**C. Accessibility**

Travel time to the skier marketplace:

- 0 - less than ½ hour
- 1 - ½ to 1 hour

- 2 - 1 to 1½ hours
- 3 - 1½ to 2 hours
- 4 - 2 to 2½ hours
- 5 - 2½ to 3 hours
- 6 - greater than 3 hours

Access to Ski Area:

- 1 - Reasonable access (main highway with short mountain road)
- 2 - Average access (some storm closures)

**D. Population within 250 kilometres**

- 1 - 0 to 30,000
- 2 - 30,000 to 100,000
- 3 - 100,000 to 250,000
- 4 - 250,000 to 500,000
- 5 - 500,000 +

**E. Unique Qualities other than Skiing**

This may include: a major provincial or national park, hot springs, convention facilities, etc.

- 0 - Nothing unusual
- 1 - Regional attraction
- 2 - National attraction

**F. Year Round Experience within 30 minutes of Ski Area**

- 0 - Limited (undeveloped with little potential)
- 1 - Fair (some potential for recreation facilities)
- 2 - Good (3-6 tennis courts, swimming pool, etc.)
- 3 - Very Good (18 hole golf course)
- 4 - Excellent (several 18 hole golf courses, 6 or more tennis courts, swimming pool, arena, hiking, mountain biking, beaches, etc.)

**G. Potential Length of Season (based on natural and manmade snow)**

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- 0 - Dry less than 25% of season
- 1 - Dry 25 to 50% of season
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- 4 - Dry over 90% of season

**I. Weather Conditions**

Number of hours of bright sunshine per year:

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- 4 - Greater than 2,000 hours

**J. Express Lifts**

- 0 - None
- 1 - Less than 50% of total lifts
- 2 - More than 50% of total lifts

**K. Need for Employee Housing**

Generally, the total number of employees at a ski area represents 10% of the CCC. If there is an established bed base than can supply this size of work force within a 15 minute drive of the ski area core, then there is a reduced need for employee housing on site.

- 0 - 100% of employee bed base within a 15 minute drive
- 1 - 75% of employee bed base within a 15 minute drive
- 2 - 50% of employee bed base within a 15 minute drive
- 3 - 25% of employee bed base within a 15 minute drive
- 4 - 0% of employee bed base within a 15 minute drive

### Potential Need for Overnight Facilities at a Destination Ski Area

Rating from Analysis	Total % of CCC
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%

Upon calculation of the total number of bed units, they must then be classified as public, private or employee. A destination resort should have a bed unit ratio that approximates a 40% public, 45% private, and 15% employee breakdown.

### **V.2.3 Use of the Bed Unit Calculation Model**

Every ski area, regardless of the type, is a unique situation. As such, **the number of bed units determined through the use of the bed unit calculation model should not be considered as absolute. Rather the results of the calculation should only be regarded as a guide to finalizing the amount of development to be incorporated in the formal proposal with Ministry officials.**

It should be clear that existing accommodation at the mountain site as well as existing or committed development outside the base area which provides accommodation for skiers and employees must also be considered when finalizing development rights within the Master Development Agreement (MDA).

Typically, regardless if the bed units are public, private or employee, the following number of bed units apply to the associated type of accommodation.

Single Family Unit = 6 Bed Units

Condominium = 4 Bed Units

Hotel Room = 2 Bed Units

**V.3 Standard Interim Agreement**

## **V.4 Standard Development Agreement**

**V.5 Standard Operating Agreement**

**V.6 Sample Proposal Evaluation Criteria**

**A SKI AREA RESORT  
DEVELOPMENT PROPOSAL**

**FORMAL PROPOSAL CRITERIA AND EVALUATION**

Formal proposals will be reviewed and analysed using the following criteria and evaluation rating guide:

**SELECTION CRITERIA AND EVALUATION**

- |   |     |
|---|-----|
| 1. Evidence of financial capacity   | 10% |
| 2. Indication of corporate structure  | 2%  |
| 3. Description of project concept – Engineering, Phasing<br>Transportation, Servicing | 20% |
| 4. Economic Benefits  | 10% |
| 5. Local Government analysis and implementation                                       | 3%  |
| 6. Resort development experience and skills   | 10% |
| 7. Operational and management experience and skills                                   | 10% |
| 8. Market analysis – skier, real estate and economics                                 | 15% |
| 9. Site analysis – terrain, elevation, environmental, climate                         | 15% |
| 10. Performance bonding eligibility   | 5%  |

**THE FORMAL PROPOSAL WILL INCLUDE THE FOLLOWING INFORMATION AS A MINIMUM:**

**TECHNICAL ASSESSMENT**

- Mapping in 50' contours showing lift alignments and ski pools;
- Percentage of terrain by skier ability;
- Overall comfortable carrying capacity of the ski area;
- Quality of ski product compared to existing ski areas in the relevant market area, within British Columbia;
- Weather analysis addressing fog, visibility, snow depth and snow quality;
- Identification of natural hazards, such as cliffs, rock outcroppings, avalanche slopes, etc.

**PROJECT DESCRIPTION**

- Location and description of major facilities;
- Initial estimate of infrastructure requirement;
- Timing of the project;
- Phasing of the project;
- Land use by type including estimates of hectares used;
- Number of units of real estate by type (i.e. single family, condominium, hotel, commercial retail) and market emphasis.

**MARKET STUDY**

- Estimates of demand for all major activities summer and winter;
- Estimate of geographical origin of the visitors;
- Estimates of skier visits for the first ten years of operation;
- Effect of the proposal on competitor's skier visits;
- Breakdown of the number of local regional and destination skiers.

**ENVIRONMENT**

- Preliminary environment assessment and impacts on development, i.e. vegetation, wildlife, water.

**ENGINEERING**

- Source(s) of water identified, distribution, volumes and treatment methods;

- Type of sewer system to be required and how effluent will be treated and discharged;
- Electrical power requirements for the resort and how the development will be connected to existing power sources;
- Preliminary storm water management plan;
- Preliminary design and location of road access to the development site;
- Analysis of geotechnical development constraints.

**LAND USE CONFLICTS, NOT LIMITED TO BUT INCLUDING.**

- Impact of forestry related activities;
- Impact on current and future recreation for the area;
- Impact on mineral licenses;
- Impact on existing land tenures administered by Land and Water BC

**TRANSPORTATION IMPACTS**

- Estimate and limitation that a resort development may have on the additional traffic load to Highway ##, including access to Highway ##

**PROPOSED MANAGEMENT AND OWNERSHIP**

- Development and management teams' resort experience

**FINANCIAL FEASIBILITY**

- Ten year financial projections – detailed by components, i.e. lifts, food and beverage, real estate, drainage, water and sewer treatment;
- Capital costs by component i.e. roads, recreation improvement, buildings, drainage, water, sewer treatment;
- Feasibility of the development?

**FINANCIAL CAPABILITY**

- Ability to acquire a performance bond for the project;
- Sources of financing for the project, both equity and debt;
- Letters of intent from funding sources;
- Financial structure of the project.

**MUNICIPAL JURISDICTION / ECONOMIC BENEFITS**

There will be additional information following under separate cover within the next few weeks.