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FIGURE 1.1 WESTCASTLE EXPANSION PROJECT AREA LOCATION1-2

1. INTRODUCTION

1.1 Background

Vacation Alberta Corporation (Vacation Alberta or the Applicant) is a private Alberta company which, with the encouragement of the Westcastle Development Authority (WDA), submitted an application to expand the existing Westcastle Park ski area in the West Castle Valley southwest of Pincher Creek into a four-season destination resort.

The Application was submitted to the NRCB December 11, 1992, and was modified between December 11, 1992, and April 1, 1993, when the NRCB deemed the Application to be suitable for consideration at a public hearing. The NRCB convened a public hearing on June 21, 1993, in Pincher Creek, Alberta.

The West Castle Valley is situated in southwestern Alberta on the eastern slopes of the Canadian Rocky Mountains north of Waterton Lakes National Park, 260 kilometres (km) south of Calgary, and 46 km west of Pincher Creek. The site is within the Rocky Mountain Forest Reserve (RMFR) and access is via Secondary Highway #507 to the community of Beaver Mines and via Secondary Highway #774 for about 20 km. See Figure 1.1.

1.2 Natural Resources Conservation Board (NRCB) Jurisdiction

The *Natural Resources Conservation Board Act* (the *NRCB Act*) established a Board to "... provide for an impartial process to review projects that will or may affect the natural resources of Alberta in order to determine whether, in the Board's opinion, the projects are in the public interest, having regard to the social and economic effects of the projects and the effect of the projects on the environment."

The types of projects that are subject to review, as set out in the *NRCB Act*, include recreational or tourism projects for which an Environmental Impact Assessment (EIA) has been ordered under Section 8(1) of the *Land Surface Conservation and Reclamation Act* (now Section 46 of the *Environmental Protection and Enhancement Act*). On March 5, 1990, Vacation Alberta was directed to prepare an EIA for its proposed project and as a result, the project is subject to NRCB jurisdiction.

The *NRCB Act* prohibits the commencement of a reviewable project unless the NRCB, on application, has granted an approval with the authorization of Cabinet. The NRCB approval required for the project is in addition to all other approvals, licences or permits required under any other act, regulation or by-law in force in the province.

FIGURE 1.1 WESTCASTLE EXPANSION PROJECT AREA LOCATION

The Board's mandate is to determine whether the proposed four-season resort development is in the public interest. The Board does not have the jurisdiction to act as a continuing regulator of the operations of the project if it is approved.

1.3 Natural Resources Conservation Board Review Process

The Application from Vacation Alberta included the EIA prepared under Terms of Reference issued by Alberta Environmental Protection April 14, 1992. After review of the Application, and after receiving comments from Alberta Environmental Protection and other Alberta Government departments and Federal Government departments, the staff of the NRCB sent a deficiency letter dated February 9, 1993, to Vacation Alberta requesting additional information. Prior to receipt of this additional information, a Pre-hearing Meeting was scheduled for March 30, 1993. On March 21, 1993, Vacation Alberta filed its response to the Request for Supplementary Information with the NRCB.

A Pre-hearing Meeting was held March 30, 1993, in Pincher Creek to consider a number of procedural matters related to the Application. Matters dealt with at the meeting included the application review process, the role of Alberta Environmental Protection on the Westcastle project, the appropriate location and time of the hearing, deadlines for filing submissions, and requests from potential participants to be considered eligible for intervener funding.

The Board heard representations from a number of individuals, groups, and organizations. A Report of Pre-hearing Meeting was issued April 8, 1993, and is available from the NRCB on request. The Board decided that two intervener coalitions were eligible for advance funding from the Applicant and scheduled a hearing to review the Application by Vacation Alberta beginning June 7, 1993, in Pincher Creek.

Subsequently, the Applicant filed additional information on May 7, May 12, and May 20, 1993, and provided additional background information on its economic calculations on June 15, 1993.

As a consequence of the Applicant's delay in providing intervener funding, the Board received a request from legal counsel for the two intervener coalitions and legal counsel for the Applicant to postpone the hearing from June 7 to June 21, 1993. The Board agreed to defer and published a Rescheduling of Hearing Notice May 7, 1993, in daily and weekly newspapers indicating the new commencement date of June 21, 1993.

The hearing opened at the Heritage Inn, Pincher Creek June 21, 1993, with K. Smith, Chairman; G.A. Yarranton, Ph.D.; C.H. Weir, P.Eng.; and C. Dahl Rees, M.A., LL.B. sitting, and concluded on July 19, 1993. Hearing participants are listed in Appendix A.

1.4 The Role of Alberta Environmental Protection and Other Alberta Government Departments

Alberta Environmental Protection made a statement at the outset of the hearing about the role of its Environmental Assessment Division in the administration of the EIA process: it screens projects to determine the need for EIA reports; determines the appropriate scope of the EIA; ensures public consultation through the EIA process; co-ordinates an interdepartmental review of the EIA documents to ensure consistency with the Terms of Reference established for the review; and provides advice to the NRCB as to whether the EIA is suitable for discussion at a public hearing.

On April 1, 1993, Alberta Environmental Protection advised the NRCB that the EIA was suitable for consideration at a public hearing. The Department participated in the hearing by asking questions of the Applicant.

In addition, Alberta Environmental Protection made a submission on instream flow needs in relation to water management in Alberta and a Department witness presented personal knowledge of fish and wildlife resources in the West Castle area. The Department stressed that its intent in presenting a witness was to provide information which would be of assistance to the Board. The Department's overall position was neutral, neither for nor against the Application.

Alberta Environmental Protection also has broad regulatory responsibilities for renewable resources, including specific responsibilities for the extraction of groundwater, water treatment, waste water discharge and the application of pesticides, herbicides, and fungicides. If the project were approved, the Applicant would be required to obtain appropriate licences under the *Water Resources Act* and the *Alberta Environmental Protection and Enhancement Act*.

1.5 The Role of the Federal Government

Transport Canada (Coast Guard, Navigable Waters Protection Division), stated at the outset of the hearing that it was the lead agency under the federal Environmental Assessment Review Process (EARP) Guidelines Order.

Under the EARP Guidelines Order, Transport Canada is required to carry out an environmental assessment of federal jurisdiction on any project coming under the *Navigable Waters Protection Act*.

In the case of the Application by Vacation Alberta, Transport Canada as the initiating department, requested assistance from the federal Department of Fisheries and Oceans (DFO).

DFO advised the Board that it had participated pursuant to its responsibilities under the habitat protection provisions of the federal *Fisheries Act*. DFO provided specialist advice on fish and fish habitat to Transport Canada and assisted in co-ordinating the federal environmental assessment for this project. DFO also consulted with Environment Canada as part of this process.

1.6 The Role of Planning Authorities

Two planning authorities, the Oldman River Regional Planning Commission (ORRPC) and Improvement District #6 (ID #6 or the ID), have jurisdiction under the *Planning Act* for the use of private lands in the proposed development. The ORRPC has jurisdiction as a subdivision approving authority over all patented lands in the development area and ID #6 was delegated responsibility for land use and the Land Use Order in the area by the Minister of Municipal Affairs. The responsibility for land use planning for Crown lands in the area rests with Alberta Environmental Protection.

Various municipal representatives presented their views on the proposed development and these are in Section 3 of this Report.

1.7 The Westcastle Development Authority (WDA)

The Westcastle Development Authority was created by the *Westcastle Development Authority Act* in 1985. The stated goal of the WDA is to have a summer and winter recreation area established at Westcastle on a scale large enough to have a material impact on southern Alberta's economy. The role of the WDA is to work with the provincial government and the private sector to achieve its stated goal. This work could include either temporary or permanent management of certain phases of the development.

In 1989, the WDA accepted the offer of Vacation Alberta to develop Westcastle Park.

1.8 General Description of the West Castle Valley

The proposed development is within the so-called "Crown of the Continent" ecosystem. This ecosystem encompasses a variety of jurisdictions in Canada and the United States and includes the area roughly from the Crowsnest Pass in the north, to and including the Bob Marshall Wilderness Area in Montana in the south. The Applicant's proposal falls within the Rocky Mountain Forest Reserve (RMFR) which is part of the eastern slopes of Alberta's Rocky Mountains and covers an area of approximately 90,000 square kilometres (km²) of mainly forest-covered mountains and foothills. The region possesses a great wealth of renewable and non-renewable resources -- water, scenery, timber, forage, wildlife, fisheries, and mineral resources -- the majority of which lie on or beneath public lands.

On a more local scale, the project lands lie within the public lands planning area known as the "Castle-Carbondale Corridor." The Castle-Carbondale Corridor includes the valley bottom and the facility zone around the present Westcastle ski facility. The existing facility is situated in the valley of the West Castle River, with ski slopes on Gravenstafel Ridge. The development is adjacent to Mount Haig, west of Barnaby Ridge, and immediately north of the Middle Kootenay Pass.

The proposed project area was part of Waterton Lakes National Park between 1914 and 1921, but was transferred from federal to provincial jurisdiction following the First World War. The area was designated as a wildlife refuge until 1954, when the wildlife refuge status was removed and the lands became part of the provincial forest system.

The valley was subject to logging activities from 1928 until 1979. In 1936, a massive forest fire burned some 700,000 acres of land in Montana, Alberta, and British Columbia, including the West Castle Valley, South Castle Valley, the Flathead Valley, through the Carbondale Valley, and points north and northwest. Following the fire, salvage logging increased tremendously.

During 1929, from 1950 to 1960, and again in 1977, seismic operations opened up some of the drainages. In 1929, an oil well was drilled at the bottom of Haig Ridge. In 1975, a gas well was drilled in the Middle Kootenay Pass area. Both wells are non-producing.

When the first ski lifts were installed in the West Castle Valley 27 years ago, some of the roads in the area were reclaimed in developing ski routes on Gravenstafel Ridge.

In addition to logging, oil, and gas activity, a variety of recreational uses including hunting, trapping, skiing, hiking, outfitting, horseback riding, camping, snowmobiling, berry-picking, off-road vehicle use, angling, and ecotourism activities have developed in the area.

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2. THE APPLICATION AND SUPPORTING INFORMATION

This section of the Decision Report summarizes both the proposed project and the information submitted by Vacation Alberta in support of its Application. The summary is included as information for those who are unfamiliar with this Application. Those readers who wish a more detailed examination of the contents of the Application record may do so by appointment at the NRCB office during regular office hours.

2.1 The Applicant

Vacation Alberta is a private Alberta company owned by five shareholders located in Edmonton and southwestern Alberta. The primary business expertise of the shareholders is in hotel operation. The Applicant proposes to expand the existing Westcastle Park ski area into a four-season destination resort.

Vacation Alberta Corporation proposes to act as prime developer and to assume overall responsibility for the proposed project. The Applicant would retain control of the resort through a series of operating agreements with operators of the various resort components. Vacation Alberta stated that all of the resort components would participate in common marketing to ensure that the resort operated as a functional unit.

2.2 The Proposed Project

2.2.1 Physical Location and Setting

The proposed expanded Westcastle ski area would consist of two major ridge lines extending from the Continental Divide into the West Castle Valley, the Gravenstafel Ridge, and Haig Ridge. Currently, only Gravenstafel Ridge has been developed for downhill skiing. Gravenstafel Ridge is at the northern edge of the ski area, with east-facing slopes approximately 1,200 metres (m) wide, with a bowl configuration in the upper elevations and a broad smooth face at lower elevations, where the existing ski area has been developed. The Applicant proposes to expand the hill onto Haig Ridge.

The Applicant stated that the 3,000 m wide southeast-facing slopes drop quickly to Gravenstafel Creek, approximately 2,000 m south of Gravenstafel summit, where the Haig Ridge rises dramatically within 300 m. The area has two sub-summits, the lower at 2,080 m and the upper at 2,230 m elevations. There is a bowl between 2,080 and 1,870 m elevations. The eastern face is a broad expanse some 3,000 m wide. The majority of the terrain suitable for skiing lies below 1,900 m elevation.

The West Castle River flows north through the valley. For approximately 400 m it follows the toe of Haig Mountain where Gravenstafel Creek joins the river. The valley floor is approximately 600 m across at the Middle Kootenay Pass and narrows to

approximately 350 m at the existing parking lot. The eastern slope of the valley rises at 30 degrees to meet the rock face of Barnaby Ridge.

2.2.2 The Existing Development

The Applicant stated the existing Westcastle Park on about 36 hectares (ha) of land on east-facing Gravenstafel Ridge, has 20 ski runs, three T-bar ski lifts, a day lodge, and ancillary buildings. The ski hill accommodates a daily maximum of about 900 skiers. There is no snow-making equipment. The vertical drop is 508 m, with about half the ski run area rated as advanced to expert terrain. Parking is provided for approximately 550 cars; 40 mobile homes, on leased lots, are located adjacent to the facility.

The Westcastle Park ski facility has been in operation for 27 years. The hill was opened in 1966 and, since 1978, has been owned and operated by the Town of Pincher Creek and the MD of Pincher Creek No. 9. Since 1985, the Westcastle Development Authority has managed the operation.

In the hearing Vacation Alberta stated that the existing ski hill facilities have deteriorated and require update and repair.

2.2.3 The Proposed Development

Vacation Alberta entered into an agreement with Alberta Tourism and the Westcastle Development Authority in 1989 to define how the three parties would co-operate in facilitating the expansion of the present ski hill. In 1991, Vacation Alberta began to prepare its project Master Plan as well as environmental studies required to support the EIA. It also initiated a public consultation process.

The Applicant proposes to establish a four-season destination resort at Westcastle Park at an estimated cost of \$72.6 million. The development would have a unique feature: fee simple ownership of on-hill accommodation within the Eastern Slopes of the Alberta Rockies. The Applicant stated that under favourable market conditions construction of the proposed project would be phased over a period of two years from the time of approval to completion. The phasing of the project and associated capital costs, as represented by the Applicant, are shown in Appendix B.

The project lands lie within the planning area of the *Castle River Sub-Regional Integrated Resource Plan (IRP)* established under the *Eastern Slopes Policy*. Areas farther upstream from the existing development as well as alpine and sub-alpine areas on both the east and west sides of the valley are part of the Castle Front Range Headwaters Resource Management Area "D" (RMA-D). Planning issues are described in greater detail in Section 10 of this Report.

The proposed expansion project would create new ski runs on Haig Ridge and integrate them with existing and improved runs on Gravenstafel Ridge. Four new ski lifts would be added, as well as snow-making equipment, new day lodge facilities, other new infrastructure, roads, and service equipment. If the Application is approved, the Applicant anticipates that, after expansion the facility would accommodate about 3,200 skiers a day on a balanced mix of terrain suited to all levels of skier capabilities. The total capital cost of these ski area improvements is approximately \$14 million.

The Applicant proposes two 18-hole golf courses in the valley bottom: the Three Lakes Course to be located west of the proposed village complex, and the Barnaby Ridge Course to be located to the east, surrounding the village. A central club house, driving range and maintenance buildings designed to accommodate a snack shack, maintenance equipment, cold storage, and cart storage would serve both courses. The Applicant anticipates that the two golf courses would draw approximately 400 golfers a day from May through mid-September on a seasonal average.

The proposed Westcastle village complex would be developed in the valley bottom of the West Castle River following a linear orientation. Vacation Alberta proposes an artificial lake here to create a central visual and activity focus for the development; such a lake would provide additional recreational opportunities such as skating, paddle boating, and wind surfing. The lake would also provide water storage for fire fighting and snow-making during peak demand periods.

Two 100-room hotels are proposed by the Applicant as part of the accommodations complex: the Haig Hotel at the base of Mount Haig and the Castle Inn at the base of Gravenstafel Ridge. Each hotel would include restaurants, lounges, administrative offices, skier day-use areas, recreation facilities, and commercial/retail space. Longer term visitor accommodation would be available in three condominium complexes: 8 chateaux (192 apartment units), 12 villas (48 stacked townhouse units) and 12 chalets (48 fourplex units). The apartment units and stacked townhouse units would be included in a rental pool to provide 240 suites for overnight accommodation in addition to the 200 hotel rooms. The fourplex units would be included in the rental pool on an optional basis. In addition, 72 recreation vehicle (RV) parking spaces would be constructed. Twenty-four staff housing units are planned as well as ancillary maintenance buildings. In total, at full capacity, the complex could accommodate up to 2,500 people. The capital cost for these accommodations, commercial and staff housing facilities is estimated at approximately \$38,297,000.

The proposed development is illustrated in Figure 2.1.

The access road, Secondary Highway #774, would be upgraded to a paved, two-lane highway from the Castle River Ranger Station to the proposed resort. The road would cross the West Castle River on a new bridge located approximately 200 m north of the existing bridge.

The Applicant stated during the hearing that Government assistance was assumed and would be requested. This assistance would take the form of an \$11 million contribution by the Alberta Government toward both on and off-site related infrastructure, including road construction and upgrading, water and wastewater treatment, storage and transportation, and utility servicing. The Applicant also stated that, to enhance the likelihood of a successful ski area, it would request an \$11 million interest free loan from the Alberta Government should the Board approve its Application. The Applicant assumed that the Government loan, if forthcoming, would be repayable in annual installments of \$550,000 over the life of the loan.

In addition to direct Government financial assistance, the Applicant stated that, as a result of an agreement with the WDA, approximately 31 acres of land purchased by the WDA from the Province of Alberta in 1986 would be acquired by the Applicant at the original purchase price of \$500/acre plus eight percent interest on the balance of any funds owed to the Province by the WDA. Similarly, the Applicant stated that it had an option to purchase an additional 100 acres of public land available to the WDA at \$500/acre together with interest on any outstanding balance which is to be calculated at a rate of eight percent per year on the balance of any remaining funds owed. In total, 131 acres of land would be acquired from the Province at \$500/acre for a cost of \$65,000 excluding interest.

The Applicant anticipates beginning construction on the expanded resort facility infrastructure in 1994 on completion of required groundwater testing. Construction would start with on-site and off-site servicing and rough grading. Completion of hotels and commercial construction would coincide with the opening of the expanded ski area in the 1995-96 season. One hotel and some accommodation and other required buildings would open in the fall of 1994. The golf courses would open for operation in the spring of the third year, in order to allow the golf course to mature. Condominium development would proceed based on market demand.

FIGURE 2.1 SKETCH PLAN OF PROPOSED PROJECT

2.3 Supporting Information

In meeting the NRCB regulations and specific information requirements, the Applicant prepared an EIA that examined environmental and socio-economic impacts of the project. The EIA used available baseline data and studies conducted from June 1991, to October 1992. Studies were based on two fundamental approaches: a focus on issues perceived most important both by local people and the Applicant; and the use of the concept of "Valued Ecosystem Components." The EIA is focused on project-related impacts and proposed mitigation and management measures to address potential adverse impacts for each issue identified. Major areas of review were impact assessment and mitigation for wildlife, vegetation, and fish species; water and aquatic resources; geotechnical effects related to terrain and erosion; socio-economic effects; infrastructure and land use, and public consultation.

2.3.1 Wildlife and Vegetation

The wildlife study area was defined by the Applicant as the West Castle River drainage basin from the confluence of the South Castle River and the West Castle River in the north to the Continental Divide in the south.

Vacation Alberta undertook an assessment of the potential incremental effects on wildlife of the proposed expansion. The assessment was based on a limited number of key species that may be representative of the larger number of species in the valley. The Application presented what limited, site-specific information is available about population sizes and habitat use by ungulates, large carnivores, furbearers, small mammals, avifauna, reptiles and amphibians, and rare or endangered species. No site-specific research was conducted on birds, small mammals, large carnivores or furbearers in the West Castle area. The Applicant's quantitative analysis of impacts was based upon the residual effects (i.e. impacts remaining after mitigation), assuming that all recommended mitigative measures are implemented and proven successful. For each of the key wildlife species or groups of wildlife species, impacts associated with the construction, operation, and maintenance of the proposed development were identified.

Vacation Alberta also undertook a vegetation assessment consisting of air photo interpretation, a review of relevant literature and field surveys of the development site.

The Applicant discussed possible mitigative measures associated with construction and operating activities.

2.3.2 Water and Aquatic Resources

The Applicant identified that water is needed for three parts of the proposed development: domestic use, snow-making, and irrigation. The Applicant proposed to use domestic wastewater as part of the irrigation water supply. Major issues identified by the Applicant were the availability of an adequate all-season groundwater supply (wells), the potential effect of such wells on surface water flow in the West Castle River, and the potential impact of the proposed development on fish habitat and fish, including two threatened species, bull trout and cutthroat trout.

The Applicant undertook pump tests and a computer-based simulation of the aquifer located in the valley bottom alluvium to determine the availability of groundwater and the effect of pumping withdrawals on surface water levels and flows. Volumes of water required vary seasonally and would be provided partly through direct pumping and partly through storage.

Management of supply for potable water, irrigation water, and snow-making will include provisions for treated water storage, grey water storage and raw water storage. The volumes of these storage systems will be based on the differences between short-term demand and long-term replenishment; seasonal irrigation requirements as opposed to year-round production of greywater; and the pumping capacity of the well supply.

The actual effect that withdrawals from the well (or wells) will have on the surface water volumes is to be determined by way of long-term pump tests and monitoring of the surface water levels at the time the actual well (or wells) are drilled. Any required remediation would be determined at that time.

The resort could be equipped with a self-contained sewage treatment plant. The plant's solid organic waste would be deposited in the landfill site at Pincher Creek. Treated wastewater effluent would be stored in a series of ponds on the golf courses and used to irrigate them in summer. The proposed development, if approved, would also generate garbage which would be collected on the site, compacted to 50 percent of its original volume, and placed in the landfill site at Pincher Creek.

Based on the high likelihood of flooding of the West Castle River during peak flow events, the Applicant has planned the proposed project so that limited development would occur in the 1:100 year floodplain. The road would be constructed primarily in the flood fringe, and tees and greens constructed in the floodplain would be elevated. Bridges would be built to minimize adverse hydraulic characteristics and site drainage would be designed to minimize snow melt impacts.

Downstream of the proposed project is a "springs area" which provides critical spawning habitat for bull trout. Vacation Alberta recognizes the direct connection between the aquifer and the river, and is confident of its ability to demonstrate a water supply satisfactory to Alberta Environmental Protection at the time of licensing. Significant

modifications to the original design have been included to protect aquatic resources and wildlife in the valley.

The Applicant stated that certain mitigative measures will be undertaken to prevent adverse affects on the water quality, damage to the river, and alternations or harm to the aquatic habitat.

2.3.3 Geotechnical Effects

The Applicant stated that the development area does not encroach on any active or potentially unstable avalanche chutes, rockslide zones, or drainage channels. The golf courses and village complex would be located on the valley bottom, largely outside of the 1:100 year floodplain of the West Castle River. Expansion of the ski hill would require clearing upper subalpine and alpine slopes which are covered by a relatively thin layer of colluvium over bedrock. Installation of ski lift towers would be the only construction activity to take place in these areas.

2.3.4 Socio-Economic Effects

Socio-economic baseline information on the Pincher Creek-Crowsnest Pass Region was compiled by the Applicant into a socio-economic impact assessment (SEIA) in order to outline potential positive and negative impacts of the project on the local economy.

The Applicant stated that an expanded resort is required to insure the economic survival of the Westcastle ski hill. The current operation of the ski hill was said to be dependent on a small number of dedicated local skiers. The existing facility was described as lacking in a number of areas: lift carrying capacity, modern operating equipment, snow-making ability, novice and intermediate terrain, suitable day lodge facilities, and on-hill accommodation. With the correction of existing deficiencies, together with the development of a four-season resort, Vacation Alberta believes that the ski hill and its ancillary products and services would become a financial and economic success.

2.3.4.1 Economic Impacts

The Applicant provided a number of documents to the Board outlining what it believed to be the economic impacts of the proposed ski hill expansion. This economic impact assessment was conducted by the Applicant with the aid of a "Tourism Economic Impact Model" (TEIM) developed jointly by Federal and Provincial Government departments. Input to the model included the anticipated capital cost of each component of an expanded facility, as well as a range of assumptions regarding possible expenditures and revenues. The model output estimated impacts associated both with the construction and operation phases of the proposed project as a whole, and with the individual components of the planned facility. Output from the model included, among other variables, estimates for the following direct economic impacts as well as the total economic impacts associated with construction and operation of the planned facility:

- sales;
- value added (gross provincial income);
- wages and salaries;
- employment (person years);
- imports; and
- taxes: municipal, provincial, federal and total.

The Applicant also provided studies relevant to anticipated markets as well as internal cash flow projections in the form of various summary pro-forma financial statements intended to demonstrate the economic viability of the proposed project. In addition, the Applicant provided a TEIM analysis to the Board estimating the economic impacts associated with the proposed project.

2.3.4.2 Social Impacts

The Applicant analyzed expected impacts under the categories of individuals, business, and infrastructure. Socio-economic issues considered under the category of individuals included the following:

- project impacts on regional incomes including tax revenue generation;
- regional cost of living implications of the resort expansion;
- provision of employment opportunities to local residents;
- potential changes in labor force participation and labor force turnover;
- project-induced changes in regional unemployment rates; and
- in-migration and population redistribution.

The Applicant examined effects on infrastructure and services including regional transportation services, health, public safety, housing and serviced land, municipal services, and community recreation.

2.3.5 Land Use

The Applicant identified a number of land use issues related to an increased number of people in the valley in all seasons: opening access to the valley, reduction of random use and random camping; changed patterns of back country activity; changes to cattle grazing operations; and the potential for increased fishing and hunting pressure.

Vacation Alberta stated its commitment to work with local authorities and provincial regulators in co-operative regional management programs in order to resolve local concerns about land use.

A Visual Impact Assessment was carried out as part of the EIA. Buildings and facilities of the proposed Westcastle expansion were said to have been designed to integrate visually with the valley setting.

2.3.6 Public Consultation

For the proposed expansion to be successful, the Applicant believes the project must be planned and managed as a renewable resource industry that accommodates local capacities and community aspirations. The Applicant has engaged in a public participation process, and indicated a commitment to remain as flexible as possible in order to address the views of interested and affected parties.

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3. THE POSITION OF PARTICIPANTS AND SUPPORTING INFORMATION

As in the previous Section, this summary of the positions of the participants is provided for the benefit of those unfamiliar with the evidence before the Board. The Board has based its decision on the whole of the public record. Those readers who would like to gain a more detailed familiarity with the contents of submissions by participants in the hearing may view the record by appointment at the NRCB during normal office hours.

Participants' positions appear in the order of their appearance at the hearing.

3.1 Government of Alberta, Department of Environmental Protection

Alberta Environmental Protection appeared at the hearing to make a submission on instream flow needs in relation to water management in Alberta and presented a witness with personal knowledge of fish and wildlife resources in the West Castle area. The position taken by Alberta Environmental Protection was neutral, neither for nor against the proposed development.

Alberta Environmental Protection identified certain issues within the Application, the first of which related to groundwater. A senior hydrologist with the Department provided evidence that he had undertaken a review of the groundwater component of the proposed Westcastle expansion. He confirmed that the model proposed by the Applicant has the ability to simulate and predict the impact of pumping on the groundwater regime and surface waters. The magnitude of the potential impact is difficult to predict without long-term groundwater production testing and monitoring. If the result of long-term testing shows a measurable amount of reduction in the flow of the West Castle River due to groundwater extraction, an Instream Flow Needs (IFN) Study could be done which would predict seasonal flow levels to protect the river ecology. In verbal testimony, the senior hydrologist stated "...in the event, that Vacation Alberta is successful in avoiding influencing surface flows, that there would not be a need to conduct an instream flow needs analysis for the purpose of addressing the impacts of the Vacation Alberta project."

It was noted that an NRCB approval of the proposed development would not obviate the need to obtain a licence under the *Water Resources Act* required for the extraction of groundwater. In addition, licences may be required under the *Environmental Protection and Enhancement Act*.

The Head of Habitat Management, Southern Region with the Fish and Wildlife Division of Alberta Environmental Protection did not provide any direct evidence but was available for questioning by the other participants to provide evidence relative to his personal knowledge of the West Castle River, of the site for which the Westcastle expansion is proposed and of resident fish and wildlife species.

3.2 West Castle Ecosystem Coalition (WCEC)

The West Castle Ecosystem Coalition opposes the Application and requested the NRCB deny it in its entirety. WCEC believes the proposed development will have a negative impact on their opportunities to hunt, fish and enjoy wildlife in a non-consumptive way, thus affecting their quality of life and economic future. WCEC also does not believe the proposed development is in the public interest of southwest Alberta or Alberta as a whole.

WCEC presented a panel of lay and expert witnesses and a written submission commenting on fisheries, carnivores, ungulates, rare plants, other developments in the area, the direct effect of the project on their lifestyles and quality of life, the current level of environmental disturbance in the West Castle River drainage and the importance of the area to sport fishing.

Social impacts identified by WCEC included the impact the proposed development would have on the community of Beaver Mines. In the WCEC's view, the community's character could be affected by a more transient population associated with the development and a possible increasing crime rate. In their view, predominant long-term employment opportunities will be low-paying, low-skilled jobs.

WCEC believes the proposed project will foreclose economic options for Pincher Creek, Beaver Mines, Crowsnest Pass area and thus for Alberta as a whole. These communities are located close to wildland recreation giving them a locational advantage in retaining and attracting new businesses. U.S. studies cited by WCEC expert witnesses show that such communities also can attract retirees with their life savings and investment income, creating greater economic stability than one large scale tourist resort.

WCEC noted such diversification is currently taking place in the form of the Trail of the Great Bear ecotourism initiative that builds on an environmental strength of the area – the presence of grizzly bears. In their view, approval of the proposed project will foreclose future opportunities to diversify the local economy based on the region's natural attributes.

WCEC believes the environmental effects of the proposed development are severe and of international as well as of local significance. Grizzly bears will be affected by the elimination or restriction of the connection between United States and Canadian grizzly bear populations at the West Castle Valley area. The Northern Continental Divide grizzly population could be isolated from other populations in Canada. In addition, the project will result in the alienation of habitat for grizzly bears as well as disturb a movement corridor for wolves.

WCEC argued that the area is one of the richest for rare plants under Alberta jurisdiction and the potential impacts on these plants are not known because there has not been an adequate study.

WCEC contended the bighorn sheep in the West Castle are part of a world renowned population and presented evidence that one of the four existing elk herds between the Crowsnest Pass and the U.S. border would be lost if the development were to proceed. In their view, the West Castle River Valley is an integral ecological component of the Waterton Lakes-Castle-Carbondale region and important to the survival of sustainable populations of elk and bighorn sheep. They believe the impact of the proposed development will not be restricted to the West Castle Valley but will extend to the entire regional sheep range.

WCEC believes the proposed project also will have an impact on the groundwater and instream flow needs of the Castle River due to sedimentation and water withdrawal and increase the usage of the area. This would pose a risk to the survival of bull and cutthroat trout populations in the West Castle River.

In their closing argument, WCEC urged the NRCB to decline the Application in its entirety as it is not in the public interest of the Province of Alberta and cited the NRCB's decision relative to the Application by Three Sisters Resorts Inc. where the NRCB noted "...in order for the proposed development to be (economically) healthy over time, such development must accord with the goal of preserving or maintaining those resources which make it attractive. Because the value of wilderness appears to be increasing worldwide, the importance of maintaining the wilderness areas which we have is all the more pressing." In the view of WCEC, we cannot seek to profit from tourism that capitalizes on nature and then destroys nature. WCEC noted the Applicant stated the Trail of the Great Bear and the nature ecotourism market are key to the economic success of the proposed development. WCEC reiterated their view of the environmental impacts that will occur, in their opinion, should the proposed development be allowed to proceed.

WCEC stated the NRCB must assess the economic viability of the proposed project to evaluate whether or not it is in the public interest and should proceed. "The Board has a very legitimate interest in addressing whether or not the promised economic effect will actually come true." Economic projections by the Applicant regarding the anticipated ski and golf market were challenged as was the Applicant's financial information. WCEC stated that, in its view, the economic viability of the project is "shaky at best."

3.3 Improvement District of Ranchlands No. 6

ID #6 is an unincorporated rural district in southwestern Alberta with a population of 130. Ranching and oil and gas production are the primary economic activities. ID #6 lies largely within the eastern slopes of the Rocky Mountains of Alberta extending approximately 75 miles north from Waterton Lakes National Park. Approximately one-third of the northern part of the ID #6 lies in the "white area" of Alberta and is settled. The southern part lies wholly within the Rocky Mountain Forest Reserve and is separated from the remainder of ID #6 by the Municipality of Crowsnest Pass, and is unsettled. The ID is managed by an elected advisory council that reports to the Minister of Municipal Affairs. The proposed Westcastle four-season resort is located in the south half of ID #6. The ID does not support the Application presently before the NRCB. The project as proposed, in their view, is risky in terms of economic viability and financing. The ID believes it could potentially be exposed to significant financial risk should the project be approved. Should the project collapse during construction or initial startup phase, the ID believes it could be left in the position of having to assume some or all of the capital and/or initial maintenance costs associated with the provision of project-related infrastructure. As the mandate of an Improvement District precludes it from carrying a deficit, any incremental costs associated with the project, assumed by ID #6 as a result of Applicant default, would have to be passed on to the local ratepayers in the form of increased taxes.

In addition, the ID is particularly concerned about the residential component of the proposed Westcastle expansion. In their view, purchaser expectations regarding the level of municipal infrastructure and services may exceed what the ID can provide. Because the cost of additional services could not be offset by municipal tax revenues generated from the industrial and commercial sectors in ID #6, the incremental costs would have to be recovered in residential property taxes paid by new property owners and the existing ratepayers. The ID stated that many of their ratepayers have expressed concern regarding this possibility as they do not think that they will benefit from the additional infrastructure and municipal services required as a result of the proposed development.

The ID also questioned the building of the residential component as one package rather than on a phased basis to match skier demand; the latter being a more prudent approach that would limit the financial risk to both the Applicant and the ID.

The submission stated that ID #6 ratepayers and Advisory Council oppose the project if the Applicant is looking to the Provincial Government to provide all or part of the financing that is required in order for the project to proceed. In their view, this includes support through major Government grants, forgivable loans or loan guarantees.

The Advisory Council and ratepayers of ID #6 requested that the NRCB attach the following conditions to the Application should the NRCB decide to recommend approval of the proposed expansion:

- that all necessary municipal approvals and permits be obtained by the Applicant before the development is allowed to proceed, i.e., the rewritten Land Use Order, the amended Westcastle Area Structure Plan, sub-division approval and development permit;
- that if it is possible for the Westcastle project to be removed from within the ID #6 municipal jurisdiction, the ID requests that this be done; and
- that if the Westcastle project remains within ID #6 municipal jurisdiction, the Advisory Council will insist that the Applicant enter into a Redesignation Agreement with ID #6 prior to the approval of the new Land Use Order and the amended Westcastle Area Structure Plan.

The ID stated the proposed Redesignation Agreement between Vacation Alberta and ID #6 will contain three conditions:

- that prior to any construction of any portion of project-related improvements, Vacation Alberta will have to supply ID #6 with a letter of credit issued in favor of the ID by a chartered bank approved by ID #6 in an amount and in a form acceptable to ID #6 to secure the due performance of all of the obligations of the Applicant with respect to the construction and maintenance of the infrastructure improvements and any other obligations of the Applicant as set out in the agreement;
- that Vacation Alberta will have to file satisfactory proof with ID #6 that it has acquired general public liability insurance in an amount which will fully cover the capital costs of construction and installation of project-related infrastructure and utilities as well as its maintenance for a period of three years after construction is completed; and
- that the Applicant must agree to indemnify and save the ID harmless from any and all damages resulting from anything done or omitted to be done by the Applicant or his employees or agents, including his sub-contractors and suppliers, in pursuance or purported pursuance of the agreement.

3.4 Pincher Creek Golf Club Society Executive

The Pincher Creek Golf Club Society Executive submitted a written brief stating the development of a regional destination resort, as envisioned by Vacation Alberta, will be of benefit to the Province of Alberta, to the region and specifically to their organization and members.

In their view, the proposed development will increase the number of visitors to the area and hence the number of potential users of the Pincher Creek Golf Course, which the Society operates as a non-profit organization. The proposed resort also would act as an anchor for facilities that would attract visitors from the United States.

3.5 Westcastle Families Society

The Westcastle Families Society is a non-registered, non-funded association of volunteers from Pincher Creek and area made up of six concerned families who recognize the value of the existing Westcastle ski hill and the opportunity to maintain and/or enhance their quality of life. A Society representative testified that 255 individuals had been contacted, representing 210 households in Pincher Creek and area to obtain views on the proposed development. A Society representative described how respondents indicated they supported the proposed development as it will provide an opportunity for Pincher Creek and area to maintain its population base, increase or maintain property values, provide employment opportunities, support local family facilities and services, assure that the existing ski hill will remain open and provide recreational ski opportunities, provide an additional incentive for tourists to come to Pincher Creek and area, and ensure that land use within the area is regulated and one activity does not infringe upon the enjoyment and/or safety of any other activity.

3.6 Oldman River Regional Planning Commission (ORRPC)

The Commission's submission described the land use planning process that would apply to the Westcastle expansion; however, no recommendation was made as to whether or not the proposed development should be allowed.

In the view of the ORRPC, there are two key issues regarding the proposed Westcastle expansion and the planning process. First, since the site has accommodated a ski resort for a quarter of a century, will the proposed expansion in this same location result in unacceptable environmental impacts? Second, is there a reasonable prospect the proposed development will be viable?

Should NRCB approval be granted, the ORRPC would then review the Application from a number of aspects within its own jurisdiction.

3.7 Westcastle Ski Hill – General Manager

Mr. Gordon Russell has managed the ski hill on behalf of the Westcastle Development Authority since the fall of 1978. In his written submission, he stated the West Castle Valley has been subjected to development pressures over the years from logging and natural gas exploration, which have had greater environmental impacts than the proposed ski hill expansion. In his view, the development area is not a wilderness area, and the operation of a mountain resort will not remove the area from wildlife habitat status. The resort will, however, cause some animal species to modify their use of the area. To address this concern Mr. Russell suggested "...that a wildlife protection corridor could be established along Secondary Highway #774 from several kilometers north to and through the resort, which would create a year-round no hunting zone extending 500 meters on either side of the highway." A reduced speed limit on a portion of Secondary Highway #774 at least within six kilometers of the development site would further eliminate any road kill problem. Mr. Russell stated he supports the Applicant's proposal for the establishment of a yearly \$100,000 Environmental Monitoring Fund financed by the users of the resort through surcharges on lift tickets, green fees and resort accommodation. He supports the proposed development and believes the economic and social benefits are real and the resort will be successful in the long-term.

In verbal testimony, Mr. Russell stated that as a long-term resident of the valley, he had the opportunity to observe many of the species of wildlife mentioned in the Applicant's EIA. He noted "...the ability of the wildlife to adapt and tolerate our activity at West Castle has been demonstrated on a yearly basis." He recommended, however, that the NRCB prohibit the use of the chairlift on Haig Ridge by hikers in the summertime as a mitigative measure for wildlife disruption.

3.8 Government of Canada, Canada Parks Service, Department of Canadian Heritage

Canada Parks Service (CPS) is responsible for the management of national parks and promotes understanding, appreciation and respect for natural ecosystems and cultural history. The CPS has two distinct but interrelated roles relative to the proposed project. The first is under the EARP Guidelines Order where the Department of Canadian Heritage has provided specialist technical advice to Transport Canada, the initiating department under the EARP Guidelines Order regarding the project.

The second role of CPS is that of a neighbor, stakeholder and co-manager of the ecosystem in which the proposed development is situated. Under their second role, CPS is concerned that the proposed expansion could adversely affect the structure and function of the ecosystem.

In their written brief, Canada Parks Service stated that it accepts the conclusion of the Applicant that the cumulative impacts associated with the proposed

development, particularly the summer and residential activities, will fragment habitat, restrict movements of grizzly bears and likely result in a substantial and permanent decline of grizzly bears within the Crown of the Continent Ecosystem. CPS is concerned these impacts may contribute to the insularization of the grizzly bear and other large carnivores.

3.9 Town of Pincher Creek and Municipal District of Pincher Creek #9

In their written submission, the Town and Municipal District (MD) stated that since 1978, both organizations have been unwavering in their support of the objectives of the Westcastle Development Authority. The Town of Pincher Creek and the MD fully support the proposed development but agree that public subsidy of the ski hill must end. They noted that the existing ski hill has brought economic benefits to the local community in the form of wages, purchase of goods and services and the construction and improvement of the secondary roadway system. However, the ski hill is nearing the end of its economic life span and, in order to retain the existing facility and infrastructure, additional funding would be required. Should the Application not be approved, the Councils stated they will not be operating the ski hill in the future. Both Councils acknowledged that the proposed expansion will have environmental impacts; however, they believe appropriate environmental studies have been undertaken by the Applicant, and the benefits of the proposed development outweigh the negative impacts. The Mayor of Pincher Creek stated "...if the development does not operate, what will become of the existing facility? Thirty years of relatively unpoliced and unobstructed use by multiple users have created expectations of virtually unlimited access to the area. What effect will this have on the local environment, both in the short and long-term?" Both Councils believe the proposed project is sound, both economically and environmentally, and in the best interests of the people of southern Alberta.

3.10 Westcastle Development Authority (WDA)

The WDA stated in its submission that from 1978 to 1985 a partnership agreement between the Town and the Municipal District #9 allowed a management committee to operate the existing ski hill facility. In 1984 the preliminary disclosure for the Westcastle Development was approved by the Government and stated "The Provincial Government has no objection, in principle, to the development in the preliminary disclosure. It was also decided that portions of the lease area that are to be intensively developed are to be available for sale. Recreation townhouse condominium development will be allowed in association with the resort." The WDA was incorporated in 1985 under Bill PR10 – the *Westcastle Development Authority Act*, which formalized the legal status of the Westcastle Management Committee, thereby facilitating negotiations with potential developers. The WDA noted that they had not requested fee simple ownership of the property, but that the offer "...was made by Cabinet to us for the purpose of attracting a private-sector developer." In 1985 the *Castle River Sub-Regional Integrated Resource Plan* was approved, which confirmed the Westcastle ski area as a Facility Zone.

In 1986 the WDA purchased 31.81 acres (12.85 ha) of land at the base of Gravenstafel Ridge and renewed a 10-year option to purchase approximately 100 acres at the base of Haig Ridge. The WDA stated the land was made available "...expressly for the purpose of attracting a developer."

The WDA supports the proposed expansion and believes the NRCB should grant approval since the development is essential for the Town of Pincher Creek to maintain the community's investment in residential homes and businesses as well as the existing infrastructure in schools, hospitals and utilities. In their view, the proposed development will diversify the local economy making it less susceptible to the variables of the energy and forestry industries. It also would complement other tourist facilities in southern Alberta. In their view, the quality of life of residents, individually and collectively, would be enhanced by the ability to ski a variety of terrain in close proximity at a reasonable cost. The WDA believes that with the proposed expansion, the area in the West Castle Valley would have greater protection and have better stewardship. The WDA supports the establishment of an Environmental Monitoring Fund by the Applicant, financed by a percentage of lift tickets and green fee revenues, to provide baseline data as a benchmark from which change can be measured. The creation of this fund will be enforceable by virtue of the lease and Licence of Occupation agreements held by the WDA.

The WDA stated that "...prior to selling any land to Vacation Alberta, the WDA must be satisfied that all regulatory approvals are in place and that security is in place to ensure the ski hill is built as promised." To achieve this, the WDA would be seeking an irrevocable letter of credit or similar security. The WDA will have an ongoing role during construction of the resort through the terms of their development agreement with the Applicant. At present, the leased land required for the golf courses, and the Licence of Occupation for the ski hill are in the name of the WDA.

The WDA strongly disagrees with the draft Land Use Order proposed by ID #6 and believes that grouped country residences should be listed as a discretionary rather than prohibited use. In their view, it is "...asking the developer to take an unfair risk." The draft Land Use Order if passed "...puts the developer in an impossible position." In their view, it is unlikely that the Applicant will proceed without some assurance that he will be allowed to build condominiums.

In terms of phasing the proposed development, the WDA indicated that they would sell only the amount of land required for each phase of the development to the Applicant and WDA would continue to hold title to the remaining land. ID #6 would still have control over the lands through the delegated Land Use Order.

The WDA stated it was aware that the Applicant would request financial support from the Provincial Government and learned recently of the amount expected, but continues to support the proposed development if the requested funds are dedicated towards the development of the ski hill. The WDA believes the proposed development fits

within the *Seizing Opportunity* economic development strategy recently released by the Provincial Government.

3.11 Pincher Creek & District Chamber of Commerce

The membership of Pincher Creek & District Chamber of Commerce is primarily from the business community, private sector and non-profit organizations located in Pincher Creek, Cowley, Lundbreck and the surrounding farming area. Based on a telephone survey of its 78 members, the Pincher Creek & District Chamber of Commerce passed a motion supporting the Westcastle four-season resort, provided it can be done in an environmentally sound way. The Chamber believes if the development proceeds, there will be positive economic impacts as a result of the construction activity and ongoing operation of the resort, resulting in increased job opportunities, increased tax revenues and a diversification of the area's economic base. These economic benefits will enhance the quality of life in the surrounding communities. Since the Westcastle expansion will allow the area to achieve economic diversification, the Chamber believes the development is also in the interest of all Albertans.

In verbal evidence, Chamber representatives indicated Government funding of infrastructure for the proposed development was anticipated; however, the Chamber could not state a firm position as to the appropriateness of other types of Government financial support. "...certainly the philosophy of the Chamber is that the more private funds, the better, and the more Government stays out of private industry, the better."

3.12 Southern Alberta Area Users

The Southern Alberta Area Users is an unorganized association representing individual snowmobilers, hunters, fishermen, hikers, and cross country skiers (any users other than skiers or golfers) of Lethbridge and area who favor the proposed development. In their written submission, the Users stated that to determine their position, a petition was circulated among the users. Respondents were generally in favor of the project for four reasons: the proposed development will create additional accommodation and eating establishments in the general area, additional parking for recreational vehicles will be provided, alternative family activities will be available and the area will provide better snowmobiling opportunities for families.

In verbal testimony, the Users stated that developments of this nature should be primarily funded through the private sector. Initially, some of their membership understood that the full cost of the project (\$72 million) would be provided by the Government and were against the proposed project. As the project in fact only requires limited Government support, the Users support the proposed development.

3.13 Mr. Roy and Mrs. Dawn Davidson

The Davidsons submitted a written brief supporting the proposed expansion due to the economic diversification the project can bring to Pincher Creek and area. In their view, the tourism industry is a renewable resource and the proposed development will employ between 250 and 400 people, resulting in economic spin-off benefits to the Town of Pincher Creek and the region.

Mr. Davidson has no difficulty with Government funding the infrastructure of the proposed development and believes the critical issue is the creation of employment opportunities. He believes the proposed development presents a "window of opportunity" for the community to diversify from its reliance on the natural gas industry. In his view, it is a public policy of Government at any level to create jobs, to invest in infrastructure and even to invest directly in capital projects to create jobs.

In Mr. Davidson's view, the proposed development will "...leave a relatively minimal footprint on the valley." There will be environmental impacts; however, the community can live with these because of the major social and economic benefits that will occur. "You cannot lose sight of the human element of this project. This proposal will have a significant benefit to the people of Alberta and Canada, not just in terms of their quality of life, but in terms of their ability to make a living."

In his closing argument, Mr. Davidson stated this will be one of the most difficult decisions the Board will be called upon to make due to the multiplicity of views on the proposed development. The NRCB "...will have to balance competing interests: the interests of man versus nature, business versus beauty, community versus individual concerns, the interests of the present versus the future, the interests of users and preservers." Overall, however, Mr. Davidson stated that the Board's decision must be viewed as "a reasonable decision."

Mr. Davidson stated that, in his view, the NRCB has no jurisdiction "...to sit in judgement of public policy decisions made by the Governments of Alberta and Canada." Government financing of infrastructure or the sale of Crown land to the WDA is totally outside the Board's jurisdiction in his opinion. Also, he indicated that in his view, project viability should not be of concern to the Board.

Mr. Davidson cautioned the NRCB on the message that would be sent to investors should the Board decline the Application. In his view, if this Application for an expansion of an already existing facility in a valley that is already heavily used as a multi-purpose recreational area is declined, then the creation of another ski hill where one never existed before will be totally out of the question. In his view, the only reasonable conclusion for the Board to reach is that the Westcastle expansion proposal is in the public interest of Albertans and should proceed.

3.14 Trappers & Outfitters Wilderness Coalition (TOWC)

The Trappers & Outfitters Wilderness Coalition is composed of a group of individuals and people from other groups who share a common interest in the West Castle region, and who are opposed to the proposed development and believe it is contrary to the greater public interest of Albertans.

TOWC presented a panel of lay and expert witnesses and a written submission commenting on the economic, social and environmental impacts of the proposed development.

TOWC believes economic and market demand projections contained in the EIA are unsubstantiated and, therefore, the proposed development is a potential financial risk to the Alberta taxpayer. TOWC's economic expert stated "...this project will be revenue starved from the beginning, and the economic savior of the project is meant to be the sale of public lands for speculative purposes."

As part of TOWC local members of the Alberta Trappers Association and the Independent Trappers (ATA) submitted a written presentation and appeared as witnesses opposing the proposed Westcastle expansion.

In their submission, the ATA stated the proposed development will seriously disrupt migration patterns for animals and birds, damaging the whole ecosystem of southern Alberta south of Highway #3. As an alternative they recommended that the area be protected as a Reserve or Special Place.

The Alberta Trappers Association & Independent Trappers believe the proposed development threatens the livelihood of the trappers currently trapping in the West Castle and Castle drainages and will destroy a traditional way of life chosen by Association members. In their view, any development will disturb the ecosystem and will result in the loss of wildlife.

A local outfitter opposes the proposed development because it would detract from the natural attributes of the area that his clients pay to experience. A second outfitter provided oral evidence and a written submission on the economic value of hunting and the detrimental effects of the proposed development on Management Unit 400 (West Castle to Waterton). The outfitter believes approval of the Westcastle expansion and the destruction of the existing West Castle Valley ecosystem will be devastating both environmentally and financially and, therefore, he opposes the proposed expansion.

The Alberta Wilderness Association (AWA) is opposed to the development as it believes lands within the eastern slopes should be held for public use and not be sold at any price. While not opposed to the present ski hill, the AWA believes that the profit margin, if any, to the proposed development lies with the real estate development

component of the Application. In their view, the area's variable weather conditions make it unlikely that the ski hill or golf courses will be financially viable on their own.

In the AWA's view, the NRCB should not overlook the wildland recreational aspect of the West Castle, which is a valuable public resource that is difficult to quantify in terms of its social, economic and environmental value.

TOWC also presented evidence on the cumulative effects the proposed development could have on the ecosystem, including the West Castle Valley. Experts provided testimony on their view of the loss of habitat, and the direct and cumulative effects this loss will have on wildlife in the West Castle region, including the implications for fur bearing animals should the proposed development proceed. Testimony also was provided by TOWC panel witnesses on the ongoing efforts to obtain some form of protected status for key wild landscapes within the Eastern Slopes, particularly the South Castle and West Castle Valleys.

3.15 City of Lethbridge

The City of Lethbridge submitted a written brief stating that its Standing Committee on Economic Development, Agriculture and Tourism has reviewed the Application and supports the proposed Westcastle expansion due to the economic activity it will generate within the region. This includes creation of 250 to 400 (full- and part-time) jobs, and the substantial tourism attraction that the four-season resort will be to the region and to the City of Lethbridge as the regional service center. In their view, the proposed development may reduce the leakage of recreation dollars to British Columbia and Montana and assert the economic viability of the area. The submission noted that the proposed development encompasses a small portion of the West Castle Valley, leaving the balance of the valley in its natural state.

The City of Lethbridge Standing Committee on Transportation, Utilities and Environment also supports the proposed development conditional upon the NRCB being assured of the following items:

- that groundwater supply in the area will support such a development;
- that sufficient financial resources will be set aside to ensure long-term detailed monitoring of flora and fauna and remedial action if required; and
- that no relaxation of any provincial standards will be considered to facilitate this particular venue.

In verbal testimony, the Mayor of Lethbridge stated that the City of Lethbridge considers its economic development strategy to have regional implications and works with

the County of Lethbridge and other surrounding municipalities on a variety of economic initiatives. In their view, "...regional initiatives are going to become more and more significant in the future." The City of Lethbridge identified tourism as a major pillar of the economy of Lethbridge and an industry that holds much potential for the future. With this in mind, the Economic Development Committee "...takes the position that the proposal for the Westcastle expansion by Vacation Alberta will have a significant and important positive impact on the economy of Lethbridge." It is their contention "...that the Westcastle development done in a positive, environmentally-sensitive base would meet provincial objectives and also achieve the needs of this region."

3.16 County of Lethbridge No. 26

In its written submission, the County of Lethbridge No. 26 stated support for the proposed expansion due to its positive impact on outdoor education ski programs funded by the Board of Education in which 922 students participated during 1992/93. In their view, the proposed expansion would affect the outdoor education program in the following ways:

- by reducing travel time for the students, thus resulting in more hours of instructional time;
- by reducing travel costs incurred travelling to ski areas other than the proposed development;
- by providing more ski runs for a mix of skill levels from beginner to expert; and
- by improving skier safety.

In addition, the provision of snow-making equipment will enhance the length of time the facility can be open and will guarantee an early opening date. The County believes the proposed development will benefit all residents.

In its written brief, the County stated it "...supports a review and assessment of the environmental impacts of such a development but also strongly recommends that this type of development should take place on non-arable land."

In verbal testimony, a County representative stated the County is often approached for subdivision approval of good farmland into recreational and residential uses and has taken the position that "...good farmland must stay in production and other types of land should be usable by the population for living and recreational purposes."

3.17 Southwest Alberta Economic Diversification Association (SWAEDA)

SWAEDA's written submission presented a regional endorsement of the proposed development covering the area south of Nanton to the U.S. border and west of Fort McLeod to the British Columbia border, excluding the Crowsnest Pass and the Peigan and Blood reserves. The Association stated that it is a not-for-profit organization dedicated to the amelioration of the economic climate in the southwest portion of Alberta and believes the proposed Westcastle expansion falls within the roles and principles outlined in the new *Seizing Opportunity* economic development strategy released by the Government of Alberta. The Association stated that its members will benefit economically from the increased number of tourists in the area purchasing goods and services. In their view, all of southwest Alberta will benefit by the business community growing and offering new and expanded products, greater selection, increased service and increased employment opportunities.

3.18 Southern Alberta Municipalities

a) Town of Claresholm

Similar to the City of Lethbridge, the Town of Claresholm supports the proposed Westcastle expansion, conditional upon the NRCB ensuring that the groundwater supply in the area is adequate to support such a development, that sufficient financial resources be set aside to ensure long-term detailed monitoring of flora and fauna and that no relaxation of any provincial standards will be made to facilitate this venture.

b) Town of Fort MacLeod

The Town of Fort MacLeod passed a resolution supporting the proposal by Vacation Alberta for the development of the Westcastle ski facility.

c) Town of Cardston

The Town of Cardston supports the proposed development as additional ski opportunities are required in southern Alberta, and the four-season resort would bring additional tourists to the area increasing economic opportunities. In their view, because the proposed development expands an existing ski facility, the environment would not be harmed.

d) Municipal District of Willow Creek No. 26

The MD of Willow Creek No. 26 declined to make a commitment for or against the proposed development since the Council felt the municipality is too distant from the development site to be affected.

3.19 Southern Alberta Chambers of Commerce
Fort MacLeod and District Chamber of Commerce
Claresholm and District Business Development Association
Waterton Park Chamber of Commerce & Visitors Association
Taber & District Chamber of Commerce
Picture Butte & District Chamber of Commerce

The above Chambers of Commerce submitted a written brief supporting the proposed development due to its potential for positive impacts by enhancing both recreational and economic opportunities in southwestern Alberta. As long as environmental standards are met and mitigation processes take place as planned, it is the view of the Southern Alberta Chambers of Commerce that the proposed development will provide needed economic support for the area.

3.20 Lethbridge Chamber of Commerce

The Lethbridge Chamber of Commerce represents 396 individual members and member businesses from the City of Lethbridge. The Chamber submitted a written brief supporting the proposed Westcastle expansion due to its positive economic, social, recreational, and tourism impact for the City of Lethbridge, the surrounding trade area and for southern Alberta. The Chamber specifically noted the environmental impact mitigation efforts that have been and will be taken by the Applicant as a factor of their support.

In their written submission, the Chamber stated that economic spin-off benefits will occur primarily in the service areas of Pincher Creek and the Crowsnest Pass; however, in their view, tertiary areas, such as the City of Lethbridge, will also benefit economically. The business community of Lethbridge is a large stakeholder in economic development initiatives in southern Alberta and, consequently, is a concerned stakeholder in the proposed Westcastle expansion. The Chamber stated "...it is crucial to the survival and economic viability of Lethbridge that new generators of economic activity and wealth creation be encouraged in southern Alberta." In their view, construction of the proposed development and ongoing operational demands for labor, services and supplies will create employment opportunities within the region. In addition, educational institutions offering specific training and educational programs within the tourism industry such as the Lethbridge Community College will also benefit from the proposed development.

In their view, the social and recreational impacts for residents of Lethbridge can be intrinsically measured in general terms as "quality of life." Family recreational opportunities will be enhanced by the expanded facility offering a range of ski terrain to match a variety of skill levels. The proximity of the proposed development to Lethbridge will create a local market for the facility.

3.21 Chinook Country Tourist Association (CCTA)

The Chinook Country Tourist Association is an independent non-profit organization responsible for private sector tourism promotion and development in the area designated as "Chinook Country" (southwest Alberta). Presently, the Association has over 250 members across the zone area. In a written submission, the CCTA stated it supports the proposed expansion as spin-off businesses from the Westcastle development could result in increased membership within the Association. The CCTA believes the expansion will foster the development of a "shoulder season" tourist market by offering quality facilities in close proximity to large regional centers. The Association believes the proposed development will provide economic benefits and employment opportunities, increasing tourism revenues to the area and the province. In their view, tourism developments of this nature also add to the development and maintenance of infrastructure, facilities and services in the area, thereby enhancing the overall quality of life for area residents.

3.22 Bed and Breakfast Operators of Southwest Alberta

The Bed and Breakfast Operators support the proposed expansion as it will create a destination point in southwestern Alberta, increase the number of tourists in both winter and summer, allow bed and breakfast operators to remain open year-round and provide increased business opportunities for local residents. The Operators believe appropriate mitigation measures can be put in place to ensure the environment is protected and preserved. As a result, the Operators believe the proposed expansion is in the best interest of the people of southern Alberta.

In verbal testimony, the Bed and Breakfast Operators drew a parallel between the Silver Star Resort in British Columbia and the proposed Westcastle expansion and provided statistics on the growth of bed and breakfast operators in the area of Silver Star as a result of that development. In their view, "...the Westcastle expansion will allow bed and breakfast operators to remain open year-round and become a primary source of income and enable them to carry developmental debt."

3.23 Lethbridge Construction Association/Lethbridge Home Builders Association

The Association submitted a written brief supporting the expansion of Westcastle into a four-season resort as members from both Associations would benefit directly from the labour requirements during the construction phase and ongoing operation of the resort.

3.24 Carefree Express Ltd.

The president of Carefree Express Ltd., a charter bus company located in Lethbridge, submitted a written brief stating that the proposed expansion is in the best interest of all Albertans. In his view, the project would provide a stimulus to the economy in both the short and long-term through construction and tourism job opportunities, produce reliable skiing conditions on runs suited to all abilities and create recreation facilities in some of the most beautiful scenery in the world. Varied accommodations to suit all needs would be provided in a surrounding close to nature. These are benefits Albertans want and should be able to partake in. Additionally, economic benefits would be derived from Albertans spending their recreational dollars within their own province.

In verbal testimony, the President stated the company's current involvement with the ski hill largely has been with schools and groups utilizing the existing ski hill. In his view, there is potential for the company to expand and increase its business if the expansion is approved.

3.25 Residents of Beaver Mines & Residents Along Secondary Highway #507

This group represents 170 residents who support the proposed Westcastle development. They include 71 percent of full- or part-time residents and 84 percent of full-time, year-round households who live within the Hamlet of Beaver Mines or within the immediate vicinity of Beaver Mines and 21 small landowners who live along Secondary Highway #507 west from Pincher Creek and Secondary Highway #774 south from Beaver Mines to the forestry gates. Representatives believe the environmental disruption caused by the proposed development will be outweighed by its social and economic benefits. Increased noise and traffic volume through their community due to the construction (temporary) and post-operation of the expanded facility were stated as concerns; however, it was noted that this can be addressed through proper signage and enforcement of speed limits. In their view, the positive benefits anticipated from the proposed development are increased employment opportunities, both part-time and full-time positions, increased average income for Beaver Mines families, increased possibilities for cottage industries, continued opportunities within the area for increased recreational skiing, increased summer and winter recreational opportunities within an hour's drive and finally the creation of a destination resort in the southwest corner of the province.

In verbal testimony, the residents' spokesperson stated that current Canada Employment Centre statistics show that within the region's population of 11,000 there are 1,120 active Unemployment Insurance claims as of June, 1993. Approximately 620 of these claimants will exhaust their benefits as of October 30, 1993. As well, Social Services indicates there are currently nearly 500 family units receiving social assistance in the area. In her view, "...these are the most serious employment difficulties I've seen in my 16 years as a career consultant, and I can assure you that there is an unprecedented sense of hopelessness in the people my office is seeing in this area of southern Alberta." She stated the area needs the employment opportunities that will be generated by the proposed development.

3.26 Pincher Creek Farmers & Ranchers Group

The Farmers & Ranchers Group, representing 67 individual ranchers and farmers adjacent to Secondary Highways #507 and #774 and in the larger area surrounding the proposed Westcastle expansion, strongly supports the proposed development. In their view, the economic benefits are numerous and far reaching for both Pincher Creek and Beaver Mines, creating full-time employment opportunities for area residents and summer employment for students. Concern was noted regarding increased traffic volumes in the area and its potential impact on the movement of livestock. Nevertheless, the Group believes that these issues can be addressed through appropriate planning such as the enforcement of speed limits, appropriate signage, public education and the creation of pullouts for machinery.

In verbal testimony, Group representatives expressed concern regarding the increased demand for rural residences that the proposed project may create, but had no specific recommendations for the Board. However, they felt it should be recognized that the proposed development will add pressure to both beginning and established farmers who wish to expand and stay competitive.

3.27 Mr. Norris & Mrs. Karen Graham

The Graham family, as third generation residents of Pincher Creek, submitted a written brief supporting the proposed expansion of the Westcastle ski area since it will maintain and expand downhill skiing in southwest Alberta. The proposed development is consistent with recreational uses identified in the *Castle River Sub-Regional Integrated Resource Plan* and should alleviate demands on the National Parks. Mr. Graham noted that should the expansion not occur, the existing facility will likely close. This will have an economic and social impact on the Graham family as well as the community of Pincher Creek and southwest Alberta. While there will be environmental impacts associated with the proposed development, Mr. Graham believes they can be mitigated or minimized through proper resource management, education and cooperation among the users of the area.

3.28 Mr. Hugh Lynch-Staunton

Mr. Lynch-Staunton and his family submitted a written brief supporting the proposed development as a vehicle to diversify the local economy. Mr. Lynch-Staunton believes any environmental impact can be mitigated through a combination of science and common sense, noting that the proposed project only uses a tiny fraction of the mountain landscape.

In verbal testimony, Mr. Lynch-Staunton stated "...this community simply cannot maintain its standards with purely an agricultural tax base. We must diversify our economy, and tourism is a logical extension of our natural advantages. A project like this is clearly in the economic best interests of this community."

3.29 Lethbridge and Area Families

The Lethbridge and Area Families, representing 510 individuals who make up approximately 120 families, submitted a written brief supporting the Westcastle expansion proposal because it provides an opportunity for families to spend quality time together throughout the year by providing a broad range of diverse activities.

In verbal testimony, panel representatives emphasized the importance of leisure opportunities for families. In their view, "...leisure time activities [that] allow the family to participate as a unit to the level they desire in a single location are important in meeting the divergent needs of the family." The proposed development provides unique benefits to families wishing to participate in recreation opportunities.

In addition, the proposed development will reduce travel time and increase safety as well as provide a variety of terrain, new chairlifts, an expanded day lodge and overnight accommodation. This will add to the family experience.

3.30 Alberta Off-Highway Vehicle Association

The Association was formed six years ago to provide input into the decision-making process of Government agencies concerned with the management and control of different areas where off-highway vehicles are used. The mandate of the Association is to ensure "...access by off-highway vehicle use to the public lands of Alberta is maintained at its present level without any further restrictions." The Association submitted a written brief stating it is not opposed to the proposed development since it falls within a Facility Zone under the *Castle River Sub-Regional IRP*, which is an area the Association cannot use. The Applicant has indicated that the existing access to the West Castle drainage and Middle Kootney Pass will remain and that the Association would be notified if any changes are required.

3.31 Pincher Creek and Area Hunters and Fishermen

In their written submission, the Pincher Creek and Area Hunters and Fishermen stated "...the proposed expansion could be an important catalyst for positive change in this valley." In their view, the proposed expansion "...will not affect the vast majority of the valley if properly handled." They noted that the West Castle Valley is far from a pristine wilderness given its current usage and that rejection of the proposed development could in fact place the valley in greater jeopardy. In their view, the Government should develop a larger plan for the entire valley to accompany the proposed Westcastle expansion to ensure a wildlife migration corridor in perpetuity through the valley. A properly managed development could result in better long-term management of the whole valley and its wildlife. They recommend that consideration be given to the addition of campgrounds for tents and recreational vehicles as well as a restriction against vehicular and horseback traffic in sensitive areas. They believe the Environmental Monitoring Fund proposed by the Applicant is a good initiative, and consideration should be given to establishing a user fee outside of the development area for a similar fund. The proceeds could be used for habitat monitoring and enhancement and for providing summer jobs to students.

The Pincher Creek and Area Hunters and Fishermen believe the West Castle Valley belongs to all Albertans and should remain as multi-use recreational area with suitable regulation. They support the proposed Westcastle expansion plan.

3.32 Alberta Back Country Horsemen Association

The Alberta Back Country Horsemen Association is an affiliation of recreational riders comprised of 90 family members, residing throughout southern Alberta from the British Columbia to Saskatchewan borders, and from the U.S.A. border north to Edmonton.

The Association stated in verbal testimony that "...our support of the project is based on the economic aspect as far as enhancement of equestrian recreation in the area." Three concerns regarding the proposed development were listed in their written submission:

- that there remain unlimited access and use by horsemen through the West Castle and adjoining areas;
- that consideration be given to the development and inclusion of facilities within the proposed development for horsemen, namely corrals and pens for overnight use at the facility; and
- that the expansion plan not impede or hamper the timely completion of the Alberta portion of the proposed Trans-Canada Trail System running parallel to the proposed development.

3.33 Off-Highway Vehicle Enthusiasts

The Off-Highway Vehicle Enthusiasts submitted a petition signed by 34 individuals who support the proposed development and believe it is in the best interest of all Albertans, including off-roaders. The off-roaders state they care deeply about the West Castle Valley and do not want it ruined. However, they also do not want it restricted so that only the wilderness elite can enjoy it on foot or horseback. In their view, the proposed expansion will guarantee access to the Middle Kootenay Pass for snowmobilers and off-roaders, improve access to the backroads via designated trails through and around the resort, improve highway and road maintenance, provide improved parking and additional recreational opportunities and result in the availability of additional goods and services.

3.34 Southern Alberta Fish & Game Association - Members - "Not Represented"

Mr. Rod Taylor, on behalf of Mr. Glen Secretan, submitted a written presentation expressing concern over the West Castle Ecosystem Coalition's claim to represent 80 Fish & Game Association members in the area, including the Willow Valley Trophy Club and the Hillcrest Fish & Game Protective Association. Mr. Secretan stated he was never given any information regarding the Westcastle expansion by the Southern Alberta Fish & Game Association. He cannot recall any reference to this proposal in Association literature or a discussion of the matter at the local level which would have resulted in a motion or resolution being passed by his club or the Southern Zone of the Fish & Game Association. Therefore, his name as one of the 6,130 members (and his club's name being included in the 20 referred to at the NRCB Pre-hearing Meeting) was done totally without his knowledge. Mr. Secretan questioned how many other members also are in this position and believes the individuals representing the Fish & Game Association are in fact representing themselves and not the Association.

3.35 Trout Unlimited – Southern Alberta Dissenters

In his written submission, Mr. Roger McAdam, as a member of Trout Unlimited (Canada) and the Crowsnest River Chapter of Trout Unlimited, objected to Trout Unlimited appearing as part of the West Castle Ecosystem Coalition. He stated that it gave the impression that all 190 full- or part-time members, who are area residents, oppose the proposed development. Mr. McAdam, as a long standing and active member of Trout Unlimited, stated that he supports the proposed development and is concerned that the Local Chapter membership was not canvassed on this topic nor was a telephone survey undertaken to confirm a position on the proposed development. To the best of his knowledge, no motion or resolution was passed authorizing the Trout Unlimited Executive at the local level to proceed against the proposed development prior to the NRCB Pre-hearing Meeting. In Mr. McAdam's view, those Trout Unlimited executive members participating as part of the West Castle Ecosystem Coalition against the proposed development are doing so as individuals, not on behalf of the Trout Unlimited Local Chapter. He questioned whether other members of groups forming the West Castle Ecosystem Coalition are in a similar position.

Mr. McAdam stated in verbal testimony that regardless of whether or not the proposed development is approved, pressure on the area will continue as it becomes known to others outside the area. "In this regard, we see the proposed development as an extension of an existing use and one that can be used as a catalyst for the development of an overall plan to guide the conduct for the rest of all of the users in the valley because we feel it is imperative that an overall plan be developed to govern that use given the increased use that is occurring."

3.36 Alpenland Ski and Sport Ltd.

Alpenland Ski and Sport Ltd. of Lethbridge, a sporting goods retail store, was formed in 1976 and has been operating the Westcastle Park Rental Proshop since 1982. Alpenland Ski and Sport submitted a written brief stating that the proposed expansion will benefit not only the Pincher Creek area but all of southern Alberta. The creation of approximately 400 permanent jobs, in addition to the spin-off benefits to businesses in the retail and service areas, are an obvious economic benefit. In their view, an expanded tax base due to the proposed development will result in increased revenues for all levels of government, and upgraded facilities will result in increased school ski programs for all southern Alberta schools.

Tourism dollars are important in these tough economic times, and it was stated Alberta can no longer afford the leakage of tourism dollars to B.C. and U.S.A. The proposed development would allow these economic benefits to be retained in Alberta; therefore, they support the Westcastle expansion.

3.37 Mr. Don Adams, President, What's Your Racket?

As an owner/operator of a ski shop and as a ski coach, Mr. Adams submitted a written brief supporting the proposed development. He suggested that it will meet the need for affordable accommodations and a good intermediate level ski terrain and will encourage more skiers and racers in southern Alberta. Mr. Adams believes that skiing must expand on a controlled basis bringing more people into the sport on a life-long basis. If the Westcastle expansion does not proceed, Mr. Adams believes that ski racing and recreational/disabled ski programs in southern Alberta will cease to exist.

3.38 Canadian Ski Patrol System – Southern Alberta Zone Association

The Canadian Ski Patrol System (CSPS) is a non-profit volunteer organization that provides first aid, rescue and safety services to the skiing public. The Southern Alberta Zone of the CSPS has operated at Westcastle Park since 1969.

The Southern Alberta Zone Association submitted a written brief supporting the proposed expansion of the ski hill because it will develop new ski trails, providing much needed beginner, novice and intermediate terrain. In addition, the positioning of ski lifts will address CSPS safety concerns by providing skiers with protection from high winds and wind chill.

In the Association's view, the West Castle Valley and the proposed golf course area will be ideal for the construction of a variety of cross-country ski trails. The expanded facilities would provide a greater opportunity for the local zone of CSPS to host conventions, competitions and training events. In their view, economic spin-offs to the local economy would be substantial and also would provide national exposure of the facility to members of the ski industry and the skiing public.

3.39 Alberta Association for Disabled Skiers – Zone 1

Zone 1 – West Castle Alpine Chapter of the Alberta Association for Disabled Skiers is run by volunteers who support the expansion of the Westcastle ski hill since it would provide better accessibility for the disabled skier. In their view, the visibility of the local Disabled Skiers Program would increase and the expanded facility would allow them to host disabled skier conventions and events. In verbal testimony, the Association stated that having the opportunity to ski "...integrates the disabled into society – into our society...Westcastle has provided a lot of southern Albertans, disabled southern Albertans, with a recreational opportunity they never thought they would even try even if they knew [it] existed." If the proposed expansion is declined, the Association stated that in all probability it will cease to exist because appropriate alternative sites are not within practical driving distance.

A disabled skier and a Association volunteer provided verbal testimony on the benefits the ski area provides them as individuals.

Association representatives stated the benefits of the Disabled Skiers Program are many and far reaching. The Association, students, volunteers and parents "...unanimously believe that the Westcastle expansion is in the best interest of the people of Alberta, particularly the disabled."

3.40 Westcastle Ski Club

The Westcastle Ski Club has existed for 20 years and is comprised of 37 families representing 157 skiers, including 58 racers. The Westcastle Ski Club submitted a written brief, supporting the proposed development because the positive benefits of the proposed Westcastle expansion far outweigh any negative impacts in their view. The Club believes that the proposed expansion would provide positive socio-economic benefits to the Club, its members and other Albertans. In their view, the development can be constructed and monitored in an environmentally acceptable manner and will serve as a catalyst for promoting greater awareness of wild areas and as a focal point for environmental education.

In their opinion, the proposed expansion will provide a better ski hill by balancing the type and amount terrain for skiing, thus allowing more participation by families. The addition of snow-making equipment will ensure the reliability of conditions, allowing the Club to plan more family activities and to provide additional training time for races and competitions.

The Club stated it is highly unlikely it will continue to exist if the proposed development is not approved since the present terrain is limited, and the existing facilities are inadequate and in need of upgrading. No expansion, in their view, would mean a direct economic loss to the local community as well as an indirect loss through the overall undermining of community economic stability. This would result in a decline in the overall quality of life in southwestern Alberta because families will ski elsewhere, spending less time in their own community.

A written closing argument was submitted stating that skiers (who are clearly the major users of the valley) are in favour of the proposed development and of Government funding for infrastructure needs. However, funding must be provided in the form of loans that are recoverable over a reasonable time period or become a source of income through utilities payments and taxation. Operational grants should not be provided. In their view, the Westcastle ski hill can be economically viable with proper management (including on-hill accommodation).

The Club is not in favour of the area being designated a provincial park, and recommends that the Westcastle Development Authority assume a major role in educating and monitoring public use of the area in conjunction with Alberta Fish and Wildlife officials.

A witness stated "...the ecosystem and grizzly bears are very important, but it is important that the wishes of the majority of southern Albertans are also considered; those who want environmentally sustainable use, co-operatively co-ordinated with multiple land use options to meet the goals of today's and tomorrow's society."

3.41 Alberta Alpine Ski Association

The Alberta Alpine Ski Association is the sport governing body of alpine skiing in Alberta that organizes provincial training and competitive programs for young people striving for excellence in alpine skiing. Alpine Clubs operate independently and employ their own coaches. The Westcastle Ski Club is a member club of Alberta Alpine and operates programs in the area.

In their written submission, the Alberta Alpine Association stated that alpine ski programs for children are a significant component of life skills for Albertans and should be available in all geographic regions of the province. Therefore, the Association supports the proposed expansion of the Westcastle ski hill. The Board of Directors of the Association gave its support having discussed the proposed development in detail and being aware of the careful environmental planning that has gone into the project.

The Association believes that the expanded facility will allow the local club to stage major ski events that will make a significant economic contribution to the local economy and generate meaningful television audiences, showcasing the facility to the world. An additional social benefit would be accrued as alpine skiing can be a family activity and an integral component to an active well-balanced lifestyle.

Should the proposed expansion not be allowed to proceed, the Association believes it is very likely that recreational opportunities for many Albertans will be lost because the existing facility is inadequate.

3.42 Westcastle Ski Club Coaches

The coaches employed by the Westcastle Ski Club for the 1992-93 ski season submitted a written brief supporting the proposed development. They believe it is in the best interest of the region both socially and economically and in the best interest of the people of Alberta generally.

The Westcastle Ski Club employs nine full- and part-time coaches who provide coaching to 58 skiers. Should the expansion proceed, the Association anticipates a

dramatic increase in membership and the opportunity for some full-time, year-round employment as well as an increase in full-time seasonal positions.

Conversely, if the existing facility were to close, it would have a negative impact on the lifestyle chosen by these Alpine coaches. Currently, all coaches either own trailers at the present site or expect to own property at the expanded resort or in nearby Beaver Mines, contributing to the local economy by purchasing goods and services at Westcastle, Beaver Mines or Pincher Creek. Those earning a substantial portion of their living from coaching and other ski-related activities would be forced to look outside of the region and probably outside of the province for other opportunities. In their view, the proposed expansion would allow ski coaching to become a viable career option at Westcastle.

3.43 Senior Skiers - Dr. G. Balfour

On behalf of the senior skiers living in southern Alberta, Dr. George Balfour submitted a written brief supporting the Application by Vacation Alberta to develop the Westcastle ski hill. In his opinion, the provision of a lodge, chairlift and intermediate ski terrain would make the ski area an ideal venue for senior skiers. Dr. Balfour noted that the lack of proper facilities at Westcastle for downhill skiing would mean a social loss to many senior skiers and their families. In his view, economic benefits are being lost to other provinces and the United States as a result of the current status of the Westcastle ski area.

3.44 Dr. David Balfour

Dr. David Balfour presented a written submission detailing statistics on the use of the West Castle Valley by various user groups. Dr. Balfour supports the proposed expansion and believes "...if any individual or group of individuals does indeed have the right to use this valley then by virtue of sheer numbers, as well as their minimal impact on the environment historically, it is alpine skiers who have more right than any other group to do so."

In verbal testimony, Dr. Balfour updated the usage statistics contained in his written submission based on 1991 data.

3.45 Westcastle Ski School

The owner/director of the Westcastle Ski School submitted a written brief supporting the proposed expansion since it will provide a variety of terrain suitable for all skill levels. It was noted that the provision of better day-use facilities, chair lifts and on-hill lodging will result in more skiers and potential students utilizing the expanded facility. Snow-making will increase the operating season by guaranteeing a set opening date each season, increasing the business from public and separate school boards in southern Alberta. As a result of this increased activity, additional manpower would be required creating local employment opportunities and economic benefits.

3.46 Westcastle Community Association

The Westcastle Community Association consists of the occupants of 51 units made up of trailers, mobile homes and motor homes who are presently renting space at the Westcastle ski hill. On behalf of 39.5 unit shares or 165 trailer residents of the Westcastle community, the Association submitted a written brief in favor of the Westcastle expansion because the existing ski hill will be forced to close if the expansion does not proceed.

In verbal testimony, an Association representative stated that the West Castle Valley was not a pristine wilderness but a beautiful and well-used valley. The Association believes the proposed development will fit into the valley and any negative aspects of the proposal will be surpassed by the positive benefits. In their view, facilities of this nature will bring families closer together. The Association requested the NRCB to look favourably on the proposal and allow it to proceed.

3.47 Employees of Westcastle Park Ski Area

The two full-time and 35 seasonal employees of Westcastle Park ski area submitted a written brief supporting the expansion of the Westcastle ski area since it is an important source of employment opportunities for southern Albertans. They believe the expanded facility will add to the recreation resource base required to establish southern Alberta as a significant tourism and recreation area.

Westcastle Park has been an important recreational and leisure resource and in their view, the NRCB will be able to establish precedent-setting guidelines for recreational facilities which Vacation Alberta can meet. The proposed development is in the interest of all Albertans including the present and future employees and should be approved.

3.48 DU Ranch – Dan McKim

In his written submission, Mr. McKim stated his support for the proposed development and belief that the development should be approved by the NRCB. In his view, the site is well located to serve residents of southwestern Alberta, provinces to the east and west and the neighbouring United States. The unique topography of the site will provide for a top quality, viable four-season resort, and the Government has the regulatory capability to protect the best interests of the people of Alberta.

In verbal testimony, Mr. McKim stated that the proposed four-season resort will serve as an anchor for other regional attractions in the area and draw tourists to the southwest corner of the province, creating jobs and other economic opportunities for local and regional residents. Intermediate ski terrain, sufficient deeded land for amenities, good transportation access, quality on-site infrastructure and facilities and good management are all necessary components to ensure a viable resort development, in Mr. McKim's view. For longer term viability, the proposed resort also needs valley floor area to accommodate spring, summer, fall and winter activities as well as other amenities sought by the visiting public. Snow-making to guarantee an early opening date in October-November is critical to success. In his view, approval of the proposed development will result in better stewardship of the West Castle Valley area for all users.

3.49 Southern Alberta Educators

The Southern Alberta Educators are responsible collectively for the education of southern Alberta youth. To determine their position on the proposed expansion, a questionnaire was sent to southern Alberta educators who are currently operating a school ski program and those not operating a program. Of the 51 schools approached, 42 responded either directly or were represented by a response from their respective District Boards. It was noted that 100 percent of those who responded to the questionnaire supported the proposed expansion of the Westcastle ski area. As a result of a questionnaire, the Southern Alberta Educators determined that if the Westcastle expansion proceeds, approximately 7,100 students annually will derive direct educational, social and economic benefits from the proposed project. In their view, the proposed development will allow Westcastle Park to enhance the availability and opportunity for the downhill skiing component of the Physical Education Program for southern Alberta's young people. The Southern Alberta Educators stated that they will benefit economically if the proposed development proceeds because travel distance and time will be reduced relative to alternative downhill skiing destinations. Conversely, should the expansion not be approved, it is very likely that the existing ski area will close and the downhill skiing component of the physical education program will be discontinued as costs and travel distances to alternative ski area destinations would be too onerous for the program to continue.

In verbal testimony, Educators' representative stated that their support was given "...on the condition that the development will be planned, constructed and operated in an environmentally responsible way."

The Educators "...recognize that there will be social, economic and environmental impacts as a result of the proposed development, and that trade-offs resulting from these impacts will be worthwhile, considering the net benefits of the project. We believe that approval of this project will be in the best interests of all the people of Alberta."

3.50 Southern Alberta Water Management Committee

The Southern Alberta Water Management Committee is a regional economic development and agricultural committee involved in the economy of southern Alberta. The Committee supports the position taken by the City of Lethbridge, the Lethbridge Chamber of Commerce and the Town of Pincher Creek that the proposed expansion will provide much needed economic activity for the region, generating over \$70 million in the construction phase, 250 to 400 full- and part-time jobs and will stabilize the economic viability of the area.

In verbal testimony, the Committee stated it supports the proposed development as the economic impact will be felt throughout the entire region. The Board was urged to give the proposed development careful study and not assume that the majority of southern Albertans are against the proposed development based on media coverage. The Committee is concerned about the environment; however, in their view, any environmental impacts can be mitigated by the Applicant through proper planning.

In summary, a witness stated that should the development not be allowed to proceed the message that would be delivered is "...this area is no longer open for business." A message which, in his view, no community can afford. In addition, rejection of the Application would, in their view, nullify years of sound long-range planning. The proposed development is an opportunity to provide jobs, help the local economy and answer some of the problems that the local resident foresee for this part of the province. It will not only be of benefit for the region, but will have a beneficial impact on all of Alberta and further to Canada.

3.51 Mr. Ken Nodge

Mr. Nodge submitted a written brief stating that the ski hill should remain in the hands of the community and should not be sold to private developers as envisaged by the Westcastle Development Authority. In Mr. Nodge's opinion, public funds can be better spent on job creation rather than on the proposed development which will only be available to the financial elite.

In verbal testimony, Mr. Nodge stated that an alternative to the Applicant's proposal would be to use the whole valley as a tree nursery, supplying tree seedlings to be planted by young people in return for ski privileges. In his view, public funds would be spent more appropriately providing direct employment. He indicated agreement with the comments of the expert witness from the West Castle Ecosystem Coalition that "...the situation at present is not a standard to meet or maintain but one that could be so much more improved or enhanced."

3.52 Mr. and Mrs. Harold Ganske

Mr. Ganske, a landowner and taxpayer in the Municipal District of Pincher Creek, submitted a written brief expressing concern about the economic viability of the proposed development due to the area's adverse weather conditions.

He noted that adverse weather patterns in the area include insufficient snow (affecting facility start-up and closure dates), frequency of rainy periods before snow storms, extreme sub-zero temperatures and wind factors on the ski hill, including Chinook conditions.

Due to the area's variable weather conditions, Mr. Ganske questioned the economic viability of the proposed development, particularly the golf courses. In addition, he is concerned about the level of funding the Applicant is seeking from the Provincial Government. In the event of project failure, Mr. Ganske believes the first loss should be absorbed by the Applicant not the taxpayer. In his opinion, until at least 20 percent of the funding required for the total project is secured from the private sector, no Government funding should be provided. Mr. Ganske believes that in these times of deficits and public debts, an expenditure of this nature should not be made.

As part of his testimony, Mr. Ganske made a presentation and tendered an exhibit regarding wind velocity in Castle drainages in the Livingstone area and information on wind velocities and relative humidity data taken from the Carbondale lookout and Castle ranger station.

Mrs. Ganske stated that she would not like to see development in the West Castle and felt that the area should be left in its natural state for everyone to enjoy.

3.53 Dr. J. Rottger

On behalf of himself and Dr. Tony Irving, Dr. Rottger submitted a written brief supporting the proposed development. As medical professionals, Drs. Irving and Rottger stated they are directly affected by the proposed expansion because they donate their time as physicians to the Westcastle ski hill treating any on-site injuries. Their services are provided on a casual basis on weekends and a scheduled basis during ski races held at Westcastle Park. Dr. Rottger is involved in a program by the University of Calgary which encourages young physicians and medical students to locate outside the urban centers. In his view, research has shown that recreational opportunities rate in the top four reasons for selecting a rural over urban location for a medical practice. The proposed expansion of the Westcastle ski area would, in their view, increase the recreational facilities in the area and the Crowsnest Pass and therefore increase the area's appeal to high calibre physicians.

Dr. Rottger tendered the Report of the Advisory Panel on the Provision of Medical Services in Underserviced Regions prepared by the Canadian Medical Association and the Alberta Doctors' Digest dealing with physician supply in Alberta to support his statements regarding the importance of recreational opportunities on the location of physicians .

On a personal level, Dr. Rottger stated that he supports the expansion because "...this development would provide family-type skiing which is very limited at the present ski hill, and I believe will add to the quality of life of living in this area." As an environmentalist, Dr. Rottger stated "...when we put this proposed Westcastle development in perspective, it is extremely small; one could even say trivial. And I believe that the social and economic benefits vastly outweigh the environmental disadvantages." The proposed development is not a "wilderness area" (an uninhabited and uncultivated region) but a recreational valley used for the past 25 years.

3.54 The Peigan Nation

The Peigan Nation submitted a written brief setting out their usage of the Bow Crow Forest for traditional purposes and objecting to the proposed expansion of the Westcastle ski hill. Accompanying the submission was a Band resolution reaffirming a previous submission received by the NRCB from the Office of the Peigan Nation.

The Peigan Nation noted that immediately north of the proposed development is a sacred site where the Peigan camp and retrieve ceremonial paints. The Peigan Nation stated that the natural setting of the area would be altered through the development of new roads, the upgrading of old roads and greater public access to the area.

In addition, the proposed expansion would affect the Peigan Nation's traditional stated uses of the Bow Crow Forest for hunting and gathering since hunting in the immediate vicinity of the year-round resort would no longer be possible. In their view, increased access to the area would result in increased hunting by tourists.

The Peigan Nation also is concerned by the potential deterioration of water quality for downstream users and the effect on fish and plant populations upon which the Peigan depend.

Finally the proposed development area is thought by the Peigan Nation to be potentially rich in historic sites that are an integral part of the history of the Peigan people. The historic record of the Peigan in the area is believed to be placed at risk by the proposed development.

Legal counsel for the Peigan Nation submitted an additional written brief dated July 12, 1993, and made a verbal submission regarding the constitutional rights of the Peigan Nation and the NRCB's jurisdiction. It was the Peigan Nation's submission that it is not within the jurisdiction of the NRCB to adjudicate the nature and scope of the Peigan's constitutional rights. The Peigan's counsel requested that should the NRCB decide the project is in the public interest and be allowed to proceed that the NRCB include a recommendation regarding the constitutional rights of the Peigan Nation. It would remain the responsibility of the Applicant to reach an accommodation with the Peigan Nation regarding the interference with the Peigan's constitutional rights. Their counsel noted that the Peigan and their rights in the area and the impact of the proposed development on those rights have not been studied by the Applicant and presented to the NRCB for consideration.

3.55 Pincher Creek Mountaineers Snowmobile Club

While not stating a position for or against the proposed development, the Club submitted a written brief expressing concern regarding the possible sale or transfer of public lands to the Applicant, which may change the access for existing user groups to the area. In their view, restriction of the access road to Westcastle Park may jeopardize the network of trails that provide snowmobile access throughout the West Castle Valley to the Middle Kootenay Pass and British Columbia. The Club believes that large diameter culverts should be installed to be used as underpasses, or the Applicant be made responsible for the relocation, or cost of relocation, of the portion of the trail negatively affected by access road re-alignment. In addition, the Applicant should be encouraged to enhance public access through their site, rather than maintaining the existing level of public access to the area. The Club also expressed concern that the Government may designate the area as a provincial park, thus removing snowmobiling as a recreational use in the area.

In verbal testimony, a Club representative stated that he was President of the Mountaineers Snowmobile Club in Pincher Creek and represented 200 local snowmobilers. His Club is affiliated with the Alberta Snowmobilers Association and the Club's brief also represents the 2,000 snowmobilers who are registered with the Alberta Snowmobilers Association in the province. Club members believe themselves to be ecotourists and have worked hard to generate snowmobiling as an economic activity in the area. It was noted that snowmobiling is a multi-million dollar industry and Club membership is increasing each year.

The Club is concerned that the Environmental Impact Assessment appeared to indicate that use of the area would be restricted. In their view, input should be sought from user groups on the most appropriate method to ensure the Castle River drainage area is protected.

3.56 Lethbridge Fish & Game Association

Lethbridge Fish & Game Association, with a membership of 600, submitted a written brief objecting to the proposed development. The Association believes protection of the West Castle Valley and wilderness area is critical to the long-term health and survival of the ecosystem. The Association has a number of concerns regarding the use and access to public lands, the impact on wildlife and fish habitat and the financial impacts on local taxpayers should the project not prove to be economically viable.

In verbal testimony, Association representatives stated "Public land critical for wildlife and their habitat should not be sold or leased to a private company or corporation for a development such as this...." As well, "...we have no objection to development as long as it's not done [at] the expense of all persons and on public lands." The Association's membership "...has no quarrel with the existing ski hill or the expansion of just the ski hill with a day lodge."

3.57 Coaldale Ecology Club

The 30 member Coaldale Ecology Club submitted a written brief objecting to the proposed development and the concept of public lands being turned over to the Applicant. The Club's submission stated that ecotourism is increasing and there must be better, more sustainable and less damaging ways for the people of Pincher Creek to make a living. In their view, large developments such as this infringe on the rights of their children and their decedents to a publicly owned wilderness area and all the spiritual, emotional and practical benefits that the wildlife brings.

From an economic viewpoint, the Club believes the proposed development could well become a large white elephant for the taxpayer. In their view, the West Castle

region should be exempt from commercial development and stewardship of the area should be encouraged.

3.58 Mr. Brent Barbero

Representing land owners (ranchers, farmers and small acreage owners) in the Municipal District of Pincher Creek, Mr. Barbero submitted a written brief opposing the proposed expansion since he believes it will have a negative impact on the quality of life for landowners because land values could be inflated, thus making expansion or purchase of land by young farmers and ranchers more difficult. Additional concerns noted were the possibility of increased taxes, loss of agricultural land, increased traffic volumes and the risk of accidents with farm animals or farm equipment. Mr. Barbero indicated the landowners would prefer a modified approach to the proposed development with upgrading of the existing hill and lodge, along with limited summer use. In their view, the proposed Westcastle expansion can still contribute to the local economy if it is approached in a less ambitious manner.

In verbal testimony, Mr. Barbero stated that an unofficial survey was done of all farm, ranch and acreage families in the area and a total of 119 signatures were collected representing 79 families. No one in the Hamlet of Beaver Mines was surveyed. A number of perspectives and points of view on the development were noted. The area of greatest concern was the amount of funding the Provincial Government was injecting into the development, leaving the Applicant and future owners with little or no financial liability. In their view, if the project does not hold its own, it could leave the taxpayers of Alberta owning an undesirable debt. Representatives generally indicated that Provincial funding could be more appropriately spent on education and health care services. Some representatives with land and livestock along the Castle River expressed concern regarding sewage treatment, fertilizers, pesticides and possible water quality impacts.

3.59 Mr. Otto Fischbuch

As a rancher in the Beaver Mines area, Mr. Fischbuch submitted a written brief opposing the proposed development stating the West Castle Valley is too narrow for the size of the proposed development and pollution of the headwaters of some of the Castle River drainage may occur. In his view, the season is too short for golf courses, and the prevailing weather conditions in the West Castle Valley are not appropriate for the proposed four-season resort. There will be increased traffic on the Beaver Mines road resulting in dust pollution and the possibility of accidents between visitors and area residents who use the side roads for moving cattle and machinery in the summer. Mr. Fischbuch also is concerned that taxpayers could be left with the financial liability should the proposed development not be viable in the long-term.

In verbal testimony, Mr. Fischbuch stated the residential component of the project could be the "thin edge of the wedge," possibly resulting in an actual townsite being built in the valley at some future time. Mr. Fischbuch stated that he is not anti-development and could live with a scaled-down version of the project that includes an improved ski hill with a lodge and accommodation for approximately 100 people. He is, however, absolutely opposed to any type of residential development in the valley.

3.60 Mr. Keith Everts

As a first generation rancher in the Gladstone Valley and a taxpayer, Mr. Everts submitted a written brief opposing the proposed development due to the dangerous precedent that would be set by the transfer of public lands to the Applicant, the possible environmental impact on the West Castle watershed and the amount of public funding requested by the Applicant.

In verbal testimony, Mr. Everts stated that his decision to oppose the proposed development was a tough decision to make in these economic times when jobs are needed. However, he believes that "...planning for the use of [the] West Castle watershed has not been opened up to healthy debate of alternative proposals." He is not opposed to a small community ski area but believes "...we cannot have a proposed mega development without permanently harming the quality of life" in the area. In his view, wildlife habitat cannot be replaced once it is lost and future options and opportunities for area children will be closed.

3.61 Mr. Leo Puerzer

Mr. Puerzer submitted a written brief objecting to the proposed development, questioning its economic viability and the financial implications to the local ratepayer should it prove to be unviable. In addition, Mr. Puerzer expressed concern regarding the development's possible affects on the local human resources.

In verbal testimony, Mr. Puerzer proposed that a moratorium on grizzly bear hunting be instituted in southwest Alberta, southeast British Columbia and northwest Montana, that the West Castle River be designated catch and release only, and that the wetland area (which in his view is 1 km north of the existing ski hill and continues for 4 to 4.5 km) be designated a natural area and closed off to motorized vehicles (other than University of Lethbridge research staff).

Mr. Puerzer stated that he is most concerned with the impact of the increase in permanent residents and summer tourist traffic generated by the proposed development rather than the ski hill expansion. He does not support the proposed golf courses.

3.62 Mr. Eugene Cyr

Mr. Cyr appeared as a witness and testified that he opposes the proposed development due to the sale of public lands for private development, the loss of agricultural land for golf course development, the possible impact on water quality and fish habitat and the amount of public assistance the Applicant will be requesting from the Government of Alberta.

In his view, "...this entire project is a real estate scam and is doomed to failure, and we taxpayers will be footing the bill."

3.63 Pincher Creek & District Economic Development Board

The Pincher Creek & District Economic Development Board submitted a written brief supporting the proposed expansion since it will improve the viability of other southern Alberta tourism and recreation developments and encourage Albertans to spend their tourism dollars within Alberta. In the Development Board's view, the expansion will diversify the local economy and provide increased contributions to tax revenue. In addition, the expanded facility will ease the pressure on Banff and other over-crowded ski facilities and provide a potential location for future downhill competitions outside of the national parks.

As an appendix to their written submission the Development Board provided a 1985 report by the Subcommittee on Westcastle Park Expansion which contains eleven specific recommendations related to the proposed development.

In verbal testimony, the Economic Development Board gave an overview of the historic development of the area, the funding the Province has expended to put in place four world class regional day-use tourism attractions in the area and the need identified by the Development Board for at least a three-star hotel to accommodate visitors to these attractions. In their view, the four-season resort proposed by the Applicant will meet that need. The Economic Development Board reviewed how the area's tax base has evolved over the years and how tourism will be an important economic generator for both the Province and the Pincher Creek area in the future. The Development Board stated that their vision statement for the community states "A community that is proud of its pioneering spirit, building on its strengths, natural beauty, and natural resources." The community feels that tourism has to be a cornerstone of its economic future. Pincher Creek has always been a regional center and hopes to continue to be one in the future. With the Westcastle expansion, the community's regional tourism theme will change from "come and see" to "stay and visit." The Board stated that the proposed development "...is a good mix of environmental stewardship and economic opportunity. From our perspective this is a prime example of sustainable development."

The Development Board believes the Applicant should determine whether or not the project should be phased, as recommended in the 1985 Committee Report, or proceed as proposed. The market for such a facility has changed between 1985 and 1993, and this may influence the Applicant's decision not to proceed with a phased development. It was noted that in the 1990's, tourists appear to be demanding a fully integrated, multi-activity facility – a four-season resort concept – rather than the single, stand-alone facility tourists sought in the 1980's.

3.64 Pincher Creek Regional Parks and Recreation Board

The Pincher Creek Regional Parks and Recreation Board serves a population of 7,000 residents. The Board believes the existing Westcastle facility has enhanced the quality of life within the community and has supported the Westcastle ski hill over the years through financial contributions. The Board supports the proposed expansion as it will increase recreational opportunities for local and regional residents.

The Recreation Board stated in its written submission that the economic benefits of the proposed Westcastle expansion will serve to maintain the facilities, services and quality of life enjoyed by the residents of Pincher Creek. The four-season resort will be a new economic generator creating approximately 1,600 jobs and will stabilize the local tax base by increasing tourism revenue. The Board also supports the concept of an Environmental Monitoring Fund as proposed by the Applicant to ensure future environmental monitoring is in place to measure and analyze post-expansion impacts.

The Pincher Creek Regional Parks and Recreation Board supports the Westcastle expansion as "...we feel that significant positive recreational and economic benefits will outweigh any detrimental aspects of the project and, therefore, that the Westcastle expansion is in the best interest of the people of southern Alberta."

3.65 Mr. Bob Toney

As a long time resident rancher and skier, Mr. Toney submitted a written brief supporting the proposed expansion due to the recreational opportunities it os, in 1992 45,000 and in 1993 57,000 skier visits.

The Board accepts the evidence of the Applicant that there is a seniors and families market in southern Alberta and Saskatchewan for on-hill accommodation in southern Alberta, a market that would not normally ski in the Banff/Kananaskis region and cares less about the attractions of natural snow, ambience or night life which can be obtained in Fernie and/or Whitefish than it cares about the convenience of on-hill accommodation. However, based on the evidence the Board has difficulty determining the size and keenness of that market. It is also very difficult based on the evidence to determine how long it might take for an expanded Westcastle Park with on-hill accommodation to recapture Alberta investment that is currently in B.C. and Montana. The Board must therefore make conservative assumptions in this regard.

All things considered the Applicant skier demand projections appear overly optimistic to a significant degree, even taking into consideration annual variations in snowfall and market conditions for individual hills.

4.2.1.2 Golf Demand

It is also difficult to determine the likely scope of the Alberta market for golf. The evidence is not particularly conclusive as to reasonable demand projections for golf. Mr. Campbell for the Applicant indicated that the "ardent recreational golfer" was the category of customer most likely to make golf courses economically successful. However, the Alberta Tourism 1990 Non-Resident Exit Survey of "non-resident travellers to Alberta who golfed", which was included in his report, shows that Alberta is attracting this type of golfer only in a limited fashion. Only 7% of visitors indicated that their main purpose for visiting Alberta was to play golf. The majority of people were visiting Alberta to see friends and relatives (33%) or to have a vacation or pleasure trip (33%). In addition the 1988 Mannecon study to which Mr. Campbell referred had concluded that there was demand for more golf in mountain settings, but had not included any pricing component to the study, i.e., how much people were willing to pay for mountain golf. Therefore the Board believes that such a study is of limited value in determining the size or scope of a market.

At Westcastle Mr. Campbell projects 50,000 to 55,000 rounds per season at maturity, 28,000 to 30,000 of which would come from the local area (within a 2 hour drive) and 20,000 to 25,000 of which would come from "intercepted" traffic. The TEIM analysis filed by the Applicant projects 65,100 rounds per season at maturity (year 7). In comparison, there are slightly less than 68,000 rounds played at Kananaskis and 68,000 rounds played at Calgary's McCall course, these being very popular Calgary area courses. The Kananaskis courses have enormous pull inside and outside Alberta. The McCall course was stated to be the heaviest used course in the Calgary area. The Victoria course in Edmonton receives 75,000 rounds. These are also public courses, and the evidence is that golf demand for public courses is currently stronger than for private courses, where new supply may have met demand in recent years, since the dates of the studies referred to in evidence.

Mr. Campbell indicated that there are 350,000 golfers in southern Alberta. The Calgary Golf Association figures show 100,000 golfers in Calgary. A 1989 Stevenson Kellogg Ernst & Whinney Market Demand Study, which was filed by the Applicant, estimated that there were 240,000 golfers in the entire Province of Alberta. It is very difficult for the Board to reconcile these varying figures with population statistics, or to obtain a reliable view of the size of the Alberta golf market or the regional golf market in southern Alberta.

In the local area there is relatively little golf played. The Waterton course receives 18,000 to 20,000 rounds, surprisingly low given its location and access to flows of tourists, although upgrading was stated by some participants to be needed. The Pincher Creek course apparently receives around 2,000 rounds and the Crowsnest Pass course around 2,500 rounds.

Based on the evidence before it, the Board believes that the golf demand for the VAC courses would originate primarily in the southern Alberta region.

Taking into account the changeable and windy weather in the local area, there will likely be some degree of idle capacity on the golf courses at Westcastle.

All things considered, the Board believes that it must again make conservative assumptions with respect to golf demand at Westcastle in light of inconclusive evidence as to the size and scope of the golf market and in light of what appear to be overly optimistic demand projections on the part of the Applicant.

4.2.1.3 Viability

With regard to project viability, if ski and golf demand are likely lower than projected by the Applicant, the project would have to be downsized in order to be viable. The Applicant acknowledged this possibility in the hearing, during which it provided revised projections assuming phasing in order to take the market risk in smaller bites. How much smaller the resort should be to fit the demand is a major question.

The real meaning of "viability" with respect to the Westcastle expansion is also a basic question. According to the WDA the original Westcastle ski hill, offering expert skiing in an area remote from major population centres, was not conceived with a view to commercial market conditions. The hill appears to have been economically marginal throughout its life. In the absence of compelling demand for the project from a market perspective, the private sector would not ordinarily consider undertaking it. Surely this is why the WDA was not able to attract any investors for many years.

The Board heard a substantial amount of evidence about the attraction of a private sector developer for the proposed four season resort. Certainly VAC proposed that private funds, both equity and debt financing, be invested in the project. In fact, of the estimated \$72 M investment, the private sector would finance \$50 M roughly 70% of the total capital requirement.

The four season resort, in the Application presented to the Board, would not be viable from a strictly private investment point of view and accordingly the Applicant has assumed Government support for ski hill upgrading as well as for infrastructure support. VAC has indicated that \$22 M, or roughly 30% of the total capital investment would come from public investment in the project. About half of the anticipated public investment in the project would be for infrastructure -- \$11 M -- and half for the expansion of the ski facilities. The Government support for the ski hill is proposed to be a no-interest loan with security only against the hill. The Applicant indicated that the ski hill portion of the development is the portion with the greatest market sensitivity and the least amount of flexibility for cost control. The Application assumes primarily public money to upgrade the ski hill - \$11 million of an estimated cost of \$14.8 million. On a phased basis, Phase I of the ski hill development would provide the lion's share of the upgrading, using \$9 million of public money and \$1 million of private money, and Phase II would use \$2 million of public money and \$2 million of private money.

Investment criteria vary according to whether the investor is a private corporation seeking a 'return' on private capital or whether the investor is a government seeking a 'benefit' on public funds. Expectations from investors in the private and public sectors are so different, given their differences in motive for investment and investment objectives, that completely different evaluation methods are used to determine project viability. Private sector investors will often use return on investment criteria. Public sector investors often use a cost/benefit technique when considering alternative investments. The Board recognizes that any comparison between an investment by a private investor and an investment by a public sector investor involves comparing "apples" and "oranges".

Adequate 'return' in the traditional private enterprise sense would mean coverage of operating costs, return of capital and profits to investors. Adequate 'return' on public money could mean coverage of operating costs in a recreational facility built for public enjoyment, or it could mean creation of jobs and tax revenue for the government.

The issue of return is difficult when public money is invested in private enterprises with uncertain market demand.

The Board has carefully considered the evidence of the Applicant and believes that if only private investment were utilized for the project, including all infrastructure and ski hill upgrading costs, the project would never make a return for its shareholders and would never be considered by the private sector.

Government support for infrastructure, ski hill upgrading and provision of public land at a very low cost for the ski hill, golf course and condominium/hotel components, changes the risk profile for the private sector developers. With such Government support, the Board believes that the project could eventually make money for the shareholders, if it were scaled down to meet the market demand for skiing and golf.

The Board believes that the difficulty with considering viability in this case is due to unclear or mixed objectives. From the evidence the Board notes that government support has been required for most significant ski hills in the Canadian West today. If a ski resort has the right combination of factors the economic results can be impressive, such as at Whistler or Aspen. This level of ski resort success appears to be achievable by only a few. The Applicant, in discussing the mix of public and private business in the Kananaskis developments, stated that the difference between the Kananaskis model and the Westcastle proposal is "the difference between creating a product that is a public policy dream and creating a product that is based on economic return on investment". The Board believes in this case that a number of concepts of "return" are operating in the minds of participants in the hearing, and because the project would not likely be viable without Government money, there is an element of "public policy dream" involved in the Application.

The Applicant agreed that if the ski hill and golf course portions of the development were unsuccessful they would likely revert to public ownership. The hotels and condominium portions, however, would remain in private hands. The most risky portions of the development, the ski hill and the golf courses, are on lands to be purchased in fee simple from the Government at \$500 per acre.

In relation to return, the Board believes that if public money is primarily at risk, the public should receive the primary rewards. This could be achieved by altering the financial elements of a scaled down project so that the public received more value for the land to be sold, leased and licensed, or received security on the profitable portions of the venture rather than on the most risky portions. In the alternative, if public money is primarily at risk then "viability" from a private sector viewpoint is somewhat irrelevant, and the public could properly consider the project completely government funded as a recreational benefit to southern Alberta communities, in which case the market-oriented additions such as on-hill accommodation and golf are not necessary. If it is private investment, recovery would include capital and operating costs. If it is public investment, operating cost recovery would be the probable target. In terms of rewards to the public through job creation and tax revenue to the Province, since it is difficult to determine what project size will match the demand, it is difficult to determine how many jobs could be sustained by the project over time. The Board believes that job creation is a potential benefit of the project. Given the unemployment picture in the project area and the Crowsnest Pass area the kinds of sustainable jobs created by a properly sized project would have a positive impact on the needs of the area, but would not in itself resolve what appears to the Board to be relatively high regional levels of unemployment within the Alberta context.

In any case the project should be reasonably sized (i.e. smaller than proposed) so that it has a chance of recovering its costs in light of what the real market might be.

Any of these discussions of return to the public assume a Provincial Government decision to invest in the project, if the project were approved by the Board. The actual investment of public money is not up to the Board to decide.

4.2.1.4 Incremental vs. Redistributive Market

The Applicant's economic evidence was largely based on a supply side economic impact model, showing economic activity generated by supplying goods and services for construction and operation of the proposed project. This is of course only one half of the economic picture. The demand side must also be taken into account in order to determine whether any venture will be successful, and, as indicated, the Board is concerned that the demand for the project as presented has not been made out. The Applicant stated that a project can create significant economic benefit without ever being profitable. This viewpoint appears predicated either upon short-term benefit or upon long-term subsidy.

If the projections for Westcastle assume shift in market share, this shift would result in a more or less static amount of revenue being redistributed among a greater number of Alberta ski hills to the overall economic detriment of the industry in Alberta, unless the market is shifted from hills outside Alberta to Westcastle. The issue of incremental benefit to Alberta is therefore fundamental to the Application in terms of determining the economic aspect of the public interest. However there are no empirical studies of any kind before the Board as to the nature and extent of this possible incremental benefit to Alberta, and therefore the Board is left with people's opinions, best estimates and "gut" feelings on the issue.

In terms of the quality of the evidence before the Board on the potential incremental economic benefit to Alberta of the Westcastle expansion, the Board believes that the public interest could have been far better served if the Board had received a current and detailed market demand survey focusing on the likely numbers of people in Alberta and elsewhere who would shift their skiing business from ski hills in Alberta, B.C., and Montana to Westcastle, or would shift their investment in on-hill accommodation from B.C. and Montana to on-hill accommodation at Westcastle. As it stands, the Board has a somewhat vague picture before it of the size and territorial scope of the market which an expanded Westcastle facility might influence. As the Board has indicated in past Decision Reports, where evidence before it is inadequate or less than compelling the Board will make conservative assumptions.

4.2.1.5 Applicant's Capability

The capability of the Applicant to implement the project is an issue. The Applicant is comprised of a group of hoteliers with admittedly no experience in ski hill or golf course design, construction or operation. The Application includes the possibility of the Applicant selling off or parcelling out the ski and golf portions of the project to others. The Board believes that the Applicant is primarily interested in developing the condominium and hotel portions of the development, and indeed the offer of public land for fee simple ownership makes sense in that context, as the land deal appears necessary to lure a private sector developer to begin with. Certain features of the project, such as the two 18 hole golf courses, according to the Applicant, are included for the purpose of increasing condominium rental and hotel revenues. Indeed the entire project considered as a package from a hotelier's point of view, provides year-round recreational facilities at a publicly underwritten cost so that the condominiums and hotels may achieve profitability. Particularly with this risk profile, the Board believes that the Applicant is capable of developing the accommodation portions of the project and that, whatever the operational participation of the Applicant, the WDA would insure that the ski hill and golf course portions of the development were completed.

4.2.2 Proposed Location, Configuration and Alternatives

The location of the four seasons resort proposed by VAC was selected by VAC because of the availability of suitable terrain for skiing. The evidence indicates that other potential ski locations in southern Alberta for such a resort would include Odium, Sparrowhawk, Nakiska in Kananaskis Country and Lake Louise in Banff National Park. These alternate locations, in the view of the Applicant, have serious development constraints that would preclude their being considered as viable alternatives to the Westcastle location. Constraints included the greenfield nature of the Odium and Sparrowhawk sites and policy constraints for the development of on-hill accommodation.

The Applicant noted that the existing development and its strong local support were key factors in selecting the Westcastle site for expansion and further development. The specific terrain on Gravenstafel and Haig Ridges could provide a wide range of skiing opportunities for up to 3200 skiers per day. The site does present some limitations due to climatic conditions, including high winds and chinooks. Snow-making is considered by the Applicant to be essential to ensure a viable operation.

The provision of skiing is the anchor for the location of the four season resort and the Applicant indicated to the Board that in their view, the ski facilities were the least flexible component of their development concept. The Applicant's position was that the development of the skiing component of the resort dictated the location in the Westcastle Valley near Haig and Gravenstafel Ridges. A number of ski-hill development concepts have been considered for these ridges over the years and in the Applicant's view, the location of the major lifts was a key determination for the resort concept. Having selected Haig and Gravenstafel Ridges for ski facility development and located the major lifts on the hill, the Applicant subsequently developed the resort concept around these key facilities. Except for climatic constraints, the Board notes that for the most part the evidence indicates acceptance by the participants of the Applicant's position regarding the ski facilities layout, and the Board heard no evidence that would lead to an improvement in the Applicant's plan for the development of the ski facilities, assuming that the Board were to approve the development of ski facilities in the Westcastle Valley.

The development of the ski runs responds to the configuration of the existing topography. After locating the major runs and associated lifts, the Applicant proceeded to examine a number of alternative designs for the resort.

The size of the development corresponds to the Applicant's view of the physical capacity of the ski hill, estimated to be 3200 skiers per day. The Applicant indicated that in their opinion, 440 accommodation units are required for peak periods of ski demand. To compete in the ski market, the Applicant's evidence was that on-hill accommodation was essential to meet the demands of the market place. The Applicant proposed to meet the demand for on hill over-night accommodation by developing a range of facilities including two hotels with 100 rooms each, 192 apartment units, 48 units in stacked row houses, 48 units in fourplexes, 24 staff housing units, and 72 R.V. stalls. The accommodation plans provide for 2552 people. Related support facilities include two restaurants, lounges, and day lounges.

The Board heard very little evidence concerning the size of the Applicants proposal to provide accommodation for up to 2552 people or concerning the nature and mix of accommodation components. In response to the Board, the Applicant indicated that a variety of considerations provided the basis for the nature and mix of accommodation components, including the past experience of the Applicant, their knowledge of the requirements of the expected market, and financial considerations.

To improve the viability of the ski related facilities the Application includes a thirty-six hole golf course with adequate challenge and variety to attract golfing enthusiasts.

The Applicant's master plan design team generated a number of conceptual design alternatives and parameters, and the Application eventually submitted to the Board is illustrated in **[Figure XXX]** of this report.

In discussing configuration, the Applicant indicated a receptivity to advice, suggestions or recommendations from the Board which would assist it in meeting its financial objectives while respecting the needs of the environment and the people of the region. The Applicant indicated that the golf course configurations, in particular, were flexible.

The Applicant stated that it preferred a clustered development for market appeal and for cost efficiencies in terms of servicing. The Applicant's evidence was that if one were to consider moving elements of the project, the element to separate from an economic and market point of view are the golf courses. The ski hill and accommodation services have to be close together because that is what the market is buying, but moving 1 to 2 kilometres away for golf is what golfers are used to and the market accepts that.

The Westcastle valley is narrow and bottlenecks at the project site. The Applicant's wildlife expert stated that, in terms of configuration, placing the golf courses in the montane region north of the wetlands would be preferable to the layout currently proposed by the Applicant, in which the development takes up virtually the entire valley floor. Although the montane area is good habitat for ungulates, the valley is good habitat for carnivores and they are in more danger of diminishing populations than are the ungulates. The same expert stated that permanent developments like overnight accommodation are the hardest land use on carnivores and that day use would be preferable for the valley. He also stated that winter use of the valley was the least significant impact of year-round use and that winter use was more sustainable in terms of environmental impact than full-year use. The configuration of the development and its environmental effects are fully discussed in Section 9 of this report.

In considering alternatives at a regional scale, a number of participants suggested alternatives to the project that would bring tourism benefits to the area, such as a scaled down ski hill, golf courses near the Oldman Dam, a working tourist ranch, environmental interpretive centres and hotels in Pincher Creek. These developments were suggested as ways of bringing tourism benefits without the potential environmental damage of permanent year-round use of the Westcastle Valley. The MD and the Town representatives stated that they had considered these development options but not as alternatives to the project.

Alternative uses of the area, other than skiing and golfing, have significant social and economic impacts. Commercial and recreational use of fish and wildlife resources brings hundreds of millions of dollars into the economies of Alberta and British Columbia each year. Including the spin-off effects of job creation, the economic value to Alberta and British Columbia, according to figures before the Board, is over \$1 billion per year in each province. Fish and wildlife are renewable resources of very high value. Further, the Board heard in the testimony of outfitters that there is heavy interest in travelling to Alberta for guided hunting trips from persons outside Alberta and Canada who do not have these resources at home. It was the view of the outfitters before the Board that outfitting is sustainable as an industry if the fish and wildlife resources are properly managed.

Other alternatives to traditional four-season tourist development were discussed, including park protection, adventure tourism and ecotourism. Although it is difficult to predict the economic value of such activities, the Applicant's evidence was that if the Westcastle area were protected, as in a park setting, that this would be "product positive" for tourism since the potential tourist market for the project is interested in the "environmental ethic".

The Applicant in its final rebuttal evidence suggl

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4. BASIS OF DECISION

In determining whether or not the Vacation Alberta Application is in the public interest, the Board has had regard for the substantial amount of evidence placed before it regarding the general social, economic, and environmental context in which the current ski hill operates and in which the expanded project would operate. As well, the Board has considered the social, economic and environmental effects which might reasonably be anticipated if the proposed project were constructed and operated. In determining the public interest in a complex matter such as this, the Board believes that it should properly assess a number of issues which relate to the context of the social, economic, and environmental issues before it. The Board will, therefore, discuss the public policy and jurisdictional matters related to the project.

The Board believes that any project it approves should be justifiable, having regard for the demand for the products or services which the project would provide and the likelihood of the Applicant operating and maintaining the project on a reasonably long-term basis. For example, a project that is unlikely to sustain a base level of economic viability, is also unlikely to generate enough social and economic benefits to outweigh possible adverse effects. Further, economic benefits which are new to the Province, or incremental, are of greater overall value than economic benefits which would be shifted from one part of the Province to another. Therefore the Board believes that it should address the following matters:

- justification or need for the project;
- viability of the project;
- incremental and redistributive economic activity; and
- capability of the Applicant to implement the project.

Several participants in the hearing suggested that alternatives to the proposed project had not been considered fully enough, and that, given the environmental sensitivity of the area, it might be more desirable to obtain economic benefits from tourism by locating developments in other areas which are attractive for various reasons, but perhaps not so environmentally sensitive. Still other questions arose as to the optimal siting of the various facilities proposed as part of the Application. The Board believes that any responsible decision making process compares alternatives and therefore finds it appropriate to consider the following:

- the proposed project location and configuration; and
- alternatives to the proposed project.

A number of participants commented on the need for comprehensive ecosystem management in general, with emphasis on the cumulative effects of existing activities plus proposed activities on the state of an ecosystem. In addition, many participants referred to the goal of sustainable development and what that term might mean in relation to the proposed project. The Board agrees that these are fundamental matters and so will next address:

- cumulative effects and ecosystem importance; and
- sustainable development.

After discussing these matters, the Board will then go on, in later sections of this Report to assess, in detail, the effects that would likely result if the project were to proceed, together with the mitigative measures that would be expected to be implemented. This assessment deals specifically with the following matters:

- infrastructure including the following:
 - utilities; and
 - geotechnical considerations.
- social effects, including the following:
 - community, family, recreation and "quality of life" values;
 - stewardship;
 - regional impacts;
 - nuisance elements;
 - public involvement and consultation; and
 - community infrastructure and services.
- economic effects, including the following:
 - economic impacts and potential benefits of the project;
 - economic impacts and potential benefits of alternate uses of the area;
 - economic implications of environmental issues;
 - ski hill financing; and
 - infrastructure financing.
- environmental effects, including the following specific issues:

- biogeographic context;
- dynamics of natural ecosystems;
- monitoring;
- air quality;
- aquatic ecosystem;
- vegetation;
- wildlife; and
- regional ecosystems.

Most parties in the hearing recognized the intense demand for land use and access to public lands in the region by a great variety of users. Planning for this area is a complex matter. The Board finds that it cannot reach a determination of whether or not the proposed project is in the public interest without fairly detailed consideration of land use planning and ongoing management structures for the area.

The Board presents a summary of the major conclusions reached through its review of the proposed project and then presents its overall conclusion and decision.

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5. PUBLIC POLICY, JURISDICTIONAL MATTERS, AND PRELIMINARY MATTERS

A number of public policy, jurisdictional and preliminary matters were raised during the hearing of the Application. The public policy matters included policies of the Government of Alberta, the Government of Canada, local governments and authorities, and interprovincial and international policy matters mostly related to trans-boundary wildlife management. Jurisdictional matters primarily related to the Board's role vis-a-vis the constitutional rights of the Peigan Nation and the economic development policies of the Alberta Government. The Board believes that it is responsible, as charged under the *NRCB Act*, for determining the public interest at a provincial level. The Board has assessed all of the relevant public policy matters before it and recognizes that decisions at a provincial level may have wider implications and can affect local and trans-jurisdictional policies. The Board will comment on the jurisdictional matters raised, but recognizes that its jurisdiction is not defined by the Board but by its authorizing legislation. The preliminary matters to be discussed include project justification, viability and capability of the Applicant to implement the project; project location, configuration, and alternatives; and cumulative effects, ecosystem importance, and sustainable development.

5.1 Public Policy Matters

The Board's responsibility is to determine whether or not particular projects are in the public interest. Proponents of projects may be frustrated that their proposals can elicit so many wider policy responses on matters for which they are not responsible. The Board does not expect an Applicant for a particular project to have definitive answers as to how its particular project relates to various public policies. Public policies are by their nature general and policies also change over time. This Application is the result of approximately 15 years of attempts by local residents to expand the ski hill at Westcastle Park, and during this time public policies have changed. The Board recognizes that projects which it reviews would not, if approved, operate in a vacuum. Since the Application affects the public interest in numerous ways, including being constructed on public land, the Board believes it is appropriate to examine in some detail public policies which may have a bearing on the proposed project. The Board has examined each of the public policies outlined in further detail below.

The Government of Alberta has a number of policies dealing with public lands planning issues, wildlife resources, protected areas, economic development, tourism and fiscal matters, all of which will be discussed in the following section.

5.1.1 Alberta Environmental Protection

A number of policies issued by the Alberta Government are the administrative responsibility of Alberta Environmental Protection.

A Policy for Resource Management of the Eastern Slopes (the Eastern Slopes Policy), which was published by the Alberta Government in 1977 and revised in 1984, provides the framework for public lands planning in the eastern slopes of the Rocky Mountains. The public lands planning process is discussed in detail in Section 10 of this Decision Report.

The Applicant proposes to have public lands transferred into private hands by way of fee simple ownership for the condominium and hotel portions of the proposed project. The evidence before the Board indicates that the issue of the sale of public lands is very contentious. The Board believes that subtle changes in values regarding the sale of public lands can be observed over the history of the Westcastle expansion endeavor, and these changes are reflected in the planning and policy documents before the Board. The tenor of the 1977 *Eastern Slopes Policy* indicated that public lands were primarily to be held in public hands. The 1984 Revision, with its greater emphasis on development of tourism and recreational facilities, contemplated specific sale of Crown lands for intensive development. According to the WDA, it was during this same time period that the Alberta Government offered to sell Crown land for the Westcastle expansion. Today, consensual values appear to be moving more toward protection of valuable ecological areas with controlled development where such areas may be affected, as reflected in the draft policy *Special Places 2000: Alberta's Natural Heritage*. This draft policy is discussed in detail in Section 10 of this Decision Report.

The Board received in evidence a clear indication that the Government of Alberta views implementation of the *Special Places 2000* initiative as a high priority. Indications are that sites will be designated over the next seven years to enable Alberta to complete a system of protected areas that represent the diversity of the Province's natural regions. Evidence also indicated that the Government intends that the Department of Environmental Protection retain control over land ownership, integrated resource planning and decisions regarding the allocation and sale of all public lands. Further evidence indicated that there is no intention on the part of the Government to sell any public lands that have been identified as being environmentally significant.

The Board believes that in determining the public interest in this Application, it must weigh the value of the environmental resources sought to be used, including the value of the public lands sought to be sold, against the perceived economic benefits of the proposed project. Given the strength of the representations made to it, the Board considers the sale of public land for fee simple ownership, as proposed in the Application, to be a sensitive issue. This issue will be considered further in later sections of this Report.

In addition to public land use plans, Alberta Environmental Protection has specific policies on wildlife, water use, forestry matters and other issues. For example, in terms of wildlife, the Board received in evidence a copy of the *Grizzly Bear Management Plan* put forward by Alberta Fish and Wildlife. With respect to water resources, Alberta Environmental Protection has placed a moratorium on surface water withdrawals for the entire Old Man River Basin, which includes the West Castle River. With respect to forestry policies, the area in the West Castle Valley has been subject to intensive logging in the past and is unlikely to be intensively logged for several decades due to heavy clearing after the pine beetle infestation in recent years. These and related matters are discussed more fully in Section 9 of this Decision Report.

5.1.2 Alberta's New Economic Development Strategy - *Seizing Opportunity*

The Board was made aware of the new economic development strategy for the Province of Alberta, *Seizing Opportunity*, announced by the Government in the Spring of 1993. This economic strategy contains a number of key policy statements relevant to Vacation Alberta's Application. Sustainable development is identified as one of the challenges facing Albertans and as the context for provincial economic strategies. One of the Government's key principles of economic development is that Alberta will be "a leader in sustainable development".

Seizing Opportunity indicated that job creation is a Government priority, and a target of 17,800 jobs is set for the tourism and travel industry sector over the next four years. Tourism is viewed as one of Alberta's natural strengths and *Seizing Opportunity* adopts the objective of exceeding projected tourism receipts of \$4.4 billion by the year 2000.

The economic development strategy also emphasizes community based economic development. In the past, the focus of most economic development strategies has been attracting nonresident investors. According to *Seizing Opportunity* the focus must shift to strategies that foster growth from within communities, through the initiative of local entrepreneurs and investors. The strategy goes on to suggest that communities must develop new approaches for partnerships and co-operation both inside and outside their own communities. On economic issues, *Seizing Opportunity* supports a regional focus that encourages communities to pool their resources and work together to promote development. It also notes that partnerships with business, education facilities, the volunteer sector and other groups are essential for defining and implementing a successful community development strategy.

The Board notes that Alberta's new economic development strategy also recognizes fiscal realities and states that the first priority of the Alberta Government is to achieve a balanced budget over four years.

The Applicant has stated that it intends to seek financial assistance from the Government, including infrastructure support. *Seizing Opportunity* clearly sets out a change in policy for the Government from the role of direct intervener to partner and facilitator. The Government intends to reduce and eliminate direct financial assistance to business. The strategy recognizes "...strategic alliances with industry in order to encourage specific economic development on diversification projects. The principle that will guide involvement in these projects is that of sharing the risk between government and the private sector. The Alberta Government will only become directly involved in the market place in exceptional circumstances and when success requires public involvement."

Regarding financial assistance for infrastructure, the Board notes that the strategy indicates that the Alberta Government will focus on developing the necessary infrastructure to promote economic growth. According to *Seizing Opportunity*, program funding will be linked closely to results, and "...investment in infrastructure will be closely linked to evolving industrial needs and the Province's economic development objectives."

5.1.3 *Tourism 2000: A Vision for the Future*

The proposed Westcastle expansion project is a tourism project. A broad cross section of Albertans who have a stake in the future of tourism in the Province have participated in the development of *Tourism 2000: A Vision for the Future*. Released by the Alberta Government in March 1993, the document contains key policy proposals which the Board has reviewed in its consideration of the Application by Vacation Alberta.

Tourism stakeholders developed this vision: "In the year 2000, tourism in Alberta is a dynamic industry achieving its potential as a major contributor to the economic well being of Albertans while enhancing their quality of life and preserving the integrity of the environment." The vision is supported by three specific objectives: exceed projected tourism receipts of \$4.4 billion by the year 2000, protect Alberta's biological diversity, the integrity of its landscape and the quality of its air, water and land; and recognize the diversity of lifestyles in Alberta and enhance the accessibility, variety and quality of those lifestyles.

The overriding theme of *Tourism 2000* is the strength of the belief shared by all the stakeholders that tourism is a viable force for economic development in the Province of Alberta. The document indicates that this belief is based on several fundamental principles such as "...partnership, environmental integrity, sustainability, fiscal responsibility, and equality of opportunity."

Tourism 2000 identifies a number of challenges facing tourism and corresponding strategic directions and activities. Strategic directions are particularly of interest to the Board in its consideration of the Application. The document states that governments are major tourism partners in Alberta and given tourism's increasing importance to the Provincial economy, it proposes "... a long-term investment strategy of

government resources (financial, land, expertise, infrastructure) in the development of the tourism industry". A similar recognition is made in setting, as a specific tourism goal, the wise use of Alberta's natural environment as a fundamental resource base of the tourism industry. The document also describes a goal of using infrastructure to stimulate and support the further development of Alberta's tourism industry. Such infrastructure investments required to support market driven development are conditioned by the criterion that "... in some cases, the Alberta Government may consider undertaking a cost shared position on some off-site services related to an individual tourism project if a timely return on investment in these services is proven and provided by the industry developer."

5.1.4 Fiscal Policy

The Board heard evidence that underscores the Provincial policy of fiscal restraint reflected in the new *Seizing Opportunity* strategy of the Alberta Government, discussed in Section 5.1.2 above. The Board heard that the Government has adjusted certain grant programs for recreation facilities. The Board was told that, from a municipal perspective, the Government has transferred municipal infrastructure and servicing costs onto the local governments by reducing the availability of money in cost-shared arrangements and by concentrating only on projects with the highest need. The Board heard it suggested that any request for Government funding by the Applicant would be dealt with in the general context of fiscal restraint.

5.1.5 Infrastructure Policies

The Applicant proposed that infrastructure, both off-site (roadway upgrading and utility extension into the project area) and on-site (facilities for water, sewer, electric and gas utility services, roadways and pedestrian ways for the project area proper), be entirely funded by the Alberta Government. Vacation Alberta will seek financial assistance of \$11 million. The Board believes that this figure could be higher, given the likely need for additional freshwater pipeline and pumping requirements (since the water source will probably be significantly downstream of the proposed resort), as well as the indeterminate nature of the sewage and water treatment and water storage needs, including greywater and blackwater piping and pumping requirements. Infrastructure requirements are dealt with in detail in Section 6 of this Decision Report.

The Board understands that Alberta Government infrastructure support, usually available to municipalities for off-site infrastructure for specific developments, is not available to private developers for on-site infrastructure. The Applicant stated, however, that Government funding for on-site infrastructure was not unheard of.

As a matter of policy, the Alberta Government has considered providing infrastructure support to economic ventures under its new economic development strategy. The Board assumes that any decision to provide infrastructure as an "investment" by the

Government would be made only after careful consideration of the likelihood of both return of the taxpayers' investment and economic benefits to Alberta. The "strategic direction" for infrastructure support stated in *Tourism 2000*, indicates the Government should "invest in infrastructure required to support market driven development where a timely return on investment to government can be demonstrated."

5.1.6 The Local Authorities Board

The Local Authorities Board (LAB) is responsible for approving annexations by municipalities of territory in adjacent municipalities where the municipality in which the land is located does not agree to the annexation. The evidence indicated that the LAB does not permit "leapfrogging" annexations; in other words annexations must be of contiguous territories. The impact of this policy on the Application relates to the jurisdiction in which the proposed development would be located. Currently Westcastle Park is located in the ID #6. The ID does not support the development proposal in its current form because of the potential risks to its ratepayers of carrying high operating costs for servicing the development. These costs could fall to the ID in the event of insolvency of the owner or operator of the facility.

MD #9 does support the proposed project and has considered annexing the project area. In order to obtain the facility area on a contiguous basis, MD #9 would have to annex a peninsula shaped area from the existing western boundary of MD #9 along Secondary Highway #774 to the facility area. MD #9 stated that the cost of annexation made the proposal marginal in terms of economic benefit to the MD. In other words, the potential increase in assessment base which the facility, even in an upgraded state, and related developments would bring to MD #9 would not be enough to offset the cost of the annexation plus provide an additional return to the MD. However MD #9 was interested in annexing all of the land in the ID south of Highway #3. Presumably this land base is considered valuable enough by MD #9 to warrant the cost. The ID stated that it opposed this particular annexation proposal but agreed in principle to MD #9 annexing a "peninsula" of land as described.

5.1.7 Local Governments and Authorities

Three local municipalities in the area, the ID, the MD and the Town, have interests in the proposed project or in the project area. The ID Council, the MD Council and the Town Council all sent representatives to the hearing; in addition, the WDA, which is comprised of members from the MD and the Town and is jointly controlled by the MD and the Town, was represented.

As indicated in Section 3.3 of this Decision Report, because of the potential financial risks to its ratepayers, the ID does not support the project and will not do so unless the commercial developments proceed before the residential components so that an assessment base may be built up.

The ID has drafted a new Land Use Order, endorsed by the ID Council in June 1992, but not yet valid. This proposed Land Use Order has been deferred pending the NRCB review of the Vacation Alberta Application. The draft Land Use Order would permit the following as discretionary uses: RV park, golf course, hotels, motels, public facilities and "isolated single lot country residence". It specifically prohibits "grouped country residences". Upon coming into force, this Land Use Order would prohibit the development as contemplated by the Applicant. The key area of contention is the condominiums. The Applicant has stated that the sale of the condominiums is the most viable segment of the project and would be pursued first, not last. ID #6 has stated that it wishes a commercial assessment base to be built up before a residential assessment base, and does not wish to see the creation of a remote residential village with few viable businesses.

The WDA has attempted for almost 15 years to find a private sector developer and operator for an upgraded Westcastle Park. The primary intention and motivating purpose of the WDA is to obtain an upgraded ski facility for the region. Through the WDA, both the MD and the Town have supported the ski hill over the past 15 years by grants totalling approximately \$500,000. They estimate that these grants have created economic impacts beneficial to the region of approximately \$3 million, plus enough additional use of the highway leading to the Westcastle Park (Secondary Highway #774) to have warranted highway upgrading costing the Government around \$6 million. Both the MD and the Town indicated that they did not wish to financially support the ski hill further because of the large capital outlay needed to upgrade the facility in order to make it competitive. They were particularly concerned since citizens of other jurisdictions in the region would benefit but were not contributing to the cost. The MD and the Town suggested that they could not justify such an expenditure to their respective ratepayers.

It was somewhat unclear what the ongoing role of the WDA would be if the Vacation Alberta proposal were approved by the Board. The WDA speculated that it could be responsible for managing the proposed Environmental Monitoring Fund or that it could obtain representation on the Vacation Alberta board of directors in order to have a continuing managerial voice. The WDA also stated that if the project were not approved by the Board, it would consider surrendering its title to the 31 acres of deeded land on which the facility is situated to the Provincial Government, and winding up its affairs.

5.1.8 Government of Canada - EARP Guidelines

Under the Federal Environmental Assessment and Review Process (EARP) Guidelines, federal agencies with an affirmative regulatory duty in respect of a proposed development are obliged to assess the environmental consequences of the proposal. The EARP process involves federal inter-agency reviews and assessments. Assessments can have two separate stages: an initial assessment and a public review by an EARP panel. In the case of the Westcastle proposal several Federal Government agencies were involved in an initial assessment, Transport Canada regarding the effect of the proposal on a navigable waterway (the West Castle River), the Department of Fisheries and Oceans concerning the effect of the proposal on fish and fish habitat; Environment Canada concerning hydrology and other matters; and Canadian Parks Service on the effect of the proposal on ecosystem management issues. Transport Canada was the initiating department for purposes of the Vacation Alberta Application. Following an interdepartmental review, a screening decision was produced which reviewed matters of federal concern. The Federal Government did not undertake a public review process by an EARP panel.

5.2 Jurisdictional Matters

5.2.1 Peigan Nation

The Board received two written submissions from the Peigan Nation, one in favour of the proposal and one against the proposal, only one of which (the one against the proposal) was finally endorsed as the official submission of the Peigan Nation. The Peigan participated in the hearing to object to the ski hill expansion, further construction and the potential degradation of areas traditionally used by their people for collecting paint, hunting and gathering. They expressed a concern for the potential effect of the project on downstream water quality. As a matter of jurisdiction, the Peigan Nation was represented by legal counsel who advised the Board of certain legal matters involving the constitutional rights of the Peigan Nation as they may be affected by the project. Counsel cited the case Saanichton Marina Ltd. v. Claxton (1989) 36 B.C.L.R. (2d) 79 in which the British Columbia Court of Appeal held that the construction of a marina which had been approved by the provincial Crown could not proceed given the adverse effects it would have on the treaty rights of the Tsawout Indian Band to carry on its fishery in the area. This case was given as an example of how native rights cannot be infringed upon by provincially approved developments. The Board accepts that it has been created by a provincial statute and that there are constitutional constraints upon its jurisdiction. The Applicant stated that it recognized that the risk lies on the Applicant to reach an accommodation with the Peigan.

5.2.2 Economic Development Policies

The Board heard an objection during the hearing to its consideration of questions regarding the potential return on public investment in the Westcastle expansion proposal. The objection was based on the opinion that the Board does not have the authority to decide whether public money should be invested in any project, since that authority rests with the Provincial Government.

The Board agrees that its duty is not to make a determination as to whether or not the Alberta Government should invest public money in a project that receives approval from the Board. The Alberta Government has the authority to make such a determination. The Board's duty is to consider and determine whether a project is in the public interest having regard, among other things, to the economic effects of the project. The Board believes that its function, in considering the economic effects of a project or in determining whether a project is in the public interest, is completely independent of the actual financing of an approved project. No decision of the Board that a project is in the public interest is tantamount to an Alberta Government decision as to whether or not to invest public funds in the project. Nor does a decision of the Board necessarily pre-empt any further Government decision regarding a project, including decisions regarding its financing. The *NRCB Act* makes it clear that the Board's approval is in addition to all other Government approval processes.

Obviously if the Board does not approve a project, the question of Government financing of all or part of that project will never arise. It is open to the Board to deny a project that is not in the public interest owing to adverse economic effects of the project. The Board considers that the objection referred to above may have been directed to this aspect of its powers. The Board believes that in considering potential economic effects of reviewable projects, it should consider the return on public investment where the issue is relevant and where the proposed public investment is significant. For example, significant public investment of money or resources in a venture of questionable economic viability may not be in the public interest because the public may never get its money back or may waste valuable resources. Further, most adverse environmental effects are initiated during construction or follow inevitably from it. If expected economic or social benefits do not accrue, it may be impossible to avoid the adverse effects they were expected to outweigh.

The Board notes that the issue of return on public money from particular projects, particularly in the context of infrastructure support, has been raised in previous hearings which the Board has held, and the Board believes that the issue is likely to be raised in most proceedings before it. The Board notes that its review process is public and impartial. In the experience of the Board the public is concerned about the use of public funds and public resources. The Board believes it is appropriate that such concerns be heard and fully considered in its reviews of proposed projects.

5.3 Preliminary Matters

5.3.1 Justification or Need for the Project

The Board heard a substantial amount of evidence concerning the justification for proceeding with the proposed project as well as the closely associated issues of project viability and the incremental or redistributive nature of the expected benefits from the project. The Board has given careful consideration to these matters which are fundamental to the Board's determination of whether or not the Application is in the public interest. As preliminary matters the Board has examined first the evidence concerning the demand for skiing, golfing, and related facilities in the proposed project area; second, project viability applicable to the proposal was considered, particularly in the context of both private and public sector investment criteria; third, the Board examined incremental as opposed to redistributive economic activity in considering the potential public benefits to the Alberta economy; fourth, the Board examined the capability of the Applicant to implement the project as proposed.

The driving force behind the Application is the desire to preserve skiing at Westcastle Park. The Board heard in evidence that the Government indicated to the WDA several years ago that any ski hill development at Westcastle would have to be paid for primarily by the private sector, and therefore the WDA has been guided by the private sector development concept. To preserve skiing, the primary need is capital improvement of the hill: intermediate runs, snow-making, increased lift capacity, lift modernization, and an upgraded day lodge.

From the standpoint of private enterprise, the other portions of the proposed project (the hotels, condominiums, and golf courses) are all additions which the Applicant thought necessary to make the operation of the ski hill economically viable. Vacation Alberta views on-hill accommodation as necessary in order to create a captive skier group and to meet market demand. Other facilities such as the golf courses are included because they, in turn, are viewed as necessary in order to sell more room nights and keep the accommodation rented during summer months.

5.3.1.1 Ski Demand

The evidence indicates that the ski business is capital intensive, has high fixed operating costs, and is at virtually flat market demand in recent years in Alberta. This business is extremely competitive.

The evidence is somewhat contradictory as to the current number of annual skier visits at Westcastle Park, with the weight of the evidence averaging roughly 23,000 skier visits per annum. The Applicant gave a figure of 32,000 skier visits but did not identify the source of this figure. Figures given by most other participants providing evidence in this regard ranged from 20,000 plus to 24,000 plus. Numbers of visits by holders of annual passes and free passes for students may account for some of the differences.

The Applicant has projected very large increases in skier visits, beginning with roughly 75,000 in year 1 (an increase of over 300 percent from existing visits), increasing to roughly 147,000 in year 7, which is considered the normal operating year for purposes of the TEIM analysis. These projections assume shift in market share, not increased ski demand. The experience of other Alberta ski hills is relevant in analyzing the assumptions about Westcastle's potential position in the market. It was the evidence of ID #6 that Nakiska and Mount Norquay are both similar in size to the proposed Westcastle expansion.

Nakiska, which offers close proximity to Calgary and inexpensive family season passes, receives between 90,000 and 100,000 annual skier visits. In 1991, Mount Norquay underwent an \$11 million expansion, adding snow-making equipment, new lifts, and intermediate terrain. In 1991 Mount Norquay received roughly 100,000 skier visits, in 1992, 45,000 and in 1993, 57,000 skier visits.

The Board accepts the evidence of the Applicant that there is a seniors' and families' market in southern Alberta and Saskatchewan for on-hill accommodation in southern Alberta. According to the Applicant this market group would not normally ski in the Banff-Kananaskis region and is more concerned about the convenience of on-hill accommodation than about the attractions of natural snow, ambience, and nightlife which can be obtained in Fernie, British Columbia (B.C.) and/or Whitefish, Montana. However, based on the evidence, the Board has difficulty determining the size and enthusiasm of that market. It was also very difficult, based on the evidence, to determine how long it might take for an expanded Westcastle Park with on-hill accommodation to recapture Alberta investment that is currently in B.C. and Montana. The Board must therefore make conservative assumptions in this regard.

In the Board's view, the Applicant's skier demand projections appear overly optimistic to a significant degree, even taking into consideration annual variations in snowfall and market conditions for individual hills.

5.3.1.2 Golf Demand

It is also difficult to determine the likely scope of the Alberta market for golf. The evidence is not particularly conclusive as to reasonable demand projections for golf. The expert witness for the Applicant indicated that the "ardent recreational golfer" was the category of customer most likely to make golf courses economically successful. However, the Alberta Tourism 1990 Nonresident Exit Survey of non-resident travellers to Alberta who golfed shows that Alberta is attracting this type of golfer only in a limited fashion. Only seven percent of visitors indicated that their main purpose for visiting Alberta was to play golf. The majority of people were visiting Alberta to see friends and relatives (33 percent) or to have a vacation or pleasure trip (33 percent). In addition the 1988 Mannecon study to which the Applicant's witness referred had concluded that there was demand for more golf in mountain settings, but had not included any pricing component to the study, i.e., how much people were willing to pay for golf in the mountains. Therefore, the Board believes that such a study is of limited value in determining the size or scope of a market.

At Westcastle Park, the same expert witness projected 50,000 to 55,000 rounds per season at maturity, 28,000 to 30,000 of which would come from the local area (within a two hour drive) and 20,000 to 25,000 of which would come from "intercepted" traffic. The TEIM analysis filed by the Applicant projects 65,100 rounds per season at maturity (year 7). In comparison, there are slightly less than 68,000 rounds played at Kananaskis and 68,000 rounds played at Calgary's McCall course, both very popular Calgary area courses. The Kananaskis courses have enormous attraction for people both inside and outside Alberta. The McCall course was described as the heaviest used course in the Calgary area. As well, 75,000 rounds are played each season at the Victoria course in Edmonton. These three are public facilities. The evidence is that golf demand for public courses is currently stronger than for private courses, where new supply may have met demand in recent years, since the dates of the studies referred to in evidence.

The Applicant's expert indicated that there are 350,000 golfers in southern Alberta. The Calgary Golf Association figures show 100,000 golfers in Calgary. A 1989 Stevenson Kellogg Ernst & Whinney market demand study, which was filed by the Applicant, estimated that there were 240,000 golfers in the entire Province of Alberta. It is very difficult for the Board to reconcile these varying figures with population statistics, or to obtain a reliable view of the size of the Alberta golf market, or the regional golf market in southern Alberta.

In the local area there is relatively little golf played. The Waterton Lakes National Park course receives 18,000 to 20,000 rounds, surprisingly low given its location and access to flows of tourists. However, some participants stated that the course needed upgrading. Apparently around 2,000 rounds are played at the Pincher Creek course and around 2,500 rounds at the Crowsnest Pass course.

Based on the evidence before it, the Board believes that the golf demand for the proposed courses would originate primarily in the southern Alberta region.

Taking into account the changeable and windy weather in the local area and the high elevation of the proposed courses, there would likely be some degree of idle capacity on the golf courses in the proposed development.

Overall the Board believes that it must again make conservative assumptions with respect to golf demand at the proposed resort in light of inconclusive evidence as to the size and scope of the golf market, and in light of what appear to be overly optimistic demand projections on the part of the Applicant.

5.3.2 Project Viability

If ski and golf demand are likely lower than projected by the Applicant, the project would have to be phased in over a longer period of time than proposed in order to be viable. The Applicant acknowledged this possibility in the hearing, during which it provided revised projections assuming phasing, in order to take the market risk in smaller bites. How much smaller the resort should be to fit the demand remains a major question.

The real meaning of "viability" with respect to the proposed Westcastle expansion is also a basic question. According to the WDA, the original Westcastle ski hill, offering expert skiing in an area remote from major population centres, was not conceived with a view to commercial market conditions. The hill appears to have been economically marginal throughout its life. In the absence of compelling demand for the proposed project from a market perspective, the private sector would not ordinarily consider undertaking it. This may be why the WDA was not able to attract any investors for many years.

The Board heard a substantial amount of evidence about the attraction of a private sector developer for the proposed four season resort. Certainly Vacation Alberta proposed that private funds, both equity and debt financing, be invested in the project. In fact, of the estimated \$72 million investment, the private sector would finance \$50 million, roughly 70 percent of the total capital requirement.

The Applicant has assumed Government support for ski hill upgrading as well as for infrastructure. Vacation Alberta has indicated that it would request that \$22 million, or roughly 30 percent of the total capital investment, come from Government investment in the project. About half of this anticipated Government investment would be for infrastructure (\$11 million) and half for the expansion of the ski facilities. The Government support for the ski hill is proposed as a no-interest loan with security only against the hill. The Applicant indicated that the ski hill portion of the development is the portion with the greatest market sensitivity and the least amount of flexibility for cost control. The Application assumes primarily Government funding to upgrade the ski hill, \$11 million of an estimated cost of about \$14 million. On a phased basis, Phase I of the ski hill development would provide the lion's share of the upgrading, using \$9 million of Government money and \$1 million of private money, and Phase II would use \$2 million of Government money and \$2 million of private money.

The Board believes investment criteria vary according to whether the investor is a private corporation seeking a "return" on private capital or whether the investor is a Government seeking a "benefit" on public funds. Expectations from investors in the private and public sectors are so different, given their differences in motive for investment and investment objectives, that completely different evaluation methods are often used to determine a project's viability. Private sector investors will often use return on investment criteria. Public sector investors often use a cost/benefit technique when considering alternative investments. The Board recognizes that any comparison between an

investment by a private investor and an investment by a public sector investor involves comparing "apples" and "oranges" to some degree.

Adequate "return" in the traditional private enterprise sense would mean coverage of operating costs, return of capital, and profits to investors. Adequate "return" on public money could mean coverage of operating costs in a recreational facility built for public enjoyment, or it could mean creation of jobs and tax revenue for the Government.

The issue of return is difficult when public money is invested in private enterprises with uncertain market demand.

The Board has carefully considered the evidence of the Applicant and believes that if only private investment were utilized for the proposed project, including all infrastructure and ski hill upgrading costs, the project would not likely make a return for its shareholders and would not likely be considered by the private sector.

Government support for infrastructure, ski hill upgrading, and provision of public land at a very low cost for the ski hill, golf course, and condominium/hotel components, changes the risk profile for the private sector proponents. With such Government support, the Board believes that the proposed project could eventually make money for the shareholders, if it were phased in over a longer period of time to meet the more likely market demand for skiing and golf.

The Board believes that the difficulty in considering the viability of this development is due to unclear or mixed objectives. From the evidence, the Board notes that Government support has been required for most major ski resorts. If a ski resort has the right combination of factors, the economic results can be impressive, as seen at Whistler or Aspen. This level of ski resort success appears to be achievable by only a few. The Applicant, in discussing the mix of public and private business in the Kananaskis developments, stated that the difference between the Kananaskis model and the Westcastle Application is "... the difference between creating a product that is a public policy dream and creating a product that is based on economic return on investment." The Board believes, in this case, that a variety of concepts of "return" were in the minds of participants in the hearing and, because the proposed project would not likely be viable without Government money, there is an element of "public policy dream" involved in the Application.

The Applicant agreed that if the ski hill and golf course portions of the development were unsuccessful, they would likely revert to public ownership. The hotels and condominium portions, however, would remain in private hands. The most risky portions of the proposed development, the ski hill and the golf courses, are on lands to be leased from the Government.

As to return, the Board believes that if primarily public money is at risk, the public should receive the primary rewards. This could be achieved by altering the financial elements of a phased project so that the public would receive more value for the land to be

sold, leased and licensed, or would receive security on the profitable portions of the venture rather than on the most risky portions. In the alternative, if primarily public money is at risk, then "viability" from a private sector viewpoint is somewhat irrelevant. The public could properly consider the project completely Government funded as a recreational benefit to southern Alberta communities, in which case the market-oriented additions such as on-hill accommodation and golf are not necessary.

If the proposed project is based on private investment, recovery would include capital and operating costs. However, if it is based on public investment, operating cost recovery would be the probable target. In terms of rewards to the public through job creation and tax revenue to the Province, since it is also difficult to determine what project size will match the demand, it is difficult to determine how many jobs could be sustained by the project, over time. The Board believes that job creation is a potential benefit of the project. Given the unemployment picture in the Pincher Creek and Crowsnest Pass areas, the kinds of sustainable jobs created by a properly sized project would have a positive impact there but would not be sufficient to resolve what appear to the Board to be relatively high regional levels of unemployment in this part of Alberta.

Any of these discussions of return to the public assume a positive Provincial Government decision to invest in the project, if the project were approved by the Board. The actual investment of public money is not up to the Board to decide.

5.3.3 Incremental and Redistributive Economic Activity

The Applicant's economic evidence was largely based on a supply side economic impact model, showing economic activity generated by supplying goods and services for construction and operation of the proposed project. This is, of course, only one half of the economic picture. The demand side must also be taken into account in order to determine whether any venture will be successful and, as indicated, the Board is concerned that the demand for the proposed project as presented has not been made out. The Applicant stated that a project can create significant economic benefit without ever being profitable. This viewpoint appears to be predicated either upon short-term benefit or upon long-term subsidy.

If the projections for the ski hill assume a shift in market share, this shift would result in a more or less static amount of revenue being redistributed among a greater number of Alberta ski hills, to the overall economic detriment of the already established ski industry in Alberta, unless the market shifts from hills outside Alberta to Westcastle Park. The issue of incremental benefit to Alberta is therefore very important to the Application in terms of determining the economic aspect of the public interest. However, there are no empirical studies of any kind before the Board as to the nature and extent of this possible incremental benefit to Alberta. Therefore, the Board is left with participants' opinions, best estimates, and "gut" feelings on the issue.

In terms of the quality of the evidence before the Board on the potential incremental economic benefit to Alberta of the proposed Westcastle expansion, the Board believes that the public interest could have been far better served if the Applicant had presented a current and detailed market demand survey focusing on two areas: the likely numbers of people (in Alberta and elsewhere) who would shift their skiing business from ski hills in Alberta, B.C., and Montana to Westcastle Park; and the likely amount of investment in on-hill accommodation which would shift from B.C. and Montana to be invested in on-hill accommodation at the proposed resort. As it stands, the Board has a somewhat vague picture before it of the size and territorial scope of the market which an expanded Westcastle facility might influence. As the Board has indicated in past Decision Reports, where evidence before it is inadequate or less than compelling, the Board will make conservative assumptions.

5.3.4 Capability of the Applicant to Implement the Project

The capability of the Applicant to implement the project is an issue. Vacation Alberta is comprised of a group of hoteliers with admittedly no experience in ski hill or golf course design, construction or operation. The Application includes the possibility of Vacation Alberta's selling off or parcelling out the ski and golf portions of the proposed project to others. The Board believes that the Applicant is primarily interested in developing the condominium and hotel portions of the proposed development, and indeed the offer of public land for fee simple ownership makes sense in that context, as the land deal appears necessary to attract a private sector developer to begin with. Certain features of the project, such as the two 18-hole golf courses are, according to the Applicant, included to increase condominium rental and hotel revenues. Indeed the entire project, considered as a package from a hotelier's point of view, provides year round recreational facilities at a publicly underwritten cost so that the condominiums and hotels may achieve profitability. Particularly with this risk profile, the Board believes that the Applicant is capable of developing the accommodation portions of the project and that the WDA could ensure that the ski hill and golf course portions of the development were completed, whatever the operational participation of the Applicant.

5.3.5 Proposed Location, Configuration and Alternatives

Vacation Alberta selected the proposed location of the four-season resort because suitable terrain for skiing is available there. The evidence indicates that other potential ski locations in southern Alberta for such a resort would include Odium, Sparrowhawk, and Nakiska in Kananaskis Country, and Lake Louise in Banff National Park. These alternative locations, in the view of the Applicant, however, have serious development constraints that would eliminate them as viable alternatives to the Westcastle location. Such constraints included the greenfield nature of the Odium and Sparrowhawk sites and policy constraints for the development of on-hill accommodation.

The Applicant noted that the existing ski hill development and its strong local support were key factors in selecting the Westcastle site for expansion and further development. The specific terrain on Gravenstafel and Haig Ridges could provide a wide range of skiing opportunities for up to 3,200 skiers/day. The site does present some limitations due to climatic conditions, including high winds and chinooks. Snow-making is considered essential by the Applicant to ensure a viable operation.

The provision of skiing is the anchor for the location of the four-season resort and the Applicant indicated to the Board that, in its view, the ski facilities were the least flexible component of their development concept. The Applicant's position was that the development of the skiing component of the resort dictated the location in the West Castle Valley near Haig and Gravenstafel Ridges. A number of ski hill development concepts have been considered for these ridges over the years and in the Applicant's view, the location of the major lifts was a key to the resort concept. Having selected Haig and Gravenstafel Ridges for ski facility development and locating the major lifts there, the Applicant subsequently developed the resort concept around these key facilities. The Board notes that except for climatic constraints, for the most part, the participants accepted the Applicant's position on the layout of ski facilities. The Board heard no evidence that would lead to an improvement of the Applicant's plan for the development of the ski facilities, should the Board approve the proposal for the West Castle Valley.

The development of the ski runs responds to the existing topography of Haig and Gravenstafel Ridges. After locating the major runs and associated lifts, the Applicant proceeded to examine a number of alternative designs for the resort.

The size of the development corresponds to the Applicant's view of the physical capacity of the ski hill, estimated to be 3,200 skiers per day. The Applicant indicated that in its opinion, 440 accommodation units are required for peak periods of ski demand. The Applicant's expert stated that on-hill accommodation was essential to compete in the ski market. The Applicant proposed to meet the demand for on-hill, overnight accommodation by developing a range of facilities including two hotels with 100 rooms each, 192 apartment units, 48 units in stacked row houses, 48 units in four-plexes, 24 staff housing units, and 72 RV stalls. The accommodation plans provide for up to 2,500 people. Related support facilities include two restaurants, commercial and retail space, lounges, and a day lodge.

The Board heard very little evidence concerning the nature and mix of accommodation components. In response to the Board, the Applicant indicated that a variety of considerations provided the basis for the nature and mix of accommodation components, including the past experience of the Applicant, its knowledge of the requirements of the expected market, and financial considerations.

To improve the viability of the ski-related facilities, the Application includes two 18-hole golf courses with adequate challenge and variety to attract golf enthusiasts.

The Applicant's master plan design team generated a number of conceptual design alternatives for the resort layout. The final design for the project submitted to the Board is illustrated in Figure 2.1 of this Report.

In discussing configuration, the Applicant indicated that it was receptive to advice, suggestions, or recommendations from the Board which would assist it in meeting its financial objectives while respecting the needs of the environment and the people of the region. The Applicant indicated that the golf course configurations, in particular, were flexible.

The Applicant stated that it preferred a clustered development for market appeal and for cost-efficient servicing. The Applicant's evidence suggested that if one element of the project were to be separate, both from a physical and a market point of view, that element is the golf courses. According to the Applicant the ski hill and accommodation services have to be close together because that is what the market is buying, but moving one to two km away for golf is what golfers are used to and the market accepts that.

The West Castle Valley is narrow and bottlenecks at the project site. The Applicant's wildlife expert indicated that, in terms of configuration, placing the golf courses in the montane region north of the wetlands would be preferable on environmental grounds to the layout currently proposed by the Applicant, in which the development takes up virtually the entire valley floor. Although the montane area is good habitat for ungulates, the valley is good habitat for carnivores. Populations of carnivores are thought to be more vulnerable than those of ungulates. The same expert stated that permanent developments such as overnight accommodation are hardest on carnivores in terms of land use; day use of the valley would be preferable. He also stated that winter use of the valley would present the least significant seasonal impact, and that winter use was more sustainable in terms of environmental impact than full-year use. The configuration of the development and its environmental effects are fully discussed in Sections 9 and 10 of this Report.

In considering alternatives on a regional scale, a number of participants suggested alternatives to the project that would bring tourism benefits to the area. These include a scaled down ski hill, golf courses near the Oldman Dam, a working tourist ranch, environmental interpretive centres and hotels in Pincher Creek. Participants suggested such developments as ways of bringing tourism benefits without some of the potential environmental effects of permanent, year-round use of the West Castle Valley. MD #9 and the Town representatives stated that they had considered some of these development options, but not as alternatives to the proposed project.

Alternative uses of the area, other than skiing and golfing, have significant social and economic impacts. Commercial and recreational use of fish and wildlife resources brings hundreds of millions of dollars into the economies of Alberta and British Columbia each year. Including the spin-off effects of job creation, the economic value to Alberta and British Columbia, according to figures before the Board, is over \$1 billion per year in each province. Fish and wildlife are renewable resources of very high value. The Board believes that there is more value in these resources than is currently being realized in Alberta. Further, the Board heard in the testimony of outfitters that persons outside Alberta and Canada who do not have these resources at home have a great interest in

travelling to Alberta for guided trips. The outfitters indicated that outfitting is a sustainable industry if the fish and wildlife resources are properly managed.

Other alternatives to traditional four-season tourist development were discussed, including park designation, adventure tourism and ecotourism. Although it is difficult to predict the economic value of such activities, the Applicant's evidence indicated that the protection of the West Castle area, as in a park setting, would be "product positive" for tourism since the potential tourist market for the project is interested in the "environmental ethic."

The Applicant, in its final rebuttal evidence, suggested that the central question in respect of the project is "What are we going to do about the Rockies?", and asked that the Board strongly recommend an immediate review and timely implementation of a protective designation for the entire region.

5.3.6 Cumulative Effects, Ecosystem Management, and Sustainable Development

A cumulative effects assessment was stated as desirable by several participants. The Board agrees that it is important to address developments in terms of the carrying capacity of the environment, as well as the additional impacts a project would have on existing conditions. Where scientific studies on various indicators of environmental impact are not available, the Board undertakes qualitative analyses.

The Board believes that the sustainability of ecosystems is the proper frame of reference when assessing environmental impacts. From a governing or administrative basis co-operative management is necessary because of the trans-boundary nature of most ecosystems. In this case it appears clear that Alberta Environmental Protection, B.C. Ministry of Environment, Canadian Parks Service (Waterton Lakes National Park), the U.S. National Parks Service (Glacier National Park), the U.S. Forest Service and the U.S. Bureau of Land Management should all be involved routinely for wildlife management purposes. Because areas of human settlement intrude on wildlife habitat other agencies such as municipal planning bodies will also need to be involved.

Sustainable development is recognized as a purpose of the new Alberta *Environmental Protection and Enhancement Act*. The Board believes it appropriate to determine the public interest within the framework of sustainable development. An ideal development would be one that brings long-term social and economic benefits and has a beneficial or neutral effect on the environment. Developments can be planned and operated to minimize adverse impacts on the environment. However, where adverse effects on environmental resources of high value are likely, the Board believes social or economic benefits should be sufficiently large to justify environmental risks.

In terms of the "baseline" state of the environment in the project area, the Board heard several opinions. Overall, the Board is concerned about the public lands in

the entire Waterton-Castle area, north of Waterton Lakes National Park and west of Pincher Creek. Based on the evidence, the ecological resources of the area may not be sustainable even with existing use, to say nothing of the risk to these resources if a permanent development were placed in the area along with uncontrolled existing uses. The Board will discuss these issues at greater length in later sections of this Decision Report.

The Applicant indicated that for the proposed development to be successful as a four-season destination resort, it needs to be located in a scenic wildland area. The Board believes that the lands surrounding the development site are an integral part of the proposed development, and must also be considered, therefore, in determining the public interest.

The Board has recognized in past Decision Reports that in order to determine the public interest, it must consider a project in the context of the region in which the project would be located and the cumulative effects to which the project may contribute in the region. Because societies, economies and ecosystems incorporate many components that are inter-related in a complex manner, the potential social, economic and environmental impacts of a project cannot be understood by considering only the effects of the project on its immediate locale. Projects have a wider impact and must be considered in light of the "baseline" or background condition of the society, economy and environment of the regions in which the projects have significant impacts. In some cases such regions will be trans-jurisdictional.

In the case of the Westcastle expansion proposal, the Board has found it impossible to consider the overall public interest in relation to the project without considering the overall condition of the region, and in particular, the state of the regional environment.

However, the Board must emphasize the very fundamental links between the state of the environment, long-term economic viability and welfare of society. For example, the Board heard from many participants as to the possible value of ecotourism to the Alberta economy and the potential contribution of the project to the development of a sustainable ecotourism industry. The Board believes that the potential exists for both continuing economic benefits from the proposed tourism project and long-term social benefits of job creation in particular, but that the potential will not be realized without effective management to conserve the environmental resources of the area and an increased belief in the regional community in the values of stewardship of those resources.

The preliminary matters raised in this section of the Report are elaborated upon in subsequent more detailed sections and, after full consideration, provide part of the basis for the overall conclusions reached by the Board in determining whether the project is in the public interest.

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6. UTILITIES AND GEOTECHNICAL ISSUES

6.1 Utilities

6.1.1 Water

As identified in the 1977 *Eastern Slopes Policy*, the annual precipitation in the Castle River headwaters ranks amongst the highest recorded in the eastern slopes. These lands have been identified as an important water catchment area. This policy document also states "The highest priority is placed on watershed management to ensure a reliable supply of clean water for aquatic habitat and downstream users." That portion of the Rocky Mountain Forest Reserve indicated in the *Castle River Sub-Regional Integrated Resource Plan* which includes the proposed development site comprises about 1,000 km² of the eastern slopes. This area is of particular importance as the source of about one third of the 1,190,000,000 cubic metres (m³) average annual flow at the Oldman River Dam. Consequently, this area plays a significant role in the supply of water controlled through this dam to the southern portion of the Province.

The proposed Westcastle development site itself is situated downstream from an 80 km² drainage basin and the mean annual precipitation for this watershed is 1,072 millimetres (mm). The Applicant has estimated that 627 mm goes to runoff and the balance is lost to evapotranspiration. The mean annual runoff from this basin would therefore be 50,000,000 m³ with a large portion of this flow being subsurface according to the simplified model presented by the Applicant. The surface flow is manifested as the West Castle River which is joined, at the proposed development site, by Gravenstafel Creek. With large seasonal variations in flow rate, during low flow winter periods the surface flow component in some portions of the West Castle River approaches zero creating essentially isolated pools at given locations. These pools are fed by upwellings from subsurface sources, leading to their ability to stay sufficiently warm to provide critical overwintering habitat for fish. As portrayed in the simplified model, the surface water/groundwater connectivity is a general characteristic of this mountain valley system. The primary variables are the permeability rate of the media (gravels, sands and soil) and the slope of the terrain. The regulatory restrictions contained in the "Oldman River Basin Surface Water Moratorium" were stated as being the prohibition on the withdrawal of surface water for purposes other than domestic stock water or municipal use between July 31 and April 15. The West Castle River is part of the Oldman River drainage basin which continues on to join the Bow and South Saskatchewan Rivers. The site of the Oldman Dam is about 60 km downstream from the confluence of the Castle River and the West Castle River.

The importance of the West Castle River as a "... provincially significant bull and cutthroat trout fishery" was agreed to by the hearing participants. The ability of this system to effectively flush itself and thus clear itself of high solids and silt loadings was attested to and was used as the rationale for the survival of the fishery during a previous intense logging period. The sensitivity of the overwintering sites was established in expert

testimony for the Applicant as well as the vulnerability of the bull trout as indicated by the limited number of spawning females. The value of this population as a restocking source for other parts of the Oldman system was discussed. The Board heard the primary overwintering and spawning sites are upstream of the meadows, a wetland area, immediately north of the proposed development site. The Board recognizes that the low flow winter period is critical to the fishery and that this would have to be addressed in the final design if the project were to be approved.

The area also includes a number of alpine lakes, such as Southfork Lakes(2), Barnaby Lake and Rainy Ridge Lake (together noted for containing the only self-propagating golden trout populations in Canada). Lakes in this area also include Grizzly Lake, Ruby Lake, Lys Ridge Lake, Burla Lakes and Scarpe Lakes. These lakes lie in the Clark Mountain Range near the Continental Divide of the Rocky Mountains, within the Rocky Mountain Forest Reserve and are included in the Castle River drainage system. The area is characterized by steep, highly glaciated ridges separated by "U" shaped cirques. Waters along the Continental Divide are generally of low biological productivity due to the nature of the regional geology. Precipitation is relatively high, averaging 80.7 centimeters (cm) annually. Typically, Rainy Ridge Lake lies in a cirque valley at an elevation of 1,943 m. It has one intermittent inlet and a single outlet stream, a tributary to the West Castle River, with barriers to upstream trout movement. The lake is 2.41 ha in area, has a maximum depth of 5.03 m and a mean depth of 3.02 m. The lake is quite infertile; the zooplankton community consists almost exclusively of copepods and the bottom fauna is dominated by chironomids.

6.1.1.1 Water Demand

Considerable evidence was given during the hearing about water availability and the requirements for the proposed development. The determination of the total water demand for the proposed project was a major issue due to its impact on the question of available water supply. The estimates advanced in the Application are based on the projected domestic, irrigation and snow-making needs. These estimates were revisited during the Applicant's direct evidence when the estimated water needed for snow-making was sharply revised downward. This led to a reduction in yearly water demand of almost half of the volume originally projected in the Application and Supplemental Information. According to the Applicant in direct evidence, "... clearly there is an abundance of water available within the system to meet the anticipated demands of the resort. And I don't believe in what has been presented in evidence that that has been seriously contested." This statement pertained to the yearly withdrawal volume and did not address the potential effects of seasonal flow variations. Consequently, the same expert also stated, "... and in fact, if conditions arose, the opportunity is there to - for a period of several months during the winter season, in fact - suspend pumping, if that's deemed to protect the fisheries resource." The Applicant proposes an annual withdrawal for the proposed Westcastle development of 582,000 m³ or just over one percent of the mean annual runoff for the drainage basin. The Board accepts the Applicant's position that the availability of water on a yearly basis for this level of requirement does not constitute a concern and the supply should be satisfactory, if properly managed.

Using a withdrawal rate consistent with the Applicant's finalized value for snow-making of 1,200 m³/day, the Applicant's estimate of the maximum percentage of water withdrawal of 15 percent during low flow seasons lies within the range of 13 percent to 23 percent determined from WCEC's alluvium and surface flow estimates. If one also considers that the flows for the alluvium and surface are estimates based on catchment basin area and precipitation records, the degree of correspondence is high, leading the Board to the conclusion that there is general agreement among experts about the estimated water availability. What is not certain, and which experts agree must be determined by testing, is the effect of this percentage of withdrawal from the aquifer on surface water quantity and quality and the ultimate impact on fish habitat. It is the Board's view that a 15 percent withdrawal justifies concern. The Board would require thorough testing and implementation of the mitigation necessary to ensure no adverse impact on fish if the project were to be approved.

Estimates by the Applicant for domestic water consumption rates during the winter months varied from 4 to 201 gallons per minute (gpm). The Board notes that the Applicant, when quoting a value of 4 gpm for domestic demand during verbal testimony, was referring to the minimum domestic requirement when none of the units are occupied. It is also noted that this value must be adjusted to include the water requirements of the patrons projected to occupy the premises at any given time. The last reassessment by Vacation Alberta pertaining to this issue yielded the value of 68.5 imperial gallons per minute (igpm) which represents the Applicant's current estimate based on the inclusion of

variations in monthly use. The pumping rate required to satisfy the incremental needs of snow-making was quoted in the hearing as 1,200 m³/day or 183.55 igpm. The Board consequently determines an overall pumping rate of 252 igpm or 1,648 m³/day during the winter months. This is greater than, but similar, to the final value quoted by the Applicant of 1,600 m³/day as the average long-term pumping demand. Although the Applicant indicated that domestic volumes could be supplied from either direct pumping or from clearwater storage, the Board notes that this would not affect the overall conclusion since any clearwater storage withdrawal would subsequently have to be replenished or it would affect the volume available for snow-making. The Board concludes that the only way to significantly alter this outcome would have to be by enlargement of the clearwater storage pond.

6.1.1.2 Water Source

Well Siting

The Application provides a historical perspective for the well siting issue. Investigations to determine likely groundwater supply locations were begun in 1989 with an air photo interpretation and a search of well records. In 1990, Golder Associates undertook a test drilling program and ran pump tests at one site to determine groundwater-surface water linkage and to assess water volume availability. The results, showing minimal linkage, were later proven to be anomalous by the Golder (1991) Report, which "... perceived that the greatest impacts on stream flow would occur during the winter resulting from the ground conditions and the water demand for snow-making." In 1992, the modelling of groundwater flows by the Applicant along with associated field investigation again confirmed the linkage of ground and surface water.

The determination of an adequate and acceptable groundwater source was identified as one of the key issues in the consideration of the proposed project. As the Applicant stated in its introductory remarks at the hearing, "The effects of groundwater withdrawal on surface water levels and the key fish species, bull trout, in the river was identified as the most important groundwater and fisheries related issue" and further, "The following key issues associated with the proposed Westcastle expansion were identified . . . to preserve water regime and quality of the West Castle River, including the wetlands area north of the development site." The Applicant has stated that groundwater use could affect streamflow in the West Castle River and that the resort's high water demand periods during mid-winter natural low-flow conditions are of particular concern for the fishery. The WCEC agreed with this assessment as indicated in the statement by their spokesperson that "In my opinion the diversion has high potential to have a significant impact on the river at low flow." Evidence from the Applicant was that "... a change in winter discharge in the river may have adverse effects on fish, disproportionate to the change in discharge." The Board accepts that a potential for adverse impacts on the river and fishery caused by water withdrawal exists, particularly during periods of low flow, and that this issue would have to be specifically dealt with if the proposed project were approved.

During the presentation by the Vacation Alberta panel, the total water demand required of the well(s) was sharply reduced from the data in the original documentation due to a 59 percent decrease in the estimate of the amount of water needed for snow-making. This reduction has a significant impact on the overall pumping requirements and could modify the capacity objectives of the still-to-be undertaken pumping tests required for determining the status of potential well site(s). The Applicant included in its opening statement its team's belief that a well downstream of the meadows area could provide ample supply with negligible impacts on fish and fish habitat. Also, the Applicant stated it had, "... high expectations that a suitably located well or wells could supply the required demand without impacting flows in the river." The Applicant stated that the reasons that it presently favours the location downstream of the meadows are the lower gradient in this portion of the valley making it less sensitive to natural variations in stream flows and the wish to avoid the sensitive fisheries habitats identified in the upstream areas. Evidence by a participant was that the wetlands would act as a buffer, "... sustaining and feeding into the quantitative influence of the well(s)" located north of the wetlands. Consequently, the well(s) would have a certain as-yet-undetermined influence on the wetlands affected by the wetland's hydraulic capacity and replenishment characteristics. Expert witnesses for the Applicant and other participants were in agreement that final confirmation of a successful well would require adequate testing.

The Applicant continued in its testimony with, "The next step in that, as we have discussed before, is to go into the field and prove that.... We will then run a long-term pump test in that well, monitoring other observation wells in the aquifer as well as flows in the West Castle River...." A WCEC expert agreed his firm would not recommend such a withdrawal without the appropriate testing regime. Another expert stated "In fact, given the information that I have seen in the EIA, I would not recommend this withdrawal – this method of withdrawal unless I had more data." Testimony at the hearing as well as response to an undertaking provided by Environment Canada suggests that the duration of individual tests should be in the order of at least several weeks to several months. The Applicant undertook to run the test for a period of three to four weeks. If the well were to be located downstream of the wetlands, then a thorough assessment of the impact of the withdrawal on the wetlands, particularly during low flow and high withdrawal periods, is critical. One important parameter requiring monitoring would be the water level of the wetlands, a determination complicated in the winter by ice conditions.

The Board accepts the arguments of the Applicant and the WCEC that the area downstream of the meadows/wetlands provides the best opportunity for siting one or more wells without a significant adverse effect on the critical surface water flows and the critical fisheries habitat, particularly during the winter low flow conditions. The Board also recognizes that the success of such a withdrawal has not yet been demonstrated and, if the project were to be approved, it would be necessary for the Applicant to confirm to the satisfaction of Alberta Environmental Protection via an appropriate testing program, the suitability of this site. The Applicant would have to demonstrate at the highest pumping rates being requested for permit approval, that the withdrawal is not likely to have

significant adverse effects on the aquatic habitat and fisheries during any time of the year. The Applicant would have to acquire the necessary withdrawal licences prior to proceeding with any other elements of the project.

Monitoring

The Board would recommend that the appropriate testing program, satisfactory to Alberta Environmental Protection, not be limited to standard hydraulic well testing procedures as well as a stream and wetlands monitoring program. The testing program should cover the period of September to March. The effect on the river flow and levels and wetland water levels should also be measured, especially during low flow winter conditions. The ability to maintain the required level of withdrawal without causing adverse effects on parameters such as the temperature ranges critical to the overwintering requirements of fish would also have to be demonstrated. This might be accomplished in part by mini-piezometer data as well as winter measurement of areas where upwelling occurs such as the surface flow in two small spring channels just upstream of the main bull trout spawning area. Results of the program should be reported to Alberta Environmental Protection and any other pertinent management authorities.

If the results of the testing program supported and led to the granting of the appropriate licenses and the project were to proceed, the Board believes a monitoring program should also be instituted during and after construction to determine any subsequent, or less immediately obvious, impacts. The Applicant suggested, and the Board accepts as undertakings monitoring the river's benthic invertebrate community, tracking the abundance of the various life stages of the trout population, an annual redd (spawning depression) count in the second week of September, monitoring of the overwintering movements of the trout populations, and further hydrogeological monitoring of the aquifer's status under long-term withdrawal conditions.

6.1.1.3 Water Treatment, Storage and Distribution

Water Treatment

In the Application, the treatment of drinking water was not addressed other than to say that the well water supply did not require treatment. In the Supplementary Information provided, the Applicant states that treatment would take the form of a) coagulation, b) flocculation, c) sedimentation, and d) filtration. This would be followed by chlorination encompassing U.S. Environmental Protection Agency CT (concentration x time) values for three log *Giardia* disinfection.

As the decision to implement drinking water treatment occurred during the Supplementary Information stage, the location of this facility had not yet been determined and it also had not been included in the budget. Evidence submitted to the Board

subsequently gave a cost of \$480,000 for the treatment plant as well as \$145,000 for the raw water pipeline and \$158,000 for the storage reservoir. The volumes allocated to potable water were accepted as reasonable by participant experts although during the hearing, Vacation Alberta was questioned about the use of 100 gal/person/day on average rather than the more generally used 140 gal/person/day. The question of storage was also broached and the Applicant stated that there would be 2.8 days of storage, if the volume for fire fighting was also included. The Board is concerned about the consistency of the inclusion of the fire fighting holdback volume in the consideration of water available for potable use with the requirements of the Underwriters' Laboratories of Canada (ULC).

The Board considered the impact of reduced skier and/or golfer numbers on the question of water withdrawal requirements. It notes that the fate of water used for potable purposes, as detailed in the Application, was not discharge but utilized for golf course irrigation. It also notes that the volume required for golf course irrigation was not satisfied by the projected domestic volumes. The Board therefore determined that any reduction in potable requirements would necessarily lead to an increase in the makeup pumpage and consequently, would not result in a reduced pumpage requirement other than such volumes attributed to system and process losses. Also, if the domestic volumes were underestimated as alluded to at the hearing in the reference to a per capita allocation of 140 gal/person/day in typical design scenarios, then this would result in a reduced irrigation makeup pumping requirement. Since the ratio of irrigation raw water use to domestic water use is about 1:2, the volume of domestic could increase 50 percent before the total raw water requirement would increase appreciably. From the Applicant's data, it appears that in a 38,653,025 gallon domestic requirement, a system loss of 5,090,800 gallons might be expected subsequent to pumping and prior to availability as irrigation water. The total yearly water requirement at 100 percent occupancy using the Applicant's consumption allocation is 47,158,000 gallons aside from the day-users or a total potable water requirement of 54,198,000 gallons, similar to the irrigation volume requirement. Consequently, the Board considers these volumes as a reasonable estimate of combined domestic and irrigation requirement. This assumes the validity of the Applicant's determinations and that there are no problems associated with using up to 100 percent treated domestic effluent for irrigation purposes. However, the Applicant has provided information to indicate limitations on the use of treated effluent due to difficulties with sodium adsorption ratio (SAR) values as experienced elsewhere. Although confidence was expressed by the Applicant in its ability to address this problem, no specific solutions to this concern were offered. The Board is concerned regarding the uncertainties expressed about treated water use for irrigation purposes. The Board would therefore assume that, if the project were to be approved, an analysis would be undertaken by Alberta Environmental Protection to ensure that the treated wastewater from the facilities is suitable for a continuous and ongoing irrigation program, and the approval would be conditional on assuring the Board that the advent of surface water discharge of municipal wastewater would not occur. One of the steps which might be taken to ensure the suitability of this treated source for ongoing irrigation purposes is the requirement that no softening units, which would contribute additional loadings of sodium to the water, are to be used in the proposed resort.

The treatment of municipal wastewater was presented in part in the Application and in part through oral testimony. A sewage treatment plant would be constructed at a cost of \$450,000. The suggested location of this plant is adjacent to the north parking lot. The treatment was described as solids removal, biological treatment, and disinfection (ozone-ultraviolet). The plant is expected to generate about 10,000 litres per year of solid waste, which is currently proposed to be disposed of in the local sanitary landfill. The potential use of these solids for fertilizer was also suggested. Tertiary treatment was mentioned, but the Applicant affirmed that the effluent would not go to the river but always to the storage ponds for irrigation use. Evidence at the hearing highlighted concern regarding location of the wastewater facilities. Section 12 of the Subdivision Regulation was quoted as "... a Subdivision Approving Authority shall not approve an application to create residential uses within a thousand feet of a sewage treatment plant or a landfill site." And it was indicated that in this case the sewage treatment plant was within a thousand foot radius of a number of chalets, the Castle Inn and several of the chateaux proposed in the Application. The Board, although satisfied with the general nature of the intended wastewater treatment, is concerned about the apparent space constraints with regard to the location of the wastewater treatment in this proposal. The Board would consider the relocation of the treatment facilities to a location well away from the accommodation development site, such as north of the wetlands, a positive alternative.

Storage

The potable storage reservoir is referred to in the Application as a fully enclosed concrete structure with a maximum holding capacity of 10,050 m³ necessary for winter operation. It is proposed to develop this facility under a tennis court or courtyard. The Board notes the need to consider in the final design the significant variation in water requirement between summer and winter.

The storage ponds, with an anticipated capacity of 111,650 m³, are to be located as features of the golf courses, and are to be used for seasonal wastewater impoundment prior to its use for golf course irrigation. To prevent aesthetic problems with the storage ponds, the use of aeration via a fountain was suggested. There was also an undertaking by the Applicant, due to the likelihood of seepage, to put liners under the effluent storage ponds. The Board is concerned about the assured integrity of the wastewater pond liners, considering that the surficial geology, as presented by the Applicant's expert witness, is such as to make the area prone to seepage. The Board would prefer to see the relocation of the sewage holding ponds to an area less likely to have a potential impact on the sensitive fisheries reaches identified. The Board considers the relocation of these structures, as well as the treatment facilities to a site north of the wetlands, an appropriate option if the project were to be approved.

The clearwater storage pond has a stated area of 40,000 m² and would be located in front of the chateaux site. This pond is intended to provide an additional water

source during the intense snow-making period and would be topped up during periods of lower water demand. The Applicant has stated that given the nature of the alluvial materials, a geomembrane liner (at least 30 mil) is the most feasible containment option. This liner will be protected from puncturing by an underlying 300 mm thick layer of sand and possibly an additional thick, non-woven geotextile. A protective sand layer would also be placed on top of the geomembrane as protection and to prevent uplift caused by external groundwater pressure. The installation of one way valves is also proposed. Since the clearwater pond will contain only raw water (groundwater), concern about leakage from the pond only pertains to the question of retaining sufficient water for the required usage. However, the Board is concerned about infiltration into the pond and the impact on area water levels and flows, particularly during low flow periods. The Board would therefore require that this pond be constructed in such a manner as to not incur groundwater displacement during its normal operation. Such displacement could neutralize the potential net benefits of water impoundment on the groundwater regime during winter operation. The Applicant has referred to the need to retain sufficient water or other weighing material in the bottom to handle the adjacent high water table or alternatively to install valves to allow pressure equalization. The Board does not believe that the installation of valves would achieve the objective of ensuring no significant adverse impacts on the water regime. The Board would therefore require, if the project were to be approved, that the clearwater storage reservoir be designed and built in such a manner and with such materials so as not to allow entry of groundwater into the reservoir or allow displacement of groundwater during periods of water withdrawal from the reservoir.

Distribution

Although the transmission of water was mentioned as a possible cost concern in the Application, testimony at the hearing by the Applicant indicated that this was not a major factor in the consideration of the location of the well site to the area north of the wetlands. Also, the location of the wastewater treatment plant in the vicinity of the relocated golf courses discussed in Sections 9 and 10 as opposed to the housing development site as proposed would primarily affect whether the primary pumping requirement is for sewage or for treated effluent. Consequently, the Board notes that the cost of wastewater transmission would be principally determined by the distance between the building complex and the golf course site.

6.1.2 Utility Corridors

Concerns regarding the status and adequacy of utility corridors were expressed at the hearing, particularly regarding the location of such a corridor in an environmentally sensitive area. The Application provides a preliminary utility plan map which shows the utility easement (corridor) running through the prime development zone of the property.

Natural gas, electrical power, potable water, and sanitary sewer lines are to be installed underground within the property easements adjacent to the access right-of-way and the internal roadways. Distribution lines will also skirt along the edge of the fairways to convey water to the effluent ponds, golf clubhouse, and irrigation system. The snow-making pipeline will be incorporated into the ski runs to provide water and electricity for the snow guns throughout the ski area.

Three-phase electrical power would be brought in from about 20 km to the northeast via overhead lines (\$400,000). It is probable that the existing one phase poles could still be utilized. The Applicant's Master Plan indicates that certain on-site options are still being explored but the Applicant said on examination that on-site generation is unlikely. The Board recognizes that on-site electrical generators would require further approvals. According to the Applicant, the proposal's telephone system can be easily handled with the present, new 50-pair cable. Natural gas would be brought into the complex via either two plastic (\$1 million) or one welded metal pipeline (\$1.4 million) routed along the access right-of-way. Canadian Petroleum Association (CPA) Environmental Operating Guidelines would be followed during construction.

A participant raised the issue of possible EIA's and approval for utility corridors outside of the development. Vacation Alberta advised that the individual utility companies were responsible and would have to comply with relevant Alberta Government regulatory requirements. The Board expressed concern regarding the location of and space availability for the utility corridor, particularly through the wetlands. The Applicant stated that a corridor adjacent to the roadway would be intended to carry all services including the water line. The Applicant provided information to assure the Board that adequate space exists in the current corridor generally, considering the greater freedom available in pipe spacing due to the use of plastic pipe, but could apparently not address the specific site question since Vacation Alberta states, "Specific separation specifications would usually not be developed until the detailed design and engineering phase."

Based on the information available to it, the Board is satisfied with the overall intent regarding utility corridors. However, due to the preliminary nature of the information, the Board is concerned and would recommend, if the project were to be approved, that when Alberta Environmental Protection reviews the finalized utility corridor plan, particular emphasis be given to the conditions of passage through environmentally sensitive areas such as the wetlands.

6.1.3 Roads

Secondary Highway #774 leading up to the proposed development comes under several jurisdictions. As normal practice, the capital funding for construction and paving is assumed by the Government of Alberta. Operation and maintenance of the highway through the Hamlet of Beaver Mines and up to the Rocky Mountain Forest Reserve boundary would be the responsibility of the MD of Pincher Creek and from there to the development site, the responsibility of the Alberta Transportation and Utilities. Within a development area, the roads are generally funded by the Applicant and then turned over to the local governmental authority (ID, MD, Park, etc.) the nature of which was not specifically identified in this Application. Traffic control would be pursuant to provincial regulatory controls.

The issue of roads raised significant discussion at the hearing, both from a public and regulatory perspective. The Application states that the road network to and within the study area is well developed and of high quality. It has estimated that the traffic at the Hamlet of Beaver Mines, after construction of the proposed development, could be increased by 482 units per day from the 1991 Average Annual Daily Traffic count of 400. It states that the Secondary Highway #774 access road, which is currently paved to within 10 km of the proposed site, would have to be upgraded between the proposed development and Castle River ranger station to a two lane paved highway with shoulders at an estimated cost of \$1.2 million. Roads inside the proposed development would consist of two types, 7.5 m wide and 4.5 m wide, and would be constructed to the provincial standard grade. Maximum required slopes will be six percent for the main road and eight percent for the access to the fourplexes to be located at the base of Gravenstafel Ridge.

The issue of road kills was identified among project impacts by the Applicant and other participants, and the recommended mitigative measure by the Applicant was reduced speed limits. Some participants questioned the effectiveness of this type of approach. Increased conflict between ranchers and tourists due to incompatible road use was also identified in the Application and during the hearing as an issue. The Applicant suggested scheduling of dedicated highway use times and the widening of ditches along affected stretches of roadway to accommodate cattle and machinery. Hearing participants also expressed concern about dust and increased pressure on available agricultural land. Vacation Alberta also suggested that a bypass at Beaver Mines is warranted to improve traffic flow and to address resident concerns such as congestion, noise and public safety, expressed at the hearing. The Oldman River Regional Planning Commission (ORRPC) raised the issues of road grades, provision for snow storage, allowance for future requirements, setbacks, and road allowances.

The Board has reviewed the information and concerns about roadways. The Board has determined that the anticipated traffic density on Secondary Highway #774, arising from projected development volumes, will not exceed or even approach the levels normally considered as high traffic loadings for two-lane paved secondary highways. Based on this finding, the need for expansion to a four-lane highway would not be justified.

The Board will address the issue of road kills and related aspects of habitat alienation and fragmentation in Section 9 within the context of wildlife issues. The Board is sensitive to the concerns expressed by current occupants along these roads including ranchers and residents of the Hamlet of Beaver Mines and, if the project were to be approved, would recommend that these concerns as well as issues raised by the ORRPC be addressed in the detailed discussions and planning still required between the relevant regulatory authorities and the Applicant. The requirement for a bypass was discussed at the hearing with respect to petitions and positions both for and against. Although apparently not warranted by traffic volumes, the bypass can be determined at a later date based on a number of considerations including public safety and nuisance. The Board is satisfied that the potential effects of the increased volumes of road traffic which would result from the proposed project, if approved, could be controlled adequately with existing control mechanisms and that future uncertainties would be dealt with by the appropriate jurisdiction.

6.1.4 Solid Wastes

The Application states that solid waste generated at the proposed development would be stored in bear-proof containers, collected, compacted to 50 percent of its original volume at a central enclosed transfer station, and landfilled at Pincher Creek. About 50 m³ of solid waste would be transported to the Pincher Creek landfill twice a week during peak demand periods in winter and once a week in the summer. Solid waste from the wastewater treatment plant would also be disposed of in that manner. The Applicant stated, at the hearing, that discussions had been undertaken between the Applicant and the MD of Pincher Creek and that the MD could handle the volumes in question. The Board is satisfied with these arrangements but would encourage the Applicant to explore environmentally acceptable alternatives in the disposal of sewage sludge.

6.2 Geotechnical

6.2.1 Flooding

As stated in the EIA, the West Castle River is fed mainly by snow melt supplemented by rainfall. This mountain watershed consists of a long narrow basin, steep valley, channel slopes, and a flat, well-vegetated floodplain ranging in width from 300 to 600 m. The channel banks are low and poorly defined, resulting in a relatively low bankfull discharge capacity. During a peak flow event, water levels will readily exceed top-of-bank and flooding will occur. Due to the lack of streamflow records, flood magnitudes were estimated using regional watershed analysis. To reflect the associated development hazard, the Applicant divided the floodplain into two zones, the floodway, including the stream channel and that portion of the floodplain necessary to accommodate the flow of the 1:100 year flood while experiencing a maximum 0.3 m elevation above natural conditions and the floodfringe, comprising the remainder of the area inundated.

The Applicant has stated that no buildings or encroachments which cause a significant rise in the water levels are allowed in the floodway but they are allowed in the floodfringe if mitigative measures set out by Alberta Environmental Protection are taken to protect them. Design parameters, established as part of the development concept, included locating the structures outside the 1:100 year flood plain or protecting them by raising the sites by at least one meter. According to the Applicant, the following buildings are to be located in the floodfringe: pumphouse, staff housing, Haig Hotel, and Barnaby Ridge Lodge. This was a modification of the Applicant's earlier position where it stated, "Habitable dwellings will be outside of the 1:100 year floodplain of the West Castle River." The Applicant stated that the access road through the development will be located mainly on the floodfringe with a small portion in the floodway. That portion in the floodfringe will be raised above the 1:100 year flood level while the portion in the floodway will be below the 1:100 year water surface elevation so that flood flows will not be obstructed. The parking lots will also be elevated to a level above the 1:100 year flood level. Golf course development in the floodway will be designed overall so as not to increase water levels, although greens and tees will be elevated to the 1:100 year water levels. Bridges will be designed not to adversely affect the hydraulics of the West Castle River and to protect the structure's integrity. Concern was expressed by participants about the security of the irrigation ponds during flood episodes. The Applicant undertook to construct these with a berm or dyke which would exceed the design flood elevation by 0.5 m.

The Board received evidence that under the Subdivision Regulation of the *Planning Act*, it is required that any subdivisions that are within a half a mile of a watercourse be referred to Alberta Environmental Protection. The Land Use Planning Branch of that Department would determine if the land in question was flood prone, subject to flooding, or has the potential thereof. Normally it would be recommended that those lands should be taken as environmental reserve with the titles reverting to the municipality. Once designated as environmental reserve, it would remain so in perpetuity. It was also suggested by the ORRPC that the 30 m buffer along the river could potentially be designated as environmental reserve.

Based on the evidence before it, the Board is convinced of the importance of the proposed 30 m buffer. If this project were to be approved, the Board would require that those lands that comprise the 30 m buffer, except when site-specific conditions dictate a greater or lesser width, as well as any other lands that Alberta Environmental Protection deems appropriate, be designated as environmental reserve or maintained as natural lands under the appropriate authority pertinent to the potential approval. The Board also notes that if the proposed project were to be restricted to the west side of the West Castle River, the impact on the flood plain of the buildings in the development might be substantially reduced. The Board is also concerned about the question of road access and notes the road's passage through the floodway. The Board would therefore recommend that, in the detailed planning stage, if portions of the road remain in the floodway, consideration should be given to provision of an emergency, secondary egress route situated so as to be unaffected by flood levels.

6.2.2 Channel Changes

The shifting of existing stream channels was recognized as a potential impact in the Application. A specific site identified was a channel section immediately downstream of the Kootenay Bridge. An abundance of cobble, gravel bars, swales, and loosely compacted substrate on mid-channel islands and bars indicates that this section moves laterally in response to unusually high river discharges. The recommended mitigative measure for this concern was the maintenance of a 30 m buffer adjacent to the stream bank.

6.2.3 Avalanches

The potential for avalanche activity in this area was recognized both in the EIA and during the hearing. The Applicant stated in the Application, "The development site does not encroach on these active or potentially unstable areas." The data supplied in the Application indicates a number of avalanche and rockslide chutes, all except one lying outside of the zone planned for structures, road and golf course development. The one exception is a large chute on the east side of, and extending up to, the river just to the south of the villa development. This chute was highlighted by a participant including its potential risk to development and the need to consider its inclusion in environmental reserve was raised. Information supplied by the Applicant during the hearing states that lots 12 and 15 of the proposed development have as their land use classification "avalanche chute". Information in the Master Plan shows that both of these lots lie on the east side of the river. The mitigative measures proposed by the Applicant for avalanche risks are to use proven, acceptable avalanche protection techniques and to avoid areas of avalanche hazard. The importance of maintaining native vegetation on these slopes to minimize erosion and siltation was stated by the Applicant. The question of avalanches in the context of recreation, particularly the ski hills, was also mentioned. The Applicant stressed the importance of adequate avalanche training courses and avalanche control. The concerns of operating the ski hill on an amateur basis were raised by the WDA.

The Board concurs with the operational precautions planned by the Applicant, notes the need for additional discussions between the Applicant and the relevant authorities on avalanche chute risks and further notes that if development were limited to the west side of the West Castle River, the avalanche risk to the primary development portion of the proposal would be largely eliminated.

6.2.4 Water Quality

The Application provides the general water quality parameters of the West Castle River and associated Gravenstafel and Syncline Brooks. These are based on sampling carried out in 1978, 1991, and 1992. The water is alkaline (8.0 to 8.6), of medium hardness, and clear with low turbidity and bacteria counts. Water temperature is cool with high dissolved oxygen concentrations and low nutrient supply. Seasonally, there is little variation in the basic characteristics of the water chemistry. Pesticide and herbicide concentrations were below detection limits. The water quality lies in the acceptable range as defined in the "Canadian Water Quality Guidelines" and the "Guidelines for Canadian Drinking Water Quality."

Participant concern for water quality arose on a number of issues. These issues, also discussed in the Application, include golf course irrigation, Integrated Chemical Management Plan (ICMP), storage pond integrity, and construction and operational practices, particularly as they relate to sediment transport. The Applicant has undertaken to mitigate siltation problems through the following measures: preserving a 30 m buffer zone of natural vegetation along the West Castle River; using construction practices to minimize disturbance including timing restrictions and silt fences; and maximizing containment of stormwater runoff. Pollution prevention measures undertaken by the Applicant on sewage, runoff, fertilizers, and herbicides are to include: secondary treatment of sewage and disposal via golf course irrigation, use of oil/water separators in maintenance facilities, drainage containment, development of a sound construction plan, use of special storage facilities for fertilizers and herbicides/pesticides, licensing of the golf course superintendent, use of application rates in accordance with federal guidelines, triple rinsing and application of the rinse water to the golf course, not using mercury based fungicides, having a regular soil testing program, and operating according to a proper ICMP. The Board notes the Applicant's recognition of the water quality concerns and the potential for pollution of surface and groundwater caused by the above-mentioned sources but also notes the current lack of an ICMP and related Integrated Pest Management Plan (IPMP). The written submission from the TOWC stated that there are no provincial standards for fertilizer, herbicide, fungicide, or insecticide applications or for the operation of a golf course. The Board further notes the Applicant's reference to the Alberta Environmental Protection Chemical Management Branch as the appropriate review agency. The Board is concerned about the nature of the final ICMP but would accept the submission of this plan and an associated water quality monitoring program by the Applicant to Alberta Environmental Protection for review and approval subsequent to its completion and prior to its use by the Applicant. The Board is aware that the Applicant has undertaken to make such a submission. The Applicant has suggested that water quality measurements associated with the ICMP should occur from two to three times per year with particular attention to site-specific concerns. The Applicant estimated cost for such proposed measurements as up to \$10,000 per year. Should the proposed project be approved, the Board would recommend that Alberta Environmental Protection review and reconfirm the ICMP on a regular basis (three years) with respect to the selection of the

most environmentally appropriate chemicals and doses. Particular attention should be given to minimizing toxicity to wildlife, impact on water quality and persistence.

The issue of water quality also arises with regard to the construction of the golf course. The Applicant has undertaken to construct the course with internal drainage, sloping the tees and fairways away from the streams and channelling the effluent to the irrigation source ponds where possible. The Applicant stated that the requirement for an impervious layer would be based on the nature of the soils in the area. The Applicant agreed that "... the majority of the 36 greens would likely require a significant amount of drainage" due to the porous nature of the area. In supplemental information the Applicant also states, "Leachate through the soil is a product of the soil chemistry of the existing materials used in construction and the chemicals and materials applied during routine maintenance. At this time the chemical composition of the soils to be used during construction of the course is unknown." During the hearing, the Applicant also stated in response to a question on the ICMP and the site-specific concerns such as turf-related pests in the Westcastle area, "We don't have the details on that available precisely now." Due to these uncertainties and particularly the Applicant's agreement respecting drainage characteristics in the area, the Board would accept, if the project were approved, that the construction of all greens and tees include the installation of impermeable barriers and controlled drainage as undertaken by the Applicant during the hearing.

The importance of a buffer zone, composed of riparian vegetation, for the protection of the river and water quality was also addressed. The Applicant undertook to maintain 30 m buffer strips along the waterways and those areas would not be disturbed by construction except where bridges would be built. The Applicant believes that sediment transport to the river would not be a significant concern with the existence of this buffer. At the hearing, the question of exceptions was clarified. The Applicant stated that the only limitation to the buffer was the requirement for topping, where sight lines or the flight line of golf balls in play, would require a selected hand-clearing of larger vegetation species. It also stated the option of a possible incursion into the buffer, as expressed in its Supplemental Response, is no longer being considered. The Board notes the Applicant's statement that the buffer zone will preserve important riparian habitat for a number of mammal and bird species. The Board refers back to Section 6.2.1, where it required the preservation of this buffer in a natural state.

Vacation Alberta, as well as other participants, have expressed concern about sediment transport and its impact on water quality and fish populations. Consequently, the Applicant has included a number of mitigations in the Application. These relate to the construction phase as well as the operational phase. Further suggestions were made by other participants. In addition to the 30 m buffer, the Applicant has undertaken the following: use construction and scheduling practices which minimize the disturbance of the existing channel and the release of suspended sediment, use erosion control structures such as silt fences and hay bales as well as maintaining existing vegetation where possible, and contain direct stormwater runoff to the golf course pond system. The Applicant observed that the sediment loading to the stream would be dramatically reduced once the

golf course vegetation is in place. It is the opinion of the Applicant that with these mitigations, the impacts are expected to be low, negative, short-term, and local. An expert witness for WCEC agreed with the suggested mitigations and additionally suggested stormwater retention ponds, erosion-based barriers including berms, and the use of organically based fertilizers. The Board notes the Applicant's evaluation that sediment concerns are greatest during construction and, if the project were to be approved, would recommend to Alberta Environmental Protection that the Applicant be required to sod areas of graded soil within five meters of a water course within five days of construction disturbance. The Board would also require the Applicant to carry out its undertakings in respect to erosion control and to prepare a plan regarding the minimization and control of erosion on the ski runs and other erosion-prone areas and submit this plan to Alberta Environmental Protection for approval prior to the initiation of construction.

Other issues affecting water quality have also been addressed elsewhere, including not discharging domestic wastewater to the river, design and operation of irrigation water holding ponds, the requirement of monitoring programs, and the maintenance of a 30 m buffer strip. The Board concludes that if the Applicant fulfills its various undertakings together with the Board's requirements, and if the Board's recommendations are duly considered and integrated in the project's design and operation, water quality in the West Castle River can be satisfactorily maintained.

6.2.5 Geotechnical Risk

The Board has reviewed the various geotechnical issues including those specifically mentioned in Sections 6.1 and 6.2. The Board has determined that further planning and testing is required of the Applicant as well as discussions and understandings with the various regulatory authorities. The Board has put forward a number of requirements which it has determined to be essential if the proposed project were to be approved, as well as a number of recommendations to assist in the planning process. The Board has also evaluated the potential benefits of alternative locations of project components, in keeping with its understanding as to the present conceptual nature of the proposed project, where many of the elements have not been finalized, and consequently are not available for the Board's consideration. Taking this approach, the Board feels that it has arrived at a set of conditions and recommendations wherein the geotechnical issues are adequately addressed.

6.3 Conclusions Regarding Utilities and Geotechnical Issues

After reviewing the information related to utilities and geotechnology, the Board notes that a number of significant issues, particularly those related to the aquifer and surface water, have not yet been satisfactorily resolved. Should the proposed project be approved, the Board has determined a number of conditions that would have to be met to render the project in the public interest. The first of these is the determination, via testing and monitoring, of the ability to withdraw water from the aquifer without causing a significant adverse impact on the fishery and the aquatic habitat, and the issuance by Alberta Environmental Protection of the appropriate licence. The second is the requirement that wastewater shall not be discharged to the West Castle River.

Assuming that these first two conditions can be satisfactorily concluded, and the project has the option to proceed, a number of other matters relevant to construction and operation must be satisfied. These include: the design and construction of storage ponds, the submission of the ICMP to Alberta Environmental Protection for review and approval, the maintenance of the 30 m buffer adjacent to the West Castle River and its designation as environmental reserve or equivalent status, the design and construction of greens and trees, the sodding of graded soil areas adjacent to the water courses, the submission of a plan to minimize and control erosion on the ski runs and other erosion-prone areas to Alberta Environmental Protection for review and approval. Should the project be approved, the Board would also recommend the following: an aquatic and hydrogeological monitoring program during and after construction, review and approval by Alberta Environmental Protection of the utility corridor, provision for a flood-proof egress route from the development, and the review of the ICMP by Alberta Environmental Protection every three years for at least the next 12 years.

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7. SOCIAL EFFECTS OF THE PROJECT

The Board is required by the *NRCB Act* to assess whether a reviewable project is in the public interest, having regard to its social, economic and environmental effects. In most past Decision Reports regarding reviewable projects the Board has discussed the social and economic aspects of the projects together. While social and economic impacts are inter-related, the Board believes that in this particular case it should discuss these impacts separately, owing to the importance the Board places on evidence on possible social effects of the project, which may not be tied strictly to the economic effects of the project.

7.1 Community, Family, Recreation and "Quality of Life" Values

A number of participants at the hearing expressed strong opinions both for and against the project in terms of how it would affect the quality of life for themselves, their families, the local community and the southern Alberta region. The lands in this region are very highly valued by all participants, and all are concerned that their use continue. For example, the agricultural community takes great pride in its history and expressed the strong intention that farming and ranching lands be passed on to future generations for continued agricultural use. As well, recreational users of many varieties, including skiers, hikers, naturalists, snowmobilers, all-terrain vehicle enthusiasts, hunters, anglers, trappers and outfitters, all expressed strong desires that their particular use continue into the future. Individuals who have retired or acquired recreational property in the region also expressed a desire that the natural resource values which attracted them to the region be maintained into the future. Nearly all participants recognized the need for all area users to work together and many expressed a willingness to limit their own uses in order to ensure their long-term ability to enjoy the lands and natural resources of the area. The Board was impressed by the spirit of co-operation among local residents and recreational users which was evident in many respects, including the joint efforts of the MD and the Town to promote the proposed Westcastle expansion, the support of the ski hill by other communities such as Ft. Macleod, the mutual respect among back country user groups and the joint efforts of over 20 user groups with respect to the Castle River Access Management Plan. The Board believes that if most user groups can reach a shared vision for the region, the co-operative nature of the people will greatly assist in its achievement.

The Board heard a great deal about the recreational value that an expanded ski hill at Westcastle Park could provide for southern Alberta. Many individuals and groups stated that they would enjoy more opportunities for family recreation in southern Alberta, and the Board has had regard for the strength of these submissions. The Board notes that there was less dissension with respect to the ski hill portion of the proposed project than with other project segments. Because downhill skiing is believed to cause the least adverse environmental impacts of any of the project segments, it was not met with the degree of opposition as were other aspects of the project. A large number of project supporters are dedicated to the goal of keeping the ski hill operating and benefitting from

more varied terrain suitable for a wider user group including families, school children and seniors. These supporters do not believe that a ski hill comparable to the proposed expanded Westcastle hill exists in southern Alberta, and believe that the convenience of a shorter drive to a good quality ski hill would benefit the region. The Board believes that there would be significant social value in having a recreational downhill skiing facility for the southern Alberta region as proposed in the Westcastle expansion and accepts the views of the skiing community in this regard. In this region, it appears to the Board that skiing is much more than just another recreation opportunity, it is an activity that acts as a catalyst or trigger to improve the quality of life.

In addition to the value of an expanded recreation base, the Board also agrees with the Applicant and several participants that an expanded ski hill could help the community of Pincher Creek attract new business and attract or retain professionals. In evidence, Pincher Creek residents and economic development groups appear very concerned about the potential loss in standard of living in that community with the decline over time of oil and gas activity. They desire the proposed resort as an additional element for promoting Pincher Creek to prospective residents and businesses.

It would appear that in the vicinity of Beaver Mines and in the MD, attracting people and businesses is not desired to so great a degree. The Board accepts the evidence before it which indicates that the Beaver Mines area in the MD is likely to experience the greatest amount of social change if the project proceeds: population and business growth, increased traffic and potential increases in residential or recreational homes. However the MD generally does not appear as concerned about potential loss in standard of living as does the Town, and indeed several residents of the MD indicated that they wanted to keep residential and business development at a low level in the MD in order to preserve their quality of life, and to prevent land prices from inflating, thus adversely affecting the agricultural community and its future prospects for growth. There was also evidence in the hearing of residential or tourism proposals in the MD which had been turned down at the local level in recent times.

7.2 Stewardship

The Board was impressed with the evidence it heard as to the willingness of local participants, particularly certain members of the WCEC, to take responsibility for and care for the West Castle Valley and the surrounding area. The experiences they recounted revealed high numbers of volunteers who had cleared many kilometres of hiking trails of litter. The Board also heard from supporters of the proposed project who believe that owners of resort accommodation would harbor stewardship values and would care for the area as well. The Board believes that a number of members of the local community have shown themselves to be committed to stewardship of the natural and environmental qualities of the area; the Board would envision participation by such dedicated persons in the management of the area.

7.3 Regional Impacts

The Terms of Reference set by Alberta Environment for the project EIA required Vacation Alberta to provide information on the regional and provincial social impacts of the project. The information would include a description of existing conditions, expected impacts, proposed mitigations and residual impacts in the areas of population, special population groups, employment, local infrastructure, quality of life, historical and cultural resources, safety of the public and expenditures and revenues for Governments. The Board received a great deal of evidence on these issues from the Applicant, residents of the region, community interest associations, business development groups and expert witnesses. Many aspects of potential social impacts in these categories of issues are not quantifiable, such as impacts relating to quality of life. Further, those impacts which are quantifiable, such as potential employment figures, are often estimates based upon assumptions which must be tested. The Board recognizes the difficulties in testing evidence regarding social impacts and has weighed this evidence carefully.

Social impacts are of critical importance to communities which experience large scale development. Some social impacts can be positive, such as increased employment income for residents, and other impacts can be negative, such as increases in numbers of transient workers, crime and needs for social services. The Board accepts the evidence before it that rapid growth and change in communities, their populations and their group dynamics, create the most stressful effects on the social fabric. The Board believes that relatively small communities experiencing large scale development must be vigilant in controlling development and its impacts. Overall, the Board has concluded that the MD, the Town and the local planning authorities would be able to properly control the changes which could affect their communities if the proposed Westcastle expansion project proceeds. The reasons for this conclusion include the high degree of public interest and involvement by area residents in the Westcastle development process, which was evident in the proceedings, the high degree of co-operation between the MD and the Town, which was also evident, the control over the timing and phasing of the development which these two jurisdictions could exert through the WDA, the sophistication of the local planning authorities and their previous experience with large developments.

The potential benefits of increased employment arising directly or indirectly from the proposed project were of great interest to most participants in the hearing. The Board has considered this issue with particular care because of the strength of the representations in support of increased employment in the area. Some witnesses spoke of the high levels of unemployment in the southern Alberta region and the accompanying feeling of hopelessness in some residents. Other witnesses, particularly from the Town, spoke not so much of current economic crisis but of "warning signs" such as business closures, an increasing trend for rural and small town residents to shop and conduct business in larger metropolitan centres, the gradual decline of natural gas reserves in the area and the eventual closure of the Shell Waterton gas processing plant. These "warning signs" have created a fear in some participants of potential future economic losses and the

stagnation or decline of the Town. The proposed Westcastle expansion is seen by many as one possible solution to economic ills in the region. It is hoped that the resort will employ some of those who are out of work now and that tourism will be a positive new economic force.

It should be noted, however, that not all area residents see the trends mentioned above as "warning signs". In particular, some members of the agricultural community in the MD believe it is somewhat inevitable that the energy industry will run its course and agriculture will once again become the dominant economic force in the region. In their view, the Town would then continue as an agricultural service centre. The trends noted above are therefore seen not as changes to the regional economy to be feared, but as changes to the regional economy to be expected.

The Board agrees that the decline in the economic contribution of the energy sector to the region is inevitable, but believes that the rate of decline is very difficult to judge. For example, based on the evidence, it may be decades before the Shell Waterton gas plant is decommissioned; further, there is very little evidence before the Board as to the remaining energy resource potential of the region in terms of proven, producing, or recoverable oil, gas and coal reserves, or the potential for new discoveries. The Board also agrees that agriculture will continue to be a dominant economic force in the area well into the future, and believes that the agricultural community will continue to have a strong voice in regional government and management decisions. However the evidence indicates an urgent need for jobs in the southern Alberta region today which the energy and agriculture sectors apparently are not meeting. The Board believes that the area surrounding the project is an area of high natural resource value and that tourism in the area could contribute substantially to the regional economy. However, as discussed elsewhere in this Report, the Board believes that the proposed Westcastle resort will be slower to develop than indicated by the Applicant. Therefore, the Board believes that the Westcastle project could be only a part of the solution to regional unemployment. Additional measures will be needed.

Related to the issue of employment are the issues of types of employment and quality of employment. Project supporters stressed the opportunity for area residents to participate in the employment skill base that a resort would require. The Applicant stated that projects such as manufacturing plants employ people at higher wage levels overall than do tourist resorts, but that relative to other businesses, tourism employs a larger number of people who do not have to be imported into the community to work. Several participants felt that a resort would give local students and young people job opportunities in the area; part time or additional work would complement agriculture, particularly in winter. However the relatively high numbers of seasonal and low paid jobs make a tourism development unattractive to other participants, who do not desire the potential introduction of a transient work force typical of tourist businesses as well as the social problems which often attend low income sectors. In this regard the Board notes the low number of staff housing units in the resort plan and believes that it may be necessary in the long run for more low cost housing to be provided for resort staff. The Board also notes the evidence

relating to the high quality of jobs generated by the energy sector and does not believe that the proposed Westcastle project will provide the Town or the MD with true economic equivalents to oil and gas jobs. Further, there is a question as to whether jobs generated by the proposed Westcastle resort would make much of an impact on the kinds of unemployment in the region, particularly in the mining industry in the Crowsnest Pass. In general, though, the Board believes that the addition of jobs into this region would be beneficial and that tourism could make a positive contribution to the regional economy.

7.4 Nuisance Elements

A number of participants objected to the aspects of the proposed project which they believe would create unpleasant effects. A major issue for several participants was the very large probable increases in volumes of traffic, particularly in the West Castle Valley area and in the Beaver Mines area, with the attendant problems of noise, odor, visual unattractiveness, risks to safety of people and animals, increased dust in the air and on adjacent fields, increased litter and lower residential property values along heavily travelled stretches of roadway. Some participants found these effects of construction and operation of the proposed resort unacceptable, while others stated that although these effects were undesirable, they were tolerable in view of the overall benefits of the proposed project. Other participants did not single out traffic specifically but generally found the possible changes to the area in terms of increased development and human activity contrary to the aspects of life that they value in the area, such as peace and quiet and the ability to carry on their business or to enjoy the scenery and the wildlife relatively undisturbed.

The Board believes that the objections raised as to the likely increase in nuisance elements are valid. Because of the potential social benefits of job creation in an area which appears to be somewhat depressed, and because of the potential recreational benefits to the communities in the region, the Board believes that the proposed Westcastle expansion project could be beneficial overall in terms of social effects, if the amount of tourism development is limited and controlled. The Board believes that in order to be successful the proposed Westcastle resort must be phased appropriately. If the local desire to constrain development in the MD prevails, the Board believes that local governments and planning authorities would carefully monitor the phases of any development and its impacts and would set limits. In these circumstances the Board believes that the changes to the communities in the area, particularly to Beaver Mines, would be manageable.

7.5 Public Involvement and Consultation

The Terms of Reference required the Applicant to conduct a public participation program through information meetings and establishing local committees. With respect to this program the Terms of Reference state: "The intent of public participation is to inform those who may be affected by the project of the proponent's intentions and to provide them with opportunities to express their concerns and to contribute to the impact assessment and proposed mitigation programs. Public participation is to include provision of opportunities to participate in the design and review of investigations undertaken by the Applicant to prepare the EIA. ... Discuss the public's role in the EIA review process. Discuss the concerns and issues expressed by the public and through the committees; and what action was taken to address the concerns and issues, and how resolution of the concerns and issues was incorporated into the project development, impact mitigation, and monitoring."

The Board notes that the Applicant did establish local advisory committees and conducted meetings in the area to inform local citizens about the project. The EIA prepared by the Applicant, which includes a Socio-Economic Impact Assessment, is voluminous and addresses a very wide range of issues as required by Alberta Environmental Protection. The Board does not believe that the purpose of the hearings is to determine whether or not an Application or an EIA, which makes up part of an Application, should receive a "passing grade." The Board recognizes the professional qualifications and expertise of those who have prepared these materials.

In respect of the proposed Westcastle expansion, Vacation Alberta and its professional advisors did disclose many relevant factors regarding the project, such as proposed layout. Partly as a result of public commentary the Applicant revised the configuration of the project so that rerouting of the West Castle River, which was originally planned by Vacation Alberta, would not be undertaken. In this sense the public participation program had some meaningful results. However Vacation Alberta and its advisors did not disclose in the public participation program the details of Provincial Government funding inherent in the proposal, nor did they disclose the fact that the proposal would sell public land for condominiums in creation of a resort village. The Board notes the high level of support the project appears to have locally. However the aspects of the project which were not generally disclosed to the public, i.e., a significant level of Government support and the privatization of public lands in an environmentally valuable area, are important and controversial.

The Board is concerned that all meaningful information that may influence the public interest regarding applications must be disclosed to the affected community so that key public concerns may be effectively addressed in the planning stages. The Board believes that such meaningful disclosure is required by Alberta Environmental Protection through the EIA Terms of Reference. The Board is well aware of the controversy surrounding many reviewable projects and understands the difficulties that may be encountered in conducting local information sessions when strongly conflicting views are held by the public. However without disclosure and discussion of all key aspects of a

proposed project, the public participation process will lead to public confusion as to what is really at stake.

7.6 Community Infrastructure and Services

Concern was expressed at the hearing about potential impacts on existing infrastructure. The Applicant stated that the proposed project might result in increased demands on various local services, but that these could be absorbed by existing facilities and systems.

7.6.1 Health Services

The evidence indicates that the established health care facilities in the study area are comprehensive and of a high standard, including a 60 bed hospital in the Town of Pincher Creek and a 100 bed hospital in Blairmore. Medical, dental, and optometry services are available in Pincher Creek and the Crowsnest Pass.

Examination of health care requirements arising from the proposal requires consideration of two phases, construction and operation. The Applicant stated that it had contacted the appropriate authorities and that, based on the local experience with the Oldman Dam Project, the current medical facilities should be able to deal readily with health care requirements during the construction phase of the project. The Applicant committed to provide industrial health services on site in compliance with provincial industrial health regulations, to deal with first aid and minor injuries and to establish evacuation provisions. Consideration of the operation phase involves evaluation of service needs for visitors and staff. Vacation Alberta expected that the local health facilities would be primarily called upon to provide emergency and outpatient services for visitors. The Applicant plans an expanded first aid station, designed in consultation with regional health authorities and staffed with qualified personnel. As to staff needs, employees would be primarily recruited from existing area residents, thus not increasing health care requirements. Further, the Applicant anticipated that very few residents at the proposed Westcastle resort would be permanent or long-term, requiring full health services in the vicinity.

Health care was not a major issue at the hearing. One participant did raise the existence of the current ski hill and the proposed expansion as factors which increased the ability of the region to attract physicians. Other local participants expressed concern about the ability of the community to maintain its current medical facilities. The Board is sympathetic to the concerns of the local population but, based on the information supplied by the Applicant, does not see that the proposed project would have a significant impact on the status of local health care facilities.

7.6.2 Public Safety and Policing

Public safety and highway patrol in the area are responsibilities of the Royal Canadian Mounted Police (RCMP). The Applicant indicated that the Blairmore Detachment, with a complement of 11 members, serves the Municipality of Crowsnest Pass while the Pincher Creek Detachment, with a complement of 14 members, serves the MD and the Westcastle area. Vacation Alberta stated that the primary impact on policing would be increased traffic and associated accidents.

The Applicant recognized a potential need for additional RCMP personnel if the resort is expanded, but did not believe this to be problematic. The Applicant believes the size of the proposed resort is small compared to other tourist developments in the Rockies and took issue with participants' concerns about potential criminal activities of persons attracted to the area by the proposed resort. The Board recognizes the need for expanded policing services if the proposed project proceeds, but does not believe that increased policing needs would be significantly different from those experienced in other areas experiencing seasonal or permanent population growth. Vacation Alberta undertook to establish, in consultation with the RCMP, proper security measures at the resort both during construction and operation. The Board believes this is appropriate.

7.6.3 Educational Facilities and Social Services

As with other facilities in the area, local residents expressed a desire to maintain the current educational facilities. A number of participants believed that the proposed resort would help to stabilize population in this area at a time when it might otherwise experience decline due to a decrease in oil and gas activity.

Representations from schools in the wider southwest section of the province, including the Lethbridge region, indicated that the Westcastle ski hill is an important recreational and learning resource for the area and would play an enhanced role for school children if it were expanded. Factors considered by the schools included: reduced travel time and costs, range of runs available, guaranteed snow conditions and the level of safety for student skiers.

A Canada Employment Centre and social services office in Blairmore serves the Municipality of Crowsnest Pass, the Town and the MD. The Applicant stated that the proposed development would stop the movement of people out of the area and reduce the dependence on unemployment insurance and social services. One participant indicated that in a local population of 11,000, 1,120 people are currently dependent on unemployment insurance; together with those who are dependent on social services, the total unemployment rate in the region, including the contribution of miners and mining related employees in Crowsnest Pass, is approximately 16 percent.

Overall the Board believes that proposed project would be more likely to have a positive impact than a negative impact on the educational and social service facilities in the area.

7.6.4 Recreational Facilities

The region surrounding the proposed resort offers tourist attractions including historical sites, museums and cultural facilities. Recreational facilities include: curling rinks, ice arenas, golf courses, swimming pools and sports fields. Vacation Alberta also indicated that on-site recreational facilities at the proposed resort would be generally accessible to the public. The Pincher Creek Regional Parks and Recreation Board believed the proposed project would increase recreational sport opportunities in the region.

In addition to these community-based facilities, there are other activities offered by the natural amenities of the eastern slopes of the Rockies, including Waterton Lakes National Park. The Applicant stated that outdoor recreational areas are an important component of the regional infrastructure and are used for camping, hiking, skiing, berry-picking, off-road vehicle use (snowmobiles, motorcycles, 4x4s, and mountain bikes), hunting and fishing. According to the Applicant, this varied and intense outdoor use has "...created an acknowledged need for management plans."

The Board believes that the existing sports and recreational facilities in the area, as well as those contained within the proposed project, would be sufficient to accommodate the local community's needs if the proposed project were to be

approved. However, with respect to outdoor recreation, the Board agrees with the Applicant's statement that improved management plans are needed for the area.

7.6.5 Municipal Infrastructure

The proposed project is located in the ID. As stated earlier in the Report, the ID's presentation stressed its concerns about the financial risks of carrying large infrastructure costs, which it estimated to be in the order of \$8 million, given its limited population base. The ID was also concerned about the possibly divergent interests of Westcastle resort village residents and current ID residents. The options of creating a separate local authority for the resort or annexation by the MD were discussed. Vacation Alberta indicated that Alberta Municipal Affairs and Alberta Tourism have jointly commissioned a study to aid in drafting legislation required for special resort municipalities. The ID stated that a new incorporated municipality would increase the tax burden for the owners of condominiums in the development. In the absence of definitive legislation, the Applicant called for the establishment of a Westcastle Village Association, made up of resort landowners, which would deal with municipal responsibilities for the proposed resort.

The Board notes that the ID is not the only administrative authority with responsibilities for the Westcastle area. The proposed project lies in the Rocky Mountain Forest Reserve and the project area currently consists mostly of public lands. As such, administration would largely be within the purview of the Lands Division of Alberta Environmental Protection. Roads in the RMFR would be the direct responsibility of Alberta Transportation and Utilities. The ID is also subject to the authority of the Minister of Municipal Affairs.

The Board notes the legitimate concern of local ratepayers regarding financial risk as well as the general desire in the area for economic stimulation. The Board also notes the objective of many participants to maintain their current local infrastructure, as well as the Applicant's statements that the proposed development would be able to operate within the local infrastructure currently in place. The Board believes that the available infrastructure in the areas of health, law enforcement, education, recreation and social services is such that the proposed project would not have an adverse effect but rather may support services such as education and recreation if the project were to proceed. The Board is concerned, however, about municipal infrastructure because of the low population and the administrative structure of the ID. The Board believes that the ID's suggestion that the project lands be removed from the responsibility of the ID is a sensible one, given the potential risks to the ID and its residents. However, the Board is not convinced that the suggested alternatives of annexation to the MD or designation as a new as yet undetermined municipal authority are necessary for effective and appropriate management of the project area.

7.7 Conclusions Regarding Social Effects

The Board has concluded that the proposed project would have positive social effects on southern Alberta in terms of creating better recreational opportunities, enhancing the quality of life for the residents and providing skiing opportunities for school children, seniors, and other community groups such as the disabled skiers. The Board also believes that the proposed project would have a positive effect on the region in terms of job creation, but it is difficult for the Board to determine how many jobs could be maintained by the project in the long-term and whether the kinds of jobs created would have a significant impact on the unemployment in the area, including the Crowsnest Pass. Overall, the Board believes positive social effects of the project are very persuasive and compelling with respect to the public interest in the matter. Therefore, the Board has concluded that the potential social benefits must be given high regard in reaching its overall decision regarding the Application.

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8. ECONOMIC EFFECTS

In reviewing the economic effects of the project the Board has considered the evidence filed by the Applicant and other participants on this topic, largely based upon the TEIM analysis. As indicated in Section 5 of this Decision Report, the TEIM analysis is a supply-side economic model which forecasts direct and indirect economic impacts on Alberta and its regions, of expenditures related to the construction and operation phases of the project. The Board has also considered evidence on market demand for skiing and golf in Alberta, along with evidence about the economic value of alternative uses of the West Castle Valley and the surrounding region, i.e., uses other than those proposed by the Applicant. These alternative uses include ecotourism, adventure tourism, hunting, angling, trapping, outfitting, hiking, camping, horseback riding, off-road vehicle use, cattle grazing, timber extraction and residential uses.

The Board is convinced from reviewing the evidence that there are a number of economic values, impacts and benefits relating to natural resources and their use that are not readily measurable in ordinary commercial terms. The Board believes that the incapability of measuring all economic values applies to both the values of developing and the values of not developing areas of environmental significance, although it is perhaps easier to measure economic activity associated with developing, particularly in the short-term. With regard to development values, it is hard to consider in completely economic terms the recreational enjoyment value that could be available to visitors to a resort in an area of great scenic beauty, a value that might encourage further visits. As to the values of not developing areas of environmental significance, if such areas are preserved from development today, perhaps they could not be valued in "market" terms in the short-term, but might be of greater economic value well into the future as a draw for ecotourism and other uses as their scarcity in global terms increases. Further, if ecologically valuable areas are protected, the very fact that they exist in a protected state today, available for enjoyment by future generations, is valued by individuals and groups, many of whom commit money and time toward their protection or conservation. Such commitments have an economically measurable factor in the willingness of people to pay or give their time and effort to achieve protection, but such measurements are inexact approximations of the economic value of protecting environmentally important areas.

8.1 Economic Impacts and Potential Benefits of the Proposed Project

As indicated earlier, the Applicant's primary evidence on the economic effects of the project was the TEIM analysis. The TEIM analysis uses a supply-side computer model to produce certain data on the economic impacts of constructing and operating a project based on values used in the model. The model is an input-output model; the reliability of the output reflects the reliability of the input. Based on the values and assumptions used by the Applicant, the TEIM analysis predicted the annual benefits of the construction phase to be roughly \$94 million in total economic impacts and 1,450 person years of employment province-wide, assuming all construction was done at once. Annual

benefits of the operational phase were predicted to be roughly \$35.5 million in total economic impacts and 660 person years of employment province-wide at year seven of operations, which was assumed to be the normal operating year. The TEIM analysis also segregated the economic and employment impacts by regions within the province, with the Lethbridge region, in which the proposed project would be situated, receiving roughly 60 percent of both economic and employment impacts during the construction phase and over 80 percent of both economic and employment impacts during the operation phase. These percentages reflect the evidence that, during construction, some goods and services would have to be sourced from outside the region, while, during operation, the proposed resort could draw largely on goods and services available in the local area.

The Board believes that in order to obtain a reliable economic picture, both supply and demand must be analyzed. The Board is concerned that the TEIM analysis, which is a supply-side analysis only, could be somewhat misleading if considered alone. As indicated in Section 5.3 of this Report, the Board has analyzed the evidence regarding the market demand for skiing and golf in Alberta.

With respect to skiing, the Board has noted the competitive nature of the industry, the low growth in participation in the sport in Alberta over the last decade and the lack of any definitive evidence on the issue of incremental economic benefit to Alberta of expanding the Westcastle ski hill. The Board further notes that the Westcastle ski hill is remote from major population centres in the province and in past years has attracted between one percent and two percent of the annual Alberta skiing market. The Applicant has assumed an increase of some 300 percent in annual skier visits, from existing numbers to the projected numbers for year one of operations. The shift in market share expected by the Applicant to have occurred by year seven of operations is very large. The evidence indicates average growth of only around one percent per year for the last decade in Alberta Rocky Mountain skier visits, and actual declines in numbers of such skier visits over the last two years. Taking this information into account, along with evidence about demographics and the general economy, the Board considers it reasonable to assume that the market demand for downhill skiing in Alberta will remain relatively flat in the next few years. If one extrapolates low annual demand growth (one percent per year) consistent with recent experience, and compares this to the Applicant's assumptions about growth in Westcastle skier days from the status quo to year seven of operations, in order to accomplish the projected growth, Westcastle Park would have to capture well over 100 percent of the increase in skier visits each year. Further, the Applicant would actually be projecting a shift in market share in favour of Westcastle, from one to two percent of the Alberta skiing market to 15 percent of the market. In general the Board has difficulty accepting this magnitude of growth in market share for Westcastle Park reflected by the TEIM analysis.

The Board particularly considered the Pacific Asia Travel Association (PATA) Task Force Report on Tourism Development in the Rocky Mountain Region of Alberta. This Report was published in 1988 after the PATA Task Force advisory team, at the request of Alberta Tourism, examined tourism development in the Alberta Rockies with a view to defining long-range objectives that would consider the region's physical, social and

cultural attributes. The PATA Task Force advisory team consisted of an international team of executives with many years of experience in the tourism industry and in tourism planning worldwide. The PATA Task Force recommended that Westcastle "... be left to mature as a regional recreation opportunity, not pushed into trying to become a major provincial tourism facility." This recommendation followed the Report's list of drawbacks of the Westcastle site, including distance to major markets such as Calgary which has a number of excellent ski areas closer to it than Westcastle, marginal snow conditions, limited range of slope terrain, the confined space available for development and the lack of visual grandeur. While the Board believes that the expansion proposed would rectify some of these drawbacks, the Board believes that Westcastle is unlikely to become a major ski area for the province. Westcastle could, however, develop into a regional recreation facility.

With respect to golf, the Board has noted the lack of current market studies addressing whether recent supply has assuaged demand, the apparent low numbers of rounds played in the local area and evidence on the weather from several sources, all of which indicate the likelihood of some changeable, windy, cool and wet weather in the project area during the golfing season. While the Board believes that there will be demand for golf in the proposed Westcastle project, in light of all of the factors indicated, the Board considers it reasonable to assume that the demand for golf will materialize over a longer term than envisioned by Vacation Alberta and will peak at lower levels than assumed by the Applicant for its normal operating year.

In assessing the potential demand for the project, the Board has considered the expressions of strong support from elected officials, local entrepreneurs and community organizations, who are convinced that the resort would be attractive to the market. The Board accepts that there is potential for the proposed resort to capture a portion of the skiing and golf markets and achieve profitability in the long-term. The Board believes that it is likely that skiing demand would materialize, over time, in numbers justifying Phase I of the proposed expansion. Commitment to Phase II would likely be determined several ski seasons later, depending upon market conditions. It is difficult to predict market demand for skiing at Westcastle but, given all the evidence regarding the ski market in Alberta and the statistics on various ski hills, the Board believes it more reasonable to assume that the annual number of skier days would stabilize closer to the 74,975 figure projected by the Applicant for year one of operations, than to the 146,975 figure projected for year seven. Similarly for golf the Board believes the number of rounds per annum would stabilize closer to the year one projection of 50,000 rounds than to the year seven projection of 65,100 rounds.

In addition to the overstatement of demand for the skiing and golf components, the Board also believes that the overall benefits to the province have been overstated in the Application. The Applicant projected the increases in skier days at Westcastle Park to rise primarily as a result of shifts in market share, not as a result of new skiers in the Alberta market. The Applicant provided opinions, but no studies or background information, on the potential numbers of persons who might shift their skiing destinations from Montana or British Columbia to Westcastle and thereby provide incremental benefits to Alberta. The issue of incremental benefits is fundamental and is of

great importance from the provincial perspective. If increases in skier days at an expanded Westcastle facility were primarily redistributive, the overall economic effect on Alberta's skiing industry would be negative, since a static amount of demand would simply be spread more thinly over a larger number of suppliers. Due to these two aspects of the overstatement of economic benefits in the Application, i.e., demand projections which strain credibility and the redistributive nature of the project to the Alberta ski market, the Board believes that investment in the project, particularly investment by Government, would be undertaken cautiously. However the large expenditures for ski hill expansion must be made up front, and in the opinion of the Board, this compounds the difficulty in attracting investment to the project.

Since preservation of skiing drives the other components of the resort complex, it is reasonable to assume that a phased project may have greater likelihood of viability than the project as proposed. As on-hill accommodation is rare for ski hills in Alberta, the condominiums and hotels would probably be relatively easy to market. However, any investors in a hotel or a condominium unit will consider the revenue projections for skiing and golf since their investment is at stake. Therefore the Board assumes that for market reasons, phasing of the project would occur in smaller segments than proposed by the Applicant. The Board has reviewed the evidence on the components of the ski hill expansion and accepts the Applicant's figure of \$10 million for construction of Phase I. It would appear to be difficult to add the intermediate runs, the necessary lifts to the intermediate terrain and the snow-making equipment, all of which appear vital to the success of the hill, for significantly less than \$10 million. One of the reasons the Board believes that the Applicant has assumed Government support for the ski hill is this requirement for a large expenditure at the beginning, before the market for the facility has proven out.

The issue of Government support of the project was contentious. In the Application both the ski hill development and infrastructure requirements were indicated as Government-funded. The Board notes the recommendation of the PATA Task Force that, if the Alberta Government wished to provide funding to Westcastle, it should be to improve the road, sewage disposal and water systems, not for the actual development of on-site facilities. This accorded with their view that the resort would be a regional recreation opportunity only. The Board concurs with this assessment.

The exact level of infrastructure support was not discussed by the PATA Task Force but is an issue which is before the Board. Infrastructure cannot be as easily phased as other components of the project. The nature of infrastructure is such that it is usually put in place in anticipation of full need. The Board believes that, while most infrastructure support is required up front, some phasing could occur with the ski hill infrastructure and with road paving.

The level of Alberta Government support assumed in the Application for infrastructure, as well as what return Government might receive on such an investment were contested issues at the hearing. The Application assumes Government grants for

costs of both on-site and off-site infrastructure which, in the Board's understanding, is more than the Province would ordinarily contribute. However that is the proposal before the Board and it has been reviewed. The Board believes that the issue of return to the Government on the proposed investment in infrastructure is clouded by the mixed objectives held by interested parties, which were evident at the hearing. Some believe that Government should not be supporting private sector projects, while others believe that Government support is fully justifiable if job creation and other quality of life benefits for the area could result. Still others believe that this particular project does not appear promising enough in terms of economic benefit to warrant the proposed use of public resources.

In the view of the Board, the issue is made more difficult in that the amount of infrastructure support which might be required from the Government is not completely clear. Because of the lack of specific information on sewage treatment and water treatment, the Board believes that the infrastructure costs for the project are likely to be higher than the \$11 million cost stated by the Applicant. The Board has also concluded in Section 5, and in this section of the Report, that the number of jobs created and the tax revenues to the Province from the project are likely to be substantially lower than those projected in the Application. Therefore in terms of basic return of capital to the Province through tax revenues, the Board, after consideration of the evidence, believes that if the Province contributed funds for the total capital investment in necessary on-site and off-site infrastructure for the project, as proposed by the Applicant, the investment would not be returned to the Province through either direct or indirect tax revenues. Where there is no return of capital investment, there is clearly no possibility of return on capital by way of creation of extra wealth. It is possible that a smaller Government investment in infrastructure than that proposed by the Applicant would be returned to the Province through tax revenues. The Board has reviewed the evidence on the infrastructure requirements of the proposed resort and usual cost sharing programs for infrastructure and believes that the ordinary infrastructure would be in the range of \$3 million for the municipality in which the proposed resort is located, and would be cost-shared by the Province and by the municipality according to existing program grant criteria. The Applicant would be required to finance the remainder of the infrastructure costs. It is possible that an infrastructure grant in the lower and more usual range would be returned to the Province through tax revenue. This issue would presumably be reviewed by the Province if and when it were approached by Vacation Alberta or others for infrastructure grants for the proposed Westcastle expansion, if approved.

The Board believes that it is useful to consider the economic impacts associated with the Applicant's lowest, but in the Board's view more likely, level of demand for the proposed resort. For purposes of illustration, if one assumes demand which stabilizes at approximately 75,000 skier days and 50,000 golf rounds per annum, the proposed project would have to be scaled down from the size presented in the Application in order to be viable. In such a scenario, Phase I of the ski hill would be built as necessary to achieve the needed variety of terrain, lift capacity and snow-making capability. Under such a lower demand scenario the Board believes that only one 18-hole golf course would be constructed; one hotel with the necessary day-lodge would be constructed; the

condominiums would be phased in, in smaller numbers of units than indicated by the Applicant; and the Board would assume Government investment in infrastructure would be, in accordance with ordinary grant programs, approximately \$3 million. The Board believes that the economic impacts associated with such a project would be significantly smaller than those indicated by the Applicant, possibly 50 to 60 percent of the values indicated by the Applicant for each of the construction and operation phases of the project. However these impacts would still remain significant in a local and regional perspective, with the Lethbridge region receiving the largest proportion of the economic impacts.

With respect to actual investment in the project, the Board assumes that more credible market demand research would be done in order to give potential investors a better idea of the proper phasing of the construction of various components. There would also undoubtedly be more work done in refining the construction or acquisition costs of certain elements of the proposed resort, such as sewage and water treatment, infrastructure components and material supplies. As an example of potential cost refinement, the Applicant has identified the need to import at least 101,000 m³ of topsoil to the project area for golf course construction. The Board considers that this item alone, including transportation, could cost between \$1.5 million and \$2 million, but that some reductions in this expenditure could be achieved depending on the location of the golf courses. With particular respect to the investment of public funds in the proposed project, the Board assumes that more credible incremental demand research would be done in order to give the public officials responsible for investment decisions, particularly at the provincial level, a better idea of the actual net economic benefits that the project might provide to Alberta and to the southern Alberta region.

As indicated at the beginning of this section, the issue of economic return is only one component of the value of investment in the project. Other benefits, such as recreational benefits, relief from relatively high unemployment in the area and quality of life benefits for southern Alberta could accrue, but it is not possible to gauge all of these benefits on standard "market" style economic analyses.

8.2 Economic Impacts and Potential Benefits of Alternative Uses of the Area

A number of alternative uses of the area were discussed during the hearing. The Board believes that there could be significant economic benefits associated with a number of these uses, both at present and in the future. Alternative uses include general "wildland recreation" uses such as ecotourism, adventure tourism, hunting, fishing, outfitting, wildlife viewing and trapping, as well as non-recreational uses such as cattle grazing, timber extraction and residential uses. The evidence before the Board indicates that the general Waterton-Castle area is an area of very special value in terms of scenic beauty and ecological importance for fish, wildlife, water and rare plants. The evidence also indicates an increasingly great interest by the public to protect valuable resources such as these, and that Alberta could have a "superior product" to offer for tourism and recreation development if such resources were protected and managed wisely.

However the evidence is not detailed enough in many cases to assign dollar figures to each of the activities, particularly in a regional context. There are two issues in this regard, availability of data and segregation by region. There is very little hard economic data available about ecotourism and adventure tourism. For example, the Trail of the Great Bear Study undertaken jointly by the Montana and Alberta Governments appears to be a good example of responsible planning for tourism which would incorporate environmental protection values in order to obtain long-term economic benefits. However the market demand segments of the study are very preliminary and predict a period of ten to 50 years for the estimated incremental benefits of additional tourism to materialize. For other wildland activities such as hunting and angling, while there is some evidence on a provincial basis of their contributions to the economy, there is very little evidence on their regional contribution in the Waterton-Castle area.

For example, with respect to hunting, the 1984 Study by the Fish and Wildlife Division of Alberta Energy and Natural Resources entitled "*Fish and Wildlife Contributions to the Alberta Economy*" indicated annual direct expenditures on hunting, angling or wildlife viewing in Alberta to be \$860 million. Secondary or spin-off benefits of these expenditures was over \$1 billion plus over 33,000 person/years of employment. The Board has no figures on regional values. Similarly for outfitting the evidence is not precise as to the regional economic contribution of that business. The Board accepts the evidence of outfitters that the Waterton-Castle area contains enough significant species of wildlife to make outfitting for hunting and backcountry trips a viable business proposition.

There are some trapping figures available. Trapping in both Alberta and in the South Castle area produces economically marginal results. Trapping was stated by members of the TOWC to be more of a hobby than a significant source of income.

There is little hard economic evidence on the value of other uses of the Waterton-Castle area such as hiking, camping, horseback riding, off-road vehicle use, cattle grazing and timber extraction. The Board believes that the economic value of most of these uses in the Waterton-Castle area is somewhat marginal and not likely to contribute significantly to the Alberta economy. The Board recognizes that, on a personal level, some individuals may find that one or more of these activities yields significant revenue. Of course the level of enjoyment and the contributions of such activities to individuals' quality of life can be very significant although, again, difficult to measure in strictly economic terms.

There is also no hard evidence on the increased economic value which could be enjoyed by the MD or other area municipalities because of the attractiveness and resources of the Waterton-Castle area. However in terms of residential uses, the Board heard from a number of participants who had moved to the area or purchased recreational property there because of its natural attractions, and believes that the MD and other area municipalities will experience increased pressure for residential use. The Board accepts the evidence of the WCEC on the increasing value of wildland areas, in the context of economic value resulting from or linked to protection and quality of life values, for residents

in regions containing wildland areas. The Board believes that the trends Dr. Rasker discussed in particular will develop in southern Alberta, although perhaps somewhat more slowly than in the areas of the western United States which he has studied. The MD is already experiencing pressure for residential subdivisions, and it was suggested that the MD is better off than the Town in terms of population growth and development permits issued, although the statistics before the Board are small. The Board believes that if the Waterton-Castle area were protected as a recreation area, the MD would appear even more attractive to potential residents. Currently the agricultural community in the MD would not like to see the area subdivided for more residential use. This local interest will likely effectively assist in the protection of the ecological resources of the region, as development may be kept at relatively low levels into the foreseeable future.

Overall, the Board is convinced of the economic value of the Waterton-Castle area, including the project study area, in terms of contribution to Alberta's economy through activities such as outfitting, hunting, angling and wildlife viewing. Furthermore, because the opportunities for such "wildland recreation" appear to be increasingly rare in the world the Board believes that, if protected, areas such as the Waterton-Castle area can provide substantial, increasing and incremental economic benefits to Alberta into the future.

However, protection of the area is not the end of the matter. A change in viewpoint as to the value of the natural resources and how to maximize that value over the long-term is also needed. For example, the Board heard evidence on the low annual hunting licence fees for Alberta residents, which varied according to the species of animal but were all stated to be under \$50. The Board also heard that in other countries hunting licences can be several thousands of times more costly than the modest costs in Alberta. The evidence indicates that for non-residents and non-resident aliens the fees for Alberta hunting allocations are set at auctions and are substantially higher than hunting licence fees for Alberta residents. The Board is concerned that fish and wildlife resources may be undervalued in Alberta, particularly from the standpoint of international demand for high quality angling trips, guided hunting and wildland outfitting for nature enjoyment. The Board believes that the economic value to Alberta of such activities could be increased by charging users more for the opportunity to enjoy them. The Board would recommend that Alberta Environmental Protection establish for the Waterton-Castle area a system of auctions with low harvest limits and high minimum bid requirements for hunting and angling licences and allocations for Alberta residents, in addition to those for non-residents and non-resident aliens. The Board would also recommend that Alberta Environmental Protection consider awarding a higher proportion of hunting licences overall than it does now to local guides and outfitters for serving non-residents and non-resident aliens. Because of the potential incremental revenue to Alberta it is appropriate that the minimum bid levels for non-residents and non-resident aliens be priced as high as the interprovincial and international markets can reasonably bear. This may already be a policy of Alberta Environmental Protection. However the Board emphasizes its belief that it is appropriate for all hunters and anglers, including Alberta residents, to pay more for the privilege of harvesting fish and wildlife in the Waterton-Castle area than they now appear to pay. It may be that increasing fees or allocation costs would lead to increased poaching or illegal

harvesting. The Board would consider it appropriate for some portion of the increased revenues to be allocated to enhanced enforcement in the area by the Fish and Wildlife Division of Alberta Environmental Protection.

The central goal, in the view of the Board, should be to maximize the value of natural resources and limit their consumption so that these resources may be sustained over time. In the view of the Board this goal may be achieved if the fish and wildlife resources and the wildland nature of the Waterton-Castle area are valued highly enough to properly protect them in the short-term, so that their ecological productivity may be augmented, and if costs of using the resources increase in the long-term to maximize the return to the Alberta economy.

The Board therefore recommends that all hunting, trapping and angling in the Waterton-Castle area be prohibited for several years into the near future until fish and wildlife populations have reached their maximum attainable levels, after which time the licences for hunting and angling should cost substantially more and be very limited in number. Trapping should not be allowed at all except for small species which are determined by the Fish and Wildlife Division of Alberta Environmental Protection to be at nuisance levels.

In addition to its belief in the long-term value of wildland recreation in the area, the Board is convinced that ecotourism is another use of the Waterton-Castle area which has significant long-term economic potential. Ecotourism was defined in the evidence as "...a natural travel experience that contributes to conservation while maintaining and enhancing the integrity of ecosystems and local communities." Ecotourism would obviously require an ongoing balance between resource use and resource protection. The trend toward ecotourism is evolving and, as the Board understands the evidence, its full economic impact is somewhat difficult to quantify at this point. Nevertheless, the Board accepts that ecotourism has become a significant trend in the tourism industry. The Board believes that the ethics of ecotourism, which embrace a less consumptive approach to natural resources and an appreciation of sustaining them for the enjoyment of future generations, fit well with the values of protecting ecologically special areas such as the Waterton-Castle area so that they may be appropriately enjoyed well into the future. The Board also heard that ecotourism values were likely to increase in the touring public given the demographics of North America and the increasing interest tourists are showing in the educational aspects of vacations and pleasure trips. Therefore ecotourism could be a long-term source of revenue for areas which are pleasant to visit and have high wildland value, such as the Waterton-Castle area.

8.3 Economic Implications of Environmental Issues

There are a number of issues in the Application which illustrate that the environmental aspects of the area have an impact on the economics of the project, including water supply, weather patterns and wildlife use of the area. The most obvious

impact relates to the water supply, potential risks to the trout populations in the West Castle River and the uncertainties in the Application on location of a groundwater well that will not have a significant adverse impact on the surface flow of the river. As suggested in Section 6, location of the well further away from the development site may raise the costs of infrastructure, although the Applicant stated that increased cost was not a major concern in choosing a well site location.

Another issue related to water supply is the variable amount of precipitation in the region and the effect of precipitation patterns on the length of the ski season. The Applicant stated that in a cold winter with little or no normal snow fall, fewer runs would be open. In a worst-case scenario, the ski hill operator would be required to maximize use of water supply from the clear water storage pond for snow-making and reduce the area covered by artificial snow. The Applicant stated that during the 1993 ski season several ski areas in southern Alberta restricted snow-making to high volume lift areas and runs receiving a lot of traffic, due to limited skier visits, limited water availability, high snow loss across the mountain and insufficient natural snowfall.

It is difficult to ascertain how the Applicant has accounted for poor weather years in its economic projections. The Applicant has assumed large increases each year in skier visits to an expanded hill, beginning with around 75,000 visits in year one (roughly three times existing visits) and growing each year for six years, by increases ranging from eight to 16 percent per annum, to reach almost 147,000 skier visits in year seven, the normal operating year in the TEIM analysis. As discussed earlier, these increases may be too high. In the context of the weather impact, the Applicant's projections appear unrealistic. Because the manager of the Westcastle ski hill stated that each ski area has its own microclimate, one cannot assume that if Westcastle Park has a poor snow year, its competitor ski hills will also have poor snow years. The record also shows two "no-go" years for the Westcastle ski hill due to lack of snow, 1983/84 and 1985/86, and a number of poor operating years during the last decade. Weather evidence indicates a tendency for the westerly airflow in winter to clear snow cover in the area by sublimation. Therefore it would not be reasonable to assume in all of the circumstances, as the Applicant has done, that the Westcastle ski hill will experience continuous and unusually large growth in sold lift tickets.

It is also difficult to determine how the Applicant has accounted for weather and precipitation fluctuations in its economic projections regarding the golf courses. The Applicant stated that during peak irrigation periods, in low precipitation years selective water rationing would be undertaken for areas not critical to the playability of the courses. Irrigation of greens and tees would be favoured over irrigation of roughs and fairways during drought conditions. This appears quite reasonable to the Board. However, again the Applicant has assumed steady increases in annual rounds of golf played, from 50,000 in year one to just over 65,000 in year seven. There is no evidence on microclimates for various golf courses or on golfers avoiding one course and choosing another because of dry or wet conditions. There is evidence on the prevailing westerly airflow which produces a common summer weather pattern characterized by cloudy and drizzly conditions in the

mountain region and dry and sunny conditions on the adjacent foothills and plains. There is also evidence on frequent high wind conditions in all seasons in both the foothills and mountain regions of the area. All in all, it is reasonable to assume that weather conditions will decrease the number of rounds playable on the proposed golf courses at Westcastle.

Closure of the ski hill or of parts of the ski hill may be required in the spring when wildlife are emerging from their dens. The Applicant recognized the potential of early closure to avoid wildlife incidents, but preferred to have the hill remain open until the Easter holiday had passed and selectively close ski runs in the immediate vicinity of any wildlife on the ski slopes. It is difficult to determine the economic effect of such closures on ski hill revenue, although there will likely be some effect.

The Board believes that closures of all or parts of golf courses may be required because of wildlife on the courses. Bears or elk on the golf courses could be dangerous to people. Again, it is difficult to determine the economic effect on the proposed project of any closures of golf courses because of wildlife.

8.4 Ski Hill Financing

In Section 11 of this Report the Board outlines its views on the role the WDA may play in regional management of the project, should it proceed. In addition to the role that the WDA has already performed in operating Westcastle Park and pursuing the ski hill expansion, the Board foresees a role for an expanded WDA in two key areas that would be critical to the success of the Vacation Alberta proposal. Specifically, the Board believes that the WDA could play a key role in the financing of the ski hill and in the development of the normal municipal infrastructure required to support the proposed development.

The Board has examined the Vacation Alberta proposal that the ski hill be expanded and upgraded by Vacation Alberta with the financial assistance of the Province. Vacation Alberta proposes to seek a non-interest bearing loan of \$11 million repayable over 20 years from the Province. The Applicant's evidence was that no firm commitments or arrangements had been made with the Province and that the Province had not been approached about the loan at the time of the hearing. As indicated in the evidence, the Province has adopted a new economic development strategy that sends a clear signal that the Province no longer considers direct financial participation in private sector developments to accord with public policy. The Board appreciates that at the time the project was initially developed the Province did have a policy of providing direct financial assistance to businesses. However, the policy has changed while the project has been under development.

The Board believes that it should consider the financial arrangements proposed in the Application. In Section 5 of this Report the Board has referred to evidence that the ski hill is one of the most risky components of the resort complex. Uncertain market demand combined with unpredictable weather and high fixed costs for the ski hill

make investment in an expansion of the existing ski hill a high risk venture. The fact that the debt financing was proposed by the Applicant to be funded by the Province further confirms the Board's view that debt financing of a such a large proportion of the capital cost of the expansion of the ski hill is a high risk. The Board assumes that the reason that only \$2.9 million in commercial loans on the ski hill was identified by the Applicant, is that commercial lenders would be reluctant to provide further capital given the equity investment of \$1 million in the ski hill proposed by the Applicant. Given the high risk nature of the ski hill component of the proposed resort complex and the relatively low level of private sector financing proposed for the ski hill, the Board believes that under the current economic policies of the Province the likelihood of the Province providing a non-interest bearing loan of \$11 million to Vacation Alberta to finance the expansion of the ski hill is remote.

The Board appreciates that the decision to invest public money in the proposed project is not its responsibility; however, the Board believes that under the circumstances presented in the Application it must regard this aspect of the proposal in order to consider the public interest in the matter. In the event that the Province does not wish to invest in the expansion of the ski hill by providing a loan, the Board has further considered the matter of the financing of the ski hill.

The Board believes that it would be useful to consider the alternative of developing the ski hill as a public recreation facility with public funds. Given the strong evidence before the Board of the social importance and the potential economic importance of the ski hill to local and regional residents, the Board believes that there is merit in examining the ski hill expansion as a public investment in a regional recreation facility similar to investments by local municipalities in swimming pools, arenas and other facilities. The Board also considered the evidence that the ski hill is really a facility supported by residents in many municipalities in southern Alberta, and believes that it could be appropriate for the regional municipalities to pool their resources to achieve a common benefit.

As indicated earlier in this section of the Report, the Board believes that there is no immediately foreseeable market need to proceed with Phase II of the ski hill expansion. The Board believes that the investment in the ski hill is likely to be in the order of \$10 million in order to provide the necessary intermediate skiing terrain and lifts to serve the market. The Board considers the investment of \$10 million in public funds to provide a highly valued ski facility designed to meet family recreational needs as a reasonable option for southern Alberta citizens to consider.

The WDA with expanded membership, as envisaged by the Board, could be a suitable vehicle to arrange for and oversee development of this regional recreation facility. Member municipalities pooling their resources could support the capital requirements of the ski hill whereas individually they likely would not be able to meet this need. The WDA could act on behalf of the municipalities and obtain from them the commitment for the funds required to finance a significant portion of the \$10 million.

Given a broad base of support and a firm financial commitment from many southern Alberta municipalities, the Province could consider responding to a request to assist in funding a portion of the ski hill development as a public recreation facility within existing Government programs which fund recreation, tourism, and community facility enhancement initiatives.

For purposes of illustration, the Board considers that it might be possible for local municipalities to finance two thirds of the cost or \$6.6 million spread over a number of southern Alberta municipalities with the Province providing a matching one-third contribution of \$3.4 million. The Board believes that it would be appropriate that Vacation Alberta provide the required day lodge facilities as part of the hotel, as proposed in the Application.

8.5 Infrastructure Financing

Vacation Alberta has proposed as part of the Application that it would also seek financial assistance from the Province to develop the infrastructure required to support the proposed development. The Board has considered this aspect of the Application from the point of view of determining the public interest in the matter. The responsibility to determine the appropriateness of infrastructure investments by the Province does not rest with the Board. However, the Board believes it must have some regard for this issue and the general context of provincial infrastructure investments, especially since the \$11 million cost of the infrastructure is a significant component of the proposed project's \$72 million total cost.

The Board notes that the Province has not established a program to provide financial assistance to private sector developments for infrastructure, although the Board is aware that in some cases the Province has agreed to provide such assistance on a project-by-project basis, usually through early infrastructure investments that normally would have been made at a later date. In terms of public policy, the Board referred to the recent *Tourism 2000* proposal and its goal of using infrastructure to stimulate and support the further development of Alberta's tourism industry. However, the Board has noted that *Tourism 2000* requires all developments to be scrutinized through a careful cost/benefit evaluation and states, as a strategic matter, that infrastructure investment would be limited to cases where it is required to support market-driven development and where a timely return on investment to Government can be demonstrated. The Board concluded earlier in this Section that an investment in infrastructure for the proposed project in the amount of \$11 million would not likely be returned to the Province.

The Board further notes that some of the infrastructure support identified in the Vacation Alberta Application is of a nature that if a municipality were to develop the infrastructure to meet local road, water supply and water treatment needs, the costs would be eligible under existing provincial programs for cost sharing according to prescribed formulas. The Board has reviewed the \$11 million infrastructure costs identified by

Vacation Alberta in the Application and believes that roughly \$3 million would be ordinarily eligible for cost-sharing with the Province. The Board believes that the balance of the infrastructure such as internal roads, water distribution lines, etc. are clearly normal development costs that are borne by developers in projects throughout Alberta.

Under the circumstances noted in the proposal before the Board, the Board is of the view that Vacation Alberta is not likely to receive consideration under existing programs since, as a private corporation, it is not eligible for financial assistance from the Province for infrastructure. The Board has considered the likelihood of some form of special consideration for infrastructure support. In view of the likely economic projections for the proposed project and the general climate of fiscal restraint reflected in the record, the Board believes that if the Province were favourably disposed toward such a request, the Province would likely only consider contributing toward the \$3 million portion that would qualify as "municipal" infrastructure. This level of investment is more likely to be considered as an early investment in normal infrastructure.

The Board has also considered the alternative where the municipality, on behalf of the residents who would eventually occupy the condominiums, would develop the required infrastructure and apply under existing programs for financial assistance from the Province. The Board believes that this alternative is reasonable and a potential course of events in the present circumstances. Given the Board's concept of an expanded and modified WDA, it could also be reasonable to have the WDA, on behalf of the region's municipalities, develop the required infrastructure to support the resort. In this case, the municipal portion of the infrastructure investment would probably be relatively small and would be spread among the participating municipalities that would benefit from the development.

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9. ENVIRONMENT

9.1 Introduction

9.1.1 Biogeographic Context

The West Castle Valley is situated in the Castle area of the Front Ranges of the Rocky Mountains south of the Crowsnest Pass. Immediately to the west is the Continental Divide; to the east are the South Castle Valley and the foothills. The lower profile of the mountains in the Castle area, relative to those to the south in Waterton Lakes National Park and those to the north in the Upper Oldman area, exposes the area to frequent southwesterly and chinook winds. These winds exert a drying influence in an area that receives more precipitation both as rain and as snow than other parts of Alberta. Microclimatic conditions vary widely over short distances according to elevation and exposure to the wind, creating a range of soil conditions. Within the Castle area, the West Castle Valley and upper South Castle Valley receive the greatest amount of precipitation.

The plant communities of southwest Alberta are the most diverse in the province as a result of the unique confluence of prairie, coastal and cordilleran floras and the previously mentioned fine-scale variation in habitat. Plant species diversity within the Castle area is second only to that of Waterton Lakes National Park. The area supports an exceptionally high number of rare plant species for Alberta.

The foothills and mountain valleys of the Front Ranges have become the easternmost edge of the ranges of many animal species that were formerly found over much of North America. The intensity of human activity is still increasing on both sides of the Continental Divide and the southeastern ranges of the remaining populations are becoming increasingly restricted to the band of less disturbed habitat at the alpine and montane elevations of the northern United States and southern Canadian Rockies.

Large carnivores in particular now survive in the Rocky Mountains in a few isolated populations south of the 49th parallel and in an area extending from the Willmore Wilderness and northern National Parks (Jasper and Banff) to Waterton Lakes and Glacier National Parks and the Flathead Valley in the south. The Castle area and the West Castle Valley lie within that larger area. Some large mammals that are found in the proposed development area move great distances within this extensive regional ecosystem. For example, individual wolves may range from Banff National Park to Glacier National Park on the other side of the international boundary. Male grizzly bears typically occupy annual home ranges in the range of 500 to 1,500 km² and multi-year home ranges larger than 2,000 km². Bears from the Flathead area of British Columbia and Montana have been radio-collared and tracked into the West Castle Valley. Determination of the potential effects of the project on these species cannot be completed without addressing the larger regional context.

9.1.2 Dynamics of Natural Ecosystems and Regional History

The Board recognizes that natural systems are dynamic. Developments affecting ecosystems and their components are, as it were, hitting a moving target. Therefore, the nature and extent of their impacts are not independent of the state of the ecosystem or component at the time the development takes place. During the hearing, the Board heard a great deal of evidence about historical, current and possible future states of regional ecosystems and their components. Some of the specific observations are referred to later, but the overall picture that emerges may be summarized as follows:

Human presence in the region is first recorded after the retreat of the ice less than 11,000 years ago. There is archaeological evidence of human consumption of bison, deer, elk, mountain sheep and native plants at that time. Kootenai and Peigan people have been resident in the area for at least 2,000 years. Members of the Nez Perce and, in recent years, Stoney tribes have also used the area. Europeans first visited the area in the late 18th century and fur trading began soon after. Hunting and trapping increased because the demand for furs for trading was additional to the demand for traditional uses. Later, hunting for sport became a significant influence on wildlife numbers and in the 1870's, the plains bison was extirpated. Treaty No. 7 between the Government of Canada and native groups in the south of the province was signed in 1877. Ranching and homesteading expanded rapidly and by 1910, much of the area had been overgrazed by cattle. The first grist and saw mill was established in the area in 1879 and logging began at that time. The Crowsnest Pass railway was built in 1897-8 using a large volume of locally harvested lumber and enabling the first coal mines in the Pass to open in 1902. Increasing settlement and industrial activity led to an increase in the use of local natural resources including fish and wildlife as well as forests. Although fire burned 700,000 acres of forest in Montana and Alberta including the West and South Castle Valleys in 1936, logging in the West Castle Valley continued until 1979. In the 1940's and 1950's it was reported to have had severe impacts on the West Castle River and its resident trout populations. Access to the area in early times was by horse trails; later logging roads increased access and since 1950, road improvement and resource extraction activities accelerated this trend. The ski hill was first developed in 1966. More recently, growth in the use of off-road vehicles in addition to increased access by roads and trails has led to even greater disturbance of vegetation and wildlife. The Board heard extensive evidence about changes in the numbers and distribution of wildlife populations since European settlement. Some species are reported to have declined in numbers whereas others have fluctuated wildly.

The Board concludes that regional ecosystems and their components have been subject to numerous impacts since European settlement and that some of the impacts have been severe. Regional ecosystems have exhibited resilience in rebounding from many adverse impacts but evidence before the Board about the past distribution of large animals suggests that they have not always returned to a state similar to that which existed at the time of impact. The frequency and increasing number and extent of impacts now occurring makes it impossible to conclude whether the systems could have recovered, or could in future recover completely, from past disturbances. Whether or not increasing

numbers and severity of impacts could lead to an irreversible change in state of regional ecosystems is a matter for conjecture and will be discussed in Section 9.6.

9.1.3 General Considerations Relating to Examination of Environmental Effects

In past decisions, the Board has taken the view that examination of potential environmental effects of a project must include consideration of cumulative effects because project impacts do not occur in isolation from the many other effects influencing ecosystems and their components. For example in the Three Sisters Decision Report, the Board wrote:

Because of the interdependence of ecosystem components and the scale of the areas occupied by ecosystems, the Board believes that the potential impact of a project cannot be understood by attending only to local effects on individual components. The Board also believes that because of the likelihood of additive or synergistic effects of developments it is important to examine the effects of any one project in a cumulative and a regional context.

Given the historical context summarized above, and the relatively high intensity of impact to which regional ecosystems are subjected, the Board believes that it would be unwise and possibly misleading to review the potential effects of the Application before it in any other than a cumulative and regional context.

The Board is also aware that most development projects give rise to secondary impacts in addition to the direct or primary impacts that occur at or adjacent to a project site. Vacation Alberta, in its Application, dealt in detail with potential direct impacts within the "footprint" or immediate project area and, in the case of wildlife, fisheries and hydrology, with impacts within the West Castle watershed. However, the Board believes that it should also consider inevitable secondary impacts arising, for example, from the provision of off-site infrastructure for the proposed project. Furthermore, the Board recognizes that effects on regional ecosystems and their components may be manifested beyond either the footprint of the project or the Applicant's wildlife study area. The effects of blocking movements of large carnivores through the West Castle Valley might be an example of a *direct effect* having potential regional consequences. Increased access to areas previously difficult to reach might be an example of an *indirect effect* having potential regional consequences.

Another matter the Board took into account in its review of potential environmental effects is the difference in severity and persistence of intermittent and permanent impacts. Intermittent impacts tend to be less severe and can more easily be controlled, curtailed or reversed than impacts arising from the installation of permanent structures.

In past decisions, the Board has recognized that the fundamental properties of ecosystems and populations of living organisms make predicting responses to impacts difficult and in many cases impossible. Even where prediction is theoretically possible, lack of information, lack of understanding of ecological processes or practical difficulties may obstruct determination of the probable effects of an impact. The Board has dealt with this problem by concentrating on the potential response of ecosystem components about which more is known, by examining evidence before it about the historical record of the ecosystem under consideration and similar ecosystems elsewhere and by making conservative assumptions in the face of uncertainty. By these means, the Board has arrived at qualitative assessments of the risk that ecosystems will undergo changes of state and has examined the potential of management measures to control or avoid unwanted changes.

Under some conditions, ecosystems or ecosystem components may respond monotonically or even linearly to disturbance; in others the response may be sudden and large. Sometimes changes are reversible, sometimes they are not. Sudden, large changes are less likely to be reversible than small gradual ones. As noted earlier, several participants pointed out that ecosystems are dynamic and will change with or without interference by people. Naturally, the Board is most concerned about the risk of large, potentially undesirable changes that may be difficult or impossible to reverse. The risk of the southern Rocky Mountain ecosystem reaching a threshold level of impact and undergoing significant change was identified by many participants in the public hearing on the proposed project before the Board. The Board believes that the approach it has adopted in past decisions is appropriate to its examination of that risk.

9.1.4 Monitoring

In its public consultation program and in its evidence before the Board, Vacation Alberta placed considerable emphasis on its proposed monitoring program. Unfortunately, many participants at the hearing appeared to believe that if potential impacts are to be monitored, there is no need for further concern about them. Because of this apparently widespread misconception, the Board believes that a brief comment about the purpose and utility of monitoring might be appropriate.

The environmental component of the design and management of a project normally begins with the identification of potential adverse impacts. Project designers seek ways to avoid adverse impacts and, if they cannot be avoided, to reduce their severity or to mitigate them. Project managers employ monitoring to measure or estimate impacts that have occurred. Monitoring, in itself, cannot prevent, avoid, reduce or mitigate adverse impacts but it can identify impacts that have occurred or are occurring. Some impacts are irreversible, some may be reversed or reduced only by action that would itself be damaging and others can be reversed but only at unreasonable cost. However, some impacts can be curtailed or reduced by remedial action. Monitoring can help identify the need for such

action. It can also provide valuable information about impacts that may be useful in the design or regulation of future projects.

9.1.5 Overview

In reviewing the potential environmental effects of the proposed project, the Board will begin by considering individual ecosystem components and will then proceed to examine effects on regional ecosystems. In reaching conclusions about the magnitude of each effect, the Board will take into account possible measures for its avoidance, mitigation or compensation. This consideration will include, where appropriate, individual examination of the effects of the three main elements of the proposed project (i.e. the ski hill, golf courses, and building complex) and of possible variations of or alternatives to them. The Board will proceed from such conclusions to develop, where appropriate, conditions necessary to ensure that the potential environmental effects of the proposed project would be acceptable in terms of public interest. Finally, the Board will assess the probable total net effect of the project as proposed assuming that the Applicant will i) fulfill any undertakings it made in its Application or during the public hearing; and ii) adhere to any conditions imposed by the Board. This overall conclusion will be used, together with conclusions about social and economic effects, in assessing whether the project, or any part of it, is in the public interest.

9.2 Air

Pollutants emitted by developments and associated activities in the mountains may be trapped within valleys causing a deterioration of air quality. Partially combusted materials from sources including automobiles, furnaces and fireplaces may form hazes that obscure scenery and, if sufficiently concentrated, could pose a public health hazard. The frequency and severity of episodes of poor air quality at any location depend on the level of emissions on site, the transport of pollutants from elsewhere and the frequency of weather events such as thermal inversions which slow the dispersion of pollutants.

Although the Board heard little direct evidence on regional air quality it did hear evidence concerning the geographic location of human populations and development within the region. The only point sources near enough to significantly affect air quality in the West Castle Valley are those on site. Prevailing winds are from the west, drawing air from the sparsely populated and relatively unpolluted Kootenay area of British Columbia. Air masses generally enter the area from the west, north or southeast and do not pass over any significant emission sources within 25 km of the site, although there are a few residences within that radius. Typical weather would tend to dilute any locally generated pollution episodes.

The Board heard evidence from the General Manager of the ski hill that inversions do occur in the West Castle Valley but their duration is normally limited to a few hours or the better part of a single day. This means that the still airmass conditions

required to maintain an inversion rarely persist long enough for severe declines in air quality to occur.

According to the Applicant, the proposed development would result in a substantial increase in the number of people using the valley and traffic volumes on Secondary Highway #774 would increase five fold over current usage. Gaseous emissions from internal combustion engines would increase concordantly. The number of people resident in the valley and the average annual length of residency would greatly increase should the project proceed. This would increase emissions from residential sources. Although the Applicant undertook not to allow wood-burning fireplaces or stoves within the proposed development, domestic furnaces, and furnaces in the hotels and other service buildings would contribute to emissions. Although the Applicant allowed for the possibility of on-site power generation in its written filings, in its oral evidence it said that this would be unlikely. If so, there would be no local emissions from power generation.

The Board recognizes that the proposed development would increase the level of pollutants, particularly the products of combustion, in the valley. However, the regional background level of pollution is low and atmospheric inversions are short-lived. The Board therefore believes that factory-standard anti-pollution devices on furnaces and motor vehicles would be sufficient to avoid the occurrence of episodes of unacceptable air pollution under atmospheric conditions that are likely to occur.

9.3 Aquatic Ecosystem

9.3.1 Introduction

The physical characteristics of the West Castle River and its drainage, including the alpine lakes within its watershed, have been dealt with in Section 6 of this Report. This section deals with the biotic components of the aquatic ecosystem. The biological resources of most concern to participants at the hearing were fish populations: bull and cutthroat trout and mountain whitefish in the West Castle River and golden trout in four alpine lakes. Impacts on lower aquatic organisms including invertebrates and algae were the focus of attention only insofar as impacts on them might affect fish populations that depend on them. Most concerns expressed by participants about water quantity and water quality were also ultimately focused on possible effects on fish. The Board has therefore concentrated in this section on reviewing the potential effects of the proposed project on each fish species. It has dealt with specific concerns for lower aquatic biota and the question of monitoring the aquatic ecosystem in Sections 9.3.6 and 6.1.1.2 respectively.

9.3.2 Bull Trout

The Board heard that bull trout were distributed discontinuously from about 41° to 60°N in Western North America; in Alberta, they are resident in all major river systems originating in the Rocky Mountains including the Oldman River, of which the West Castle River is a secondary tributary. Bull trout are native to Alberta and have undergone a 50 percent decline in numbers in recent years. Because of their provincial significance, a volunteer task force consisting of Trout Unlimited members, consulting biologists, angler association representatives, and provincial biologists has been formed to determine what measures should be taken to maintain them.

Extensive evidence was put before the Board to explain the decline in bull trout. Bull trout are aggressive and are easily caught by anglers. Large fish capable of spawning are more likely to be retained. Bull trout grow slowly and take a long time to reach maturity. Population studies reported to the Board showed a heavy preponderance of undersized, immature fish suggesting that angling pressure is high. Bull trout spawn and overwinter in upstream reaches of streams where groundwater upwelling occurs. Some individuals remain in or near such areas year round but others migrate downstream and return. Downstream migration can lead to genetic interchanges between subpopulations and reestablishment in areas from which the species has been lost, but witnesses suggested that bull trout have a strong homing tendency, which would reduce the likelihood of either occurring. However, such dispersal must have occurred in the past 8,000 years to bring about the present distribution. One witness expressed the opinion that differential capture of large migrant individuals by anglers may have reduced the incidence in the population of genes for migratory behaviour. It was also suggested that construction and closure of dams would adversely affect migrant fish. Other factors cited to explain the decline in bull trout numbers were water withdrawals affecting stream flows in spawning and overwintering areas, habitat deterioration or loss as a result of riparian disturbance, and declines in water quality arising from a variety of chemical inputs.

In the course of preparing its Application, Vacation Alberta caught 2,788 trout in the West Castle River of which 920 were bull trout, but of these only 13 were adults. Twelve bull trout redds (spawning depressions) were found in the river in 1991 and 10 in 1992. The Applicant concluded that the breeding population may be as low as 12 females. Most of the observed spawning and overwintering appeared to be in a 50 m reach immediately downstream of the proposed project site. During fall, spring and summer adult bull trout were found more frequently upstream of the proposed development than elsewhere. One intervener introduced evidence to show that there is a small migratory component of the West Castle River population. Of 151 bull trout captured below the Three Rivers (Oldman) Dam, and released upstream of it, seven were recaptured in the Castle River drainage. Participants in the hearing agreed that angling is the most likely cause of the preponderance of immature fish in the West Castle population. It was suggested by some that the closure of the Oldman Dam might have prevented some larger fish from returning upstream, but the Board notes that Canyon Falls on the Castle River is probably not passable by fish so that upstream migration from the Oldman into the West Castle is

unlikely. Almost all participants agreed that some restriction of angling for bull trout is necessary to ensure the survival of the population in the West Castle River, whether or not the proposed project goes ahead.

In addition to this concern about the existing status of the population, the Board heard evidence from Vacation Alberta and several interveners about potential impacts that might arise from the proposed project. These included increased angling pressure, effects of a possible decline in water quality because of increased entry of sediment or chemicals into the river, and habitat loss or degradation through sediment deposition, loss of riparian vegetation or decreased water flows.

The conclusion that bull trout in the West Castle River are subject to excessive angling rests on the age structure of the population. As noted earlier, only 13 of 920 bull trout caught by the Applicant were adults. Participants agreed that operation of the proposed project would increase the number of people in the West Castle Valley and as a result, angling pressure would be higher than it is now. Measures proposed to reduce angling pressure were a catch and release regulation and closure of the fishery in the West Castle River. Participants agreed that the effectiveness of a catch and release regulation would be diminished by the inability of many anglers to distinguish bull trout from other trout species. The Applicant suggested that closure of the fishery, at least until there is a higher proportion of breeding adults in the population, would be the most effective measure.

The restocking of streams with bull trout was also discussed at the public hearing. Some participants suggested that if the fishery on the West Castle River were to be closed, the River could act as a source for reestablishing bull trout in other eastern slope streams. Conversely, the West Castle River could be restocked, or its population supplemented, by fish from other streams. Other participants observed that bull trout populations are genetically adapted to the streams they inhabit; moving them to other streams could result in a loss of genetic fitness through introgression. On the other hand, if the introduced fish are successful it could lead to the loss of genes carried only by the receiving population. These arguments would not apply to streams from which bull trout have disappeared entirely.

All participants agreed that measures are necessary to protect bull trout in the West Castle River regardless of the Applicant's project and there was general support for the efforts of the Bull Trout Task Force to develop a provincial management strategy.

Intervenors raised the concern that withdrawal of groundwater for the proposed project might affect surface flows in the West Castle River. This could be of particular concern because bull trout overwinter in reaches of the river where flow persists throughout the year. These reaches are fed by discharge of relatively warm groundwater which prevents them from freezing to the bottom. If the groundwater discharge is reduced, the volume of unfrozen water available to overwintering fish will also be reduced or even eliminated. Fish could die if this were to occur. Similar arguments were advanced about the potential effects of reducing surface flows in reaches of the River where and when bull

trout are spawning. Participants agreed that these effects could be avoided only by ensuring that water withdrawals would not reduce surface flows. The need to avoid reduced stream flows was supported by the Applicant's observations that bull trout spawned and overwintered in a 50 m reach immediately downstream of the proposed project site. Hydrological evidence and methods to achieve the objective of not affecting surface flows are reviewed in Section 6.1 of this Report. Monitoring to ensure that surface flows are being maintained is also dealt with in that section.

Considerable concern was expressed about the input of sediment to the West Castle River during and after construction of the project. During construction grading, earth moving, topsoil placement and construction near streams generate loose sediment that can easily be mobilized and enter streams. Before vegetation cover is established on newly laid topsoil precipitation and runoff can carry substantial quantities of sediment to streams. Runoff from steep slopes such as ski hills during severe rainfall or rapid snowmelt, and from areas disturbed by trampling, vehicle activity or cattle grazing, can carry sediment to streams. It is generally accepted that very high sediment loads in streams can abrade the gills of adult fish and reduce the ability to feed of visual predators such as trout. Sediment deposited on spawning redds can make them unacceptable to fish or smother embryonic fish when they are present. Deposited sediment can also adversely affect benthic organisms on which fish feed.

The Applicant and several interveners recommended methods for reducing input of sediment to the West Castle River. The Board has reviewed these in Section 6.2.4. A number of witnesses also pointed out that the velocity of flow in the West Castle River is often high so that sediment is readily resuspended and carried downstream. The water generally appears clear, even after heavy and sustained precipitation. In this case, it was suggested, sediment inputs from operations would be unlikely to have significant effects because they would be rapidly flushed downstream. On the other hand, the fact that the river is normally so clear could imply a greater short-term adverse impact if a sudden large input of sediment were to occur. Sediment inputs during construction could be much higher than at other times unless measures are taken to reduce them. Several witnesses referred to evidence before the Board that logging operations in the 1940's and 1950's had severely affected the banks of the river and riparian vegetation and had resulted in large inputs of sediment; they observed that fish populations had either survived these events or subsequently re-established themselves.

The Board heard argument that chemicals applied by the Applicant as fertilizers, chemicals used for pest control, and substances used or produced by operators of the proposed facilities might enter the groundwater and subsequently the river where they might affect aquatic biota including bull trout and their food. The Applicant undertook to develop an Integrated Chemical Management Plan (ICMP) to control its use of chemicals and its methods of handling them. This and other measures to protect water quality are reviewed by the Board in Section 6.2.4.

The Board has reviewed all of the evidence pertaining to bull trout and reached the following conclusions. Bull trout populations in Alberta are at risk and the population in the West Castle River is no exception. Whereas a catch and release program may be beneficial, anglers' inability to identify fish undermines its potential effectiveness. The Board would recommend the closure of the fishery in the West Castle River until the number of breeding adults in the population reaches a level satisfactory to Alberta Environmental Protection. At that time the Board would recommend limiting the season and number of licences for fishing in the West Castle River to numbers considered by Alberta Environmental Protection to be near the upper limit of sustainability. This period and number should depend on the size and demographic structure of the population and on whether or not it was being used to stock other streams. Limiting the number of licenses would provide Alberta with an opportunity to increase its economic return from exploitation of the resource by raising fees. This might include even higher fees for non-resident anglers. The Board's views on this matter are set out in Section 8. The Board is confident that in addition to considering the Board's recommendations Alberta Environmental Protection, when it reviews its management of the bull trout population in the West Castle River, will examine the recommendations that will be forthcoming from the Bull Trout Task Force.

With respect to the withdrawal of water, the Board believes that its requirement that the project have no significant adverse effect on surface flows in the West Castle River, as set out in Section 6.1.1.2, would be sufficient to keep spawning and overwintering areas open during periods of low flow. The Board also believes that its requirement for monitoring to ensure that flows are not affected, also set out in Section 6.1.1.2, is necessary for the maintenance of the bull trout population. Similarly the Board believes, as set out in Section 6.2.4, that the Applicant's undertakings with respect to the input of sediment and chemicals into the West Castle River would be sufficient to reduce their potential impacts on bull trout to an acceptable level. For the benefit of the reader those undertakings include: i) maintenance of a buffer strip along each side of the river in which only unavoidable disturbance would be allowed; ii) erosion control measures on the ski hills and on other slopes that could generate mobile sediment; iii) measures to reduce sediment input to ground and surface water during construction; and iv) implementation of an Integrated Chemical Management Plan. Vacation Alberta noted that opportunities for enhancement of fish habitat exist at a number of locations along the West Castle River. The Board recommends to Alberta Environmental Protection that it consider such opportunities when it reviews the management of fish populations in the river.

9.3.3 Cutthroat Trout

WCEC provided evidence that 99 percent or more of the original populations of interior cutthroat trout have been lost in the last 100 years. "Interior cutthroat trout" are comprised of the Westslope and Yellowstone subspecies. Westslope trout are native to the Bow and South Saskatchewan drainages in Alberta and have been introduced to the Red Deer, North Saskatchewan, Athabasca and Peace drainages. The range of the westslope cutthroat, which once occupied much of the southern third of Alberta, has receded to the headwater streams of the Front Ranges and Rocky Mountains. Few populations are now thought to be genetically pure due to hybridization with introduced hybrid cutthroats and rainbows. The West Castle River, in particular, was stocked twice, in 1948 and 1979. Nevertheless, the West Castle cutthroats are considered to be relatively pure westslope cutthroats and genetic analysis to determine if this is the case is underway. Given the current distribution of westslope cutthroats in both Alberta and North America, the population is considered provincially and internationally important.

Two thirds of the 2,788 trout sampled in the West Castle River by Vacation Alberta were cutthroats. They are evidently more numerous than bull trout. Eleven percent of the cutthroat trout sample were adults, a considerably higher proportion than in the case of bull trout. This might suggest less severe overfishing of cutthroat trout. Trout Unlimited reported results of a survey showing that 70 percent of legal size cutthroat trout caught in the South Castle-Castle drainage and 46 percent of those caught in the adjacent Carbondale River-Lynx Creek drainage were kept by anglers. There is no reason to expect that angler behaviour at the West Castle River would be different. Consequently, Trout Unlimited believes that retention of fish by anglers in the West Castle River would be sufficient to put the cutthroat population at risk. Cutthroat trout are more easily caught than brook and brown trout but less easily than bull trout. There were an estimated 1,450 anglers in the West Castle River by 1991 and several other participants agreed with Trout Unlimited that angling pressure on the West Castle River population is unsustainable.

Vacation Alberta provided evidence that spawning and overwintering of cutthroat trout occurs somewhat more extensively in the West Castle River than spawning and overwintering of bull trout, but that cutthroat also depend on groundwater discharge for these activities. Seventeen cutthroat trout redds were found immediately downstream of the proposed project area and 11 more further downstream. Overwintering sites in pools fed by groundwater were identified in the wetland downstream of the project site but the Applicant stated that it did not discover all overwintering or spawning areas. Vacation Alberta also provided creel census and demographic data to support its view that the cutthroat population in the West Castle River is vigorous and self-sustaining. More than half of the cutthroat caught in the river were four years of age or older and the fish mature at the age of three.

The Board heard concerns about the same types of impact on cutthroat trout as on bull trout. Increased fishing pressure, effects of water withdrawal at periods of low streamflow, effects of sediment and chemical input on water quality and hence on fish, and

habitat degradation resulting from destruction of riparian vegetation or from sediment deposition were all mentioned.

In reviewing the evidence the Board concluded that the cutthroat trout population in the West Castle River is at present self-sustaining and capable of supporting angling by current legal methods and at current frequencies. However, the proposed project would increase human use of the area and could increase angling pressure significantly. If this were to happen, it might well be necessary to introduce new regulations for the fishery. These could include measures such as partial or alternate year closures. The Board does not favour a catch and release requirement for the reasons given under bull trout (Section 9.3.2). The Board accepts that the cutthroat population is of provincial significance, whether or not it is of genetically pure westslope cutthroat, and should be sustainably managed. It therefore recommends that should the proposed project be approved, Alberta Environmental Protection examine the status of the population before the development proceeds and, as necessary, at intervals afterwards in order to determine what regulatory controls on angling are necessary. While making this recommendation, the Board recognizes that the measures it has recommended to sustain the bull trout population in the West Castle River would also be likely to sustain the cutthroat trout population.

With respect to impacts arising from the construction and operation of the proposed project such as water withdrawals, input of sediment and chemicals, and impacts on riparian vegetation, the Board has reviewed all the evidence and concluded that the measures it has required in respect of bull trout would provide protection or mitigation adequate to maintain the cutthroat population.

The Board heard that hybridization with other salmonid fishes is more influential in the decline of the interior subspecies of cutthroat trout than any other factor, including habitat degradation. The West Castle River population of westslope cutthroat is accepted to be relatively pure genetically. The Board therefore accepts the Applicant's suggestion that it be conserved as a future source of eggs and fry for the restocking of other streams in the Oldman River drainage. The Board believes that the measures it recommended in Section 9.3.2 for bull trout would be effective in sustaining the cutthroat population. Should the project proceed, the Board would recommend that Alberta Environmental Protection take the regulatory action necessary to implement them.

9.3.4 Mountain Whitefish

The mountain whitefish occurs in the foothills of Alberta from the Milk River in the south to the headwaters of the North and South Saskatchewan and Peace Rivers. They are less highly prized by anglers than are the various species of trout. The Applicant reported that less than 0.05 percent of the fish it sampled were mountain whitefish; those were found for the most part in deeper pools downstream from Syncline Brook and Suicide Creek. One participant reported observing a couple of hundred mountain whitefish in the West Castle River and said he had caught twenty in a day.

Intervenors raised similar concerns about potential impacts on whitefish to those discussed in relation to trout. Sediment input to the West Castle River and reductions in low flows during winter were specifically mentioned. The Board has reviewed the evidence about potential impacts of the proposed project on mountain whitefish. Because the species is widespread and abundant and its numbers in the West Castle River are relatively few, the Board believes that the potential for adverse impact on the species or on the regional population is small. Furthermore, if the project proceeds the measures the Board has required with respect to bull and cutthroat trout would also mitigate impacts on mountain whitefish. The Board concluded that no further measures would be necessary.

9.3.5 Golden Trout

The Board heard that golden trout, which are native to the Sierra Nevada range of California, have been introduced into mountain lakes in many western states and southwestern Alberta. The only self-sustaining populations in Alberta are found in four mountain lakes in the vicinity of the proposed project: the two Southfork Lakes, Barnaby Lake, and Rainy Ridge Lake. Of these, only in Rainy Ridge Lake is there sufficient reproduction to sustain the population under current fishing pressure. The lake also provides a source for restocking other high mountain lakes in Alberta. Fingerlings have recently been airlifted from that source to restock the Southfork Lakes and Barnaby Lake.

Intervenors suggested that increased use of the West Castle Valley by residents and day visitors to the proposed development could affect golden trout in two ways: i) any increase in fishing pressure is likely to be unsustainable given the present marginal status of the populations; and ii) trampling around the lake and particularly in and adjacent to the spawning ground at the outlet to Rainy Ridge Lake could disrupt or reduce reproduction.

The Board does not believe that there should be a concern for conservation of golden trout in Alberta because it is an introduced species. If the continued existence of the species in North America or worldwide were threatened, the Board might modify its view. On the other hand, the Board is sympathetic to the provision of varied opportunities for anglers and believes that a reasonable level of effort should be expended to this end. The Board believes that its recommendations with respect to management of the area and

of trails within it (Sections 10 and 11) will help control additional use of the area. In addition, the Board would recommend that Alberta Environmental Protection or any new regional management authority harden the trails around the lakes, bridge the outlet to Rainy Ridge Lake and post explanatory signage at appropriate locations.

9.3.6 Invertebrates and Algae

Invertebrates and algae are important components of the aquatic ecosystem for their own sake and also as lower trophic levels in the food web supporting fishes. All of the potential impacts on fish reviewed by the Board in the preceding sections could also apply to these organisms except, of course, for the effects of angling. Among the invertebrates and algae, benthic (bottom dwelling) species would be most at risk because of the potential for deposition of sediment on them. Because of their sessile habit and sensitivity to changes in water quality and sediment deposition benthic organisms are often used to monitor environmental effects. As noted earlier, The Board heard evidence that the volume and velocity of flow in the West Castle River and its cobble bed result in the rapid flushing of sediment after severe and prolonged precipitation events. Large increases in sediment input would be needed to affect benthic organisms because of the characteristics of the river. Such large increases could occur after severe precipitation events during construction when large areas of bare soil may remain exposed. Changes in water quality could arise from fertilizer, herbicide or other chemical inputs. The Board has reviewed the evidence on potential impacts on lower aquatic biota and concludes that the measures it has required to protect fish would be adequate to protect lower biota.

9.3.7 Consequences of Changing Project Layout

Elsewhere in this Decision Report (Section 10), the Board has concluded that the buildings the Applicant planned to construct on the east side of the West Castle River could be moved to the west side and stated that the proposed golf courses would be acceptable if they were located downstream of Syncline Creek and entirely on the west side of the river. These alternative locations are remote from the lakes where golden trout are found and would not, in the opinion of the Board, alter the amount of pedestrian traffic reaching the lakes. There would, therefore, be no significant difference in impact on golden trout from any of the alternatives considered by the Board. In the case of aquatic biota living in the West Castle River there could be a slight net benefit in the movement of buildings and golf courses to the locations suggested by the Board. Restricting most of the project and project related activity to the west side of the river should reduce disturbance of riparian vegetation and might reduce the quantity of sediment entering the river. Locating part of the project further downstream would make it more economically attractive to move the groundwater extraction well further downstream. Such a location would make it easier to ensure that groundwater withdrawal would not reduce surface flows.

9.4 Vegetation

9.4.1 Background

The Board heard evidence that the vegetation of the West Castle and adjacent valleys consists of plant communities representative of the montane, subalpine and alpine ecoregions. Vegetation of these ecosystems is typically in a state of succession, rarely reaching equilibrium because it is subject to aperiodic but relatively frequent disturbance. The most common natural disturbance of montane and subalpine vegetation is by fire; alpine vegetation is most commonly disturbed by geomorphological processes such as solifluction, frost heave, avalanches, landslides and changes in snow or ice cover. As noted in Section 9.1.1, many human induced disturbances have also affected the vegetation of the area. These include logging, clearing for the existing ski hill, trails, roads, powerlines and possibly grazing, fire management activities, travel by off-road vehicles and somewhat less severe interventions such as cattle grazing in uncleared areas, berry picking and trampling by trail users. It is likely that these forms of disturbance will continue in the future although the extent to which cleared areas will be kept clear or enlarged will depend on future management decisions including the decision of the Board.

The Board heard that site capability for timber production in the West Castle drainage is high. Logging in the West Castle Valley has been influenced by the 1936 fire, and the recent heavy pine beetle infestation. Future timber volumes are expected to be substantial and would normally be incorporated into annual allowable cut calculations in 20 years or so. Under the *Castle River IRP*, timber resources in Zones 2 – Critical Wildlife Zone and 4 – General Recreation Zone would be included in the cut. Conditions included in logging licenses might include constraints to reduce visual impact, but selective harvesting is not considered feasible by Alberta Environmental Protection. The Board has considered the likelihood of future logging in the area in its review of potential effects of the proposed project on vegetation.

9.4.2 Vegetation in General

There were a number of issues identified at the hearing or in the Board's review that concerned vegetation in general and several that concerned specific vegetation types or plant species. The Board intends to deal with the general issues first.

In its Application, Vacation Alberta reported that a total of 341 ha of land would be cleared if the project were to go ahead as proposed. Of this, 156 ha would be for ski runs, 155 ha for golf courses and 30 ha for services and accommodation. The Board notes that there may be some clearing to provide for off-site infrastructure and services for the project in addition to clearing of the main development site. The Applicant classified the vegetation of the area into eight major vegetation communities and provided estimates of the area covered by each vegetation type within the 341 ha to be cleared. The Applicant's estimates suggested that some vegetation types would be disproportionately affected within

the vicinity of the proposed development site. For example, within the vegetation study area, 30 percent of the area occupied by the Engelmann Spruce-Lodgepole Pine/Salmonberry community and 47.5 percent of the area occupied by the Trembling Aspen/White Meadowsweet/Brown Moss community would be cleared. Eighty percent of the former would be on the site of the proposed golf courses and 20 percent in the area where services and accommodation would be provided. The latter would all be cleared from proposed ski runs.

The Board finds that the percentages to be cleared under the Applicant's proposal are locally significant. The Board also notes that the Applicant reports the presence of one of the four rare plant species that it recognized in each of the vegetation communities referred to above. It also described the Engelmann Spruce-Lodgepole Pine/Salmonberry community as distributed along the flood plain of the West Castle River. This is an important location and vegetation type for wildlife. Most of the impact on the Trembling Aspen/White Meadowsweet/Brown Moss community would arise from clearing for the ski hill, whereas impact on the Engelmann Spruce-Lodgepole Pine/Salmonberry community would be caused by construction of golf courses, accommodation and services on the valley floor. Removal of the golf courses or other facilities from the valley floor would reduce impacts on the Engelmann Spruce-Lodgepole Pine/Salmonberry community but impact on the Trembling Aspen/White Meadowsweet/Brown Moss community could only be avoided if the ski hill were not expanded. In general, the Board would recommend that the Applicant clear the minimum area necessary for whatever development is approved.

The Applicant's map of vegetation communities near the proposed development site did not include the site to the north of the meadows to which the Board suggests the golf courses could be relocated. Consequently, no direct comparison of vegetation communities occupying the alternative sites was possible. However, Vacation Alberta did survey wildlife 'habitat types' based largely on plant physiognomy. The 'habitat type' map provided in the Application made it possible to do a rough comparison between the two potential golf course sites of the vegetation structure and to a lesser extent, species composition. The golf course site proposed in the Application is dominated (approximately 88 percent) by conifer forests. Lodgepole pine forests occupy roughly 35 percent, closed mixed conifer forests roughly 33 percent and Engelmann spruce forests occupy about 19 percent. Shrubland on wetlands and avalanche chutes makes up about eight percent. In contrast, the site proposed for relocation of the golf course development contains mixed deciduous/conifer forests (36 percent) and deciduous forests (three percent) not found to the south. Coniferous forests account for roughly 47 percent.

Although no direct concordance can be drawn between the primarily physiognomic 'habitat types' and the floristic classification of 'vegetation communities', it is plain that the two areas differ significantly in their species composition. On the evidence before it at this time, the Board can neither determine the relative proportions of vegetation communities that would be affected at the alternate site, nor assess the significance of clearing those communities in a regional context. The Board is nevertheless concerned

that any development permitted in the valley not result in a substantial reduction of any single community. Accordingly, the Board recommends that the Applicant, as part of its mitigation plan, expand the vegetation community survey to the area used for wildlife study area (i.e. the West Castle watershed) and provide the results to Alberta Environmental Protection.

Vacation Alberta suggested that on the 156 ha to be cleared for expansion of the ski runs, understory vegetation would not be much affected because only overstorey plants would be removed. The Board recognizes that while some shrubs such as saskatoon (*Amelanchier alnifolia*), chokecherry (*Prunus virginiana*) and Canadian buffaloberry (*Shepherdia canadensis*), and a few herbaceous species such as cow parsnip (*Heracleum lanatum*) might survive the removal of overstorey plants, many other species would not. Which species might survive, and in what quantities, would depend on the density of overstorey plants, the completeness of the canopy, the amount of light reaching the understory, terrain and hydrologic conditions on the site and the floristic composition of all layers of vegetation before clearing. In general, the Board does not accept the argument that understory vegetation would not be much affected although it believes effects would be less where the overstorey vegetation is unusually sparse and where hand clearing as opposed to mechanical methods are used. The Board would, therefore, recommend that hand clearing be used on the ski hill areas except where cut and fill construction is necessary.

Another general impact on vegetation identified by several participants in the hearing was the effect of increased access and trail use that might arise from the provision of more facilities, and especially year-round accommodation, at the project site. Interveners were particularly concerned about increased use of trails providing access to alpine vegetation which is sensitive to trampling. The Applicant suggested that access to alpine areas could be controlled by regulating the number of people using trails or by trail closures in such a way that consequential impacts on vegetation could be reduced or eliminated.

The Board accepts the argument that increased uncontrolled use of trails could cause undesirable impacts on vegetation and on alpine vegetation in particular. The Board also believes that such impacts could be reduced to acceptable levels by the kind of trail and access management measures that are commonly used in the National Parks and other protected areas. If the project or any part of it were to be approved, the Board would recommend that Vacation Alberta work with the proposed Waterton-Castle Wildland Recreation Commission (WCWRC) outlined in Section 11 to prepare an access and trail management plan which would include trail hardening, provision of viewpoints and interpretive signage, and seasonal closures. Access management is discussed in greater detail in Section 11.

Some participants in the review process were concerned about the effect of snow-making, snow grooming and skiing on vegetation. Snow-making and snow compaction arising from both snow-making and travel on snow can extend the period of

snow cover in a particular location. Compaction can damage brittle aerial parts of plants as well as affect winter activities of small mammals. Increasing the period of snow cover shortens the growing season for plants. If snow grooming is undertaken when snow cover is too shallow or too uneven, it can "scalp" the surface damaging vegetation. If the project is approved, the Board would recommend that Vacation Alberta incorporate into the training of its ski hill staff information about the nature of such impacts and how they may be reduced.

In its Application, Vacation Alberta identified the need to import either 101,000 or 135,000 m³ of topsoil to the development site. Most of this would be for use in golf course construction. Concerns were raised at the hearing about the location of sources for such a large volume of topsoil and the potential for introduction of weeds or other plants not present in the West Castle Valley as seeds in the topsoil.

Vacation Alberta stated that it would not identify sources of topsoil until later in its design process, although it had ascertained that topsoil from construction of the Three Rivers ("Oldman") Dam would not be available. It also said that it had not determined how much topsoil might be available on site. Vacation Alberta reported that it had consultations with the District Agriculturalist with respect to the importation of topsoil and potential for the introduction of noxious weeds. It proposed to test random samples of topsoil for the germination of the seeds of weedy species and to use the results to develop control measures which might include seeding with competing species, mowing or the use of herbicides as part of the Integrated Pest Management Plan.

The Board is aware that 101,000 m³ of topsoil (the lesser of the two estimates provided by the Applicant) is an unusually large amount. For example, it would cover 1.36 sections (square miles) of land to a depth of 11 cm (four inches) and it would constitute over 10,000 single truck loads or 5,000 tandem truck loads. In the Board's opinion, topsoil in such quantity would be unlikely to be available south of Calgary. The Board recognizes that obtaining topsoil and having it delivered to the site, especially at an affordable cost, would be a difficult problem confronting the Applicant. The only relief the Board can see is in locating the golf courses, which are the principal consumers of topsoil, where there are in-situ supplies of topsoil. With respect to the alternative golf course locations discussed in this Report, general scientific and engineering principles would suggest that in-situ topsoil would be more plentiful at the sites downstream of the wetland. These sites are, on average, at lower elevations and, on Mr. Russell's evidence, may be subject to a somewhat less severe climate. Evidence before the Board on vegetation cover also suggests that topsoil would be more plentiful at the downstream sites.

With respect to the presence of weed seeds in topsoil, the Board believes that most topsoil would be used on golf course greens and fairways and lawns around buildings. Most weedy species would be controlled by mowing in those situations. Given the important aquatic resources in the West Castle River (Section 9.3), the Board would require that herbicides not be used to control weeds on fresh topsoil during the first year after it is put in place. Mowing should suffice to control most weeds; herbicides should only be used for persistent infestations. A common method of avoiding weed infestations is to avoid taking topsoil from infested areas, but given the large volumes of topsoil required this would

appear impractical in the present case. However, the Board would require that Vacation Alberta not take topsoil from areas infested with weeds identified as noxious under the *Weed Control Act*.

As outlined in Section 9.1.1, fire is a recurrent phenomenon in the subalpine and montane ecosystems. Forest in the West Castle Valley was extensively burned in 1936. Vacation Alberta dealt with the potential for increased risk of fire during construction and operation of the proposed development in its Application. It proposes a set of fire protection measures including safety training for all construction personnel, stationing of forest fire fighting equipment and provision of stored water on site, consultation with Alberta Forest Service to select times for burning slash from clearing operations, and minimizing the use of wood and other combustible materials in construction. In addition, Vacation Alberta has proposed building design measures in its Master Plan that would reduce fire risk. It also observed that the proposed golf courses would present a barrier to the passage of wildfires along the valley and suggests that the river might also act as a barrier.

Taking into account the details of the proposed design, the Board is satisfied that the project would not greatly increase the risk of forest fire in the vicinity. In reaching this conclusion the Board recognized the frequency with which fires occur naturally in the montane and subalpine ecosystems. The Board notes that Vacation Alberta has undertaken preliminary planning.

9.4.3 Effects on Specific Areas of Vegetation

Downstream of the proposed project site is an area of somewhat more than one km² of wetland referred to by the Applicant as "the meadows". The western boundary of the wetland abuts on Secondary Highway #774. The Board heard that the area is unique in southern Alberta because there is no other wetland of comparable size at a similar elevation or in mountain terrain. The wetland is important for moose, and for species of furbearers, birds, amphibians, fish and plants. Participants in the hearing expressed concern that the wetland and the species it supports might be affected by changes in water levels resulting from withdrawal of water for the project, by encroachment on its western edge as a result of improvement of Secondary Highway #774, and by installation of municipal service lines along and adjacent to the highway. It was also suggested that increased sediment loads arising from or subsequent to project construction could adversely affect the wetland.

The Board has reviewed the evidence before it concerning effects on the wetland. It concludes that lowering of flows in the West Castle River at periods of low flow could affect the wetland but believes that the conditions with respect to water withdrawal that the Board has defined in Section 6.1.1.2 of this Report would avoid such occurrence. As discussed in Section 6.2.4, the Board does not believe that additional sediment loads would be sufficient to significantly affect the wetland provided Vacation Alberta were to implement mitigative measures. With respect to highway improvement and the installation of services such as power, water and gas lines parallel with the highway, the Board expects

that some adverse effect on the wetland could occur if a right-of-way had to be extended into it. The Board is aware that minimum separation distances between different service lines and between service lines and roads are required for safety although it was unable to obtain evidence of what these might be. Impact on the wetland could be reduced or even avoided if service lines could be placed west of the road but topographic constraints may make such placement difficult. Locating the golf courses north of the wetland would necessitate laying a sewer line parallel to the highway, thus increasing the width of right-of-way required for services. If the project were to proceed the Board would recommend that Vacation Alberta consult Alberta Environmental Protection about the exact placement of service lines along Secondary Highway #774.

Considerable attention was devoted at the hearing to the band of riparian vegetation along the West Castle River in the vicinity of the proposed project. The Board heard evidence that this band extends upstream and downstream of the wetland referred to above. It provides suitable habitat for the same wildlife species as the wetland and for some additional species of songbirds and plants. It is also thought to provide a movement corridor as well as possible resident habitat for carnivores and ungulates. Long-toed salamanders and spotted frogs breed there. The rare wandering shrew lives in riparian habitats and has been reported from the West Castle Valley. Riparian vegetation in the West Castle Valley is currently disturbed by roads and trails, uncontrolled camping and cattle grazing, although one participant said that cattle grazing had little noticeable effect. Proposed construction in the flood plain including that of buildings, on-site roads, bridges and golf courses would affect riparian vegetation. Vacation Alberta proposes to leave a 30 m buffer zone uncleared along each side of the West Castle River except where bridges and ski ramps are to be built. At the hearing, the Applicant stated that it would not construct a footpath that it had intended to build parallel to the river and within 30 m of it, reinforcing its commitment to the buffer zone.

Some participants were concerned that losses of riparian vegetation might be sufficient to threaten local populations of some species. Some suggested that the provisions made by the Applicant for the buffer zone might be inadequate and that the width might be varied from site to site following a more detailed review of local vegetation, relief and terrain conditions.

The Board has reviewed all of the evidence about buffer zones and agrees with Vacation Alberta that a standard 30 m wide buffer zone on each side of the river is appropriate. However, the Board recognizes that there would be situations, such as river crossings, where this could not be achieved and others where it might be advisable to allow for a wider zone. The Board would require Vacation Alberta to review the width of the buffer strip on a site-by-site basis and submit its detailed design to Alberta Environmental Protection as part of its mitigation plan. The Board, in reviewing evidence about the downstream portions of the Applicant's study area, concluded that relocating the golf courses downstream would substantially reduce potential impacts on riparian vegetation because it would be possible to confine development almost entirely to the west side of the river.

The Pincher Creek and District Economic Development Board identified in its submission a 160 acre spruce plot identified as a seed source by what is now Alberta Environmental Protection. The plot runs from Haig Brook northward to a point halfway between Haig and Gravenstafel Brooks and is in the area proposed by Vacation Alberta for development of Stage II of the ski hill expansion. Should that part of the proposed project proceed, the Board would recommend that Vacation Alberta contact Alberta Environmental Protection to determine what its requirements with respect to the spruce plot might be.

Another area of vegetation identified as of particular interest by the Applicant and several interveners was the forest in the area from the valley floor up to the 5,500 foot contour on the east side of the West Castle Valley. Vacation Alberta designated this as largely belonging to the Lodgepole Pine-Alpine Fir/False Huckleberry/ Heart-Leaved Arnica community. The forest occupies the land identified by Vacation Alberta as a wildlife movement corridor. The Board's views on the corridor and the need to protect it are presented in Section 9.5.2.

9.4.4 Rare Plants

Vacation Alberta makes reference in its Application to the potential for the occurrence of rare plants in the West Castle Valley but it discovered only four rare species within its study area. The Board heard evidence from other sources that as many as 125 species of rare vascular plants are or are expected to be found in the West and South Castle Valleys. Of these, 40 species are nationally rare. The reasons advanced to account for this phenomenon were the unusual climatic features of the region and the fact that the ranges of plants with different types of geographical distribution tend to overlap there. Many such species are near the limits of their distributions in the area and it is not surprising that they are rare in Alberta.

The Applicant concluded that impacts on rare plants would be acceptable because many of those in wooded areas would not be affected by clearing, those on the ski areas could be protected by avoiding grading in areas where they are found, and those near trails could be protected by careful trail routing and signage. Intervenors did not believe that avoidance of rare plants is generally possible because significant changes in locations of areas to be cleared could not be accommodated within the project as set out in the Application and because Vacation Alberta did not demonstrate that it knows now, or will know in the future, where rare plants are growing. Vacation Alberta and intervenors agreed that avoidance is the only reliable means of preventing impacts on rare plants; for most species transplanting is untried and is not likely to be successful without adequate experimentation.

The Board heard evidence from an expert witness that the Castle River area is "... the most poorly explored biological area in the southern half of Alberta." Knowledge of rare plant species is limited to the casual observations of individual botanists; no

comprehensive account of the distribution and abundance of species is available for the area. The Board was also told that the delineation of plant communities was of no value in predicting the location of rare species.

Because the questions of the presence of rare plants and what could be done about them were the subject of a great deal of attention at the public hearing, the Board has reviewed the matter in considerable detail. First of all, it was necessary to determine what is meant by "rare plant". Publications and policy documents dealing with rare species generally focus on political rather than physiographic or floristic boundaries in defining rarity. It could be argued that, since the Board is a creature of the laws of Alberta charged with determining what is in the public interest of Albertans, it should accept this emphasis on political boundaries and be concerned only with rarity within the boundaries of the province. Such an approach flies in the face of common sense as well as being inconsistent with what we know of the natural factors that account for the distribution of plants and animals. For example, in the Board's view it is hardly defensible to label as rare a species that is widespread and abundant in the United States but whose distribution extends across the border only far enough for occasional individuals to be found in Alberta.

At the hearing, there was considerable discussion of the possible occurrence of bracken fern (*Pteridium aquilinum*) in the West Castle Valley. This species is cosmopolitan in distribution and is considered a noxious weed of pastures in many countries with temperate climates. The question arises as to how many of the 40 species of plants recognized as nationally rare that occur or might occur in the West Castle Valley are rare in North America or rare globally. The Board's view is that even if the number of species that are rare globally is substantially less than 40, the conclusion that rare plants are found in the area would remain intact. Beargrass (*Xerophyllum tenax*), which is locally abundant in parts of the West and South Castle Valleys and Waterton Lakes National Park, also occurs in southeastern British Columbia, Idaho and Montana but is certainly rare on a global basis.

It might be appropriate for the Board to comment at this point on two conflicting approaches to the conservation of biological resources. What one might call the taxonomic school of conservation focuses on species on the argument that it is desirable to preserve the largest possible variety in the global gene pool. The reasoning is that maximum genetic diversity provides maximum opportunity for future economic exploitation and that it could provide maximum opportunity for successful evolutionary response to changing environments. Those who adhere to the ecological school of conservation argue that the most effective way to conserve biodiversity and genetic resources in the long-term is to protect large enough areas of existing ecosystems to allow ecological and evolutionary processes to proceed more-or-less naturally. Advocates of this approach might argue that rare species, especially those showing reductions in range, are probably unsuccessful in evolutionary terms and would be likely to become extinct before very long, "long" being defined on an evolutionary or geological time scale. The Board finds this view persuasive, particularly in the face of the difficulty those embracing the taxonomic approach have in determining which species are worthy of protection. At present, attention favours vascular as opposed to non-vascular plants and vertebrate as opposed to invertebrate animals. Fungi and bacteria do not often appear in lists of species to be protected. The Board finds

no reason to justify this particular division of interest. If it were based on economic or potential economic value, fungi and bacteria would command much more attention. Although several interveners commented on the charismatic qualities of certain species, the Board observes that aesthetic and emotional preferences vary too much from person to person for them to account for the values accorded to the various species. The ecological influence of a species within an ecosystem or ecosystems does not appear to be a factor in attracting public attention, although it could be argued that it should be.

Notwithstanding these various cavils about the importance of plant species, the Board is persuaded that the West and South Castle Valleys, together with Waterton Lakes National Park, are a unique and important area for Alberta's flora and that it would be in the public interest to afford them some form of protection. The Board's recommendations to this effect are presented in Sections 10 and 11. With respect to site-specific protection within the West Castle Valley, the Board accepts the reservations about transplantation expressed by participants and would therefore recommend avoidance of areas where rare plants are known or expected to occur. Measures to control and regulate access are discussed elsewhere (see Section 11) and would help reduce impacts. In areas where there is flexibility in the detailed design and location of parts of the project, the Board would require that should all or part of the project be approved, surveys for rare plants in areas to be disturbed by construction be undertaken before construction so that modifications to avoid them may be made in the mitigation plan to be submitted to Alberta Environmental Protection for its approval.

9.5 Wildlife

9.5.1 Introduction

The Board heard a great deal of evidence about wildlife, some of it specific to certain kinds of animals and some of it applying to groups of species. There was much more evidence about some species than others. For this reason, the Board has dealt with species in this section of the Report in a particular order. The Board begins with large carnivores, proceeds to large herbivores and then deals with smaller species of mammals, birds, and reptiles and amphibians. These are followed by subsections bringing together the Board's conclusions with respect to wildlife monitoring and mitigation. Within each large animal group, the Board starts with the species about which it heard the most evidence; much of the Board's analysis of potential effects on such species is applicable to other species with similar ecological and behavioral characteristics. Where this is the case, the Board has made reference to it in dealing with the species about which there was less evidence. In general, the Board has paid more attention to the larger species because of their economic importance or because they are considered to be particularly vulnerable to impact because their populations are small in numbers. Potential effects on smaller animals, which are often more numerous, are likely to be less except in the case of rare species. The Board has dealt with smaller species collectively but has given particular attention to rare species that may be affected by the proposed project.

9.5.2 Grizzly Bear

The Board heard a great deal of evidence about potential effects of the proposed project on grizzly bears. Most participants were concerned about such potential effects but one or two said they would be happy if grizzly bears disappeared from the region. Grizzly bears are large conspicuous animals valued highly by most members of the public. This was demonstrated by the Applicant's description of development of the "Trail of the Great Bear" tourism project. Grizzlies are also ecologically important as a top terrestrial predator in the food chain of the regional ecosystem. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has listed the grizzly bear as vulnerable in Canada. In the United States it is subject to endangered species legislation and substantial funds are being expended to protect it. Alberta has a *Grizzly Bear Management Plan* that seeks to establish a stable population of at least 1,000 bears in the Province. This plan is consistent with Canada's commitments under international treaties and protocols. From this evidence the Board concludes that potential impacts on grizzly bears and ways to avoid or mitigate them require careful examination.

Expert witnesses on behalf of Vacation Alberta and several interveners provided the Board with extensive information about the distribution and population dynamics of grizzlies in North America and in the region in which the proposed project would be situated. A brief summary of this evidence may be helpful to an understanding of potential impacts.

Before European settlement the distribution of grizzly bears included the western half of North America but by 1922 the population in the lower 48 United States was reduced to insular subpopulations in the Yellowstone Park area of Wyoming and Montana, western Montana, northern Idaho and possibly the northern Cascades of Washington. Population geneticists consider these populations too small to survive in the long-term because of reductions in fitness caused by inbreeding. By the same time (1922), the distribution in the southern Canadian prairies had been pushed back to the boundary between the Front Ranges and cultivated land and grizzly bear range in the interior of southern British Columbia was becoming fragmented.

In Canada today, the grizzly bear is still found in parts of the mountain ranges of B.C. from the coast to the Continental Divide and beyond it to the eastern slopes of the Rocky Mountains in Alberta. It is also found in the boreal forest of the Swan Hills in Alberta, in the Yukon, and in the mountains west of the Mackenzie River in the Northwest Territories. Grizzly bear ranges abutting the Canada/U.S. border are continuous and the populations occupying them are not constrained by political boundaries.

Grizzly bears are not evenly distributed throughout their ranges. They are more numerous in areas that afford favourable climatic conditions, a good food supply and a relatively low level of disturbance, especially by human activity. Such areas may change

over periods of decades in response to successional cycles in forests or changes in the pattern of human activity. Movements between these areas of residence are made principally by young bears unable to find either territories or mates and by older bears displaced by disturbance. Areas of least environmental resistance are selected as travel routes. These may include human and game trails, forest edges, riparian strips, low density forest, roads and mountain passes. Obstruction of movement routes by physical barriers or repeated disturbance may displace bears to suboptimal routes requiring the expenditure of more energy and consequently reducing survival rates. Blockage of movement corridors fragments habitat and leads to the formation of insular populations which, as noted earlier, may be too low in numbers to survive. Exchange of individuals between small populations may be essential to avoid the effects of inbreeding.

Female grizzlies occupy smaller home ranges than males. Female annual ranges as small as 179 km² were reported in Kananaskis Country. Annual home ranges for male bears typically fall between 500 and 1,500 km² but multi-year home ranges would be perhaps 50 percent larger. Home ranges normally include patches of higher quality habitat that provide essentials to the bears. These include denning sites, feeding areas such as berry patches, horsetail fens or beargrass stands, and areas where prey species are present and may be preyed upon without interference by man or where carrion may be scavenged without interference by man. These important components of home ranges may be connected by corridors in which the bears spend less time but which are subject to the same kinds of alienation or obstruction as are the longer distance travel routes between areas occupied by populations of bears.

Reproductive rates for grizzlies are low (sexual maturity at about five years; 1.5 young every two years thereafter) and related to habitat productivity. Reproductive success may be related to success in predation or scavenging for meat or fish. Low reproductive rates imply that grizzly populations are slow to recover from major adverse impacts such as famine, episodes of disease or outbreaks of enthusiastic hunting.

Grizzly bear range in southwestern Alberta is now limited to a strip of land 40 km wide between the Continental Divide and patent land to the east. Most of this land outside Waterton Lakes National Park has been heavily used; some of the valleys in the Front Range north of Waterton and the South and West Castle Valleys are among the less disturbed. The strip is important to grizzly bear for two reasons: the mesic Continental Divide range of mountains in the Castle area may offer more productive habitat than the dryer mountain areas to the north and northeast, and it constitutes a significant part of a movement corridor between relatively numerous populations of grizzlies in Glacier National Park, Montana and the Flathead Valley in Montana and B.C. to the south and southwest, and Kananaskis Country, Banff and Jasper National Parks and the Willmore Wilderness to the north.

Current population estimates for grizzly bears that were put before the Board were: from 500 to 900 in Alberta, of which somewhat more than 200 are in the National Parks; and 6,000 to 12,500 in B.C. where there are much larger numbers in the north than

in the south. Direct evidence from radio-tracking showed 20 to 25 grizzlies resident in Waterton Lakes National Park, although many of their home ranges include land outside the park in Alberta, B.C. and Montana. Vacation Alberta estimated 90 grizzlies in southwestern Alberta between Banff and Waterton Lakes National Parks and suggested that 38 bears including 15 adults might use the West Castle Valley over a five-year period.

Bears resident in the West Castle Valley are thought to belong to a population which also occupies Waterton and Glacier National Parks and the Flathead Valley. Radio-collaring has provided evidence of relatively frequent movement of individuals within this population suggesting it can be regarded as a genetic unit. Exchange of individuals with populations further north and further south appears to be less frequent and is attributed to the presence of barriers to movement such as development along Highway #3. Three north-south movement corridors were identified to the Board: the South Castle Valley, the West Castle Valley and the Flathead Valley. East-west movements occur across mountain passes such as Middle and North Kootenay Passes. Expert witnesses emphasized the potential for the obstruction to movement presented by Highway #3 and associated development to isolate the grizzly bear population to the south and result in its eventual extirpation. Within the West Castle Valley, the primary movement corridor was identified as the lower slopes of Barnaby Ridge.

The Board heard that potential impacts of the proposed project on grizzly bears could occur through increased mortality, and as a result of loss, degradation or alienation of habitat. Restriction of movements of bears is regarded as habitat alienation in this context because it can prevent access by bears to suitable habitat, thus reducing potential production. Restriction of movements can also lead to isolation of small populations, loss of genetic fitness through inbreeding and increased risk of extinction as a result of fluctuations in population size.

Participants agreed that a very significant contribution to bear mortality is the loss from the population of bears killed or removed from areas where they have come into conflict with people. Evidence was put forward to show that most bears transported elsewhere as a result of human/bear conflicts die; those that do not may successfully displace other bears resident in the receiving area. Areas where such conflicts are frequent are referred to as mortality sinks. Examples given at the hearing were along the boundary between agricultural land and the forestry reserve in the eastern slopes, and especially in Poll Haven, at certain locations along Highway #3, in particular the towns in the Crowsnest Pass, and Highway #1 including the towns of Banff and Canmore. The Board heard that in Yellowstone National Park, Wyoming, mortality sinks associated with human concentrations (towns and resort villages) have resulted in the death or relocation of bears in areas of influence from 2,700 to 8,700 km² in size. Mortality sinks occur where bears interfere directly with people such as residents, campers or hikers, or with human activities such as motor vehicle traffic or cattle grazing. Bears may encounter humans and human activities through the movements described earlier, by seeking to establish new home ranges or by being attracted to the products of human activity such as poorly managed solid or liquid wastes. The Board heard that male bears tend to avoid areas of conflict or disturbance and

that females, seeking to avoid the more aggressive males, are more likely to encounter mortality sinks. This leads to a differentially higher loss of the element of the population that determines its reproductive capability. Vacation Alberta's evidence was that past activity in the West Castle Valley did not constitute a mortality sink for grizzly bears, perhaps because most of the prolonged activity there has been in the winter when the bears are in hibernation. However, Vacation Alberta concluded that its proposed development would lead to significant losses of grizzly bears that cannot be mitigated if its project proceeds as planned. As noted earlier, Vacation Alberta estimated that 38 bears including 15 adults might use the West Castle Valley over a 5 year period. Other participants agreed with Vacation Alberta's estimate. Bears would be at risk of being shot or removed if they came into contact with hotel or condominium residents or golfers.

Legal hunting and poaching also kill grizzly bears. The Board heard that in Bear Management Zone 400, which includes the Castle-Carbondale Corridor between the Crowsnest Pass and Waterton Lakes National Park, the annual hunting allocation is determined annually by Alberta Environmental Protection. In the zone of B.C., adjacent to the West Castle Valley including the Flathead region, the number of licenses issued to shoot grizzly bears is also determined annually. It has recently been approximately twenty. Witnesses suggested that the number of bears legally harvested in Alberta is generally lower than the legal quota, but Alberta Environmental Protection experts believe that the number of bears killed by poaching is at least as high as those killed legally. These numbers are probably of the same order as the number of bears killed by farmers at the margin of the agricultural and forestry zones of the eastern slopes. Some participants suggested that the proposed project would provide better access and facilities for hunters with a consequent increase in total bear harvest.

Vacation Alberta provided evidence of the area of habitat suitable for late summer-early fall feeding by grizzly bears that lies within the "footprint" of the proposed project. Of this, about five percent would be cleared or graded. Vacation Alberta recognized berry patches as feeding habitat but not areas where root and corm digging may occur. Areas where carrion may be found in the spring was also not considered as feeding habitat. Vacation Alberta noted that there would be loss of thermal and hiding cover because of tree clearing. Bear denning has been reported in the West Castle Valley and Vacation Alberta concluded that it would also be affected by the proposed project. Although participants agreed that these direct impacts on habitat would occur, their evidence suggested a greater concern for indirect effects on habitat, especially on a regional scale.

Witnesses suggested that unhabituated grizzly bears could be affected and disturbed or displaced by human activity at distances from 500 m to 1 km. Permanent activity, such as that associated with residences, has more effect than intermittent activity. Participants suggested that unhabituated bears would be deterred from using important berry patches on Haig and Barnaby Ridges and on the slopes leading up to the Middle Kootenay Pass if the project were to proceed. Denning areas might also be within the zone of deterrence, as would the movement corridor along the floor of the West Castle Valley

and the lower slopes of Barnaby Ridge. Participants agreed that the consequences of blocking the movement corridor along the West Castle Valley could have significant adverse effects on the regional grizzly bear population, particularly if extraordinary measures were not taken to keep open alternative corridors. Vacation Alberta provided a figure identifying the location of probable movement corridors within the region and stated that: "These corridors are important in allowing interaction of grizzly bears on a local and regional scale: interaction within and among populations is crucial for maintaining productivity and genetic viability in grizzly populations."

The Board has reviewed all the evidence before it on grizzly bears, and the potential effects of the proposed project on them, and agrees with Vacation Alberta that the effects would be of high magnitude, negative, long-term and regional in scope. The region affected would be the international Crown of the Continent Ecosystem. The Board is concerned that creation of a mortality sink in the West Castle Valley, alienation of denning and feeding habitat and a possible increase in hunting harvest could reduce the local population to numbers that are not sustainable. There was discussion during the hearing as to whether the subpopulation of grizzlies resident in and near the West Castle Valley had been a source for replenishment of neighboring subpopulations or a sink restocked by dispersion from them. The Board concludes that historically, both conditions would have occurred, depending from time to time on weather, disease, abundance of food, and the incidence of forest fire and other disturbances in the ranges of the various subpopulations. This conclusion leads to a greater concern on the part of the Board: that is the probability that the proposed project could block the movement corridor along the West Castle Valley and, in particular, that this blockage could occur at a time when other movement corridors which may offer alternative routes for long distance travel are also subject to increasing levels of disturbance. The Board is concerned that the project could significantly accelerate the decline in the North American grizzly bear population south of the Crowsnest Pass and hasten its extirpation. Its reasons are as follows.

A major factor in the decline and eventual disappearance of species is the loss and alienation of habitat which often results in the fragmentation of populations into small subpopulations which can easily become isolated from each other. Such small subpopulations are more likely to become extinct than larger populations for several reasons. Quasi-cyclical variations in numbers are more likely to touch zero in a small population and adverse environmental disturbances are more likely to affect the entire subpopulation and its entire range thereby exacerbating declines in numbers. Inbreeding reduces fitness, or how well adapted individuals are to their environment, thereby decreasing their probability of survival to reproduce and their probable reproductive success. As populations become smaller, genetic variation within them is further reduced and fitness, reproductive rate, and survival of young decrease. This process is self-amplifying and can result in what population geneticists call an "extinction vortex". Movement corridors between the ranges of subpopulations allow the exchange of individuals which can replenish declining numbers in a subpopulation suffering from a temporary setback and prevent decreases in genetic variability within subpopulations by the introduction of genes carried by migrating individuals. The Board is convinced that grizzly

bear subpopulations in the U.S. and southern Canadian Rocky Mountains are too small for long-term sustainability without exchanges between them, and between them and subpopulations to the north, to counter the genetic and ecological problems referred to above. The Board believes that blocking the movement of grizzly bears through the West Castle Valley would not be in the public interest, especially if no action were taken to keep alternative routes open.

Vacation Alberta concluded that no significant mitigation of impacts on grizzly bears is possible. The Board is not entirely convinced that this is the case, although some mitigation that might be considered would involve significant modification of the Applicant's plans. As Vacation Alberta has undertaken, bear mortality could be reduced by closing appropriate parts of the ski hill when bears are present or nearby. This practice could be extended to the golf courses and the Board would require that be done if golf courses are built and operated. This should reduce mortality of bears that are passing through the West Castle Valley as opposed to residing there. As Vacation Alberta suggested in its Application, bear removal and subsequent mortality could also be reduced by following waste management practices designed to avoid attracting bears. The Board would require that Vacation Alberta implement the mitigative measures for grizzly bears recommended by its consultants in its EIA and summarized in Appendix C of this Report with the exception that the Board believes that ski hills and golf courses need be closed only when bears are present or nearby.

The Board believes that hunting of predators is necessary to avoid their habituation to man but that excessive hunting, legal or otherwise, is undesirable for obvious reasons. The Board has also explained in Section 8 that it believes that Alberta is not realizing the return on its wildlife resources that it could. In order to avoid unsustainable harvesting in the years following construction of the project if it were to proceed, the Board would recommend maintaining the number of licenses issued to hunt grizzlies at a very low level and would encourage measures to control poaching. It would also recommend that resident hunting licenses be targeted to areas along the margin of the agricultural zone where bears might be killed in any case when they interfere with agricultural activities. The Board has made the assumption that the harvest quotas set in Alberta's *Grizzly Bear Management Plan* will be adhered to. Finally, the Board would recommend that Alberta Environmental Protection award a higher proportion of licenses than it does now to local guides and outfitters servicing non-resident hunters and that it set high minimum bids at auctions for such licences.

With respect to habitat loss and alienation, the Board believes that the Applicant could take steps to avoid clearing or other disturbance of important areas of habitat where the project design allows flexibility. In order to do so, Vacation Alberta would have to determine the identity and location of such areas. The Board would require Vacation Alberta prior to construction to conduct surveys to determine the location of potentially important areas of denning and feeding habitat for grizzly bears and to attempt to avoid unnecessary disturbance of them when determining the final design of the proposed project. The Board would require that Vacation Alberta include the survey results in the mitigation plan to be submitted to Alberta Environmental Protection for approval.

The Board believes that keeping open the ability for bears to move between subpopulations, especially in a north-south direction, is in the public interest. It concludes that steps should be taken to maintain use by bears of the corridor along the lower slopes of Barnaby Ridge. Because summer activity is the most disruptive to bears, the Board is most concerned about the year-round accommodation proposed to be located in the narrow part of the valley and the golf courses which would occupy the valley floor from the ski hill location south to the foot of Middle Kootenay Pass. The Board believes that movements of bears through the corridor would not continue unless the east side of the valley floor were to be kept clear of development. With respect to the buildings, this could be accomplished by moving the majority of them to the west side of the river. The golf courses could not be moved to the west side of the river within the immediate vicinity of the proposed development. The Board, therefore, concludes that it would not be in the public interest to approve them as proposed. However, the Board does believe that, should the golf courses be moved downstream of the wetland and north of the ski hill to the location described in Section 10, they could be built on the west side of the West Castle River leaving the east side open as a movement corridor. The Board recognizes that the proposed development would still be close enough to the movement corridor to disturb the bears wishing to pass but believes that if activities on the east side of the river were curtailed and confined to those less disruptive to bears, the animals would soon adapt to the level of activity and use the corridor. With respect to the possible alternative location of the golf courses, the Board notes that they would be removed from areas of habitat thought to be important for feeding of grizzly bears. Moving the golf courses would, therefore, reduce impacts on the local bear population as well as reducing effects on the movement corridor. Movement of the golf courses away from Middle Kootenay Pass would also reduce effects on east-west as well as north-south movements because the Pass is relatively low in elevation and connects with corridors leading to Waterton Park and the South Castle Valley as well as to the Flathead Valley in B.C.

In reviewing the matter of impact on movement corridors and its consequences, the Board reached conclusions about the need to address corridors on a regional scale and not simply in the context of the "footprint" of the proposed project and about differences in the severity of impacts arising from different effects. Evidence summarized earlier about the three main north-south movement corridors for grizzly bears, convinced the Board that consideration of only one in isolation from the rest would be pointless. The Board was advised that all three corridors are subject at present to disturbance. The Board believes that consideration should be given to developing a management regime for the region that would ensure that these corridors remain open. In Section 10, it recommends establishment of a wildlands recreation area that, combined with Waterton Lakes National Park, would attempt to achieve this within the jurisdiction of Alberta. The Board also recommends collaboration with the governments of Canada, the United States, British Columbia, Montana, Idaho, and Wyoming to set in train the cooperative management approach necessary to conserve the entire ecosystem and obtain long-term sustainable benefits from it. With respect to different types of impact, the Board concludes that permanent occupied structures, permanent roads, and continuing off-road

travel by motorized vehicles are the most disruptive impacts. In Section 10, it recommends short- and long-term controls on land use that could be incorporated into the management regime for the region in order to reduce impacts on home ranges and movement corridors to an acceptable level.

9.5.3 Black Bear

Participants in the Board's hearing expressed almost identical concerns about black bear as they did about grizzlies. Similarly, those participants who did not like grizzly bears and wished to see them disappear were not concerned about the conservation of black bears.

The Board heard that black bears enjoy the most secure status of any of the large carnivores in Canada. Black bears are relatively conspicuous and travel widely, which often gives an inflated impression of their abundance. Black bears are abundant and broadly distributed in Alberta. COSEWIC considers the black bear to be less vulnerable than the grizzly bear.

Black bears have been numerous in Waterton Lakes National Park since at least the 1920's. The current estimate of black bear numbers in the Park is 40 to 60 animals. An estimated 80 black bear live in Wildlife Management Unit (WMU) 400, which includes the Castle drainages, with an additional 50 estimated to be present in WMU 302, which encompasses the Castle-Front Range area. The exact number of black bears in the West Castle Valley is unknown but Vacation Alberta reported frequent sightings of black bears and bear sign throughout the valley and quoted statements from bear biologists that black bear are common there.

Evidence before the Board was that black bears, unlike grizzlies, rarely frequent alpine environments. They favor aspen parkland, montane, and subalpine regions, especially the lower slopes and valley bottoms. Forest cover in association with food availability are primary components determining suitable habitat for black bears. There is general agreement that black bears require a greater degree of forested habitat than grizzly bears. Where the two species overlap, grizzlies usually dominate.

Black bears use home ranges of variable size, depending on environmental conditions and behavioral factors. In Banff National Park, home ranges vary between 20 km² and 236 km². Black bears are believed to move from location to location within their home ranges and to disperse to potential new range in a similar manner to grizzlies: i.e. by means of corridors or movement routes that provide a combination of preferred habitat and cover with low energetic cost. Notwithstanding differences in habitat preferences, the potential adverse impacts on black bears that were identified by the Applicant and other participants were the same as for grizzlies. Furthermore, Vacation Alberta's consultants concluded that the mitigative measures it proposed for grizzly bears would be adequate for black bears, while at the same time conceding that mitigation was unlikely to be successful in avoiding significant losses of bears in the West Castle Valley. The Board heard that the

main cause of black bear mortality appears to be hunting, although complete mortality data are unavailable and figures for hunting mortality are only estimates. The maximum sustainable mortality rate for black bears is estimated to be 16 to 23 percent of the adult population per year. Some witnesses said that present rates of mortality in the West Castle area exceed the sustainable maximum and that this has precipitated a decline in the population.

Evidence was put before the Board to establish that a continuation of the increase in current use of the West Castle area, especially if accelerated by construction of the proposed project, would not only result in further losses of secure habitat, but also in increased contact with people and with the solid and liquid waste they produce. This combination of effects has elsewhere led to the habituation of bears to humans. Habituated bears are eventually killed or removed to distant areas where they often die or displace other bears which, in turn, suffer the same fate.

Vacation Alberta noted that obstructions to movements consist of physical impediments, sensory impediments, and the loss of forest cover in travel corridors and in areas adjacent to them. In the Application Vacation Alberta concluded that traditional movements by black bear through the West Castle Valley would likely be impeded by such obstructions if the project were to proceed. In addition, the Applicant predicted increased stress and decreased efficiency in habitat use, which would likely result in a decline in the fitness and health of affected bears.

The Applicant identified the key to conserving black bear populations as the protection of prime habitat, strict garbage control, and the keeping of human contact to a minimum. In the vicinity of the proposed development, Vacation Alberta proposed additional site-specific mitigative measures including closure of ski runs in spring if bears are emerging from dens, mandatory leashing of dogs, and public education about bears.

The Board is in agreement with the Applicant that, with minor exceptions, impacts on black bears would be likely to be similar to those on grizzlies should the project proceed. The Board also finds the Applicant's mitigative measures desirable and appropriate but recognizes, for the reasons discussed under grizzly bears, that they would probably not be adequate to avoid major adverse effects on bears. As explained in the previous section, the Board has considered impacts on grizzly bears on a regional scale and has made proposals with respect to project layout and regional resource management that it believes would allow the regional population to be sustained at present or higher levels. The Board believes that these measures would be equally beneficial for black bears.

9.5.4 Wolverine

The Board heard that the wolverine has disappeared from almost half of the range it occupied in North America before European settlement. The greatest loss has occurred in the lower 48 of the United States. COSEWIC lists the eastern subspecies of wolverine as endangered and the western subspecies as vulnerable. The wolverine is on the "blue list" of the provinces of Alberta and British Columbia as a potentially vulnerable species. Participants were concerned that the proposed project might adversely affect an animal population thought to be already in decline.

Evidence put before the Board was that the International Union for the Conservation of Nature (IUCN) Species Survival Commission has concluded that wolverines are scarce everywhere in the United States and that their survival in the southern Rocky Mountains is uncertain. The only flourishing population remaining in the lower 48 states is in Montana. By 1920 wolverines were believed to no longer exist in Montana so a recovery or reestablishment has occurred. This is believed to have been the result of wolverines moving into Montana from Canada by the movement routes discussed under Grizzly Bear. The IUCN estimates a total population of the order of 5,000 widely distributed in British Columbia which could act as a source for colonization. In Alberta wolverines are generally confined to less disturbed areas of the Rocky Mountains and are thought to be few in number. Population estimates are difficult to obtain and are usually based on trapping returns which are unreliable estimators of population size. The Board heard that the registered trapline holders had trapped four wolverines in the West Castle Valley prior to 1990 and one more during the 1990-1991 trapping season. Vacation Alberta reported sighting wolverine tracks during its studies.

The ecology of wolverines is poorly understood because their low density and reclusive habits make them difficult to study. Reported home ranges vary from 70 to 1000 km² and areas needed to support populations of 50 and 500 wolverines have been estimated to be 10,000 km² and 100,000 km² respectively. The large home ranges are believed to arise from the dependence of the animals on carrion, although small mammals, birds and fruit also form part of their diet. Wolverines are believed to be unusually sensitive to human intrusion into their habitat, particularly where frequent uncontrolled access or new road construction occurs. Because population densities are low, wolverines are particularly vulnerable to trapping and habitat alteration. As scavenging predators wolverines are attracted to garbage, a further potential source of mortality.

Participants expressed concern about the same types of impact on wolverines as on grizzly bears. Vacation Alberta expected that, if constructed, the project would alienate much or all of the West Castle Valley from use by wolverines and that movement of wolverines through the valley would be obstructed. This would result in the fragmentation of habitat in the region, compounding losses that would be suffered by the wolverine population. Unlike grizzly bear, direct mortality of wolverine is not expected to be significant because removal of animals interacting with humans is unusual. Some losses could occur at the time of construction, but in the long-term those would probably be

insignificant compared to the effects of habitat alienation on potential population size. Vacation Alberta concluded that effects on wolverine would be high in magnitude, adverse, long-term and regional in scale.

The Board agrees with this conclusion and considers such an impact on a species considered vulnerable in Canada and at risk in Alberta to be a matter of concern. Given the lack of understanding of the ecology of the wolverine, the Board believes that one should make conservative assumptions in making such assessments, further underscoring the conclusion that the Southern Rocky Mountain wolverine population may be at risk if the increase in the level of human activity in the region continues unchecked. This increase is already occurring and would not cease should the project before the Board fail to proceed.

The Applicant's proposals for mitigating impacts on wolverine are essentially the same as for grizzly bear and are, in the Applicant's opinion, not capable of effectively reducing the level of impact. The Board agrees but believes that impacts would be lower if the distribution of the development were confined to the west side of the West Castle River. The arguments to support this conclusion are the same as set out under grizzly bear in Section 9.5.2. Furthermore, the establishment of a management regime as described in Section 11 and discussed in Section 9.5.2 would benefit wolverines in essentially the same ways as it would benefit bears and other large carnivores. It would also offer an opportunity to regulate the level of human activity in the area to below the maximum that wildlife populations can tolerate.

9.5.5 Cougar

The Board heard that there are two distinct populations of cougars in Canada, one in the east, which is considered to be endangered, and one in the west which is not. Three subspecies of cougar are found in Western Canada: the Vancouver Island cougar, the Coastal cougar and the Rocky Mountain cougar. The latter is found throughout mainland British Columbia and western Alberta. Southwestern Alberta, including the region of which the West Castle Valley is part, is thought to support a high density of cougars but the Applicant did not record any sign of cougar in the valley during its field surveys. One participant in the hearing reported that based on 12 years' experience as an outfitter, the West Castle Valley is a high-use corridor for cougar between Carbondale and Mill Creek. Because of the relatively large regional population and the nomadic behaviour of cougars, participants in the Board's review were concerned about potential impacts of the type discussed under Grizzly Bear.

Before European settlement the cougar occupied the largest range of any land mammal in the Western Hemisphere, occurring from the southern tip of South America to the Northwest Territories and from the Atlantic to the Pacific. Cougars are no longer abundant anywhere in the United States and almost all of the Canadian population lives in British Columbia and Alberta. The B.C. population is estimated to be between 2,280 and 3,800 individuals with the highest numbers on Vancouver Island and in the Kootenay and

Caribou regions. The Alberta population is thought to be about 500 to 600 with an estimated 63 in the Castle area and 15 to 18 in or near Waterton Lakes National Park. The cougar is on the Alberta "blue list".

Cougars are active during dawn and dusk and to a lesser extent at night. They are solitary except when mating or accompanied by kittens. Cougars prefer fresh meat and do not feed on garbage. They are dependent on deer species as their principal prey. Mule deer are most frequently taken with elk, sheep and white-tailed deer as secondary species. Habitat requirements reflect those for the prey species with the addition of topographic relief to facilitate stalking.

Participants raised similar concerns about cougar as about other large predators but with somewhat different emphasis. Direct habitat loss was suggested to be somewhat less significant than for other large carnivores given the low local population density. On the other hand, cougars could be affected by habitat alienation and fragmentation due to the blockage of movements through the West Castle Valley. Direct losses of cougars could increase because of increased access to the area by humans. Vacation Alberta suggested some minor modifications to project design and operating practices to mitigate impacts on cougar but did not suggest that these would be more than marginally effective.

The Board is in essential agreement with the Applicant that there is relatively little that can be done to mitigate impacts on cougar. However the Board does believe that restricting development to the west side of the West Castle River to the extent possible would reduce impacts on the movement of cougars and possibly reduce mortality. Relocation of the proposed golf courses to the locations described in Section 10 would reinforce these effects and would probably not greatly alter the magnitude of direct effects on cougars or cougar habitat. It could affect cougars through effects on prey species as discussed in Section 9.5.9, but the Board believes that such effects would be minimal. Having reviewed the evidence on cougars, the Board would not require mitigative measures beyond those discussed under grizzly bear provided the changes in project layout mentioned above are put into effect. The Board notes that the Applicant's recommendations for land-use controls as mitigation would fall within the Board's recommendations in Section 11.

9.5.6 Lynx and Bobcat

The Applicant reported observing lynx tracks in the West Castle Valley during its field studies. Vacation Alberta did not report bobcat in the area but trapping returns showed that five bobcat were taken in the Castle drainage between 1981 and 1991 including three in 1989-90. It also reported an abundance of the common prey species for lynx and bobcat, in particular hare and ruffed grouse which are preferred by the predators. Participants in the Board's review expressed the same concerns about lynx and bobcat as about other mammalian carnivores.

The Board heard that lynx are residents of the forested regions of the north, the mountains, and the foothills, inhabiting coniferous and mixed forests. In southwestern Alberta, lynx occur in aspen, mixed forest, and subalpine forest. Lynx are considered common in Alberta, but decreasingly so in the south of the province. For example, the species is rated as uncommon to rare in Waterton Park. In the United States the lynx is under consideration for listing as an endangered species. Provincial estimates indicate fewer than 8,000 lynx in Alberta at the lows of the population cycle. In recent years the population has been declining as indicated by the decreasing amplitude of the population cycle. Because of the declining population, especially in southern Alberta, the lynx is on the Alberta blue list as potentially vulnerable.

No information is available on lynx population size or distribution in the West Castle area. Moreover, there is no site-specific information on the availability and use of habitat by lynx or on seasonal movements of lynx within the West Castle Valley or nearby in Alberta and British Columbia.

Evidence before the Board is that bobcats are found in the grasslands of southern Alberta and along the foothills and Front Ranges of the Rocky Mountains. In southern Alberta they are found along river valleys and coulees. Bobcats occur infrequently in southwestern Alberta and the population may be declining. In the Castle area and Waterton Park, bobcats are found in the aspen parkland, montane, and subalpine ecoregions up to elevations of 1,500 m. Bobcats avoid dense forest. Bobcats are extremely reclusive and sensitive to human intrusion. They are at the northern extension of their range in southern B.C. and Alberta and may, as a result, be particularly vulnerable to disturbance.

Information on bobcats is limited, with the provincial population estimated to be fewer than 1,000 animals and their status classified as uncommon. Records are sparse so it is difficult to assess populations. The bobcat is on the Alberta provincial blue list as a species that may be vulnerable. There is no special designation in B.C. or Montana, although Montana has recently recommended protection.

Vacation Alberta predicts lynx would be adversely affected by the proposed project through reduced habitat effectiveness, reduction in numbers of prey species, obstruction of movements, and increased risk of mortality. Vacation Alberta concluded that the cumulative impacts from the proposed project would incur a significant, permanent decline in the local lynx population but the regional population would be less affected. The Applicant suggested that no effective mitigation is available for impacts on lynx.

Vacation Alberta did not deal specifically with bobcat, but given the similarities between the ecology of lynx and bobcat, the lesser abundance of bobcat in the area, and the fact that bobcats are near the edge of their geographical range, the Board is willing to assume that Vacation Alberta's conclusions for lynx would also apply to bobcat. Both species are particularly sensitive to disturbance by human activities and to reduction in prey

populations. The decline of the two species in southwestern Alberta, documented in evidence before the Board, could only be accelerated by the greater level of impact that the proposed project would occasion. The Board does not agree with the Applicant that mitigation is impossible; it believes that introduction of a regional management system as described in Section 11 would increase the probability of survival of populations of lynx and bobcats in the region by reducing direct mortality and alienation of habitat. The Board also believes that its recommendation on land-use controls in Section 11 would encompass the recommendations of the Applicant with respect to the effect of various land uses on lynx.

9.5.7 Wolves

Wolves are the subject of a large body of evidence put before the Board. After grizzly bears, wolves appeared to arouse the strongest emotional response from participants in the Board's review. Possible explanations for this might be the affection many people have for dogs and their close relations and the traditional antipathy to wolves as predators of domestic animals. European myths of wolves as predators of humans may also be influential. In any event, participant's views differed widely with respect to whether or not potential adverse affects on wolves should be encouraged or avoided.

The Board heard evidence that wolves were once found throughout Canada, with the exception of the Queen Charlotte Islands and Prince Edward Island. Wolves have been extirpated from large areas of southern British Columbia, the southern Prairie Provinces, southern Ontario, southern Quebec, the Maritime Provinces and Newfoundland. At present, there are probably 45,000 to 65,000 wolves in Canada. Twice in this century wolves have been exterminated in the central and southern Rockies. However, since 1980 they have been increasing in numbers and recolonizing former ranges. Current provincial estimates place the late winter wolf population at 3,500. Wolves are not classified as endangered in Alberta or British Columbia although regional populations have been extirpated or are vulnerable because of low densities. The Board heard evidence that wolves may be endangered in southwestern Alberta. A similar situation exists in southern British Columbia.

Wolves in the lower 48 of the United States are listed as endangered under federal legislation. This status requires the government to formulate and implement plans for recovery. Wolf recovery plans have been prepared for the U.S. Rocky Mountains by the U.S. Fish and Wildlife Service. The primary objective of the plans is "... to remove the Northern Rocky Mountain wolf from the endangered and threatened species list by securing and maintaining a minimum of 10 breeding pairs in each of three recovery areas for a minimum of three successive years." The Crown of the Continent Ecosystem is one of these recovery areas. All recovery plans identify Alberta and British Columbia as areas of source populations. Alberta's *Wolf Management Plan* recognizes these recovery efforts and emphasizes the importance of wolves south of the Bow River to the recovery of populations in the U.S. The Alberta plan proposes coordination in management with the U.S. Wolf Recovery Plan in Montana, and states that "Permanent, unmanipulated

populations of wolves should be encouraged in Waterton Lakes National Park and the adjacent provincial forests." The Plan established a winter wolf population goal of 50 animals for the southern region, which includes the Upper Oldman, the Porcupine Hills, and the Castle-Waterton area.

The Board heard that wolves are thought to have been abundant in southwestern Alberta before the 1870's. The disappearance of the bison is believed to have drastically affected their numbers, but deliberate poisoning extirpated them. Wolves were exterminated in Waterton Lakes National Park by 1922 and soon disappeared in Glacier National Park following extensive poisoning. Since that time, wolves have probably been only occasional visitors to the mountains of southwestern Alberta. Numbers of wolves in southwestern Alberta have slowly increased since cessation of poisoning in 1956. By 1976, a pack of nine wolves was resident in the Upper Oldman-Porcupine Hills region. This pack was later poisoned by the Province following reports of livestock depredation. In recent years, wolves have been increasing in numbers in the Alberta Rockies, principally in Banff and Jasper National Parks and the southern mountains - Kananaskis, the Upper Oldman, the Porcupine Hills, the Flathead Valley in British Columbia and Montana, and Glacier National Park in Montana. Wolves radio-collared in Banff have been known to travel as far as the Flathead Valley in Montana. Home ranges vary widely from 100 to more than 2,000 km².

Evidence before the Board was that there are at present less than 150 wolves forming about 18 packs in the Rocky Mountains between Banff and Yellowstone National Parks. At present, wolves occur only sporadically south of the Crowsnest Pass in Alberta, although numbers have been increasing in the last decade. There is conflicting evidence about the use of the West Castle Valley by wolves but one participant in the hearing had shot a wolf there and reported seeing several others. Wolves radio-collared in the Flathead Valley in British Columbia and Montana have occasionally entered the Castle area. One animal lived in the West Castle Valley for over a year. Another was killed in an avalanche in Butcher Canyon early in 1991. A sibling remained in the West Castle Valley for a short period and then returned to B.C. In Waterton Lakes National Park, the wolf is considered rare, although in 1992 a pack became established and successfully reproduced. In the Board's opinion, the weight of evidence supports the view that one wolf pack, perhaps the one using Waterton Park, is using the West Castle Valley and that this constitutes a recent recolonization of range occupied historically.

Movements and occurrence of wolves in a given area or region are influenced by the availability of denning and rendezvous sites, seasonal abundance of prey, and aspects of the physical environment such as climate and topography. Abundance and distribution of prey are primary factors that influence seasonal movements of wolves. As wolves generally follow their prey, they often use lower elevation montane valleys during winter and increase their range movements to higher elevation habitats during the summer. Winter conditions also have direct effect on wolf movements. The presence of ungulate trails, frozen rivers and lakes, ridges, shorelines, ski and snowmobile trails, and graded or packed roads are known to enhance the range and efficiency of winter forays. Wolves

have a high capacity to replace numbers because they reach sexual maturity at an early age and have large litter sizes. Thus, they are able to withstand higher levels of mortality than, for example, bears.

Participants in the Board's review were concerned that the proposed project would increase the potential for wolf mortality, block wolf movements, alienate habitat by sensory disturbance and reduce the abundance of prey species. The Board heard evidence that to date, the primary limiting factor for wolves has not been habitat degradation, but rather direct mortality. Hunting, trapping, and predator control programs are the most common source of human-caused mortality. More recently, road kills have been the primary cause of mortality in the Rockies. Wolf populations cannot withstand annual mortality rates of 30 percent. Experience in the western United States, and in parts of Canada, shows that a mortality sink can lead to the disappearance of a regional population.

Evidence was presented that wolves require a secure, undisturbed, unroaded area of at least 1.6 km around a denning site in order to successfully rear their young. An analysis of the extirpation of wolves in Wisconsin over the period from 1926 to 1960 shows that their demise was related to increasing road densities. When road densities exceeded 0.93 mi/mi², wolves failed to survive. Settlement, development, roads, and recreational use have all encroached significantly on what used to be wolf habitat in southwestern Alberta. Road density in the Castle area is about 0.8 mi/mi²; however some land included in the calculation is not wolf habitat.

Participants agreed that increased stress and temporal and spatial alienation of habitat, particularly in the central portions of the West Castle Valley near the proposed development, would be expected to diminish the potential for wolves to continue to use the West Castle Valley. Winter and summer movements by wolves would be obstructed by the combined effects of physical impediments and sensory disturbance. If wolves were to persist, they would be expected to use primarily the montane and lower subalpine ecoregions, which comprise the valley bottom along the West Castle River. Travel into and out of the valley would occur in the valley bottom at the north end of the study area, and perhaps through mid-elevation passes in the south and central sections of the valley. However, the Applicant concludes that: "... as the local density of wolves is low, the effect of cumulative sensory disturbances alone may lead to the effective abandonment of the West Castle Valley."

The Board notes that reduction in the numbers or accessibility of prey populations would adversely affect wolves. However the Board believes that, if the measures it has proposed elsewhere in this Report were implemented, the numbers and accessibility of prey would not decline. In the absence of such measures adverse effects might be expected.

With respect to the deliberate killing of wolves by hunting or poisoning, the Board believes that impacts can be controlled by regulation and that installation of a

regional management system as explained in Section 11 could provide the means to do so. The Board considers the status of wolves in the United States and its dependence on the Canadian wolf population to be a matter for neighborly concern, reinforcing arguments for action to conserve wolves in Alberta. The Board believes such action would be appropriate but it concludes that in addition to the regulation of hunting, the elimination of poisoning, and the mitigative measures recommended by Vacation Alberta's consultants with respect to road crossings, a program for compensation to livestock owners for wolf kills is necessary. Such a program would require action by the Province of Alberta if applied across the province, but it could be managed regionally by bodies such as that proposed by the Board to manage the West Castle area. If the project proceeds, the Board would recommend that the Waterton-Castle Wildland Recreation Commission described in Section 11 establish such a program.

Although wolves have been known to successfully co-exist with human settlements, the Board is convinced that sensory disturbance can alienate habitat and block movements. Blockage of movements and denial of access to denning areas or areas frequented by prey can be a severe impediment to such mobile animals. The Board believes that the combination of locating almost all the proposed development on the west side of the West Castle River and installing a regional management system under which wolves would be afforded greater protection than they are today would more than offset the remaining effects of disturbance; it could result in the successful reestablishment of wolves as long-term residents of the West Castle area and help keep the populations further south in connection with those to the north. Both would be desirable objectives, the latter assisting in the survival of wolves in the United States and reducing their genetic isolation. The Board believes that its recommendations on land-use controls in Section 11 would encompass the recommendations of the Applicant with respect to the effects of various land uses on wolves.

9.5.8 Coyote and Red Fox

The Applicant reported that coyote tracks were observed on several occasions at lower elevations in the West Castle Valley. The Applicant did not record sign of Red Fox, but trapline records in evidence before the Board showed a continuous presence in the region at low frequencies. Coyotes were the most abundant furbearing species in the trapping returns. Participants expressed similar concerns about coyote and red fox as they did about other carnivorous species.

The Board heard that coyotes are widespread in Canada and abundant in Kananaskis Country, Banff, Jasper and Waterton Lakes National Parks. Although coyotes are very adaptable, in mountain regions they prefer montane valley bottoms especially in winter when snow depths limit travel. Carrion, such as winter-killed ungulates, is an important food source found in river valleys. Coyotes use higher elevation habitats in spring and summer. Denning occurs on well-drained south facing slopes in grass or mixed forest. Suitable denning habitat exists in the West Castle Valley.

Red foxes are distributed throughout most of Alberta but are infrequent in the mountains and considered uncommon or rare in Kananaskis Country and Banff, Jasper and Waterton Lakes National Parks. In mountain regions, red foxes prefer open forest, alpine areas and open habitats in river valleys. Red foxes are omnivorous and opportunistic feeders taking small mammals but also eating carrion, birds, fish, fruit and other plant parts.

Evidence before the Board suggested that the mortality risk to the two species would increase should the project proceed because of increased road traffic and the potential for removal of problem animals. Vacation Alberta did not consider the potential increase in mortality of more than local significance. Vacation Alberta estimated habitat losses for each species as less than 10 percent of available habitat in the West Castle study area. The more numerous species, coyote, is resilient to a quite high level of human disturbance. The Applicant suggested that habitat alienation would not be a significant long-term factor for it. Red foxes are also adaptable, if somewhat less so than coyotes, and are present in small numbers. Vacation Alberta concluded that habitat alienation would not have much effect on the regional population of red fox. Some participants were concerned that both species could be subject to the bioaccumulation of pesticides as a result of consumption of small mammals exposed to pesticides sprayed on the proposed golf courses or near residential areas. Rodenticides which may be used on golf courses were a focus of concern. Vacation Alberta expressed confidence that its Integrated Chemical Management Program would minimize such risks.

The Board has reviewed the evidence it heard about potential effects on coyote and red fox and concluded that such effects would probably not be of regional significance. Furthermore the measures required by the Board to protect or manage other species and the recommendations for mitigation made by the Applicant's consultant and required by the Board in Section 9.5.18 would, in the Board's opinion, reduce the magnitude of any potential effects on fox and coyote.

9.5.9 Elk

Evidence before the Board showed that elk are an important and much sought after game species in Alberta. Participants were concerned that the proposed project would adversely affect elk, but opinions differed widely about the extent and severity of the probable effect and what could be done to mitigate it.

The Board heard that elk are abundant in North America, especially in the Rocky Mountains and are not considered as a continental population to be vulnerable. However elk numbers are depressed by many factors of which hunting is considered the most influential followed by winter food supply, road kills, predation and disease, not necessarily in that order of importance. Hunting pressure was put forward as the reason for the disappearance of elk from the West Castle area after European settlement and control of hunting as the reason for their successful reestablishment in the late 1920's. By

1954 when hunting was again allowed, the population had recovered sufficiently that six hundred elk were reportedly shot on the opening day of the season.

There are thought to be about 850 to 900 elk in the Castle River-Beaver Mines-Beauvais Lake area at present. An additional 130 are found in the Waterton Oil Basin-Horseshoe Basin herd; they winter along the Front Range. Although the number and distribution of elk in the West Castle Valley is not well understood, the population may be as large as 60 elk, and is considered to be mostly migratory. Some participants presented evidence that habitat effectiveness in the West Castle region is currently in the 25 to 50 percent range. In other words, the area could support two to four times more elk than it does now. Winter ranges exist north of the study area in the vicinity of Beaver Mines Lake. Summer ranges are primarily in higher elevation areas south of the proposed development, in particular in subalpine meadows. The proposed project lies between the two.

Herd composition is dynamic, varying with season, snow conditions, hunting pressure, and food supply. Elk "herds" are looser aggregations than in some other ungulates. They consist of relatively small family groups which occupy the same area at certain times but not necessarily year round. Some family groups tend to remain in an area year round, some exhibit seasonal migration patterns and others migrate over a longer term and longer distances. For example a few radio-collared elk from the Beaver Mines area were tracked into British Columbia and Montana. Designation of herds is therefore somewhat subjective. Dr. Morgantini identified two main elk herds: the Castle-Carbondale elk herd (about 350 animals) and the Castle-Beaver Mines herd (150 to 200 animals). The first herd is highly migratory and summers in the Carbondale River-Lynx Creek-Lost Creek-Flathead River (B.C.) region. The Castle-Beaver Mines herd is comprised of one local and two migratory segments. The local segment ranges between lower Mill Creek, Highway #507, the Castle River, and the lower South Castle River to Grizzly Creek and the lower West Castle River past Gravenstafel Brook. This segment summers in the upper South Castle River region. Of the two migratory segments, one summers in the South Castle River region possibly travelling into B.C. through the headwaters of Font and Scarpe Creeks and Jutland Brook. The other migratory segment summers in the upper West Castle River valley. In winter, spring and fall, extensive range overlap and intermingling of individuals from various herds occurs in the Castle-Beaver Mines region.

The Applicant predicts that elk will be negatively affected by the Westcastle expansion through reduced habitat effectiveness and increased mortality. Impacts on elk are expected to involve: direct mortality, habitat loss, alienation of habitat and obstruction of movements. Predicted impacts on elk could also affect wolves, black bears, and grizzly bears because of reduced prey availability.

The Board noted evidence that increasing ruralization introduces permanent habitat alteration, habitat removal, landscape fragmentation, and permanent structures for human use. Associated with these physical changes are dispersed and transient human activities that alter the behavior of and habitat use by elk (alienation). Once surrounded by

human habitations and activities, elk can easily become a source of problems. Elk may not just habituate, but become overly tolerant of humans. Tolerance of humans and their activities may also disrupt timing and rate of movements through an area such as the West Castle Valley because elk may be conditioned to stay longer. On the other hand, if elk do not habituate they may cease movements through an area with consequent loss of access to seasonal habitats or opportunities to migrate.

Participants pointed out that the proposed project lies within an extremely narrow valley (approximately 400 m wide across the bottom) between the summer and winter ranges of elk that traverse the West Castle Valley. Until now, elk habitat in the montane part of the valley has been most affected by human activity. Existing mature bottomland cottonwood forests and floodplain spruce forests are likely important winter range components for elk in this area. Although elk are surviving current levels of human activity, sources of sensory disturbance from the proposed project can be expected to add to existing levels. Some participants suggested that this would not only alienate more habitat than at present but that it would block migration through the West Castle Valley.

With respect to the potential for increased mortality of elk, the Board heard evidence concerning road kills and potentially increased hunting pressure arising from the provision of better access and residential accommodation for hunters. There was some inconsistency in the evidence about the number of road kills occurring at present but there was firm evidence that elk cross Secondary Highway #774 and that, should the project proceed, traffic volumes would increase perhaps five-fold. The Board concludes that road kills would increase. The Board also acknowledges that, in the absence of specific regulations, hunting pressure in the area could increase if the project is approved, but it believes that whether or not this occurs will depend on the future regulatory regime.

Examination of the Application shows that the amount of direct loss of elk habitat as a result of construction of the proposed buildings would be relatively small. In addition, it would be mostly in areas not thought to be prime winter range for elk and the Board heard evidence that wintering habitat is normally the crucial seasonal habitat component for elk. The area of habitat altered by clearing for ski runs and altered more radically for golf course construction would be much greater. The area cleared for skiing could be used by elk in the summer and is not part of elk winter range. Food values for elk are not likely to decline significantly on areas cleared for skiing and may increase as a result of removal of trees or tall shrubs. Golf courses may also be used by elk in summer and more so in winter but are not generally considered to offer habitat quality equivalent to the vegetation replaced. Clearing for golf courses can reduce areas of hiding and thermal cover for elk to sizes too small to be effective.

Evidence from all participants showed greater concern for habitat alienation than for habitat loss, presumably because the area that could be alienated would be much larger than that which could be lost. Elk, especially hunted populations, avoid human disturbance. Alienation of habitat occurs as a result of displacement to avoid sensory disturbances. Elk reactions to noise and human activity vary with local conditions and

circumstances, but the response generally is movement away from the disturbance. Although it is not possible to predict the amount of displacement that may occur as a result of development, Vacation Alberta suggested a disturbance zone of 500 m around buildings, roads or areas of high activity. This represented the average of a range of values reported in the literature and would delineate the area of habitat considered to be alienated.

The specific conditions under which elk are either 'disturbed' or 'undeterred' are highly variable and the Board heard extensive evidence on the matter. The extent and intensity of disturbance appears to vary with the environmental and social context and with the individual animal. For example, there have been cases where elk could not be harassed away from areas they wished to frequent whereas in other cases they have been easily disturbed. The behavioral variability is extreme and its behavioral components complex. There appears to be a general consensus among researchers that the response of an elk to a particular disturbance depends largely on disturbance history. Disturbance history is a critical concept in understanding the behavior of long-lived animals and social animals that learn through social transmission. Elk are both long-lived and social.

Adding a specific disturbance type to an existing pattern of disturbance will probably have least effect if past disturbances are of a similar type, frequency and duration, such that habituation has been allowed to occur. The risk is that the addition of new disturbance may exceed an unknown threshold, possibly due to indirect or cumulative effects, producing an unanticipated outcome. That is, the new disturbance, in conjunction with established background disturbance, may surpass the level of habituation or innate behavioral plasticity that allows elk to cope with disruption. The other unpredictable factor is how similar elk perceive the types of disturbance to be. That is, instead of an incremental or quantitative change that merely increases disturbance intensity or rate, disturbance to an elk's environment may be qualitatively different from any in its experience, again resulting in unanticipated response. An example of how important the recent history of disturbance is in determining the response of elk to human activity is the different behavior of elk populations between areas where hunting is allowed and areas where it is not.

The Board heard a great deal of detailed evidence about studies undertaken in the United States on the avoidance by elk of activities associated with roads and the consequent alienation or "loss of effectiveness" of habitat. Habitat effectiveness declines as road densities increase although the relationship is not linear. The tendency of elk to avoid roads decreases with the distance from the road, although the effect is present up to distances of 350 m, depending on the degree of vegetative cover and topographic barriers. Avoidance is much greater in treeless or lightly-treed habitats than in dense forest. Most valleys in the West Castle area have at least one open road and some have several. The Board heard that the effect of habitat disturbance arising from the existence of roads can be seen in the narrow canyons of the Front Range, where producing gas wells and roads extend into the valleys. There is little or no movement of elk into these canyons, although the elk are present almost year-round at lower elevations near the canyon mouths.

A behavioral feature of elk not given much prominence in the evidence before the Board is their resilience. Incidences of recovery of elk after short-term or even long-term disturbances are well documented including in the history of the West Castle area. In addition non-hunted elk readily habituate to disturbance. However, the Board notes that detailed evidence of the movement of radio-collared elk and anecdotal evidence on the flight of elk from disturbance by current users of the proposed development area demonstrate that the existing elk population has not habituated to existing disturbance and responds strongly to it. Such response has an energetic cost and lowers habitat effectiveness and carrying capacity.

In the case of elk, migration appears to be an example of learned behavior, that is behavior which can evolve without becoming genetically transmitted: knowledge of migration routes is passed down by tradition from generation to generation. Clearly, the high degree of behavioral fidelity of migratory elk populations has implications for the regulation of human activities. Movement corridors normally follow routes that maximize security and other life requisites. They follow 'paths of least resistance' with respect to topography and habitat. Corridors offer accessible, preferred habitats for feeding and cover. Proximity to available water is of primary importance. In spring, elk prefer south facing slopes where large quantities of early growing forage are available. Preferred fall habitats and movement routes may differ. Traditional movement routes may reflect low levels of disturbance, or availability of cover or escape terrain, rather than abundance of forage. Segments of corridors are likely to vary in function and importance, influencing the rate of movement from patch to patch along the route. In the absence of landscape disturbance, the location and temporal pattern of use of movement routes becomes highly traditional over ecologically significant time periods. Disturbing a migration corridor may have effects at many scales and the zone of influence of disturbances probably varies widely. In real situations we do not know how close animals using corridors already are to a 'threshold level' of disturbance, in which direct and cumulative effects will result in disrupted movements.

Evidence before the Board suggests that in the West Castle Valley the main fall migratory corridor is along the lower slope of Barnaby Ridge on the east side of the valley. Participants suggested that the combination of direct habitat loss and sensory disturbance that the proposed project would cause has the potential to obstruct seasonal movement patterns or increase the vulnerability of elk as they attempt to learn new migratory routes. Vacation Alberta notes that the valley bottom habitat at the extreme north end of the study area is essential for migratory movement out of the valley because of the topographical constraints of the 'bottleneck' near Suicide Creek. Moreover, elk can be expected to calve on transitional ranges between summer and winter areas, which may further increase their vulnerability in an area where human activity is increasing. Elk that traditionally migrated north along the west side of the valley would have to cross portions of the expanded ski facilities, the proposed golf courses, and areas close to the proposed resort infrastructure in order to exit the valley. Wildlife movements along the east side of the valley would be less obstructed given the proposed 200 m wide corridor along the valley bottom edge and lower slopes of Barnaby Ridge. Maintenance of this movement

corridor in a condition acceptable to elk would provide a route for seasonal elk movements along the valley.

The Board has reviewed all the evidence before it on the potential effects of the proposed project on elk and agrees with the Applicant that effects would be of medium magnitude, adverse, long-term and local to regional in scale. The Board believes that the mitigative and management measures proposed by the Applicant would be of value but does not believe that they would prevent the effects or alter the magnitude of the effects significantly. The Board does believe that moving the location of project facilities to the west side of the West Castle River except as set out in Section 12 would greatly reduce the probability of blockage of the movement corridor along the lower slopes of Barnaby Ridge and the valley floor east of the river. In addition, the Board would require that the Applicant implement the mitigation measures proposed by its consultant for elk as defined in Section 9.5.18. The Board would also recommend that measures to be incorporated into a regional management plan as set out in Sections 10 and 11 should include: i) prohibition of the use of off-road vehicles year round in the West Castle area; ii) prohibition of strip development along Secondary Highway #774 as advocated by Vacation Alberta; iii) regulation of hunting to maintain the elk population close to the regional carrying capacity. The Board notes that achievement of the last objective would assist in sustaining or increasing the populations of large carnivores in the area. The Board is of the view that some hunting should be allowed subject to restrictions necessary to sustain the elk population at target levels. Hunting is important in that it has been shown to prevent habituation of elk to human-altered environments such as town sites and golf courses. As discussed in Section 8, the Board believes that appropriate management of such hunting could realize a much greater economic return to the Province than is now the case.

The Board has also reviewed the matter of appropriate locations of golf courses with respect to elk. This matter was the subject of extensive discussion at the hearing where expert witnesses took the view that moving the proposed golf courses from their proposed location to an area downstream of the wetland would be beneficial to carnivores but less so or not at all to elk. The reason for the concern about elk is that the proposed location of the golf courses is in elk summer range and the downstream alternative is closer to traditional winter ranges. The Board accepts this view but finds that as the carnivore populations are considered to be more threatened than elk more weight should be given to their welfare. Furthermore, protection of the movement corridor and introduction of a management regime intended to raise the number of elk to near the regional carrying capacity should more than offset any adverse effects on elk and should also benefit the large carnivorous species that exploit them.

9.5.10 Deer

The Board heard that white-tailed and mule deer are abundant species in Alberta and that both occur in the West Castle Valley. Participants at the hearing anticipated that the project, if approved, would have similar impacts on both deer species to those discussed under elk in the preceding section of this Report.

White-tailed deer have been present in Alberta since the late 1800's, but they probably did not reach southwestern Alberta until somewhat later. White-tails are thought to have expanded their range westward in response to overhunting of mule deer and expansion of agriculture in the prairies. The first white-tailed deer were recorded in Waterton Lakes National Park in 1924, and in the Crowsnest Pass in the early 1950's. However, they were present along the Castle River near the Castlemount Ranger station in 1950. The Alberta population of white-tailed deer peaked in 1959 with an estimated population of 90,000 and declined slightly to 82,000 by 1986. The regional population of white-tailed deer is an estimated 2,000 animals and has been increasing in recent years.

Mule deer have inhabited the region for longer than white-tailed deer. The primary objective of the Alberta Management Plan for mule deer is to increase the summer population by 12 percent by increasing the availability of summer and winter mule deer habitat. The Plan also emphasizes habitat retention. Within the Southern Region, the Plan calls for a population of 3,300 mule deer within deer management areas 2 and 3 which cover the Westcastle area. For area 3 the Plan states "... although vehicular access and hunting pressures are moderate, their effect is substantial because most of the access routes coincide with the best deer habitat in the major valleys."

Vacation Alberta estimated the winter population of the two deer species in the West Castle Valley at 10 or more animals and the summer population at 30 or more. White-tailed deer were seen more often in valley bottom habitats and mule deer were seen more often at higher elevations in the subalpine. Although seasonal movements of deer were not documented, Vacation Alberta suggested that they would be similar to those of elk with winter use of the West Castle Valley more or less confined to lower elevations at the north end. This pattern could vary in mild winters. Movement pathways were expected to be the same as for elk, making use of the well developed trails present in the area and especially on the east side of the river in the band from the river bank to the top of the forested zone on Barnaby Ridge.

The Applicant concluded that both species of deer could be adversely affected by the proposed project because habitat effectiveness would be reduced and mortality from human-induced causes would increase. Potential for blockage of deer movements along the West Castle Valley would be similar to that for elk, with comparable adverse consequences. Vacation Alberta suggested the same mitigative measures as those it proposed for elk, but believed that residual impacts would still be substantial.

The Board broadly agrees with these conclusions. Removal of montane habitat, particularly the Engelmann spruce in the valley bottom can be expected to remove important habitat for both species of deer. The evidence suggested that white-tailed deer will persist in developed landscapes whereas mule deer will decline. White-tailed deer are generally considered to be extremely tolerant of human disturbance. Expanding white-tailed deer populations by intended or unintended changes in land use can lead to diminishing populations of mule deer via hybridization. Consequently, habitat loss from the

proposed development may be more detrimental to mule deer than white-tailed deer. As previously discussed for elk, alienation of habitat will result from the reaction of deer to noise and human activity.

Obstructions to seasonal movements would likely occur as the result of direct habitat loss, habitat alienation, and the presence of large numbers of people. The Board expects that most deer will abandon travel along the west side of the valley where they would be in direct conflict with expansion of the ski hill. Deer may use more secure habitat along the lower slopes of Barnaby Ridge if this is left undisturbed.

The Board extended its analysis of mitigation of potential impacts and management of the elk population beyond the possibilities considered by Vacation Alberta. The conclusions of the Board's analysis included the need to keep the east side of the West Castle Valley in as undisturbed a state as possible to allow wildlife movements to continue. The Board believes that in general terms, what is good for elk is also good for deer. The Board does not find it necessary to add to its recommendations and conditions with respect to elk in order to protect deer.

9.5.11 Moose

The Board heard that moose are found throughout the forested areas of Alberta, including the forested parts of the Rocky Mountains and foothills, but are much less abundant in the southern part of the province than further north. The West Castle Valley, and in particular the large wetland north of the existing ski hill, were identified as unusually valuable moose habitat for southern Alberta and participants were concerned that potential adverse effects on the local population could have regional significance.

Evidence before the Board established that moose were widely distributed and sufficiently abundant to be an important meat source in the mountains and foothills of southwestern Alberta at the time of European settlement. By the early part of this century moose were nearly extirpated from the region. The reason is likely to have been over-hunting although habitat loss and disease must also have played a part. Moose were not present in the Castle drainages in the 1920's. They reappeared, possibly through deliberate reintroduction, in the 1930's and were numerous by 1945. At present about 400 moose are thought to live in the Castle area of which about 300 inhabit Wildlife Management Unit #302 which includes the West Castle Valley. Alberta Government plans call for these numbers to be increased by 25 to 30 percent. The number of moose reported by the Applicant to be present in the study area was about 35. Expert witnesses agreed that this is substantially less than the carrying capacity and that more stringent control of hunting would allow moose numbers to increase provided there were no incremental adverse impacts of other kinds. The Board questions whether regional population estimates of 300 and 400 are reliable if in a substantial part of the area that includes unusually high quality habitat there are only 32 to 38 moose.

Moose are heavily dependent on vegetation that is in the early stages of succession following disturbance by fire, fluvial action, or avalanche. The policy of fire suppression may have further decreased both the quality and quantity of moose habitat in some parts of the region. A result may be the concentration of animals in the valley bottoms where processes other than fire provide favorable habitats. Unfortunately highway mortalities are greater in valley bottoms because most roads are located there.

Moose are better adapted to deep snow than other ungulates and are therefore able to winter further back in the mountains along the main drainages. The lower South and West Castle Rivers, the tributaries of the Carbondale, the edge of the Front Range, and the hills along the Castle and Carbondale Rivers are key wintering areas for moose, which generally prefer riparian, aspen parkland, and montane areas. Moose summer in the West Castle Valley at all elevations below the alpine. They winter in dispersed fashion in valley bottoms and foothills at lower elevations.

There was some disagreement among witnesses about the extent to which moose may be regarded as migratory. For example, home ranges were said to be of the order of 5 to 10 km², yet the potential for blocking movements between summer and winter habitat was raised as an issue. Moose are solitary but the Applicant stated that the moose population in the West Castle Valley includes both resident and migratory components. On the face of it whether or not this is the case would appear hard to determine. At the least moose do move short distances between summer and winter ranges and presumably greater distances during the rutting season or when dispersing to unoccupied habitat.

The Applicant identified deciduous, mixedwood, mixed conifer, open and closed pine, open spruce and shrublands associated with avalanche slopes as habitats for moose in the West Castle area. Willow is the critical winter food for moose, with aspen an important secondary browse species. However, moose in the West Castle Valley also use saskatoon, chokecherry, elder, and red osier dogwood when available.

Vacation Alberta predicts that moose would be adversely affected by its proposed project through reduced habitat effectiveness and increased risk of mortality. This assessment assumed implementation of the mitigation measures common to moose, elk and deer recommended by the Applicant's consultants. Specific impacts include direct habitat loss, habitat alienation, and increased mortality due to road kills, increased poaching and hunting, and obstruction of seasonal movements. Other participants agreed with this assessment but some suggested that the consequences for moose would be more severe than the medium magnitude, long-term adverse impacts on a local to regional scale suggested by Vacation Alberta.

The Board has reviewed the matter of potential impacts on moose and concluded that there is cause for concern. Witnesses established that the wetland north of the ski hill is a very unusual and perhaps unique physiographic feature in southwestern Alberta and that it is particularly valuable to moose. At the same time the evidence showed that this and other moose habitat in the West Castle area is not supporting moose in the numbers that it could. One of the reasons for this could be excessive hunting, but the

Board notes that Vacation Alberta reported published distances of 500 m to 1 km from human activities or development as the extent of alienation of moose habitat. Given the topographic confines of the West Castle Valley, especially at the "bottleneck" north of the wetland, potential for discouraging moose from using the best quality habitat and for blocking their movements into and out of the West Castle Valley already seems high. Adding to the level of disturbance by, for example, increasing traffic on Secondary Highway #774, would exacerbate the problem. Moose are particularly susceptible to interference by humans because of their fondness for valley bottom habitats which happen to coincide with areas sought after for development.

While the Board acknowledges that Vacation Alberta's recommended mitigation, as discussed for elk, would have some effect, it believes that moose could be subject to greater residual impacts than elk under the Vacation Alberta proposal. On the other hand, if moose are already alienated from much of the habitat in the area, further disturbance may have little additional effect. The Board heard anecdotal evidence that moose are not using the high quality habitat in the wetland but that they use the habitat on the ski hill even when people are active in the vicinity. This would suggest that: i) resident moose are habituated to at least some human activities; and ii) there is some reason other than alienation why moose are not using the wetland. Possible reasons are excessive hunting in the vicinity of the wetland which is conveniently adjacent to the highway or the lack of other habitat components close to the wetland which would enable moose to satisfy their requirements within a typical home range of 5 to 10 km². This latter alternative appears unlikely upon examination of Vacation Alberta's habitat map for the area. The Board therefore concludes that hunting pressure is probably the key factor limiting moose in the West Castle area.

Restricting development almost entirely to the west side of the river as proposed by the Board would reduce impacts on riparian habitat that is important to moose. More importantly, introducing a management regime for the area in which hunting would be regulated to allow the recovery and, subsequently, the sustainable exploitation of the moose population would, in the Board's view, be beneficial environmentally and, as explained in Section 8, economically. The Board believes, for the reasons relating to alienation and hunting given above, that the location of the golf courses up or downstream of the project would have relatively insignificant effects compared to those of the imposition of the recommended management regime. The Board also notes that the downstream alternative would confine the golf courses to one side of the river potentially reducing effects on riparian vegetation.

9.5.12 Bighorn Sheep

The Board heard evidence that bighorn sheep populations in southwestern Alberta, including the West Castle drainage, are world renowned because of their health and vigor as expressed in the production of rams prized by trophy hunters. Participants in the hearing were concerned for the conservation of the sheep herds for economic as well as environmental reasons.

Bighorn sheep have probably been present continuously in southwestern Alberta since European settlement, although numbers declined substantially in the late 1800's and early 1900's. Alberta possesses some of the best bighorn sheep range in North America, and the best range in Alberta is in the Waterton-Castle area. A 1988 aerial survey by Alberta Fish and Wildlife counted 238 bighorn sheep wintering in the Castle area. Thirty-two sheep were counted on Barnaby Ridge. Sheep are also found on Lys Ridge to the east and south of Barnaby Ridge and on Syncline Ridge and adjacent high elevations along the Continental Divide. Bighorn sheep are subject to periodic die-offs resulting from severe winters and disease. It is known that bighorn sheep have been infected by lungworm and bacterial pneumonia through contact with domestic sheep. Outbreaks of pneumonia occurred in 1937 and 1982 resulting in the death of approximately 50 to 60 percent of the regional sheep population. There is also evidence that the effects of the disease are exacerbated by stress caused by human activities.

The distribution of bighorn sheep along the Front Ranges in southwestern Alberta is often perceived as consisting of a series of herds inhabiting discrete critical mountain ranges from Waterton Lakes to the Crowsnest Pass. These ranges are separated by major drainages. In the summer the sheep population ranges west, across the Continental Divide, into British Columbia, and north into the Crowsnest Pass. One witness suggested that the sheep herd(s) in Waterton Lakes National Park are continuous with those to the north through a connection with the herd on Barnaby and Lys Ridges. Although the extent of interchange among winter herds, range fidelity, and movement patterns are not well understood, evidence of intermingling between apparently distinct, and widely separated, bighorn sheep herds was put before the Board. More locally, sheep were reported on and crossing Secondary Highway #774 between Syncline and Barnaby Ridges and crossings further south at higher elevations were postulated.

Vacation Alberta noted that not only do bighorn sheep use different ranges in summer and winter but they require several other components within their total annual range such as rutting areas, lambing areas, and licks. All of these components are necessary to the survival of a healthy population. Fire plays an important long-term role in maintaining high quality bighorn sheep winter range. There have been no major fires in the West Castle Valley and surrounding region since 1936. Small burns have been used elsewhere to enhance bighorn wintering range and their use might be considered in the West Castle area. Winter range is thought to be the limiting factor for many bighorn sheep populations.

The Board was provided by the Applicant with evidence of the impact of sensory disturbance on bighorn sheep. Range abandonment, reduced efficiency in habitat use and increased susceptibility to predation have all been reported. Disturbances in winter can place additional stress on populations and individuals already living near the limit of their energy budgets. The consequences of physiological stress for bighorn sheep are not well understood and therefore are difficult to predict. A further uncertainty is added by the fact that bighorn sheep habituate to human disturbance quite readily at some times and in some locations, particularly where hunting is not allowed or hunting pressure is very low.

At other times and locations this has not been the case and the reasons for differences in behavior are not well understood. One witness stated that bighorns are less sensitive to human disturbance than elk and bears, and even mule deer and moose seem to avoid humans more readily. Bighorn sheep in the Castle area are hunted so little that they have a reduced fear of man, although they do avoid close contact. Moreover, some of the animals, particularly in Yarrow and Spionkop Canyons, may have become habituated to humans in nearby Waterton Park.

Vacation Alberta concluded that the direct loss of bighorn sheep habitat as a result of its proposed project would be small but there is potential for alienation of habitat as a result of "unrestricted backcountry recreational use". Consequences for the sheep population would be medium in magnitude, adverse, long-term, and local and regional in scale. Some interveners suggested that adverse effects would be more severe and have greater consequences on a regional scale. One particular argument was that sheep would be attracted to the highway by the application of de-icing chemicals and that this would result in loss of animals through collisions with motor vehicles and disruption of movements between herds, especially between Syncline and Barnaby Ridge.

The Board is in broad agreement with the potential for adverse effects on bighorn sheep identified by participants in its review. To mitigate these potential effects, Vacation Alberta's consultants proposed a series of mitigative measures which are summarized in Appendix C of this Report. The Board is of the opinion that the mitigative measures proposed by Vacation Alberta's consultants would have the effect of reducing the severity of potential impacts and would require that Vacation Alberta implement those within its power. However, the Board is unable to conclude to what extent impacts would be reduced. In adopting a conservative approach, consistent with ensuring that the proposed project is in the public interest, the Board finds that more comprehensive measures are needed to control the effects of human disturbance on bighorn sheep. The Board believes that the controls implicit in the regional management system it has proposed in Section 11 would be adequate to ensure the sustainability, perhaps in greater numbers than now exist, of the regional bighorn sheep population. On the issue of golf course location the Board sees no evidence to suggest that altering the location of the golf courses as it proposes would adversely affect bighorn sheep.

9.5.13 Mountain Goats

Participants in the hearing tended to treat mountain goats as an appendix to bighorn sheep in their assessments and their evidence. The Board notes that there are differences in habitat requirements and behavior between the two species and that goats are less readily habituated to human disturbance than are sheep. However, the Board does agree that the broad range of potential impacts identified by participants is appropriate to both species.

The Board heard that there is little historical information about mountain goat populations in the Westcastle area. Mountain goats are thought to have escaped the general large decline of ungulate populations, which occurred in the late 1800's. In 1928, goat numbers in Waterton Lakes National Park were estimated at 75 to 100 animals. Estimates in the Park's Annual Reports range from 95 to 200 between 1917 and 1970. There is some indication that the outbreak of lungworm infection and pneumonia, which spread from domestic sheep into bighorn sheep populations in 1937 and again in 1982 also had an effect on mountain goat numbers. Although a dead goat in Glacier National Park in Montana tested positive for *Pasteurella* bacteria and goats in other Montana locations were diagnosed as having died from pneumonia, no carcasses of goats were found in Canada. The hunting season for goats in Alberta was closed in 1969 owing to a decline in numbers. Since then the population has been recovering slowly but is not believed to have reached its former numbers. In 1980, the provincial goat population was estimated at 1,500 to 2,000 animals. Recently, it is believed to have undergone a slight decline. Mountain goats in the West Castle area are part of the Southern Continental Divide mountain goat population, which ranges from Waterton Lakes to Crowsnest Pass. During 1991, 73 goats were observed during the Southern continental survey, most of which were in the West Castle area. The 1991 count was considerably lower than previous counts. The mountain goat is on the Alberta "blue list" as a potentially vulnerable species.

Evidence was presented that mountain goats in southern Alberta are limited to the narrow mountain range along the Continental Divide. In the Castle area, goats are found in rocky alpine and cliff habitats. Mountain goats are conservative and traditional in their habitat use and rarely travel linear distances greater than 25 km. Consequently, once eliminated from an area they are very slow to recolonize. Within the West Castle area, goat habitat was said to be well defined and localized. Syncline Mountain provides some of the best habitat. Some mountain goats may be resident on Syncline Mountain year round. The Applicant suggested that Syncline Mountain should be considered a "core cliff area" for mountain goats.

Witnesses said that the mountain goat is considered to be sensitive to sensory disturbance. Failure of mountain goats to move to winter range has been linked with the drilling of gas wells and, in Montana, high levels of seismic exploration apparently resulted in declining numbers of female goats and lower production of kids. Studies of mountain goats following the placement of a highway underpass near a mineral lick indicated that tourists at the lick did not appear to have an adverse affect on the goat's use

of the lick. Traffic on the highway and visitors standing above the overpass did influence behavior, causing run backs, hesitation and eliciting alarm behavior. Goats in Jasper National Park have been seen to ignore tourists when using licks alongside the Banff-Jasper Highway and must be considered to be somewhat habituated to human activity. The Applicant concludes that habituation of mountain goats to human activity may be unavoidable if goats on Syncline Mountain are to coexist with the proposed development.

The Board recognizes that the distribution of mountain goat populations consists of a series of core habitats at high elevations linked by movement routes through which the exchange of individuals can take place. As discussed in the section on grizzly bear such exchange is vital to supplement subpopulations suffering temporary declines and to ensure sufficient exchange of genetic material to prevent inbreeding. The situation for mountain goat may be more extreme in this regard than that for grizzly bear or bighorn sheep. The Board heard that coincident with the population decline that occurred in the first half of the century was a contraction of range. Although there is abundant speculation, the reasons for the reductions remain unknown. The Board believes that the combined effects of over-hunting and loss of secure habitat resulting from the proliferation of access roads and trails into mountain ranges may be responsible. The Board is aware that this process of progressive intrusion is continuing and that the project under review could add to it unless steps are taken to avoid such addition.

Vacation Alberta's consultants have recommended essentially the same mitigation measures for goats as for sheep and the Board would require that Vacation Alberta implement those within its power. The Board is not convinced that these measures alone would be sufficient to protect the goat population. The Board believes that adding the system of regional management and land use controls that it has recommended in Section 11 to Vacation Alberta's proposed mitigation would be likely to succeed in sustaining the mountain goat population in the West Castle area. The Board has reviewed the potential effects on goats of the alternative locations for project facilities described in Section 10 and concluded that there would be little difference between them.

9.5.14 Smaller Species of Mammals

Vacation Alberta provided evidence of the presence of many smaller species of mammals in its study area. These included mustelids such as fisher, marten, mink, skunk, ermine, long-tailed weasel and least weasel, beaver and muskrat, and 43 species of what wildlife biologists normally refer to as "small mammals". Amongst these are, for example, red squirrel, snowshoe hare, red-tailed chipmunk, wandering shrew, red-backed vole, and other mice, voles and bats. A common feature of these species, with the possible exception of fisher, is that their home ranges are small. In the Board's view, this implies that impacts on such animals within the immediate zone of influence of a project will be severe and difficult to avoid or mitigate. On the other hand, unless the project occupies a large area, the impacts are not likely to be regionally significant unless the affected species is uncommon and happens to live predominantly in the affected area. The Board reasons from this that concern should be focussed on the species of smaller mammals that are uncommon and which are thought to occur in the vicinity of a proposed project in significant numbers. Impacts on the more abundant and widespread species can be addressed through the more general mitigative and management measures discussed elsewhere in this section.

The Board heard evidence that fisher is on the Alberta yellow list (i.e. sensitive species not presently at risk) and that it is notably scarce in the southern part of the province. Fisher is rare south of Jasper National Park but does occur sporadically in southwestern Alberta, southeastern British Columbia and northern Montana. Vacation Alberta reported seeing fisher tracks in its study area although none had been trapped locally in a recent 10-year period. Fisher hunting circuits can reach 60 km in length so the species has a larger home range than others dealt with in this section. It is not clear whether the track observations indicate a resident animal or one passing through the valley. While the record is undoubtedly exciting for wildlife enthusiasts, there appears to be little that Vacation Alberta could do to affect the regional population of fisher beyond the Board's requirements with respect to movement corridors and project layout discussed under grizzly bears and implementation of the mitigative measures proposed by the Applicant's consultant which lie within its power. The Board would require implementation of those mitigative measures.

Three species of weasels can be found in the West Castle region, the least weasel, the short-tailed weasel (ermine), and the long-tailed weasel. The short-tailed weasel is probably the most common and occupies the widest range of habitats. The least weasel is probably restricted to lower elevations in the grassland, aspen parkland, and montane ecoregions. The long-tailed weasel frequents the same habitats as the short-tailed weasel but can also be found above timber line. The long-tailed weasel is considered a threatened species by COSEWIC, largely because prairie populations have been fragmented and reduced by agriculture. The Board heard that the foothills populations seem to be stable, though little is known about local abundance.

In the opinion of the Board, there was insufficient evidence to conclude whether or not there is a resident population of long-tailed weasels in the West Castle Valley. If there is such a population and it is resident in a definable small area, measures to protect it may be possible. If this is not the case, potential impacts would probably not be of regional significance. If the project is approved, the Board would require that the Applicant complete surveys satisfactory to Alberta Environmental Protection to determine whether or not there is a resident population of long-tailed weasels and as part of its mitigation plan if there is proposed action satisfactory to Alberta Environmental Protection to protect it.

The Board heard evidence about two small mammal species that are classified as vulnerable in Alberta but not classified by COSEWIC on a national basis: the red-tailed chipmunk and the wandering shrew. In the Board's view, the rarity of these species may be an artifact of political boundaries. For example, the red-tailed chipmunk is found in Montana, Idaho and British Columbia, just crossing the border into southwestern Alberta in the Waterton Lakes-Westcastle area. The Applicant noted that red-tailed chipmunks are less uncommon outside Alberta. However, adjacent populations in B.C. are being considered for designation as endangered or threatened. The Board had difficulty in gaining a full understanding of the status of the species because B.C. authorities distinguish and deal separately with three subspecies and the Board was not informed about which one is found in the West Castle Valley. The Board concludes that impacts on the marginal population in the West Castle area would probably not threaten the existence of the species but cannot reach a conclusion with respect to subspecies of red-tailed chipmunk. The Board's reasoning with respect to rare animals is similar to the Board's thinking with respect to rare plant species as explained in Section 9.4.4. Other uncommon small mammals to which similar arguments apply are the long-tailed vole, the hoary bat and the silver-haired bat which are all on the Alberta yellow list. The two bat species are primarily insectivorous and could be sensitive to bioaccumulation of pesticides. The Board would require the same measures with respect to red-tailed chipmunks, long-tailed voles, hoary bats and silver-haired bats as for long-tailed weasels.

Evidence before the Board concerning the wandering shrew was confusing. The wandering shrew is on the Alberta blue list (at risk, vulnerable). Records of occurrence of the wandering shrew in the West Castle area were said to be based on museum specimens, but there was dispute about their taxonomic status. Confusion between vagrant, wandering and dusky shrews appeared to the Board to be frequent. Furthermore, the Board remains to be convinced of the ecological significance and the importance, in terms of biodiversity and genetic resources, of a subspecies identifiable only by subtle details in the anatomy of molar teeth. The Board has reviewed the evidence about the potential impacts of the proposed project on the uncommon species mentioned above. The lack of information about the numbers, distribution and population dynamics of these species makes it difficult to reach conclusions. In these circumstances, the Board believes that requiring similar measures to those required for long-tailed weasels would be an appropriately conservative course of action for the wandering shrew. In addition, the Board would require that Vacation Alberta implement those of the mitigative measures for small

mammals proposed by its consultant that lie within its power. The measures are summarized in Appendix C to this Report. The Board believes that these measures would reduce impacts on all small mammals.

Another species of mammal that is not rare or vulnerable but, in the Board's opinion, is worthy of specific mention is the beaver. Beaver were reported to be present in the West Castle River by the Applicant who observed tracks, feeding sign and dam construction. Information on local and regional population size and distribution is lacking with the exception of any conclusions that may be drawn from trapping returns. The Board heard evidence about the location of beaver dams in the Applicant's study area. Beaver have been harvested by local trappers as indicated by the returns. The Board believes that beaver are important not only for their own sake but because beaver ponds and the successional vegetation around them provide critical habitat for many other species.

While the Applicant made reference to the ecological importance of beaver and its significance for the conservation of diversity, it also expressed concern about the possible effects of beaver activity on the proposed project and indicated that measures to control (i.e. kill) beaver might become necessary. The Board recognizes the inherent conflict of objectives that is likely to need resolution if the project proceeds. The Board also understands that losses of beaver may be unavoidable. However, the Board would recommend that the Applicant restrict its killing of beaver to the minimum necessary to protect the integrity of its facilities. The Board would require the Applicant to implement the mitigative measures for beaver proposed by its consultant and summarized in Appendix C to this Report. If this were done, the Board concludes that adverse effects on beaver, including those killed for the purpose referred to above, would not be sufficient to have a significant effect on the regional population.

9.5.15 Birds

In this section, the Board deals separately with birds of prey, songbirds, upland birds and water birds and then discusses the significance of the layout of the proposed project for birds as a whole.

Birds of Prey

The Board heard evidence that nine species of birds of prey have been observed in the West Castle Valley and that a further 12 species might be present given their geographical distribution and habitat preferences. The Applicant suggested that at least one pair each of golden eagles, northern goshawks, American kestrels, great horned owls and perhaps northern harriers breed in its study area. Birds of prey on the Alberta blue list of vulnerable species that might occur in the area include Cooper's hawk, great grey owl, bald eagle, osprey and prairie falcon. Evidence about the regional, national or global abundance of birds of prey was not put before the Board with the exception of the information about the blue list. Participants appeared to be working from an assumption that all birds of prey are in some sense at risk and worthy of protection. While the Board finds this blanket approach unsatisfactory, it recognizes that in the absence of sufficient information conservative assumptions are appropriate.

Participants were concerned that birds of prey could be adversely affected by the proposed project as a result of direct mortality through electrocution or collision with vehicles or structures, as a result of habitat loss or alienation (in particular alienation of nesting habitat), and by means of exposure to or bioaccumulation of pesticides or herbicides. Vacation Alberta's consultant proposed a number of mitigative measures to protect birds of prey. These included surveying the project area for nest sites, retaining forested buffers around nests, refraining from clearing vegetation during the breeding season, and educating the public about the sensitivities of breeding birds of prey. The Applicant's consultant also recommended the use of power poles designed to prevent electrocution of birds, rehabilitation of injured birds of prey and avoiding the use of toxin-type rodenticides. Taking these mitigation measures into account, Vacation Alberta concluded that its project would have a medium to high adverse long-term regional impact on birds of prey. It did not differentiate this conclusion by species.

The Board generally agrees with the Applicant's assessment that there is potential for moderately severe adverse effects on birds of prey and it believes that such effects would be more severe for the less abundant species. The Board considers that Vacation Alberta's mitigation measures are necessary although it recognizes that not all nest sites may be in locations where they could be protected in the way Vacation Alberta suggests. The Board also believes that the design of buildings to reduce bird collisions is desirable. The Applicant's Integrated Pest Management Plan discussed in Section 6.2.4, if implemented as approved by Alberta Environmental Protection, should protect birds of prey from adverse effects of pesticides and herbicides. If the project proceeds, the Board would require that Vacation Alberta conduct surveys for nest sites of birds of prey and implement those of the mitigative measures for birds of prey proposed by its consultant that are within its power.

Songbirds

The Board accepts the Applicant's definition of songbirds as including the passerines, kingfishers, hummingbirds and swifts, and woodpeckers. Vacation Alberta anticipated that its proposed project would adversely affect songbirds in a variety of ways: i) as a result of habitat lost by clearing of vegetation or alienated by the proximity of buildings and human activity; ii) by reductions in reproductive success due to noise and other human disturbance, possible increases in nest predation including nest predation by children, competition with non-native species normally associated with human activity, and possible increases in brood parasitism by, for example, cowbirds; and iii) by increased mortality due to collisions with vehicles or structures. Others expressed concern about: i) the possible impact on songbirds of chemicals used on golf courses and other areas of managed vegetation either directly or through bioaccumulation; and ii) the broader issue of the cumulative effects of development on migratory songbirds on a hemispheric scale.

Vacation Alberta in its field studies observed 66 species of songbirds within the West Castle watershed. It stated that a further 30 species might be expected to occur in the area given their known distributions and habitat preferences. Evidence from interveners increased the number of species reported to be present to 74. There was no evidence before the Board on the sizes of songbird populations or on their use of habitat within the study area or region, but Vacation Alberta suggested that wetlands would support greater numbers of species than other habitats.

In assessing the potential effects of the proposed project and taking into account its proposed mitigative measures, Vacation Alberta concluded that songbirds would suffer a medium to high magnitude long-term adverse impact on a regional scale. The Board agrees with this conclusion, but believes that some discussion of mitigation would be appropriate.

The Applicant proposed a number of mitigative measures to reduce impacts on songbirds. Many of these measures could be implemented directly during or after construction of the project, should it go ahead; others would require the results of detailed surveys of bird distribution, especially during the breeding season. In the first category the Board would endorse the establishment of riparian buffer zones, as discussed in Section 6.2.1, and of buffer zones around wetlands although it finds the proposal to prohibit human activity in buffer zones unrealistic. Discouragement of such activity may be a more achievable goal. Prohibiting free ranging pets, retaining snags for cavity nesting species, refraining from clearing vegetation during the breeding season, rigorously controlling waste disposal to reduce the number of non-native birds, prohibiting firewood gathering and providing public education about the need for mitigation are all measures that the Applicant can implement and that the Board believes are needed to protect songbirds. The Board would require that the Applicant implement such measures. Building design can incorporate features to reduce the number of bird collisions and the Board believes that this should be done. Measures such as avoiding habitat fragmentation and preserving mature forests, habitats supporting a high diversity or abundance of songbirds, and vegetation that

provides habitat for migrating birds could only be implemented within the limitations imposed by the locations approved for construction of the various facilities. Detailed bird surveys would be required before construction in order to design such measures.

The Board would require Vacation Alberta before commencing construction to submit to Alberta Environmental Protection for approval a mitigation plan and the information on which it is based. Supplementary to this, the Board believes that implementation of an integrated pest management program acceptable to Alberta Environmental Protection as discussed in Section 6.2.4 would reduce impacts of pesticides on birds to an acceptable level. The Board believes that the approach to mitigation set out above would accomplish whatever reduction in adverse affects on songbirds that may be possible if the project proceeds.

The Board is aware of the broader concern about the decline of migratory songbird populations in the Western Hemisphere and believes that appropriate mitigation would reduce the contribution of the proposed project to the problem. The Board is of the opinion that effective measures to protect migratory songbirds would require an international agreement beyond that which currently exists. It would have to be followed by national agreements in some countries. Such action is beyond the jurisdiction of the Board and responsibility for its initiation would more appropriately fall within the ambit of Environment Canada.

Upland Birds

Vacation Alberta reported ruffed, spruce and blue grouse and white-tailed ptarmigan as year-round residents of the West Castle Valley, but no evidence was put before the Board on their local distribution or abundance. The Board heard that all four species are common in Alberta although populations are thought to have declined as the wilderness land area has been reduced. Ruffed grouse are associated with deciduous and mixed woodland and are therefore expected to be found along the floor of the valley especially in the northern part of the study area. Spruce grouse live in coniferous forests from the montane to subalpine ecoregions and would be expected to be widespread in the region. In the summer blue grouse occupy open habitats from meadows and avalanche chutes to low density forests from montane to upper subalpine elevations; they winter in subalpine coniferous forests. White-tailed ptarmigan summer in open subalpine habitats but winter in shrub or forested areas at high elevations. Collectively the four species are likely to be found throughout the region except at very high elevations.

Potential impacts on upland birds identified by participants in the hearing included habitat loss and alienation. The Applicant estimated that six percent of upland bird habitat within its study area would be lost. Other potential impacts were: i) habitat alienation near development, roads and trails and through obstruction of movements within the study area; ii) reduction of reproductive success because of noise or other disturbance; iii) death of individuals from collisions with motorized vehicles during vegetation clearing or

as a result of predation by people and pets; and iv) effects of chemicals used in developed areas. To mitigate these impacts Vacation Alberta's consultant proposed the prohibition of free-ranging pets, designing fences to allow birds to walk underneath them, refraining from clearing vegetation during the breeding season and preserving important habitat.

Assuring the implementation of the mitigation measures, the Applicant concluded that the impact of the proposed project on upland birds would be adverse, of medium severity, long-term and local. The Board agrees with this conclusion. The Board believes that the mitigation measures are necessary to reduce impacts to an acceptable level although it recognizes that there is not enough flexibility in project design to allow all areas of upland bird habitat to be protected. The Board would require that the Applicant implement the mitigation measures for upland birds proposed by its consultant to the extent that it has the authority to do so.

Waterbirds

Vacation Alberta reported 19 species of waterbirds as breeders, migrants or non-breeding summer residents in the West Castle Valley and suggested that several more breeding and staging migrant species might be expected to occur given the available habitat. Although no estimates of local or regional population sizes were introduced, Vacation Alberta suggested that resident populations must be small because of the relatively small area of wetland in the valley. Most waterbird activity (especially that of ducks) is expected to occur in the wetlands and adjacent vegetation along the valley floor north of the existing ski hill. The harlequin duck, which prefers swift, clear mountain rivers, and shorebirds are likely to be more evenly distributed along the river including the reaches south of the developed area. Waterbirds are not likely to be present in winter with the possible exception of the American dipper.

Concerns expressed by participants in the Board's review about adverse effects on waterfowl were the same as those expressed with respect to other birds. Because of the importance of wetland and riparian vegetation to waterfowl, the loss of this type of habitat would be considered particularly important. Potential for: i) increased predation on young waterfowl by gulls attracted to the development areas; ii) road kills; and iii) predation by pets on ambulant waterfowl were also given prominence in evidence before the Board. One participant raised the issue of geese and some species of ducks grazing on golf courses and being exposed to fertilizers and other agricultural chemicals. Vacation Alberta considered the potential effects of pesticides and herbicides on waterfowl to be more deserving of attention than those on other birds because of the ease with which agricultural chemicals enter wetlands and pass into the aquatic food chain. However, Vacation Alberta believed that its chemical management program as discussed in Section 6.2.4 would successfully mitigate any effects of this kind. Other mitigation measures proposed by Vacation Alberta were the same as for songbirds and upland birds except that greater emphasis was placed on preserving riparian buffer strips and controlling access to them. Taking its proposed mitigation into account, the Applicant did not consider that

potential losses of waterfowl would be of regional significance except for the harlequin duck, should that species nest in the West Castle Valley. The species is present but its breeding in the area has not been established.

The Board has reviewed the evidence before it and agrees with the broad conclusions of the Applicant. The Board would require that the Applicant implement those of the mitigative measures with respect to waterbirds that were recommended by its consultants and which lie within its power. Notwithstanding the fact that there is general concern about declining waterfowl populations, the numbers of waterfowl using the West Castle area are sufficiently small that the probable residual impacts on the more abundant species are not likely to threaten the survival of regional populations. The Board agrees with the Applicant that impacts on less common species could be of greater significance. Accordingly the Board would require that in addition to providing details of measures to mitigate impacts on waterfowl, the Applicant include more detailed survey data on resident waterfowl populations in the West Castle Valley in the mitigation plan it will submit to Alberta Environmental Protection for approval prior to construction.

Significance of Project Layout to Birds

In the absence of detailed information on bird numbers and distribution any comparison of potential impacts on birds arising from construction of parts of the proposed project at different locations must be based on habitat types. Confining development to the west side of the West Castle River to the extent possible would reduce impacts on most bird species and not affect the remainder. Birds using riparian habitats would benefit from such configuration of project facilities. Movement of the golf courses to an alternative location downstream of the wetland could slightly increase impacts on common duck species such as the mallard and decrease impacts on the rare harlequin duck. It would be unlikely to greatly affect other bird species unless there is an unusual concentration of a particular species at one location but not at the other. The Board heard no evidence to suggest that this is the case and could form no conclusion without the benefit of more detailed survey results than are now available.

9.5.16 Reptiles and Amphibians

Vacation Alberta reported observing three species of amphibian, the spotted frog, western toad and long-toed salamander, and one reptilian species, the wandering garter snake, during its field studies in the West Castle area. The long-toed salamander is on the Alberta red list (i.e. likely endangered), the spotted frog is on the blue list (vulnerable), the wandering garter snake is on the yellow list (sensitive) and the western (boreal) toad is on the green list (not at risk), although its numbers are reported to be declining in some parts of the province. Participants were concerned about the protection of threatened, rare or vulnerable species. Potential impacts raised by participants included loss of habitat, direct mortality especially by motor vehicles and as a result of removal of specimens by children, obstruction of movements and exposure to pesticides, herbicides, urban runoff and sewage.

The long-toed salamander is known from 16 scattered locations in Alberta including Waterton Lakes and Crowsnest Pass. Vacation Alberta reported observations of the species at two locations within its study area. Long-toed salamanders occur in back channel ponds of the West Castle River that have been dammed by beaver or impounded by road construction. In general permanent ponds with clear, still water and a mud bottom covered by dead vegetation are preferred. The subspecies found in Alberta (*krausei*) and two others are present in British Columbia but their abundance and distribution are not well documented.

The spotted frog occurs in mountain valleys from Jasper National Park south to the U.S. border. There is very little information about its distribution and numbers or its winter habitat. It breeds in wetlands with some open water, sedge beds and mud bottoms. It may be found in riparian habitats up to an elevation of 2,000 m. Vacation Alberta reported it at five locations in the West Castle Valley including one on the west side of the road 1 km north of the Westcastle ski hill. It is presumed to breed in the wetland on the east side of the highway at that location.

The wandering garter snake is found from the latitude of Red Deer south to the U.S. border and in the Jasper area. It occurs in stream valleys in the aspen parkland and grassland regions of Alberta and less commonly in the mountains. Vacation Alberta reported one snake and a shed skin within the study area but its staff saw a dozen road-killed snakes at the nearby Beaver Lakes campground. Vacation Alberta suggested that occurrence of the wandering garter snake in the West Castle area is dependent on a food supply of amphibians and the availability of hibernacula.

The western toad is widespread in Alberta, living in standing water in wooded areas from valley bottoms at lower elevations to the upper subalpine. Beaver ponds and other small impoundments are common breeding areas and adults may disperse up to 10 km from them. Vacation Alberta reported the western toad as widespread in its study area but probably less common than the spotted frog.

The Applicant stated that there would be no loss of known habitat for any of the reptile and amphibian species. The Board accepts that if the water withdrawal well is located so as to not decrease surface water flows in the river, riparian buffer strips are protected as set out in Section 9.4.3, and measures are taken to control sediment inputs to the river, then known habitats should survive. However there may be habitats in the area that have not yet been identified by Vacation Alberta and which could be affected. Before construction begins, the Board would require Vacation Alberta to conduct a further examination of any riparian habitats that would be affected by the project as part of its mitigation plan and include the results in that mitigation plan.

Two related concerns raised by participants were that widening of Secondary Highway #774 and installation of service lines alongside it would encroach on the wetland habitat approximately 1 km north of the ski hill and that increased traffic volumes would increase the probability of road kills of reptiles and amphibians at that location. The Board agrees that there would be some impact on the wetland habitat along the east side of the road but does not believe it would be significant or avoidable. To reduce road kills the Board requires that Vacation Alberta monitor the road for kills and, if they are recorded, install wide culverts beneath the road at the points of maximum crossing frequency. As pointed out by Vacation Alberta, it is important that the culverts or tunnels under the road are at an elevation such that trout would not be able to access them and consume amphibians attempting passage.

The Board recognizes the potential for children to access habitat, especially habitat close to residences and campgrounds, and to damage it in a variety of ways including collecting or killing organisms that attract their attention. The Board believes that this cannot be entirely eliminated but concludes that the measures discussed in Section 11 to provide hardened trails and interpretative services would help direct attention to appropriate areas. Another design measure that the Board would recommend be incorporated in the management plan for the area is to avoid locating campgrounds in riparian habitat. This practice destroys habitat that is in short supply in many areas of the province. If avoided in the West Castle area, the impact of children (and adults) on reptiles and amphibians as well as other species living in riparian habitats would be reduced.

Concerns expressed by participants about the potential effects of declines in water quality on reptiles and amphibians were based on the propensity of those animals to absorb substances through the skin. Pesticides, fertilizers, various chemicals in urban runoff and untreated or partially treated sewage could all affect such sensitive species if dispersed in the river or adjacent wetlands. The Board believes that the risk of these effects can be reduced to acceptable levels if the Applicant uses an Integrated Chemical Management Plan approved by Alberta Environmental Protection, as discussed in Section 6.2.4, and manages its sewage and greywater as required by the Board in Section 6.1.1.3. To ensure that this is the case, the Board would require that the Applicant monitor water quality to the satisfaction of Alberta Environmental Protection as set out in Section 6.2.4. The Board has also recommended an ongoing monitoring program of various aquatic communities in Section 6.1.1.2.

The Board concludes that impacts on reptiles and amphibians could be reduced to an acceptable level if the Applicant were to implement all of the mitigative measures recommended by its consultants that lie within its power. The Board would require such action by the Applicant.

9.5.17 Wildlife Monitoring

The Board heard a good deal of evidence about the desirability of monitoring populations of wildlife in the Westcastle area. As discussed in Section 9.1.4, the Board believes that monitoring is only worthwhile when it can lead to action to remedy effects that can be attributed with confidence to particular causes. In the preceding sections the Board has made the point that impacts on populations of wildlife species, and especially on the larger species with larger ranges, cannot be understood or managed without knowledge of regional populations and understanding of the factors influencing them. Monitoring, therefore, should be approached from a regional perspective. The Board has proposed a regional body (the Waterton-Castle Wildland Recreation Commission) to manage natural resources including wildlife on a regional scale and it believes that this body would not only need to monitor regional wildlife populations in order to manage them effectively but that it should be responsible for doing so. Financial resources to support monitoring could be generated by revenue from resource use raised by the methods discussed in Section 8. Some monitoring may be required that is specifically tied to the Applicant's proposed project. It could be funded by the method proposed by the Applicant. Monitoring may be needed to fine tune some of the Applicant's mitigative measures. For example, the Board would require that Vacation Alberta monitor road kills to determine whether or not culverts or tunnels under Secondary Highway #774 were necessary to reduce road kills of amphibians and reptiles as described in Section 9.5.16. The Board would also require monitoring of crossings of Secondary Highway #774 by larger animals to determine where measures to reduce road kills should be employed as described in Section 9.5.9.

9.5.18 Wildlife Mitigation

In Section 9.5, the Board reached conclusions with respect to what measures would be necessary or desirable to manage and protect wildlife should the project proceed. As noted in the introduction to the section, the reasoning and conclusions under one species were not repeated where they might apply to similar species. The Board therefore finds it necessary to bring together its recommendations and conditions in this concluding section and to state to which species they apply.

The Board has concluded that if the project were to proceed, it would require the Applicant to submit a mitigation plan to Alberta Environmental Protection for approval. The reason for requiring such a plan is that Vacation Alberta is not yet in possession of sufficient data to define the mitigation measures it would employ, especially on a site-

specific basis. The mitigation plan could include the mitigation requirements defined in the earlier subsections of Section 9 as well as those that apply to wildlife. As part of the mitigation plan, the Board would require that certain surveys be conducted before construction begins. The required surveys would include: surveys of habitat likely to be used for denning by bears, wolverines, foxes or wolves or particularly valuable for feeding by grizzly bears; surveys to identify populations, and habitat used by populations, of rare species of animals including long-tailed weasel, long-tailed vole, red-tailed chipmunk, hoary bat, silver-haired bat, and wandering shrew, and surveys of nest sites of birds-of-prey, the distribution of breeding songbirds within the vicinity of the project, and the distribution of resident waterfowl. The purpose of the surveys would be to enable Vacation Alberta to better design the project and to develop specific mitigative measures to avoid or reduce impacts on wildlife.

On the basis of its review, the Board has concluded that many mitigative measures would be necessary should the project proceed. The Board would require that the Applicant implement all of the mitigative measures for wildlife recommended by its consultants in Volume I of its Environmental Impact Assessment that are within its power to put into effect. A summary of these measures is attached to this Report as Appendix C.

The Board would also require that Vacation Alberta implement the following additional mitigative measures: i) golf courses and ski hills should be closed when grizzly or black bears are present or nearby; and ii) road kills of ungulates, reptiles and amphibians should be monitored and remedial actions undertaken to reduce their number.

The Board has also recommended some mitigative measures that it believes should be considered by the proposed Waterton-Castle Wildlands Recreation Commission (Section 11) in co-operation with Alberta Environmental Protection. These would include: i) avoiding locating campgrounds, buildings or parking areas in riparian habitat; ii) managing the issuance of hunting licences to help maintain wildlife populations nearer to the carrying capacity of the area and to maximize economic benefits to Alberta by pricing and by adjusting the proportion of resident and non-resident licences; and iii) implementing a compensation policy for livestock killed by predatory wildlife within the general vicinity of the Waterton-Castle Wildlands Recreation Area.

9.6 Regional Ecosystems

In Sections 9.1 to 9.5 the Board has reviewed potential impacts of the proposed project on ecosystem components. In this section it considers ecosystems. In the Board's view, ecosystems are convenient artifices. The biosphere and the physical environment on which it depends and with which it interacts form too complex a system on too large a scale for human convenience. An ecosystem is a segment of that larger complex at a scale that is easier to study and, perhaps, easier to understand. Participants in the Board's review recognized different segments of the globe as ecosystems depending on their perspective and the subject under discussion. For example, reference was made to the montane, alpine, subalpine and other ecoregions of Alberta as ecosystems essentially differentiated by elevation and climate. Various areas of the Rocky Mountains that include montane, subalpine and alpine environments were also referred to as ecosystems, although the reasons for recognizing boundaries between them appeared to be somewhat arbitrary. The most common designation of the areas in which the proposed project would be built was the Castle subregion of the Crown of the Continent Ecosystem.

9.6.1 The Crown of the Continent Ecosystem and Castle Subregion

The area northwest of Waterton Lakes National Park including the upper drainages of the West and South Castle Rivers and the Front Range Canyons is known as the Castle-Carbondale Area or the Castle area. This area, which was once part of Waterton Lakes National Park, is the northerly extent of a regional ecosystem variously called the Greater Waterton-Glacier Ecosystem, the Northern Continental Divide Ecosystem and the Crown of the Continent Ecosystem. The Crown of the Continent Ecosystem (the Crown Ecosystem) is normally understood to include the mountainous area as far north as the Crowsnest Pass and south to the southern boundary of the Bob Marshall Wilderness Area in Montana. It thus includes parts of Alberta, British Columbia and Montana and the two national parks jointly known as the Waterton-Glacier International Peace Park.

The Board heard evidence regarding the unique attributes and current levels of disturbance in the Crown Ecosystem and also heard evidence respecting some of the subregions that comprise the Crown, specifically the Akimina, Kishinena and Flathead valleys of southeastern B.C., Waterton Lakes National Park and the Castle area in Alberta and, to a lesser extent, Glacier National Park and the Flathead National Forest in Montana. The Board is most concerned with the Castle area subregion because it is the area in which the proposed development would occur. However, the Board believes that it is necessary to understand the state of the regional ecosystem in order to assess cumulative impacts in the subregion.

9.6.1.1 The Crown of the Continent Ecosystem

The Board heard evidence that the Crown of the Continent Ecosystem is one link in a chain of Rocky Mountain ecosystems from the 'Central Rockies Ecosystem' in the north, comprised of the Willmore Wilderness, Banff, Jasper and Peter Lougheed Parks, to the 'Greater Yellowstone Ecosystem' in the south. These less disturbed ecosystems are the remnants of a continuous natural system that occupied western North America prior to European settlement. Agricultural development and human settlement have largely displaced the natural communities and species that once existed in the prairies, the foothills, and parts of the eastern slopes. The less disturbed areas in the mountains are among the last refuges for many species and communities whose distributions once extended across much of the continent (Section 9.5).

The Crown of the Continent Ecosystem is separated from the insular Greater Yellowstone and Selway-Bitterroot Ecosystems to the south by an area that has been more intensively disturbed and from the Central Rockies Ecosystem by development in the Crowsnest Pass and recreational and industrial land uses in the eastern slopes. The Board heard evidence that the effective size of the regional ecosystem has also shrunk as human activity near its periphery has intensified and increasingly encroached on the area it occupies. The increasing insularity and declining extent of relatively undisturbed land in the Crown Ecosystem raise concerns that it might follow the same path as similar ecosystems to the south. There, remnant populations of large mammals have disappeared as the areas occupied by ecosystems have been reduced and the levels of disturbance within the remaining areas have increased. Natural recolonization has become difficult or impossible because of the increasing distances between relatively undisturbed areas. This process of habitat fragmentation and its consequences were discussed in Section 9.5.

The Board heard that the state of subregions within the Crown Ecosystem varies considerably as a result of the varying policies and actions of the two provincial and one state government and two national governments that oversee land uses in the area. All subregions of the Crown Ecosystem have experienced increasing pressure from recreational and commercial users.

The National Parks are often considered to be a core protected area in terms of conservation of the ecosystem. However, the Board heard that the parks must also balance their mandate to conserve with increasing tourist pressure to develop roads, trails, campgrounds, visitor centres and other facilities. At the time that the National Park boundaries were established and, in the case of Waterton Lakes National Park later contracted, the size of reserve needed for ecosystem conservation was even less well understood than it is today. The Board heard that the 'protected core' of Waterton-Glacier cannot ensure the persistence of larger species of mammals. The multi-year ranges of some male grizzlies, for example, cover areas from 2,100 to 2,600 km², roughly two-thirds of the combined area of the two national parks. Outside the park boundaries these species are rarely protected and even within the parks it is necessary to remove problem animals when human safety is threatened.

The Board heard that there has been a very large increase in the number of roads over the last forty years, even in some of the most remote parts of the ecosystem: the Akamina and Kishinena Valleys of southeastern B.C. The fragmentation of formerly continuous forests by road building and seismic exploration increases access for recreationists, particularly motorized recreationists. The Board heard that habitat effectiveness, i.e., the relative value of habitat in supporting wildlife populations, declines with road density. This observation has prompted legislated minimum standards for habitat effectiveness and road closures in the Flathead National Forest of Montana. Negotiations to effect road closures are also underway in southeastern B.C. The Board also heard evidence of attempts to reach agreement on access restrictions in southwestern Alberta. Road densities in the Castle area in particular greatly exceed the legislated standards employed in Montana.

Overall, the Board concludes that the combined effects of alienation and insularization have reduced the effective area of the Crown of the Continent regional ecosystem. At the same time, habitat fragmentation and the associated higher levels of disturbance have reduced habitat effectiveness for most of its larger species of animals. The Board, therefore, concludes that the cumulative effects of development and disturbance have led to a deterioration in the state of the regional ecosystem, both in quantitative and qualitative terms. By "deterioration" the Board means a decrease in the probability that populations of species forming part of the ecosystem are sustainable in the long-term without management intervention. The ultimate significance of the present level of deterioration in the Crown Ecosystem is difficult to assess accurately for the reasons given in Section 9.1. However, the Board believes it is appropriate to regard the histories of decline in species richness of fragmented ecosystems in the Rocky Mountains of the United States as cautionary; the events that led to that deterioration could be repeated here. Furthermore, the Board is aware that the effects of disturbance on ecosystems and their components may not be apparent for some time after the event that is the ultimate cause. For example, as discussed in Section 9.5, the genetic and demographic consequences that result when a small plant or animal population becomes isolated may be apparent only after a number of years and might then be detected only if that population is already under study. Very few of the populations in the Crown Ecosystem that may be at risk from cumulative impacts of this kind are under study and no definitive conclusions have been reached for those species that are under study. The Board has consistently taken the view that it is appropriate to make conservative assumptions in the face of uncertainty. In this instance, the Board concludes that the state of the Crown of the Continent Ecosystem is at risk of further deterioration if the level of use continues to increase. It may be at risk even if the present level of use continues.

9.6.1.2 The Castle Area

The Board heard evidence that the Castle area is used by individuals including hikers and campers, berry-pickers, off-road vehicle users (motorcycles, all-terrain vehicles and snowmobiles), horseback riders, mountain bikers, anglers and hunters, and by businesses whose activities include trapping, outfitting, livestock grazing, logging, natural gas exploration and mining. The Castle-Crown Wilderness Coalition, which appeared before the Board as part of the WCEC, provided the Board with its State of the Castle Wilderness Report (1992) which documents human impacts in the area. The report includes a number of anecdotal examples of adverse impacts of recreational use. Other participants at the hearing with a long association with the West Castle Valley told the Board that areas adjacent to the main roads had deteriorated as people haphazardly opened up new clearings, paths and roads.

As noted in Section 9.1.2, the Board heard that non-recreational activities, including logging, natural gas exploration and mining, have also had adverse effects on the Castle area. The area has been logged for many years. In the past year, 125 ha were cut in the Mill Creek, South Lost Creek and Goat Creek areas. The remaining old growth forest has been reduced to roughly 10 percent of the area, and this remnant is being logged, raising concerns over the survival of old-growth forest for thermal cover for large animals as well as for habitat essential to the survival of some species of smaller animals and plants. Last year was also an active season for seismic exploration; 685 km of seismic lines were cut. There are no active mines within the Castle area.

Although it is difficult to quantify the cumulative effect of the numerous human uses of the Castle area, the Board is convinced that the fraction of the Castle area that is relatively undisturbed is smaller now than it was historically because of the incursion of development and the extension of agriculture from the east. The Castle area is at the eastern edge of the Rockies which marks the easternmost edge of species ranges that have contracted in response to human occupation of the prairie. Roads and trails have fragmented habitat, reduced habitat effectiveness and opened up large parts of the area to uncontrolled access. Other disturbances such as logging and cutting seismic lines have exacerbated the effect over shorter periods. The number of people using the area in various ways has increased and is still increasing. Evidence before the Board showed that many of those uses have not been controlled and that there have been substantial impacts on the environment. Both project supporters and opponents agreed that unless steps are taken to better control use of the area, environmental deterioration will continue. Many participants at the hearing therefore agreed that management of the area must be strengthened.

A number of participants at the hearing pointed out that the Castle area is by no means a 'pristine wilderness' and inferred that consequently there should be no impediment to intensive development of the West Castle Valley. The Board recognizes that the Castle area is not a pristine wilderness. However, the Board does not accept the proposition that because it is disturbed further disturbance should be encouraged. On the

contrary, the Board believes that the parts of the area that have been subjected to high levels of disturbance should be allowed to recover or, in some cases, should be actively rehabilitated. The Board believes that this could and should be accomplished by establishing a new management structure with the purpose of regulating the use of the area and overseeing its recovery and, where appropriate, rehabilitation.

In the Board's estimation, conservation of the Castle area is crucial to the state of the Crown Ecosystem and the greater chain of Rocky Mountain ecosystems by virtue of its strategic location. To be effective, efforts to conserve the Castle area would have to be undertaken as part of a multi-jurisdictional coordinated plan to conserve the Crown of the Continent Ecosystem. As noted elsewhere, the Board believes that successful conservation of the area would bring significant economic benefits to Alberta. The Board's views on the management structure required to implement ecosystem management in the Castle area are set out in Section 11.

9.6.2 The Incremental Effects of the Proposed Project on the Regional Ecosystem

In the foregoing sections, the Board has reviewed the state of the Crown of the Continent Ecosystem and its subregions with particular emphasis on the Castle area. The Board reached a qualitative conclusion that the Crown of the Continent Ecosystem is at risk and that the Castle area in particular has deteriorated. It also concluded that without coordinated action on the part of the numerous agencies with jurisdiction over parts of the Crown Ecosystem, the deterioration would continue to the detriment of the ecosystem and those who use it. The Board believes that the public interest would not be served by allowing that deterioration to continue. It further believes that the conservation of the Castle area should be undertaken as an essential component within an overall strategy to rehabilitate and conserve the Crown Ecosystem and to realize the economic benefits that a well managed Crown Ecosystem would offer.

Earlier in Section 9 the Board concluded that the proposed project would, in its present form, create adverse environmental effects notwithstanding efforts to mitigate them, that some of the impacts would be regional in scope (i.e., affecting the whole Crown of the Continent Ecosystem) and that these impacts would be incremental to the impacts of other disturbances. The Board believes that the project as proposed would not meet the test of sustainability and that it would not be acceptable without significant modification. The Board is convinced that some potential impacts could be avoided or significantly reduced by modifying the proposal, particularly by restricting development to the west side of the West Castle River with the minor exceptions described in Section 10. However, the concentration of development and the associated activity of up to 2,500 people in the narrowest part of the West Castle Valley could have, in the Board's opinion, unacceptably severe effects on the regional ecosystem. The Board believes that these effects could be sufficiently alleviated to render the project in the public interest if: i) the golf courses were removed from their present location; and ii) a new management system including new land-use controls for the region as outlined in Section 11 were put in place.

The Board believes that the resort and the human activity associated with it could have a significant adverse effect on the ecologically important lands surrounding the resort if steps are not taken to control them. The Board does not accept the Applicant's suggestion that resort users might confine their activities to the recreational opportunities on the resort site. In fact the Board believes that the resort users would also make substantial use of the recreation opportunities found throughout the surrounding lands. The Board recognizes that the Applicant would not have the power to control the activities of resort patrons who wish to use adjacent recreational lands but concludes that such use of the surrounding public lands by resort users could have a significant adverse effect if left uncontrolled. In the Board's view, appropriate land use controls would be essential to mitigate the significant adverse effects of locating the resort in such an ecologically important region, and are necessary in any event given the risk of environmental deterioration if pressures for existing uses continue to increase. The public interest in the mitigation of the potentially significant adverse environmental effects of resort patrons using the public lands surrounding the resort are considered more fully in the next section of this Report.

The Board has reviewed the potential for acceptable alternative locations for golf courses and concluded that the two courses could be relocated on the west side of the West Castle River 400 m or more downstream of the wetland area that lies immediately north of the ski hill. The Board finds that if the golf courses were located as it proposes, the bulk of the development in the immediate vicinity of the ski hill were located on the west side of the river as described in Section 10, and a new regional management system were put in place as described in Section 11, the project could be built and operated in a manner that would be in the public interest and would achieve the goal of sustainable development.

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10. RESORT IMPACT MITIGATION THROUGH LAND USE CONTROLS

10.1 Introduction

The Board views land use controls as being essential to the mitigation of the potentially significant adverse environmental effects of the proposed resort on surrounding ecologically important lands. The Board (Section 9) analyzed the impacts of past and present land uses on the environment and the effects that the resort development may have on the environment, should it be approved. It also heard evidence on the decision making processes which have defined zoning and compatible land uses for this part of the Rocky Mountain Forest Reserve of Alberta. The Board believes that the human use of the land is an important element in its consideration of the public interest. Human use applies to both the effects the proposed resort may have on adjacent land uses in the surrounding area, as well as the effects of adjacent land uses on the proposed resort, should it be approved. In Section 9, the Board noted that the resort users will also make substantial use of the recreational opportunities found throughout the surrounding lands and it concluded such use of the surrounding public lands by resort users would have a significant adverse effect if left uncontrolled.

The Board believes it should analyze the various existing and historical land uses and the decision making processes involved in the designation of these land uses in this particular area so that it can assess whether or not the existing land use controls would appropriately mitigate the effects of the resort, on surrounding lands, if it were to be approved. The Board would then attempt to bring together and reconcile the various views on land uses that have been heard in evidence. This part of the Report will summarize the results of this analysis.

The Applicant proposes to build a four-season destination resort in the scenic, wildlands and mountainous area of the Rocky Mountain Forest Reserve in southern Alberta. The Board heard that there is substantial public demand to use the land in the region for many purposes but particularly for outdoor recreation. The Board also heard there is a public demand to protect this region of Alberta as a wildland area, and some participants claim the area is already degraded almost to the point of no return. The proposed resort area would contain the usual amenities but also considerable accommodation and other facilities for people seeking outdoor recreation both in the "footprint" of the development and the surrounding area. The Board heard this would bring a large number of additional people into the area all seeking somewhat the same use of the lands. The Applicant indicated that, for the proposed development to be successful as a four-season destination resort, and provide local, regional and provincial benefits, it needs to be located in a special scenic wildland area. In addition to the evidence on the social, economic and environmental effects of the proposed development and surrounding area, the Board also heard a substantial amount of evidence on land uses and other information in the adjacent regions. In the Board's view, the lands surrounding the proposed development site are an integral part of the proposed development and should be considered in the context of the Application.

The Board received a substantial amount of evidence regarding land use and planning issues from both the Applicant and participants, including copies of certain official planning documents, background Government publications and policies, surveys of users of the Castle area and other information. The Board believes that it is important to emphasize that the NRCB approval process does not dispense with the requirement to obtain any other license, permit, approval or authorization from other government bodies with decision making jurisdiction. Ongoing regulatory requirements for the design, construction, operation, maintenance and abandonment of a project are usually created and administered by agencies of the provincial and municipal governments.

Given the social, economic and environmental matters reviewed in Sections 7, 8 and 9, the concerns expressed by the participants, and the substantial evidence on land uses, the Board believes it should examine in detail the land use aspects in the "footprint" of the proposed development and particularly in the surrounding area.

There are two main land use planning processes in Alberta, the process under the *Public Lands Act* in respect of Crown lands and the process in the *Planning Act* related to privately owned lands. Under both processes there are hierarchies of plans, which move from broad general plans and policies for large regions, down to more site-specific policies and plans for more discrete regions. The proposed project is located within a large area of Crown land (Rocky Mountain Forest Reserve), and thus the planning process and land use issues are largely governed by the *Public Lands Act*. It includes a hierarchy of plans and documents such as the "Green" and "White" Areas (1948) (lands withdrawn from settlement and settled land), 1984 *Eastern Slopes Policy* (an updated version of the 1977 document), the more specific *Castle River Sub-Regional Integrated Resource Plan* and other mechanisms.

Since there is also a fee simple title for 31.81 acres (12.85 ha) of patented land held by the WDA for the Westcastle Park site, the mechanisms of the *Planning Act* are brought into play as well, largely governing the site through the Westcastle Area Structure Plan, the land use orders of the local unincorporated municipal authority (ID #6), the subdivision approvals of the Oldman River Regional Planning Commission and other mechanisms.

The Board notes that decision making in regard to land use issues is a primary function of both planning processes and each, to a varying degree, considers the social, economic and environmental aspects in their decision making. Both have a continuing obligation to review, update and, under various Alberta statutes to approve and regulate land uses. The purpose of the NRCB review is " ... to provide for an impartial process to review projects that will or may affect the natural resources of Alberta in order to determine whether, in the Board's opinion, the projects are in the public interest, having regard to the social and economic effects of the projects and the effect of the projects on the environment." Board review is essentially a one-time event.

The Board believes that there is a degree of overlap in the jurisdictions under the *Planning Act*, and the *Public Lands Act*, and also with that of the Board under the *NRCB Act*. All three jurisdictions, to a varying degree, take into consideration social, economic and environmental effects in their decisions on land use and have somewhat similar information requirements.

In the Three Sisters Golf Resorts Inc. Decision Report (Application #9103), the Board indicated that "...its review of the environment must of necessity be broader than the review of the environment for the purposes of the *Planning Act*" and "...that patterns of human settlement would be only one of a number of relevant considerations for the Board in respect of the environmental impacts of development." The Board believes that in regard to the planning documents prepared under the *Public Lands Act*, which were received in evidence, the environment was one of the principal considerations in the delineation of zone boundaries and designation of land uses. The *Eastern Slopes Policy* took a "broad-brush" provincial approach, while the *Castle River Sub-Regional Integrated Resource Plan* and the *Castle-Carbondale Corridor Resource Management Area - C (RMA-C)* are comparable in certain respects to the more specific policy documents issued under the *Planning Act* such as a General Municipal Plan (GMP), land use by-law or an Area Structure Plan (ASP).

10.2 Land use Planning - *Public Lands Act*

Land use management has been undertaken in the project area since the arrival of the first wave of European settlers. In 1914, the entire area was under federal control and was part of the Waterton Lakes National Park. In 1921, the National Park boundary was changed to approximately what it is today, and the Castle area became part of the "Rocky Mountain Reserve" of Alberta. In 1930 and in years following, the *Alberta Natural Resources Acts* and the *Natural Resources Transfer (Amendment) Acts* were passed and the Eastern Slopes of the Rockies came under the control and management of the Alberta Government. In 1948, the Alberta Government established the "Green Area", which withdrew most of the eastern slopes from agricultural development other than grazing. Between 1948 and 1973 the Eastern Rockies Conservation Board operated under joint federal and provincial legislation and provided a framework for watershed management and planning for the eastern slopes. In 1973, the Alberta Environment Conservation Authority held a series of hearings on land use and resource development in the eastern slopes, which led to the publication by the Alberta Government in 1977 of a *Policy for Resource Management of the Eastern Slopes*.

In the 1977 *Eastern Slopes Policy* the Alberta Government identified "integrated land use planning" as the means of implementing the resource management policies for the eastern slopes. Multiple use is the basis of this zoning approach. The fundamental theory is that a co-ordinated inter-agency approach to comprehensive planning and shared decision making can produce the greatest benefits for present and

future Albertans. More detailed resource management planning is done at regional and sub-regional levels.

A number of general zoning priorities were set forward in the 1977 *Eastern Slopes Policy*. In addition to the comprehensive integrated planning model, the highest priority was placed on watershed management to ensure a reliable supply of clean water for aquatic habitat and downstream users. The recreational potential of the area was to be increased. Critical wildlife habitat, as well as selected areas of natural significance that are unique or representative, were to be protected. The resources of the eastern slopes would be developed consistent with principles of conservation and environmental protection. Management of renewable resources was the long-term priority, with non-renewable resource development to be encouraged, where it was not in conflict with renewable resource management. Service centre development would generally be directed to defined nodes associated with transportation corridors. The policy stated that "Crown lands in the Eastern Slopes will be retained in public ownership for the use of all Albertans. In registered subdivisions, the sale of small parcels of public land may be considered."

Seven years later this document was reviewed, revised, approved and the 1984 edition published. In 1985, under the 1984 *Eastern Slopes Policy* and further study by involved Government agencies and public consultants, the *Castle River Sub-Regional Integrated Resource Plan* was approved by the Alberta Government. In the hierarchy of the *Public Lands Act* planning process the latter two documents set policy and provide the guidelines for initial decision making in land use planning, zoning and the management of public lands in the area. The most recent initiative *Special Places 2000: Alberta's Natural Heritage* may in future add another important policy document to aid in the planning process.

The 1984 revision of the *Eastern Slopes Policy* stressed the importance of tourism opportunities and benefits in addition to watershed and recreation management and other priorities. The preface to the 1984 revision states, "The Policy is sufficiently flexible so that all future proposals for land use and development may be considered. No legitimate proposals will be categorically rejected. Should a proposal not be in keeping with the provisions of the Policy for that area, alternative means will be explored for accommodating the proposal in a more appropriate location in the region." The changed emphasis on development in the 1984 revision was commented upon in the *Castle River IRP*. According to the *Castle River IRP*, "... this shift in Policy direction occurred to permit increased emphasis on the development of a strong tourist industry and for greater recreation development by the private sector. Integrated resource planning is identified as a key mechanism for the provision of these opportunities to ensure the integrity of the original *Eastern Slopes Policy* is maintained." The Board notes that for the proposed development area there appears to be little or no difference in the land use designations and zone boundaries between those found in the 1977 *Eastern Slopes Policy* and those found in the 1984 revision.

The 1977 Eastern Slopes zoning system used the following three primary zones: protection, resource management and development. Within these broad zones

eight detailed land use zones outlined a range of permitted activities. These zone boundaries were repeated and the land uses somewhat refined in the 1984 revised *Eastern Slopes Policy*, and were further refined in the 1985 *Castle River IRP* for the Castle area, which includes the project study area. (Please refer to Figures 10.1 and Table 10.1 which show, respectively, the zones for the Castle area and the table of permitted uses for each zone. Also, reference is also made to Figure 10.2 which shows, in more detail, the zones as they relate to the Westcastle ski area and immediate vicinity).

As evident in the Table of Compatible Activities by Land use Zone (Table 10.1), there are a great many uses which are classified as both "compatible" and "permitted" in each of the zones of the project development area. There are far more activities which are permitted than there are activities which are not permitted for land use purposes in these zones as a whole. In addition, in the Castle area, there are a number of different zones situated close to one another.

The Board heard evidence indicating and indeed, it seems clear, that the protection and conservation values of the *Eastern Slopes Policy* are very difficult to maintain in the Castle area. The *Castle River IRP* recognizes this conflict. In the Middle Kootenay Pass area the Plan itself indicates that the area qualifies for Prime Protection Zone designation, but year-round demand for access by recreation users influenced the establishment of the General Recreation Zone designation. The Board believes it should recognize this factor in its review of land use issues in areas surrounding the "footprint" of the proposed development.

The existing Westcastle ski hill is located in the Facility Zone and the West Castle Valley contains three different contiguous zones; they are Prime Protection, Critical Wildlife and General Recreation. According to the *Castle River IRP*, the Westcastle site is included in RMA-C, which is shown on Figure 10.3. RMA-C is a further refinement in the planning process and deals specifically with a reduced General Recreation Zone and the existing Facility Zone.

Figure 10.1

Table 10.1

Figure 10.2

Figure 10.3

The *Castle River IRP* states that the following are the resource management objectives for RMA-C:

- 1) To accommodate the future development requirements of the Westcastle ski facility;
- 2) To promote the opportunity for year-round recreation uses in the Castle-Carbondale Corridor that are consistent with the area's natural attributes; and
- 3) To promote the opportunity for private sector development of commercial services and facilities to support expanded and/or year round recreation/tourism activities in the Castle-Carbondale resource management area.

The intent of that portion of General Recreation Zone RMA-C is to retain a variety of natural environments to serve a wide range of outdoor recreation activities. The intent of the Facility Zone is to recognize existing or approved settlement and commercial development areas. The plan for RMA-C also outlines management objectives and guidelines for: maintenance of high quality watershed values, tourism, recreation, fisheries, historic resources, mineral, rangeland, timber and wildlife. In summary, within RMA-C the basic intent is to provide for a diverse range of intensive recreation opportunities that are consistent with maintenance of the natural environment.

In the view of the Board, the proposed development complies with the zoning under the public land planning process. However, the Board believes that adjustments may be needed for zone boundaries in the proposed development and surrounding areas to be more consistent with the stated goal of maintenance of the natural environment. The Board recognizes that the proliferation of different land use zones in a relatively compact geographical area of ecological value is the result of tremendous pressure for use by numerous and varied groups of people. Indeed, all of the eastern slopes planning documents in evidence recognize the issue of conflicting uses and competition among groups for public land access.

An example of the heavy pressure for land use in the region is found in the draft Castle River Access Management Plan, which has been prepared over a five- year period, and has been signed by 22 diverse groups using public lands. This access plan has classified road and trail routes in terms of what types of vehicles are permitted and not permitted in the Castle area. Of the trails indicated on the plan, only a small minority do not permit on- or off-highway vehicle use. The Applicant's wildlife expert stated that land use by off-highway vehicles, such as snowmobiles, dirt bikes and all-terrain vehicles, as well as permanent developments, are the most damaging types of land use to an ecosystem. The same expert also stated that multiple use is not as highly favored as a workable concept today as it was two decades ago when the 1977 *Eastern Slopes Policy* was being

formulated, and that the Eastern Slopes planning process did not address the potential impact of placing different zones in relation to others.

The Board is concerned that the concept of integrated resource management set out in the *Eastern Slopes Policy* and other public lands planning and policy documents may create unrealistic expectations by the public that we can "have it all," particularly where relatively small geographic areas are concerned. The *Special Places 2000 Policy* has indicated that, if Alberta is successful in protecting its parks and reserves, it "...could become a global destination - eternally." At the same time, the proposed *Special Places 2000 Policy* states "...sustainable development will be achieved through an integrated resource management philosophy." Again, the Board believes that it must be recognized that sustainable development may not be achievable unless integrated resource management is understood to mean that uses may be permitted, but in more discrete areas than have been available in the past; i.e., that certain areas may be designated for certain land uses only and other uses may be prohibited in the same areas in order to protect the natural resource.

10.3 Land use Planning - *Planning Act*

The *Planning Act* provides a framework for land use planning on patented lands in Alberta and gives municipalities with statutory powers to control and regulate development. The hierarchy of planning instruments under the processes of the *Planning Act* include Regional Plans, General Municipal Plans (GMP), Area Structure Plans (ASP), Land use Bylaws, subdivision plans, development agreements, development permits and other mechanisms. The Westcastle ASP was adopted by the Minister of Municipal Affairs on October 8, 1987, and stated "...land uses which may be allowed within the planning area include recreation resort development and residential development as principal uses and commercial and recreation uses which are complementary to such development." The existing ID #6 Land Use Order, which is similar to a land use bylaw for an incorporated municipality, was adopted in 1980, but it only allows for forestry and passive recreation uses at the Westcastle site; it neither coincides with existing uses nor implements the land use policies adopted through the Westcastle Area Structure Plan of 1987. A new draft Land Use Order has been prepared by ID #6, approved by its Advisory Council and sent to the Minister of Municipal Affairs for approval. However, under a Ministerial Order dated February 17, 1993, the adoption of land use bylaws (Land Use Orders) was delegated to Improvement District Advisory Councils. The next step under the *Planning Act* is an ORRPC approval that would be required for the proposed development's subdivision plan. However, this approval could be frustrated as it requires a compatible Land Use Order and neither the existing 1980 Land Use Order nor the 1992 draft Land Use Order allows all the land uses proposed for the development, should it receive Board approval. If this matter should be resolved, the next step, before construction could proceed, is the signing of a development agreement between ID #6 and the Applicant, and then the issuance of a development permit by the ID #6.

The Board notes that the proposed development was brought into the *Planning Act* mechanisms largely through the Westcastle ASP and the fee simple title for 31.81 acres (12.85 ha) of patented land held by the WDA. The Applicant proposes to modify the boundaries of the 1987 ASP to preserve some sensitive environmental areas and to include the golf courses at the southerly end of the proposed development. The proposed development is located in the Rocky Mountain Forest Reserve, an area containing only unpatented lands except for the WDA parcel, thus the planning process of the *Public Lands Act* is dominant. This area also coincides with the most southerly part of ID #6 which lies south of the Municipality of Crowsnest Pass with one resident family living in the resort area. If the existing jurisdictional entities were to continue, ID #6 was also concerned that the largest portion of its population would then reside in the resort area rather than the ranchland area in the northern part of the ID #6 where all but one of its existing 130 ratepayers live.

The Board has heard of the jurisdictional and other complexities that could occur should the proposed development be approved. The Board noted that ID #6 did not support the proposed development in its present form because of a concern that they may be exposed to a financial risk should the development be approved. They requested: "...if it is possible for the Westcastle project to be removed from within the ID #6 municipal jurisdiction, the ID #6 requests that this be done." The Board also heard evidence on several proposals to remove the area from ID #6 as follows: annexation of the resort area into MD #9, the formation of a separate municipal jurisdiction, or a special municipal designation for the resort area.

The Board has considered the historical and ongoing importance of the *Public Lands Act* planning process for land use decision making in the surrounding area and for the proposed development site. It also recognizes that, except for the WDA fee simple title, the land is and will likely remain in the public domain and thus continue to be under the jurisdiction of the *Public Lands Act*. The Board believes the process would be less complex, more efficient and a benefit to all if only the approval mechanisms of the *Public Lands Act* applied. The Board notes that this may require the area be withdrawn from ID #6 and that all the lands be in the public domain.

10.4 Land Tenure

The Board heard that, the condition or manner of holding the land may designate or prescribe the land use planning process that is to be applied. The land use planning process for public lands and resources is set out in *Public Lands Act* while patented lands must comply with the *Planning Act* which is mandatory in nature. The *Planning Act* is sometimes voluntarily or co-operatively applied to public lands, however, the *Public Lands Act* does not apply to privately owned lands.

Regarding the use of public land for private development purposes the Board has noted that the 1977 *Eastern Slopes Policy* stated that Crown lands in the eastern slopes will be retained in public ownership for the use of all Albertans. In registered subdivisions, the sale of small parcels of public land could be considered; it is clear that residential development was not considered appropriate for most of the eight specific zones. In the 1984 revision of the *Eastern Slopes Policy*, the sale of public lands was contemplated. The policy indicated that most of the public lands in the eastern slopes be retained public ownership for the use of all Albertans. The sale of parcels of public land for permanent and seasonal use may be considered. Parcels of public land may also be sold for site and capital-intensive development where site-specific conditions are met. In the *Castle River IRP*, the potential expansion of the Westcastle ski facility was discussed. Resource management guidelines for development of the facility included the requirement for detailed site-design, and that environmental and economic studies must be prepared before a lease would be granted for a four-season resort development. Further, "...the sale of a limited amount of Crown land required for intensive development will also be subject to these information requirements."

The *Public Lands Act* includes a large number of different types of land tenure mechanisms that can be used to transfer land use rights. For example, these include, permits for trail riding operations, grazing leases, license of occupation for a ski hill operation, fee simple title for residences, leases for industrial uses and many more. The Board heard that, in the opinion of many participants, the sale of public lands for fee simple ownership in this particular region is not desirable and that other forms of land tenure would provide more control and be more desirable for the long-term public interest. Forms of land tenure other than fee simple dispositions have been used in the national park systems for many years.

The Board believes, should the project proceed, that the sale of public lands for fee simple resort ownership as proposed in the Application can equitably and practically be replaced by long-term leases or another form of land tenure mechanism. Further, the existing WDA fee simple holding should be changed to conform. The Board agrees that, as a general rule, the lands in the Rocky Mountain Forest Reserve should remain in the public domain.

10.5 Other Documents and Information

The Board received a great deal of useful information dealing with past, present and proposed future land uses in the vicinity of the proposed development and the surrounding area. Because of the substantial amount of evidence as to both the critical importance of the natural resources (the subsurface, land surface, water, fauna and flora) of the area and the intense demand for diverse human use of the land in the region, the Board found most compelling those documents which took a balanced and comprehensive approach to land use, and advocated controlled and wise use of natural resources so that these resources may be available for future generations.

The Board received very useful information regarding the request for legislative protection of certain lands in the Castle area. The Castle-Crown Wilderness Coalition (part of the WCEC) has advocated the creation of a "Castle Wilderness" protected area, which would help preserve part of the larger ecosystem known as the "Crown of the Continent Ecosystem," the Northern Continental Divide Ecosystem or the Greater Waterton - Glacier Ecosystem (Section 9.6). The proposed "Castle Wilderness" area lies wholly within the Rocky Mountain Forest Reserve and, in fact, its western, southern and eastern boundaries coincide with the boundaries of the Forest Reserve. For the most part the area was formerly part of Waterton Lakes National Park. The Castle-Crown Wilderness Coalition did not include in the "Castle Wilderness" area those lands designated in the *Castle River IRP* as RMA-C, which includes the Westcastle ski hill.

The Board heard evidence on the human history, settlement, federal and provincial control, climate, topography, eco-regions and the flora and fauna in the proposed Castle Wilderness area. In the hearing, members of the Castle-Crown Wilderness Coalition indicated that they had no quarrel with downhill skiing and, in effect, they recognized that the existing land uses at the Westcastle site would be unlikely to be completely curtailed in the near future. The permitted or compatible land uses proposed by the Castle-Crown Wilderness Coalition for their proposed protected area include: "hunting, fishing, hiking, horse travel, cattle grazing (at a level considered appropriate after study), backpacking, primitive camping, trapping (under discussion), nature study, outdoor education, snowshoeing, cross country skiing, canoeing and kayaking." The prohibited or incompatible land use would include "mechanized travel, mining, oil and gas exploration and development, industrial development, recreation development, logging, helicopter assisted recreation and construction."

The Board received evidence about the "Trail of the Great Bear," which would be an international scenic trail named after the grizzly bear. The trail appears to have been planned with the intent of balancing tourism promotion with ecological protection values. A Trail of the Great Bear Study has been prepared for the Alberta and Montana Governments on the linking of Yellowstone National Park, the world's first national park, with Banff and Jasper National Parks, Canada's first national parks, on a tour route. The trail would focus on the ecological, historical and cultural resources of the entire region. The potential demand for the tour is somewhat dependent on the development of an active "ecotourism"

market segment and on the dedication of resources to improve infrastructure and tourism facilities. The Westcastle site is noted as one potential segment of the tour. The Trail of the Great Bear Study advocates that proper steps be taken to protect key natural features in the area surrounding Westcastle, including the development of trails to keep people in designated areas and signage to increase awareness of the fragility of the ecosystem. The study mentions the backcountry and natural wildland recreational opportunities in this area and also states that the Westcastle ski hill expansion could enhance the area on a four-season basis. Some participants criticized the support given in the study for the ski hill expansion on the grounds that the proposed development arguably does not accord with protection of the natural features of the area.

The Board received copies of maps and heard evidence on the draft Castle River Access Management Plans. They covered the eastern slopes area from Waterton Lakes National Park northwest nearly to the Crowsnest Pass and included both summer and winter on highway vehicle use, off-highway vehicle use, and random access areas. The plans represent some five years of 22 diverse groups working together. All groups signed the draft plan which is now being considered by several Government agencies. Signing of the document indicated a "joint best effort" and not necessarily agreement.

The Board notes that access to an area is a controversial issue and is a primary element when considering land uses. It can also be an important tool to control the use of that land. The Board believes the Castle River Access Management Plan is an important document for planning and management of the large area surrounding the proposed development and recommends the plan be finalized whether the proposed project proceeds or does not proceed. The Board notes that the Access Management Plan dealt only with the location and use of access in winter or summer but not with the intensity or management of the many uses. The Board believes both these factors must be dealt with having more regard for environmental impacts and cumulative effects on the regional ecosystem before the plan can be finalized.

In 1974, the Provincial Parks Service placed a "Consultative Notation" on the public lands that are largely contained within the West Castle and South Castle River watersheds. This is also the land area which was later identified as RMA-C and the westerly portion of RMA-D in the 1985 *Castle River Sub-Regional IRP* (see Figure 10.1). The purpose of the notation was to notify persons requiring land dispositions of the possible future intent of the Alberta Government to use the lands for Provincial Park purposes. It carried no restrictions. The Board heard evidence that the "Consultative Notation" is still in effect and that future establishment of the proposed park would achieve the intent of the *Castle River IRP*, as well as ensuring protection of significant natural values.

Additional evidence received by the Board on the use of public lands and planning issues included: Environment Conservation Authority Public Opinion Survey in regard to eastern slopes land use and resources development (1973); Castle-Crowsnest Survey of Park Potential (1974); Background Paper Castle River Integrated Management Plan (1979); "Wilderness" an Alberta Conservation Strategy Background Paper by Dianne

Pachal (1991); *Tourism 2000* (1992); *Public Lands Act* and Regulations as well as verbal and written submissions by the participants. Briefly summarized, the following are recurring themes: development based on a comprehensive approach to land use planning, protection of watersheds, protection of wildlife, protection of habitats, accommodating tourism and intensive recreation use, opportunities for human enjoyment of the land, sustainable supply of wilderness area, wise use of Alberta's natural resources, potential for a provincial park, planned and controlled tourism, concentrated facility development in facility zones, control of access, management of human use and development in harmony with maintenance of the natural environment, and ecotourism as important land use. The Board notes that this additional information increased their knowledge and understanding of past and present land use and planning issues in this part of Alberta.

The Board heard evidence on the existing use of the public lands in the vicinity of the project site and in the surrounding area which, for the most part, included the southerly portion of the Bow Crow Forest Reserve. Land use varied largely according to those designated under the various zones in the *Castle River IRP* (see Table 10.1). These land uses are regulated, managed and monitored by a variety of Government agencies (local, provincial, federal) under several acts and regulations. The Board noted that the participants almost unanimously agreed that the flora and fauna in for this region are under stress and that some form of protection and special management is urgently required. The Board also noted that the long list of existing uses were generally acceptable to the participants and particularly to the specific users, it was the existing intensity of land use and the associated environmental impacts and cumulative effects that was cause for concern. The general prognosis by some participants was that if the existing intensity of land use continued, that important ecological features could be lost. Some considered it already lost.

The draft Policy document *Special Places 2000 - Alberta's Natural Heritage* was publicly released in November 1992. It is a high priority Alberta Government proposal that will designate sites over the next seven years to complete a system of protected areas which are representative of the diversity of the Province's natural regions. The Policy's stated goals are:

- 1) "Protection: To protect the full range of landscapes, environmental diversity and special natural features of Alberta;"
- 2) "Outdoor Recreation: To protect natural landscapes throughout Alberta for a variety of resource-based, dispersed recreation pursuits;"
- 3) "Heritage Appreciation: To protect landscapes that ensure, for Albertans and visitors, the opportunity to explore, understand and appreciate the full range of Alberta's natural heritage;"
- 4) "Tourism: To protect areas capable of sustaining adventure travel and ecotourism, including extended tours, and enable visitors to experience the unspoiled landscapes and abundant wildlife

representative of Alberta's natural regions." It also defined ecotourism, noted its characteristics and benefits in preserving natural environments.

Special Places 2000 defines protected areas as "...places that are explicitly legislated and managed to protect important natural features." Alberta has a variety of existing legislation for land use planning, management and protection of natural areas, such as the *Public Lands Act*, *The Provincial Parks Act*, *Wildlife Act*, *Forest Act*, *Environmental Protection and Enhancement Act*, *Planning Act*, the *Wilderness Areas Ecological Reserves and Natural Areas Act*, and others as well as the various regulations made under these acts. It has not been determined if all the "protected areas" identified in *Special Places 2000* will require new legislation, no doubt some can be covered by existing legislation. The Board heard a very substantial amount of evidence on both the critical importance of the "natural resource" (subsurface, land surface, water, fauna and flora) and the very large demand for a diverse human use of the land in this region. *Special Places 2000* proposes that classes of protected areas can be established in combinations to satisfy a wide range of needs and public demands. Classification would allow the larger protected areas to balance resource protection, conservation and ecotourism with facility-based tourism and outdoor recreation.

10.6 The Proposed Waterton-Castle Wildland Recreation Area and Future Land Uses

The Board notes its findings on the social, economic and particularly the environmental effects from the project. It also notes the current level of environmental disturbance, observed by participants, in the region under the existing land use controls. Taking into account these matters and its analysis of the land use plans and zones for the region, the Board believes that the existing land use zones would not achieve a sufficient level of land use control that would appropriately mitigate the potentially significant adverse environmental impacts of the resort on the public lands surrounding the resort. Therefore, the Board concludes that the region should be re-zoned on a more restrictive basis to appropriately mitigate the potentially significant adverse environmental impacts of the resort.

In consideration of the boundaries for the regional area requiring more restrictive land use controls, the Board had regard for all the information before it, including the following information:

- the present day boundaries of the Rocky Mountain Forest Reserve first established in 1912;
- the present day boundaries of the "Green Area" of Alberta. The "Green Area" is a general land classification under the *Public Lands Act*, first established in 1948 when the lands were withdrawn from

settlement. In this area, the boundaries of the Green Area coincide with the Rocky Mountain Forest Reserve boundaries;

- *Eastern Slopes Policy* 1977 and 1984 and the refined zoning boundaries of the *Castle River IRP* (Zones 1,2,4 and 5);
- boundaries of the Resource Management Areas C and D of the *Castle River IRP*;
- Crown Reservation for proposed provincial park designation (Consultative Notation 1974) covering the watersheds of the West and South Castle Rivers;
- the former boundaries of Waterton Lakes National Park (1914-1921) which included all of the lands in the Rocky Mountain Forest Reserve lying south of the Carbondale River plus the existing park area;
- the dividing line between public lands and patented lands which coincides, in part, with the common boundaries between ID #6 and the MD of Pincher Creek #9 and is the dividing line between the jurisdictions of the two main planning processes;
- Alberta Parks Planning Branch Survey of Park Potential (1974);
- the interrelationship between the "footprint" of the proposed resort, the immediately adjacent lands, and the surrounding ecosystem.
- jurisdictional or management boundaries such as the Alberta/British Columbia boundary, National Park Boundaries, Wildlife Management Unit 400, ID #6, MD #9 and others already mentioned;
- the boundaries proposed by the Castle-Crown Wilderness Coalition for a proposed Castle Wilderness area. This area includes all of the lands within the present boundaries of the Rocky Mountain Forest Reserve lying south of the Carbondale River except for RMA-C and some lands immediately to the northwest in Zone 5 of the *Castle River IRP*;
- easily recognizable topographical features such as the Continental Divide, the watershed divide along the northerly boundary of Waterton Lakes National Park and the Carbondale River;
- physical access to adjoining ecosystems such as the Middle Kootenay and North Kootenay Passes and other minor passes;

- the synergy resulting from proximity to other desirable or protected areas such as Waterton Lakes National Park and the Flathead area of British Columbia;
- the future potential of being part of a larger international and interprovincial protected system sometimes known as the "Crown of the Continent Ecosystem, the Northern Continental Divide Ecosystem or the Greater Waterton - Glacier Ecosystem";
- other verbal and written submissions.

The Board believes the regional area requiring more restrictive land use controls to mitigate impacts of the proposed resort should be bounded as follows: on the west by the Alberta/British Columbia border; on the south by Waterton Lakes National Park; on the east by the MD of Pincher Creek; and on the north by the Carbondale River. The short legal description of the area is:

all the lands within the Rocky Mountain Forest Reserve in Alberta lying south of south bank of the Carbondale River containing 800 square kilometers more or less and situated in Townships 2 to 6, Ranges 1 to 5, West of the 5th Meridian, in the Province of Alberta.

The Board notes that there is a high degree of commonality and jurisdictional overlap of the area and its boundaries, for example, the area could also be described as follows: all of the lands within ID #6 lying south of the Carbondale River, all of the lands within Wildlife Management Unit 400 lying south of the Carbondale River, or all of the lands in the "Green Area" of Alberta lying south of the Carbondale River.

As to future human use of the land in this regional area, the Board heard a number of suggestions which varied from 1) this is not a pristine wilderness and its natural resources are not sustainable under the ever-increasing demands for human use, thus controlled development should be allowed to service all users; to 2) a more or less "status quo" situation recognizing existing local users and their use of the land, along with some improvements to environmental protection but little, if any, intrusion by outsiders; and finally, 3) a desire to re-build a pristine wilderness with human use of the land severely restricted.

The Board believes that under the *Public Lands Act* planning process, the land use and planning issues in the immediate project area and surrounding region are interrelated. These issues are also interrelated with the social, economic and environmental aspects, which are dealt with in other parts of this Decision Report. Due to the substantial amount of evidence, the Board will make recommendations for land uses within the area. Some existing land uses and zone boundaries may need to be modified for

maintenance of the natural environment. The Board recommends that in the future, detailed attention be paid to intensity of land use and the density of facilities within the whole area.

The Board believes that the existing land use zones should be consolidated into three zones. The Board also believes that the region should be a combination of three distinct areas or zones, a Wildland Protected Area, a Recreation Area and a Resort Area:

- Wildland Protected Area would cover the whole of the region except for a Recreation Area and the Resort Area. Land uses would include a reconciliation of those uses listed for zones 1 and 2 of the *Castle River IRP* and some of the land use elements designated for Wilderness Areas, Ecological Areas, Natural Areas and Provincial Parks. It would contain 739 km² or 92.4 percent of the total amount of land.
- Recreation Area would include nearly all of RMA-C, which lies in the northerly portion of Zone 4 of the *Castle River IRP*. The southerly arm of RMA-C along the West Castle River has been cut off from a point about 400 metres north of the wetland which lies just north of the proposed development and would thus protect this critical area. Similarly, the northern arm along the Castle River has been cut off in agreement with the proposal for a Castle Wilderness area. This leaves the main part of RMA-C lying within surveyed Township 5, Range 3, West 5 Meridian. The northerly portion of the Crown Reservation for a proposed provincial park (Consultative Notation) largely follows the surveyed section lines which also approximate the easterly, northerly and westerly boundaries of RMA-C. The Board believes the following lands that should be included in the Recreation Area within the region are as follows:

Surveyed Sections 2 to 12, W¹/₂ Section 15, Sections 16, 17, 18, 20, 21, W¹/₂ Section 22, SW¹/₄ Section 27, and SE¹/₄ Section 28 all in Twp.5 Rg.3; and N¹/₂ Sections 32, 33, 34 all in Twp.4 Rg.3; Sections 1 and 12 in Twp.5 Rg.4; and all that portion of N¹/₂ Section 36 - Twp.4 Rg.4 lying west of the South Castle River; and including all adjacent road allowances therein.

Land uses would include a reconciliation of those uses listed for Zone 4 in the IRP and some of the land use elements designated for

Provincial Parks, Natural Areas and Recreation Areas. It would contain 56 km² or seven percent of the total.

- Resort Area would include those portions of Zones 1, 4 and 8 of the *Castle River IRP* required for the proposed development and the expanded ski facility, should it proceed, and an additional area for environmental education facilities such as an interpretive centre and additional staff residences. Land uses would be similar to those listed for Zone 8 in the *Castle River IRP* and "people areas" in National Parks. The Board heard this was a very narrow valley and believes adjustments to the resort area boundary are necessary. It would contain less than five km² or 0.6 percent of the total.

The more heavily used "people area" would have two designated land use zones, a "resort area" and a "recreation area". The surrounding area would be designated a "wildland protection area". For the purposes of this Report, the region is called the "Waterton-Castle Wildland Recreation Area (WCWRA)".

The proposed WCWRA and proposed zone boundaries are shown in Figure 10.4. The Board believes that intensity of use in the Wildland Protection Area and the Recreation Area should receive detailed attention. The Resort Area zoning should include a maximum build out factor for hotels, motels, residences and similar structures. The Board's views of future activities, uses, facilities and development for the three zones and their compatible uses are summarized in Table 10.2.

The Board emphasizes its view of the uses noted in Table 10.2 as being necessary to mitigate the potentially significant adverse environmental impacts on surrounding public lands if the proposed resort were to be approved.

The zones within the WCWRA will contain some non-conforming uses, particularly in "Zone 5 Multiple Use" of the *Castle River IRP*. The Board believes these non-conforming uses could be phased out over their natural life time in the case of resource extraction or over a period of 5 to 10 years in the case of other consumptive uses. This phasing-out time would also include the various land dispositions covering these non-conforming uses. The fee simple land, if any, would have to be dealt with on an individual basis. It appears, from the evidence, that the only fee simple land holding in the area is the WDA's which was dealt with in Section 10.4 of this Report.

The Board believes that the region should be designated as early as possible under existing legislation, specifically the *Public Lands Act*, sections 7 and 9. Considering the large amount of information received during the hearing, the Board believes the region could be used as a prototype of the concepts proposed for *Special Places 2000* should the Government of Alberta adopt the program.

10.7 Land Uses and Adjacent Areas

The Board believes it is important to have regard for adjacent areas which may have an effect on, or be affected by, the proposed development. The boundaries between these areas may have been defined due to topographical criteria, environmental considerations, jurisdictional matters, human activities or for other reasons. Referring to Section 9 of this Report, the areas in which species of wildlife tend to live and thrive may be affected by human activities but, of course wildlife have little regard for human-created jurisdictional boundaries and need to receive special consideration. Land uses in adjacent areas may provide support and stability for each other, be neutral or in conflict. Those in conflict may benefit from a buffer or transition area. Areas that may be distinct and different from each other can, in some instances, have a synergism that otherwise would not exist and thus be of greater total benefit than if they existed in isolation.

The adjacent area to the south is Waterton Lakes National Park. The Board heard it was important that land uses in areas adjacent to the park be compatible, particularly for wildlife. Between 1914 and 1921, the southern part of the Rocky Mountain

Forest Reserve was included in the park's boundaries. The Board believes that the proposed WCWRA will enhance both areas and is an example of the synergism.

Adjacent to the south-west, is the B.C. Flathead Provincial Forest. It is separated from the proposed development area by the Continental Divide which is a significant barrier. The Board heard evidence of the importance of this area to wildlife and their use of mountain passes into and from the Castle area. Both are located in the Crown of the Continent ecosystem and the land uses in each could be of significance to the other. The Board believes that inter-provincial communication on these matters could result in benefits to both jurisdictions.

The adjacent area to the north is the remainder of the Carbondale River - Lynx Creek and the O'Hagen - Adanac Resource Management Areas within the *Castle River IRP* and is all Crown land. It contains parts of Zones 1, 3, 4 and 5 of the *Castle River IRP*. The major part of this area is in multi-use Zone 5 in which a large number of land uses are compatible (please refer to Table 10.1). The Board believes the stated land uses for these zones are compatible with the proposed development and the proposed WCWRA. Should the proposed project be approved, and the WCWRA created, the Board recommends that these land uses be reviewed by the appropriate Government agencies.

The Board believes that the adjacent area which needs special consideration is the "Foothills Resource Management Area-E" (RMA-E) of the *Castle River IRP* (see Figure 10.1). It lies within the MD #9 and MD #6, which is in the "White Area" and consists largely of patented lands. The land uses on the small amount of Crown lands within RMA-E come under the jurisdiction of the *Public Lands Act* and the remainder under the jurisdiction of the *Planning Act*. The northeasterly boundary of the WCWRA coincides in part with the southwesterly boundary of RMA-E. It is also the common boundary between MD #9 and the Rocky Mountain Forest Reserve.

The *Castle River IRP* states that the primary intent of RMA-E is as follows: "to maintain and manage the forage resource for use by domestic livestock and wildlife." All of the Crown lands in RMA-E are under grazing dispositions. The RMA-E sets Resource Management Objectives and Guidelines for watersheds, rangeland, wildlife, fisheries, historic resources, minerals, recreation and timber. The Board believes the stated land uses for the Crown lands in RMA-E will, in part, provide a transition zone from the prairie agricultural lands to the proposed WCWRA, however, the Crown lands are only a small portion of the area. Should the proposed project be

Figure 10.4

Table 10.2

Table 10.2 (cont'd)

approved, and the WCWRA created, the Board recommends a review of the land uses on Crown lands in RMA-E by the appropriate Government agencies.

The Board received little information on the land uses on the patented lands within the planning boundaries of RMA-E. Some participants expressed concern about strip development along Secondary Highway #774, a portion of which passes through patented land in RMA-E. These are matters for the MD of Pincher Creek #9 and their land use bylaw and General Municipal Plan under the *Planning Act*. Should the proposed project be approved, and the WCWRA created, the Board recommends that the matter of land uses permitted in this area be reviewed in order to provide a transition zone.

The matter of the area immediately adjacent to the proposed development has been dealt with in Section 10.6 of this Decision Report. The proposed WCWRA is not only adjacent to but surrounds the proposed development area. The Board notes the heavy public demand to use the land for recreational purposes vis-a-vis the demand to protect wildland areas. It believes that adjacent areas dedicated to two completely different land uses (one wildland - one resort) can, if both are managed properly, be compatible, and that the total effect is of more value than if they were completely separated.

10.8 The Proposed Development

The proposed development if approved would use land for a four-season destination resort complex located along the West Castle River Valley. It would consist of the following: an expanded down-hill ski facility; two 100-room hotels with commercial space; 8 chateaux - each with 24 apartment style condominiums; 12 villas or stacked row-housing each with 4 units; 12 chalets each with 4 units; staff housing apartments containing 24 units; 72 RV stalls; road and utility infrastructure and auxiliary facilities; and two 18-hole golf courses. The development is more fully described in Section 2 of this Report.

The proposed development would occupy the narrow valley floor of the West Castle River. The proposed expanded downhill ski facility portion of the project would occupy the east-facing mountain slopes to the west. The proposed "on hill" accommodation units are located in the northerly part of the proposed development area, contiguous with the downhill skiing area and are situated in the narrowest part of the valley. These accommodation units and auxiliary buildings are spread out in a linear fashion along the valley floor, and generally on the side of the West Castle River farthest from the toe of the mountain slopes as it winds through the valley. By urban standards, the land use density is very low. According to the Applicant, the density was intentionally made very low in the interest of maintaining the natural environment. The proposed development more than fills up the valley floor from the south edge of the wetlands located just north of the site, southerly for four km as the West Castle River rises to its headwaters and the base of the Middle Kootenay Pass. This observation is graphically represented in Figure 2.1. The Board heard that the West Castle River Valley is important to wildlife and that the level of land use proposed would significantly harm the environment. The Board agrees with this

assessment and believes that, if the project is to be approved, it should be redesigned to mitigate significant and adverse environmental impacts so as to leave part of the valley floor and the Barnaby Ridge side of the valley relatively undisturbed.

The Board believes that there are benefits to placing the golf courses north of the wetlands in the way of cost savings and better overall design. The Board has indicated that it will not allow groundwater withdrawals to have any adverse impact on surface water flows in the West Castle River. Hence, as discussed in the hearing, the Applicant must locate its wells north of the wetlands at the north end of the proposed development. Location of the golf courses in the montane area would likely mean lower costs for infrastructure, as not as much pumping would be required for greywater handling as would have been required with the golf courses located to the south in the narrower section of the valley as proposed. There would likely also be lower costs for topsoil and for clearing of trees in the montane area. Further, as there is more room to manoeuvre in the montane area, there is more flexibility for locating the water treatment plant and the sewage treatment plant. This would be beneficial to the entire development in that there is more room to keep the sewage treatment plant away from accommodation and away from the river. The major reason given by the Applicant for keeping the golf courses near the ski hill was the cost saving in using one building for two purposes, the golf clubhouse which doubled as a day lodge. However the Board has noted in the Applicant's plans that the day lodge in question would not have been built until Phase II. Since the Board doubts whether Phase II would be built based on demand projections, this reason is not persuasive.

The Board heard that there is an important synergy between the proposed expanded downhill ski facility and the proposed on-hill accommodation units. The Board also heard that the location of the golf courses were more flexible. As already indicated the Board believes that golf courses would be a more appropriate land use in what could become known as the "Recreation Area" in the proposed WCWRA. The remainder of the proposed development could be redesigned to occupy the land on the west side of the West Castle River except for the portion in the vicinity of the "Haig Hotel" where the river comes very close to the toe of the mountain slope. The Board believes such a redesign would leave the easterly half of the valley largely undisturbed and this area could then be included in what may become known as the "Wildland Area" of the proposed WCWRA. It would reduce the area required for the proposed "Resort Area." These boundaries would need to be determined after any redesign if the project is approved.

The Board recognizes that the design of the proposed development is somewhat conceptual in nature, the Applicant has continued to make changes in the design to accommodate anticipated negative environmental impacts and in rebuttal evidence the Applicant indicated flexibility. The Board believes limiting "Resort" land uses to the westerly portion of the West Castle River Valley and further reducing the size of the "Resort Area" by moving the golf courses to the "Recreation Area" is in the public interest and may in the long-term enhance the ecotourism aspect of the proposal, and particularly so with the synergism that could be created should be proposed "Wildlands Area" be instituted. However, the Board believes that the intensity and density of land uses must be limited in

each of the three proposed zones of the proposed WCWRA. It believes that not more than two 18-hole golf courses should be allowed in the "Recreation Area." The Board also believes that the "Resort Area" should be limited to the ski hill and accommodation facilities contained in proposed development plus some flexibility for an environmental interpretive centre and ecotourism educational facilities.

In short, the Board concludes that the proposed location for the two 18 hole golf courses on both sides of the West Castle River is unacceptable. The Board accepts the need for golf as a component of the proposed four-season resort but believes that there is an acceptable alternative location for the golf course entirely on the west side of the West Castle River beginning 400 m or more downstream of the wetland area that lies immediately north of the ski hill. This alternative golf course location would also be suitable for siting the sewage and water treatment facilities for the resort.

Specifically, the Board concludes for impact mitigation reasons that the resort accommodation facilities capable of accommodating up to 2,500 people should be located on the lands comprising the valley floor west of the West Castle River and north of the proposed location of Lift E. There are two specific exceptions that the Board believes are acceptable: the development of four minor river crossings to accommodate skier access to the base of proposed Lift D as shown in the Application, and the construction of the clear water storage pond and related facilities on the east side of the West Castle River as shown in the Application.

10.9 Summary

The Board views land use controls as being essential to the mitigation of the potentially significant adverse environmental effects of the proposed resort on surrounding ecologically important lands. The Board, therefore, has carefully evaluated the existing land use controls to determine whether or not they would appropriately mitigate the effects of the resort, if it were to be approved. The Board concludes that the protection and conservation values of the *Eastern Slopes Policy* are very difficult to maintain in the Castle Area. The existing zoning would not, in the opinion of the Board, achieve a sufficient level of land use control that would appropriately mitigate the potentially significant adverse environmental impacts of the resort on the ecologically important lands surrounding the resort. Therefore, the Board concludes that the region should be re-zoned on a more restrictive basis to appropriately mitigate environmental impacts. It believes that the existing land use zones should be consolidated into three zones; resort area, recreation area and wildland protected area.

The Board believes the region requiring more restrictive land use controls is bounded on the west by the Alberta/British Columbia border; on the south by Waterton Lakes National Park; on the east by the M.D. of Pincher Creek; and on the north by the Carbondale River. For the purposes of this Report this region is called the Waterton-Castle Wildland Recreation Area. To specifically mitigate the environmental effects of the resort in

the West Castle Valley, the Board has concluded that it would be necessary to redesign the proposed project so as to leave the east side of the valley floor relatively undisturbed, including relocating the golf courses downstream of the wetlands and the accommodation facilities to the west side of the valley. Redesign of the resort and relocation of facilities, combined with improved land use controls in the region, would be consistent with the public interest in sustainable development. The Board, in the next section of the Report, will consider the existing management structure for the control of land uses and resource conservation in the proposed Waterton-Castle Wildland Recreation Area.

11. ONGOING MANAGEMENT OF THE PROPOSED WATERTON-CASTLE WILDLAND RECREATION AREA11-1

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11. ONGOING MANAGEMENT OF THE PROPOSED WATERTON-CASTLE WILDLAND RECREATION AREA

The Board has previously indicated that it views land use controls as essential to the mitigation of the potentially significant adverse environmental effects of the proposed resort on surrounding ecologically important lands. It has also indicated that the region requires more restrictive controls on land use. In this section of the Decision Report, the Board considers the needs for the ongoing management of the proposed Waterton-Castle Wildland Recreation Area.

The Board received a substantial amount of evidence about the existing management of the proposed Waterton-Castle Wildland Recreation Area (WCWRA). The Board has considered the views of the participants on the suitability of the existing management structures to realize the level of environmental impact mitigation, through the introduction of better land use controls in the proposed WCWRA that the Board believes are required, to protect the ecologically important lands surrounding the resort. It has also considered how these agencies might realize at the same time the substantial resource based wildland recreation/tourism potential of the WCWRA discussed earlier in this Report.

11.1 Existing Management Structure

According to the evidence before the Board the proposed WCWRA is subject to the jurisdiction of many agencies and authorities, including Alberta Environmental Protection with its mandate for renewable resource management within the WCWRA; the Canadian Parks Service, responsible for Waterton Lakes National Park; local authorities such as ID #6 and the Municipal District of Pincher Creek; the Westcastle Development Authority, and various agencies outside Alberta including the B.C. Forest Service and agencies in the United States with renewable resource responsibilities.

From the perspective of the Board, many agencies are in a position to make key decisions affecting the sustainability of the natural resources in the proposed WCWRA. While individual resource managers can and do make an effort to co-ordinate their actions with others, the evidence before the Board suggested that co-ordination could be better achieved by an integrated management approach on both a strategic and a day-to-day level. Further, when the Board looks at the proposed WCWRA from an ecosystem and sustainable development perspective, the existing management system was not designed to deliver the kind of ecosystem-based management that is and will be required to mitigate the potential adverse environmental effects of the proposed development through land use controls on surrounding lands and yet realize the economic potential of the proposed WCWRA. The Board accepts the evidence before it indicating that the WCWRA requires a holistic management perspective to ensure its long-term integrity.

At the present time the proposed WCWRA has no special status. The Eastern Slopes zoning has provided a basic level of protection by precluding certain more

intensive and invasive land uses from the General Recreation, Critical Wildlife, and Prime Protection Zones. Many uses and combinations are possible in those zones and together they have the potential for a significant cumulative adverse effect on the proposed WCWRA. In the basic framework provided by the Eastern Slopes zoning, there is a need to find a mechanism that will allow for the development of an ecosystem approach to managing recreational users in the proposed WCWRA. The difficulty of this task is clearly demonstrated by the problems encountered in establishing priorities for the area Access Management Plan.

To the Board, it appears the issue is compounded by the lack of a clear concept for the long-term use and management of the proposed WCWRA. Having considered the evidence, the Board also believes current efforts to accommodate all users are incompatible with long-term sustainable management for the ecosystem. The Board believes that strong leadership is required to turn the existing situation into a positive long-term opportunity. A key consideration is to move in the direction of the long-term vision where the potential of the proposed WCWRA to achieve economic benefits from tourism is realized, while at the same time the significant adverse environmental effects of uncontrolled recreational land uses are successfully mitigated through more effective land use restrictions. The Board is convinced that successful conservation of the natural resources of the proposed WCWRA could provide an excellent marketing opportunity for tourism which the proposed project could help translate into significant economic and social benefits.

11.2 The Potential of the Proposed Waterton-Castle Wildland Recreation Area

The Board has already concluded that the proposed WCWRA requires some form of protection and special management. The Board may differ from earlier advocates of protection of the proposed WCWRA in the underlying basis for establishing the special status. The Board is of the view that the proposed WCWRA requires special status to further control land use and ensure that it realizes its unique potential to make a substantial contribution to the Alberta economy through tourism and recreation spending based on wildland resources. As discussed elsewhere in this Report, the Board has considered the contribution that could be made to the Alberta economy if the WCWRA's recreation and tourism potential were realized. The Board believes that this potential is significant and would be complemented through the availability of the accommodation services as provided by Vacation Alberta if the proposed WCWRA receives special management status. The Board is of the view that without this extra level of protection the outstanding resource values of the area will diminish and that the addition of the four-season resort proposed by Vacation Alberta would add an unacceptable extra burden.

The Board has also given some consideration to what the proposed WCWRA could be in the future if certain positive management actions are taken to further control land use and realize its potential. The Board's vision for the WCWRA is one where the full ecological capability of the WCWRA to sustain plant and animal life is being observed and

realized. The WCWRA could be viewed by all Albertans as a "Special Place" managed to provide the maximum opportunities available from outstanding resources. It could become internationally recognized as a place where Rocky Mountain species are so abundant that anyone who is guided into the area would be virtually assured of seeing a wide variety of species in their natural habitats. The opportunity for both viewing and harvesting (including angling) could be managed in a manner to ensure that economic benefits accrue to the Province and regional residents. Guiding and outfitting could be required for most visitors.

The proposed WCWRA could be promoted as part of Alberta's broader tourism strategy and could be complementary to other tourism initiatives in southern Alberta such as the Frank Slide and Head-Smashed-In Buffalo Jump Interpretive Centres. Surrounding communities could continue to have access to the area but the priority for management decisions could be to maximize economic activity compatible with the long-term sustainable development of the WCWRA.

The proposed WCWRA could be managed to realize environmental educational opportunities. An environmental interpretive centre located in the West Castle Valley in conjunction with the proposed resort could be a key element in the experience some tourists are seeking.

As part of the Board's overall concept for the proposed WCWRA, tourists could be attracted to the WCWRA as part of the Trail of the Great Bear theme, and a substantial effort could be made to ensure that an ecosystem management philosophy was being applied, regardless of jurisdiction. Specifically, the proposed WCWRA could be managed as part of the Continental Divide Ecosystem. Effective multilateral agreements would be required covering Alberta, Montana, B.C. and Idaho as well as the federal governments where federal parks and forested lands are involved.

11.3 A New Management Structure

The proposed WCWRA was constantly referred to in the evidence as part of the "Crown of the Continent" ecosystem. Considerable evidence also centered on the underlying need to bring a management approach to the WCWRA at the ecosystem scale and based on the concept of sustainable development. The Board is in agreement with this approach; however, to do this, the Board has concluded that the proposed WCWRA requires some form of special management.

The Board has considered the long-term management of the proposed WCWRA on the basis that certain basic principles must be observed in future management decisions. The concept of sustainable development is an overriding consideration in the view of the Board and its attainment, if the proposed resort were to be approved, requires that the adjacent land uses be subject to a new management system that will adequately control human use in the proposed WCWRA. The ecosystem of the proposed WCWRA could be conserved and protected within the concept of sustainable development provided that all stakeholders share a common vision of the future of the WCWRA and that their

decisions about human use of the region by resort patrons and others are guided by explicit consideration of ecosystem factors including a clear regard for cumulative and regional impacts of decisions.

The Board believes that the management systems need to quickly evolve toward the principles of sustainable development.

The ecosystem found within the proposed WCWRA is not discrete and is interconnected to the broader region that includes portions of B.C., Montana and Idaho. Ecosystem management is not possible on a single jurisdictional basis and requires intergovernmental arrangements to ensure co-ordinated actions. Such arrangements can be established between Alberta and her neighbors through existing intergovernmental linkages. The mechanisms within Alberta for co-ordinated and integrated action are controlled by Albertans and can be designed to meet the specific needs of the WCWRA. Linkages between the Province and local authorities require special attention to achieve the co-ordination between these two levels of government that will be required to control land use and realize the potential of the proposed WCWRA.

Scientific knowledge and expertise, normally available within provincial and federal agencies, are also important factors in the achievement of sustainable development within the proposed WCWRA. Ecosystem management requires detailed data about the resources and their interrelationships.

The Board believes that in this case there is a significant opportunity to create arrangements where private industry, governments and the public can combine their resources to meet the needs of the management of the proposed WCWRA on an ecosystem basis. There already appear to be a number of persons or groups that are strongly committed to managing the proposed WCWRA on a sustainable basis, such as the Crown of the Continent Society, the Castle Crown Wilderness Coalition and individuals who take on stewardship responsibilities for the natural resources of the region. Concepts that involve a delegated regulatory authority using local skills and expertise may be particularly relevant to the future management of the proposed WCWRA. Specific responsibility for operational functions, such as access control and fish and wildlife harvesting limits, could be candidates for delegation.

11.4 Waterton-Castle Wildland Recreation Commission

The concept of a delegated regulatory organization for the proposed WCWRA has been considered by the Board. Fundamental to this concept is the underlying assumption that the primary level of resource management decision making will be undertaken by Alberta Environmental Protection which has the statutory obligation to manage public renewable resources. Key decisions regarding the zoning of the acceptable land and resource use, and the level of protection provided to the lands and resources within the proposed WCWRA could be established as the basic framework within which the delegated regulatory organization could work. More specifically, the Province could establish the management objectives for the area in sufficient detail to guide a delegated regulatory organization in realizing the potential of the WCWRA.

The Board believes that a Waterton-Castle Wildland Recreation Commission could be established by regional residents with the support of the Province to be responsible for managing the proposed WCWRA. The Commission could be responsible for managing the WCWRA in a manner that controls land use and still produces significant economic benefits from management practices directed to establishing and maintaining the natural resource potential of the area on a sustainable basis. For example, management of the fish and wildlife resources could be directed toward ensuring that the populations of the species found in the area are at levels consistent with the resource capability of the proposed WCWRA and are at the maximum levels that are sustainable on a long-term basis. Hunting and fishing could be managed to meet and maintain target population levels characteristic of the upper range of the carrying capacity of the WCWRA as opposed to maintaining minimal levels required to sustain the species. Hunting and fishing could also be managed to ensure that the maximum economic value of the activity is realized for the Alberta economy. Guiding and outfitting could be a key component of the resource management and economic development strategy for the proposed WCWRA, and this priority could be reflected in the allocation of resource harvesting opportunities. Revenues derived from the hunting and fishing licences and permits for guides and outfitters could be dedicated to the resource management requirements in the WCWRA. Such a concept implies that the Commission would have sufficient authority to establish the area-specific operating rules under which hunting and fishing would be conducted, including the associated guiding and outfitting service industry. Non-consumptive resource uses could be managed in a similar manner, and management decisions regarding consumptive and nonconsumptive uses could be guided by the underlying philosophy of ensuring that populations are maintained at the maximum levels consistent with the carrying capacity of the land base. Implicit in this conservation/economic strategy is the need to protect habitat for the species found in the area.

The Board anticipates that in the short-term, management of the proposed WCWRA will necessitate decisions that will restrict and curtail existing activities and levels of use in the WCWRA. Such short-term sacrifices of current uses were raised throughout the evidence during the hearing and various users consistently advised the Board that they would be prepared to curtail their activities to ensure the long-term security and

sustainability of the land and resource base. Consequently, the Board believes that such a shift in management for the proposed WCWRA would be supported by the majority of the present users of the area.

The Board also recognizes that some local users of the proposed WCWRA will be concerned that their enjoyment of the area may be curtailed. However, the Board believes that the potential economic benefits from a different management strategy, serving the broader public interest, must be weighed against the minimal economic benefits being realized from current use of the area. This is particularly important given the evidence before the Board that the region must confront the reality that the economic base of the area has already changed and will continue to change as nonrenewable resources are depleted or lose their markets. The opportunity exists to continue to shift attention towards the renewable resource potential of the proposed WCWRA, but maintaining the land base is only one component of the strategy required in the future. Realizing the economic benefits that are available from the public lands and resources being managed on a sustainable basis must become a new focus of attention. Some of the local recreational uses of the proposed WCWRA must assume a lower priority in management to realize a significant economic benefit from the area.

The Board previously stated that current practices that place few controls on access and use of the area are not sustainable and must be restricted now to prevent further environmental degradation of the WCWRA.

Continuation of existing land use trends are not sustainable in the view of the Board, and a change in direction is inevitable. The Board believes the change that it foresees, where the proposed WCWRA is managed to produce social and economic benefits through a strategy based on sound land use controls and sound conservation and renewable resource management, is preferable to a strategy solely based on preservation of existing biological resources which fails to realize the associated economic benefits. The Board believes that it is not appropriate to adopt a strategy of restricting development and use without considering the associated economic and social opportunities that such a resource conservation strategy presents.

If an agency such as the Waterton-Castle Wildland Recreation Commission is established to manage the proposed WCWRA, it should be organized in a way that those who have the most to benefit from the sound long-term sustainable management of the area are responsible and accountable for realizing those benefits. The citizens of southern Alberta are in the best position to make decisions about the long-term management of the proposed WCWRA. Therefore, the Board proposes that the Commission be comprised primarily of southern Albertans who have a long-term vested interest in realizing the potential of the WCWRA.

The Commission, if established to manage the day-to-day operations of the area, must be capable of obtaining sufficient revenues to offset the operational expenses incurred in management of the proposed WCWRA. Given the existing level of interest in

conservation and development of the area from regional residents, there is an opportunity to have existing resources combined into an effective management system that is self-sustaining. For example, existing resource management agencies could continue to contribute their knowledge and expertise to the Commission. Various public interest groups have undertaken research and data collection activities in the proposed WCWRA and are performing a variety of functions as stewards. In conjunction with the draft *Special Places 2000* Program, there are opportunities to secure private funds and resources to assist in the management of the proposed WCWRA from provincial, national and international institutions. Various kinds of user fees could be used. Ultimately, the users and beneficiaries of the conservation and management of the proposed WCWRA could be the primary contributors of the technical and financial resources required for the management of the area.

The Board recognizes that realization of the economic potential of the proposed WCWRA through a strategy based on sound land use controls and sound environmental and renewable resource management depends not only on the quality of the resource upon which the strategy is based but also upon the development of the market for the tourism product. Marketing of the proposed WCWRA will be critical to its long-term realization of its economic potential. In the Board's view, the importance of this key responsibility for the proposed Commission cannot be overstated or overlooked.

11.5 An Expanded Westcastle Development Authority

The Board heard evidence that the Westcastle Development Authority has been actively pursuing the establishment of a resort since its inception. The concept of the resort has evolved over time but has always been based around the expansion of the ski hill at the existing location.

The Board has examined the structure of the WDA and the long-term requirements for the management of the proposed resort area. The Board believes that the public interest would be served by the Authority being responsible for all those lands in the West Castle Valley that will be occupied by the proposed resort. Further, the WDA could expand its membership to include those southern Alberta municipalities that will derive direct benefits from the Vacation Alberta development.

Historically, the WDA has been financially supported by the residents of Pincher Creek and area. The ski facilities have been used by the residents of many southern Alberta municipalities beyond the borders of the Town and the MD of Pincher Creek, and over time some of those municipalities and their residents have responded positively to requests for assistance from the WDA to keep the ski hill operating for the use and enjoyment of southern Albertans. Evidence indicates that the Vacation Alberta proposal to expand and upgrade the ski facilities at Westcastle Park was supported strongly by the region's municipalities. Several municipal representatives noted that the people of southern Alberta have a long history of working together to develop facilities that

are of a value to the area's residents. The Board was told of several instances where area municipalities have joined together to realize common objectives. Examples include the Birds of Prey Centre in Coaldale and the Remington Carriage Centre. One of the key reasons why the Town and the MD of Pincher Creek decided that they could no longer continue their financial support of the ski facilities alone was that users of the facilities come from all over southern Alberta and it was unfair to the ratepayers of these two municipalities to bear the financial burden of keeping the facilities operational when other regional municipalities were not also obligated to assist in the operational costs.

The Board believes that the beneficiaries of Vacation Alberta's proposed development are the residents of southern Alberta generally and that the benefits are not confined to the immediately adjacent municipalities. The social benefits of the proposed Vacation Alberta facilities clearly extend to individuals and families throughout southern Alberta, including school programs and other wider community programs such as the handicapped skiers program. The evidence is that the majority of the economic benefits of the proposed development would be shared among the residents throughout southern Alberta and that the benefits are primarily contained in the southern Alberta regional economy. Therefore, the Board believes that the WDA could explore expanding its membership to include those urban and rural municipalities in the southern Alberta region that will benefit from the project.

The Board believes that the expanded and modified WDA would be an appropriate vehicle to represent the region's interests in the development of the Westcastle Park. In addition to the role that the WDA has already performed, the Board has already indicated in Section 8 of this Report that it foresees a role for the WDA in two key areas that are critical to the success of the Vacation Alberta proposal. Specifically, the Board sees the WDA playing a key role in the financing of the ski hill and in the development of the normal municipal infrastructure required to support the proposed development as discussed earlier in this Report.

In summary the Board foresees an expanded role for the Westcastle Development Authority. The Westcastle Development Authority could play an important role in the West Castle Valley in relation to the use and development of those public lands utilized for the resort. The Board foresees the Westcastle Development Authority having an expanded area of responsibility encompassing the Vacation Alberta "footprint" in the West Castle Valley from the golf course north of the wetlands to the south end of the resort. Also, the Board sees the Westcastle Development Authority expanding its membership to include those southern Alberta municipalities that would derive the most social and economic benefit from the Vacation Alberta resort and that determined to support the proposed resort. In addition to the role the WDA has already performed, the Board foresees a role for the WDA in two key areas that are critical to the success of the Vacation Alberta proposal. Specifically, the Board sees the WDA playing a key role in the financing of the ski hill and in the development of the normal municipal infrastructure required to support the proposed development. A modified Westcastle Development Authority could play an important role in the day to day management of the entire proposed WCWRA as a

member of the Waterton-Castle Wildland Recreation Commission.

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12. SUMMARY OF OVERALL CONCLUSIONS AND DECISION RESPECTING THE PUBLIC INTEREST

12.1 Overall Conclusions

This section brings together the conclusions reached by the Board in earlier sections of this Decision Report.

Vacation Alberta applied to the Natural Resources Conservation Board for approval to construct the expansion of the existing Westcastle Ski Park to accommodate 3,200 skiers per day on Haig and Gravenstafel Ridges, two 18-hole golf courses and related accommodation facilities for up to 2,500 people including two 100 room hotels, 48 fourplex units and, 240 rental condominium units. The proposed development would occupy the narrow West Castle Valley. Vacation Alberta estimated that the facilities would involve a \$72 million capital investment, with the private sector contributing approximately \$50 million of the required capital and the public sector contributing \$22 million. The facilities as proposed would employ 250 to 400 full-time, part-time and seasonal staff and there would be 24 units of staff housing on-site for employees. The Application and Supporting Information were briefly reviewed in Section 2 of this Report.

The Board received most of the information it required to consider the Application in May, 1993 and held public hearings in Pincher Creek, Alberta over 19 days from June 21 to July 19, 1993. Submissions to the Board touched on all facets of the proposed development and contained a wide range of views and extensive supporting information. The Participants and Their Positions regarding the Application were highlighted in Section 3.

The Board has carefully examined the evidence before it regarding the demand for skiing and golf at the proposed four-season resort. The Board has concluded that the proposed four-season resort would primarily serve a regional market in southern Alberta. In the absence of current and specific market research, the size and scope of the market and the ability of the proposed four-season resort to attract golfers and skiers were the subject of considerable conjecture in the evidence before the Board. The Board believes that it must make conservative assumptions in light of what appear to be overly optimistic demand projections on the part of the Applicant.

In the face of uncertain and likely lower demand for the resort's facilities and services, the Board believes that it must have regard for the effect that reduced demand might have on the viability of the project. The evidence indicates that the proposed project includes a significant proportion of public funding. The Board has carefully considered the evidence of the participants on the issue of viability. Even if one assumes that Vacation Alberta's high demand projections would materialize the Board has concluded that if only private investment were utilized for the project, including all infrastructure and ski hill upgrading costs, the proposal would not likely make a return for its shareholders and would not likely be considered by the private sector on that basis. The Board emphasizes that it

is not concerned with the level of return to the private sector. It is concerned with the economic effects of public investment in a project and the Alberta economy in general, as well as with viability over a long term when weighing impacts of a project against environmental risks.

The Applicant proposes Government support for infrastructure, ski hill upgrading, and low cost land to improve the viability of the project for private sector investment. With such Government support, the Board believes that the project would eventually make money for the shareholders, especially if it were phased to meet a reduced market demand for skiing and golf. The nature and extent of Government support, if any, is not up to the Board to decide; however the Board concludes that the proposed development would likely not proceed without Government support.

The current market faced by existing Alberta ski hills is relatively flat and highly competitive. The Board has concluded that the demand at the proposed resort would likely come from existing skiers within the southern Alberta market. New skiers attracted to the sport, or skiers re-entering the market due to the ready accessibility of new facilities at the resort, may make up a segment of the demand for the resort, but the Board doubts it would be very large given the current economic conditions.

If Westcastle as expanded would not attract a significant number of new skiers in the market, the growth in skier visits at Westcastle would arise primarily from existing skiers shifting their business from other ski hills to Westcastle Park. The Board has had regard for whether the demand at the proposed resort would be from a shift in market share among existing Alberta ski hills, or from hills outside Alberta. Again, in the face of uncertain and inconclusive evidence on this point, the Board has made conservative assumptions.

Existing skiers in southern Alberta have developed traditional market patterns based on the quality of the skiing experience available to them. Significant changes in the existing market pattern will, in the Board's view, only occur if a new product is clearly superior in important aspects such as terrain, snow conditions, facilities, accommodation or entertainment opportunities. The proposed resort offers on-hill accommodation as its primary attraction within the Alberta market place, but the Board doubts the resort will be competitive in the market on the basis of terrain and snow conditions. Where the resort competes with facilities outside Alberta that have on-hill accommodation, its primary attraction will be location.

On balance of the evidence, the Board concludes that the proposed project will have less attraction in the market than predicted, and that the market will likely be more from redistributive than from incremental market demand.

The Board believes that the Alberta Government support assumed for the entire development clouds the issue of economic viability and return on investment and allows many participants to introduce different concepts of "viability" or "return" given various objectives, such as job creation, economic spin-off, recreational benefits, "synergy"

with other potential developments, etc. However, the fact that the market demand is uncertain and is likely to have been overstated by the Applicant leads the Board to conclude that any public investment in the project is likely to produce fewer benefits than described in the Application. Given the local economic circumstances and the ongoing demand for recreation opportunities, these benefits are still significant in a regional context.

For purposes of illustration the Board has discussed the potential for a smaller resort, in which the ski hill expansion and infrastructure would be financed through cost sharing arrangements among the local authorities in the region and the Provincial Government. The Board believes that this kind of scenario could prove workable given the market demand that might materialize, could provide benefits to the public in terms of recreational opportunities and sustainable job creation, and would be more likely to reflect both an equitable distribution of risk among public and private sectors and a real level of regional demand for the development.

In short, the Board concludes that there is sufficient demand to warrant the project proceeding on a phased basis, that the project would not proceed without Government support, that the project will tend to redistribute economic activity among existing Alberta ski facilities, and that benefits of the proposed project in meeting regional demand for recreation opportunities and in long term job creation are significant in a regional context.

With respect to public policies, the Board concludes that in general terms the development of a four-season resort in the West Castle Valley is consistent with the broad public interest reflected in existing policies. For example, the proposal reflects the long standing recognition by most participants that this area within Alberta is primarily suitable for conservation and recreation purposes. Supporting policies include the establishment of the Rocky Mountain Forest Reserve, the *Eastern Slopes Policy*, and the *Westcastle Development Authority Act*. The proposed project could accord with recently established economic and employment policies expressed in *Seizing Opportunity* through job creation in the tourism industry and through the combined efforts of local communities and investors to create economic opportunities. The Board is particularly mindful of the expressions of strong support for the proposed project by the elected local officials who participated in the hearing.

The Board has noted, however, a number of the more detailed aspects of the proposal where the Applicant has indicated initiatives that are not consistent with what the Board understands to be existing policy. For example, the Board has noted that the financial structure of the proposal, where significant public funds would be invested, in both on-site and off-site infrastructure and in the ski hill which is the most risky portion of the proposed resort, is likely not consistent with current public policies concerning fiscal restraint, criteria for financial assistance for infrastructure, and a general policy direction away from direct Government financial assistance to businesses through equity or debt investments.

With respect to utilities and infrastructure, the Board has concluded that a number of activities are required to resolve significant issues regarding the aquifer and surface water. The first of these is the determination, through testing and monitoring, of the ability to withdraw water from the aquifer without causing a significant adverse impact on the fishery and the river habitat. The second is confirmation of the feasibility of the use of municipal wastewater in continuous and long-term irrigation of the golf courses. The Board has concluded that there is a reasonable expectation that the water supply issue can be resolved through appropriate further actions, and proposes to deal with the matter in the terms and conditions of any approval the Board may issue. Other issues related to infrastructure and utilities that must be satisfactorily resolved before the proposed project could proceed, such as erosion control, buffers, and monitoring are dealt with in a similar manner. The Board believes these matters are capable of satisfactory resolution at a later time in the review process, but some are of such importance that the Board concludes that if the proposed project were to be approved commencement should occur only if satisfactory solutions are in hand. This is particularly the case with the water supply.

With respect to the effects of the proposed project on local infrastructure, the Board concludes that the project could have a beneficial net effect on the available infrastructure in the areas of health, education and, recreation. The Board reaches this conclusion having regard for the existing capacity within the project area and the dependence of these services on the maintenance of local employment opportunities and associated local tax revenues. The Board concludes that the project could relieve some pressure on local social services.

The Board has concluded that the proposed project could have beneficial social effects on southern Alberta in terms of creating better recreational opportunities, enhancing the quality of life for the residents and providing skiing opportunities for school children, seniors, and other community groups such as the disabled skiers. The Board also believes that the proposed project would have a beneficial effect on the region in terms of job creation, but it is difficult for the Board to determine how many long term jobs would be created by the project and whether the kinds of jobs created would have a significant impact on the unemployment in the area, including the Crowsnest Pass. Overall, the Board concludes that the beneficial social effects of the project are very persuasive and compelling with respect to the public interest in the matter, and must be given high regard.

With respect to economic effects, the Board has concluded that the project impacts would be beneficial and significant within a local and regional perspective. However, the Board concludes that the economic impacts associated with the project are likely to be significantly smaller than those indicated by the Applicant, possibly 50 percent to 60 percent of the values indicated by the Applicant for each of the construction and operation phases of the proposed project. In a regional perspective, the Board is convinced of the economic value of the Waterton-Castle Area, including the project area, in terms of contribution to Alberta's economy through outfitting and guiding, hunting, angling, increased value of residential and recreational properties and particularly ecotourism. In

the Board's view, the area, if protected and appropriately managed, can provide substantial, increasing, and incremental economic benefits to Alberta into the future.

With respect to environmental effects the Board has reviewed the state of the Crown of the Continent Ecosystem and its subregions with particular emphasis on the Waterton-Castle Area. The Board reached a qualitative conclusion that the Crown of the Continent Ecosystem is at risk and that the Waterton-Castle Area in particular has deteriorated. It also concluded that without coordinated action on the part of the numerous agencies with jurisdiction over parts of the Crown Ecosystem, the deterioration would continue to the detriment of the ecosystem and those who use it. The Board believes that the public interest would not be served by allowing that deterioration to continue. It further believes that the conservation of the Waterton-Castle area should be undertaken as an essential component within an overall strategy to rehabilitate and conserve the Crown Ecosystem and to realize the economic benefits that a well managed Crown Ecosystem would offer to Albertans.

The Board concluded that the proposed project would, in its present form, create adverse environmental effects notwithstanding efforts to mitigate them, that some of the impacts would affect the whole Crown of the Continent Ecosystem and that these impacts would be incremental to the impacts of other disturbances. The Board believes that the project as proposed would not meet the test of sustainability and that it would not be acceptable without significant modification. The Board is convinced that some potential impacts could be avoided or significantly reduced if the configuration of the proposed project were modified, particularly if development were restricted to the west side of the West Castle River. However, the concentration of development and the associated activity of up to 2,500 people as proposed in the narrowest part of the West Castle Valley would have, in the Board's opinion, unacceptably severe effects on the regional ecosystem unless the mitigative measures required by the Board are implemented.

The Board believes that these effects could be sufficiently alleviated to render the project in the public interest if:

- a) the golf courses were removed from their present location and the resort redesigned to be confined essentially to the west side of the river; and
- b) new land use controls and a new management system were established for the region.

The Board believes that if these steps were taken, the proposed project would be more consistent with Alberta's stated goal of sustainable development.

The Board believes that the resort and the human activity associated with it could have a significant adverse effect on the ecologically important lands surrounding the resort if steps are not taken to control them. The Board does not accept the Applicant's suggestion that resort users might confine their activities to the recreational opportunities on the resort site. In fact, the Board believes that the resort users would also make substantial use of the recreation opportunities found throughout the surrounding lands. The Board recognizes that the Applicant would not have the power to control the activities of resort patrons who wish to use the adjacent recreational lands but concludes that such use of the surrounding public lands by resort users would have a significant adverse effect if left uncontrolled. In the Board's view appropriate land use controls would be essential to mitigate the significant adverse effects of locating the resort in such an ecologically important region. The public interest in mitigation of the significant adverse environmental effects of resort patrons using the public lands surrounding the resort was carefully considered by the Board.

With respect to land use, the Board views land use controls as being essential to the mitigation of the potentially significant adverse environmental effects of the proposed resort on surrounding ecologically important lands. The Board, therefore, has carefully evaluated the existing land use controls to determine whether or not they would appropriately mitigate the effects of the resort, if it were to be approved. The Board has concluded that the protection and conservation values of the *Eastern Slopes Policy* are very difficult to maintain in the Castle Area. The existing zoning would not, in the opinion of the Board, achieve a sufficient level of land use control that would appropriately mitigate the potentially significant adverse environmental impacts of the resort on the ecologically important lands surrounding the resort. Therefore, the Board concludes that the region should be re-zoned on a more restrictive basis to appropriately mitigate environmental impacts. It believes that the existing land use zones should be consolidated into three zones: resort area, recreation area and wildland protected area.

The Board believes the region requiring more restrictive land use controls is bounded on the west by the Alberta/British Columbia border; on the south by Waterton Lakes National Park; on the east by the MD of Pincher Creek; and on the north by the

Carbondale River. For the purposes of this Report this region is called the Waterton-Castle Wildland Recreation Area (WCWRA). To specifically mitigate the environmental effects of the resort in the West Castle Valley, the Board has concluded that it would be necessary to redesign the proposed project so as to leave the east side of the valley floor undisturbed, including relocating the golf courses downstream of the wetlands and the accommodation facilities to the west side of the valley. Redesign of the resort and relocation of facilities, combined with improved land use controls in the region, would be consistent with the public interest in sustainable development.

The Board has considered the needs for the ongoing management of the proposed WCWRA. The existing management structure has evolved over time and reflects a current situation in which many agencies are in a position to make key decisions affecting the long-term sustainability of the area. The Board has concluded that co-ordination between agencies needs to be strengthened and improved on both a strategic and day-to-day level. The *Eastern Slopes Policy* has provided a basic framework for managing land use for wildland recreation purposes but the Board believes there needs to be an ecosystem approach to the management of the recreational users in the WCWRA. In the Board's opinion the current situation is compounded by the lack of a clear vision for the long-term use of the area.

If the project were to be approved in this ecologically significant region, the associated activity of up to 2,500 people using the WCWRA requires some form of protection and special management based on a new vision for the future. Since the proposed WCWRA must be under special management if the region is to accommodate the proposed resort, such management could also be carried out to explicitly realize significant economic benefits from management practices that are directed to establishing and maintaining, on a sustainable basis, the natural resource potential of the proposed WCWRA. The Board is of the view that the proposed WCWRA also requires special status to ensure that it is protected and managed so that it will continue to realize its unique potential to make a substantial contribution to the Alberta economy through tourism based on wildland recreation. The concept of sustainable development is an over-riding consideration in the view of the Board and its attainment, if the resort development were to be approved, requires that the adjacent land use be subject to a new management system that will adequately control human use of the area. The Board concludes that ecosystem protection in the proposed WCWRA is attainable within the concept of sustainable development, if all interested parties share a common vision of the future of the proposed WCWRA. Further, management decisions about human use of the region by resort patrons and others must be guided by explicit consideration of the ecosystem, including a clear regard for cumulative impacts of decisions. The Board, in considering this specific Application, has had regard for potential impacts within this broader ecosystem perspective.

Consequently, the Board has concluded in all the circumstances that the public interest would be served if the proposed WCWRA were designated for the most part as a protected area for wildland recreation purposes but managed for maximum fish and wildlife populations and maximum value of these populations to the Alberta economy. The

Board believes that if protected in this way the area could represent an interprovincial and international drawing card for Alberta well into the future for tourism, in terms of outfitting, ecotourism, adventure tourism, and scenic touring with an educational component, as described in reference to the proposed "Trail of the Great Bear". The Board believes that the types of uses for the proposed WCWRA should be restricted, with a view to allowing fish and wildlife populations to reach their maximum achievable levels.

The Board is of the view that a significant opportunity exists to create arrangements where private industry, governments and the public can combine their resources to meet the needs of the management of the proposed WCWRA on an ecosystem basis. The Board believes that the Government of Alberta has the primary responsibility for the zoning of the acceptable land and resource uses within the area compatible with the concept of a proposed WCWRA, and also for prescribing the level of protection provided to the lands and resources within the proposed WCWRA. The Government of Alberta could establish the management objectives in sufficient detail to realize the potential of the proposed WCWRA. In Section 10 the Board has provided its views regarding the zoning and land use activities that could provide the basic framework for the area compatible with the proposed resort, if it were to be approved by the Board. Within the basic framework established by the Government, the Board believes that it could be appropriate to create a new delegated regulatory organization that could be responsible for managing the Waterton-Castle Wildland Recreation Area, and suggests that it be called a Commission. The Commission could be responsible for managing the proposed WCWRA in a manner that protects the resources yet still produces significant economic benefits from management practices that are directed toward establishing and maintaining on a sustainable basis the natural resources potential of the area.

Adopting a wildland recreation vision for the proposed WCWRA is fundamental to achieving sustainable development with the proposed resort and to the proposed WCWRA's future management. The Board fully recognizes the need, if the resort were to be approved, for the proposed WCWRA to receive special status with the appropriate legislative and regulatory protection available within Alberta's existing regulatory framework as provided for pursuant to the *Public Lands Act*.

The Board also identifies the need to formalize intergovernmental relationships with our neighbors to ensure that the broader ecosystem surrounding the proposed WCWRA is managed on an ecosystem basis. Without these agreements Alberta's efforts to realize the significant ecological potential of the proposed WCWRA may not be possible due to the adverse effects of management decisions in other jurisdictions.

The Board believes that if the proposed project is to be approved, that it should be redesigned to mitigate significant and adverse environmental impacts so as to leave part of the valley floor and the Barnaby Ridge side of the valley undisturbed by the resort.

The Board has reviewed the potential for acceptable alternative locations for golf courses and concluded that two courses could be located 400 metres or more downstream of the wetland area that lies immediately north of the ski hill. If the Applicant were to propose construction of golf courses in such a location as part of its overall project the Board would see no need for further review on its part and would recommend that the Alberta Government accept such a proposal.

The Board recognizes that the design of the proposed development is somewhat conceptual in nature, and the Applicant has continued to make changes in the design to accommodate anticipated adverse environmental impacts and in rebuttal evidence the Applicant indicated flexibility. The Board believes limiting "Resort" land use to the westerly portion of the West Castle River Valley and further reducing the size of the "Resort Area" in the narrowest part of the West Castle Valley by moving the golf courses to the "Recreation Area" is in the public interest. In the long-term such a configuration could enhance the attractiveness of the resort for ecotourism, and particularly so with the synergy that could be created should the proposed "Wildlands Area" be established. However, the Board believes that the intensity and density of land use must be limited in each of the three proposed zones of the proposed WCWRA. The Board believes the boundaries of the "Resort Area" must be well defined and that a maximum land use density be established, so that, as one participant warned, if the proposed development should be approved, "it does not become the thin edge of the wedge" for further development in the Valley or the establishment of a large urban area. Indeed the Board recommends to the Alberta Government that, should the Vacation Alberta proposal proceed, no further development of accommodation facilities other than staff housing be permitted in the "Resort Area".

The Board heard that ecotourism has become a significant component of the tourism industry and is growing rapidly. Ecotourists are attracted to natural ecosystems and landscapes and thus have a potential role to contribute and act as a catalyst in maintaining and enhancing the integrity of these systems.

The proposed development is a four-season destination resort that will attract tourists seeking recreational pursuits such as skiing and golf but also ecotourists, as the proposed development would be located within an attractive wildland area. The Board believes that sustainability of the proposed development and the sustainability of the surrounding ecosystems if managed properly could be enhanced by ecotourism which in the long-term could become a benefactor to both.

The Board foresees an expanded and important role for the Westcastle Development Authority. The Westcastle Development Authority could play an important role in the West Castle Valley in relation to the use and development of those public lands utilized for the proposed resort. The Board foresees the Westcastle Development Authority having an expanded area of responsibility encompassing the development "footprint" in the West Castle Valley. Also, the Board sees the Westcastle Development Authority expanding its membership to include those southern Alberta municipalities that could derive the most social and economic benefit from the proposed resort and that might determine to support the resort. In addition to the role the WDA has already performed, the Board foresees a role for the WDA in two key areas that are critical to the success of the Applicant's proposal. Specifically, the Board sees the WDA playing a key role in the financing of the ski hill and in the development of the normal municipal infrastructure required to support the proposed development.

The Board recognizes that should the proposed development receive approval further land use and planning approvals will be required. With the existing situation in the development area, several jurisdictions are affected, each having responsibilities in regard to land use and planning approvals. This situation creates complexities and a need to co-ordinate land use decisions. The Board believes that the proposed WCWRA as described by the Board should be withdrawn from ID #6 and consideration be given to applying only the *Public Lands Act* approval mechanisms. The Board recognizes that the ongoing regulatory requirements for the design, construction, operation, maintenance and abandonment of the project if approved, would be under the jurisdiction of various Government agencies and authorities. The Board also recognizes that this would require that all of the lands remain in the public domain.

With respect to the sale of public land, the Board has concluded that the public interest is unlikely to be served by placing lands of obvious environmental value into private hands. If public lands are to be sold in order to provide a catalyst for tourism development in the area the Board has called the proposed WCWRA, the Board considers that a more accessible planning exercise should be undertaken or that the *Public Lands Act* should be reviewed by way of an open consultation process so that any policy for sale of lands would have a broad base of public consideration and therefore be more likely to be acceptable to the Alberta public. The Board would therefore envisage the WDA selling its lands back to the Government of Alberta and then holding a non-transferable long-term ground lease from the Government of Alberta for the resort area and subleasing transferable portions of the leased lands for development purposes. The member municipalities in the WDA would share proportionally in revenues from the resort lands received by way of lease payments.

In conclusion, the Board believes that there is sufficient demand to warrant the proposed project proceeding on a redesigned and phased basis. The Board also believes that the proposed project should be reconfigured in order to be in the public interest given its adverse environmental effects as proposed. The Board finds that the proposed project would not proceed without Government support, that the proposed project would tend to redistribute economic activity among existing recreational facilities in Alberta, and that benefits of the proposed project in meeting regional demand for recreation opportunities and in sustainable job creation are beneficial and significant in a local and regional context. The Board believes that the beneficial social effects of the project are compelling with respect to the public interest in the matter. The Board is convinced of the need to mitigate environmental effects through land use controls in the area the Board has described as the proposed WCWRA. The Board believes that the proposed WCWRA, if designated, protected and appropriately managed, could provide substantial, increasing and incremental economic benefits to Alberta into the future.

The Board has concluded that the proposed project would, in its present form, create adverse environmental effects notwithstanding efforts to mitigate them, that some of the impacts would affect the whole Crown of the Continent Ecosystem and that these impacts would be incremental to the impacts of other disturbances. The Board believes that the project as proposed would not meet the test of sustainability and that it would not be acceptable without significant modification. The Board is convinced that some potential impacts could be avoided or significantly reduced if the configuration of the proposed project were modified, particularly if development were restricted to the west side of the West Castle River. However, the concentration of development and the associated activity of up to 2,500 people as proposed in the narrowest part of the West Castle Valley would have, in the Board's opinion, unacceptable severe effects on the regional ecosystem unless the mitigative measures required by the Board are implemented.

The Board believes that these effects could be sufficiently alleviated to render the proposed project in the public interest if (i) the golf courses were removed from their present location and the remaining resort facilities concentrated on the west side of the West Castle River; and (ii) a new land use management system for the region were put in place. The Board believes that if these steps were taken, the project could be built and operated to achieve Alberta's stated goal of sustainable development.

The Board has reviewed the potential for acceptable alternative locations for golf courses and concluded that two courses could be located on the west side of the valley 400 metres or more downstream of the wetland area that lies immediately north of the ski hill. If the Applicant were to propose construction of golf courses in such a location the Board would see no need for further review on its part and would recommend that the Alberta Government accept such a proposal.

The Board believes that the project should be redesigned so as to leave part of the valley floor and the eastern side of the valley essentially undisturbed by the project. In order to mitigate the impacts of the resort on surrounding ecologically important lands, the Board has concluded that the region should become a special protected area with three main land use areas: a Resort Zone constituting 0.6 percent of the area, a Recreation Zone constituting 7 percent of the area, and Wildland Zone surrounding the resort and recreation zones constituting 92.4 percent of the area. The Board further proposes that this area be called the Waterton-Castle Wildland Recreation Area and be managed by a Commission. The Commission could be responsible for managing the proposed WCWRA to produce significant economic benefits from both the resort, if it were to proceed, and management practices that are directed toward establishing and maintaining on a sustainable basis the natural resources potential of the area. The Board would recommend to the Alberta Government that all of the lands in the proposed WCWRA should remain in public ownership.

12.2 Decision

In the opinion of the Board having regard for all the evidence before it, the proposed project, subject to certain conditions, is in the public interest having regard to the social and economic effects of the project and the effect of the project on the environment.

The Board is prepared to make an order granting an approval for the project, which would come into force subject to the conditions in the draft approval contained in Appendix D, and upon the conditions specified below.

The Board would like to emphasize that it would not make a conditional order lightly. Unless certain conditions or contingencies are met, the Board does not believe, in all of the circumstances, that the project as proposed is in the public interest.

In addition to the conditions contained in the draft approval in Appendix D, the Board would also make the following recommendation to the Lieutenant Governor-in-Council.

The Board recommends that the Lieutenant Governor-in-Council, pursuant to Section 9(2) of the *Natural Resources Conservation Board Act*, prescribe that its authorization of the Board to grant an approval be subject to the condition that:

no construction of the development may commence unless an area substantially similar in location and land use to the Waterton-Castle Wildland Recreation Area as described by the Board has been designated as a special area for wildland recreation purposes.

The Board views this recommendation as being critical to the sustainable development of the proposed WCWRA and crucial to the public interest in the matter of the proposed development of the four-season resort.

Without the protection of this special area for wildland recreation purposes, development of the four-season resort would not be in the public interest. The development would intrude into an area that would be vulnerable, in the absence of specific protective restrictions, to severe degradation. The potential long term viability of the development could be significantly enhanced by the additional markets that creation of the proposed WCWRA would bring to it.

The Board would not be prepared to grant an approval of the proposed development unless the area surrounding the resort received protected status. Therefore the Board would impose as a further condition of its approval that:

this approval comes into force upon the coming into force of a regulation, order, or other statutory instrument of the Government of Alberta establishing a special area for wildland recreation purposes substantially similar in location and land uses to that delineated by the Board in its Decision Report as the Waterton-Castle Wildland Recreation Area.

The Board is aware that the project may not proceed for a number of reasons beyond its control. The Board would recommend that in any event the area the Board has described as the proposed WCWRA should be protected and land uses should be established for it as described by the Board whether or not the project proceeds. Regional management on an ecosystem basis is necessary. The Board would also recommend that access, habitat, forestry, fish and wildlife management be undertaken with a view to maximizing fish and wildlife populations indefinitely to increase the value of the resource as a basis for attracting extra-provincial and foreign visitors to Alberta.

In addition to the conditions contained in the draft approval, the Board would expect Vacation Alberta to discharge all of the relevant commitments and undertakings included in its Application or given at the hearing. Additionally, the Board has made several recommendations to the Applicant, the WDA and local authorities, and a number of Government of Alberta Departments. These recommendations and supporting rationale are included throughout the Decision Report.

DATED at Edmonton, Alberta on December 3, 1993

K.R. Smith
Chairman

C.H. Weir
Member

G.A. Yarranton
Vice Chairman

C. Dahl Rees
Acting Board Member

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APPENDIX A

VACATION ALBERTA CORPORATION HEARING

LIST OF PARTICIPANTS

VACATION ALBERTA CORPORATION HEARING
LIST OF PARTICIPANTS IN ALPHABETICAL ORDER

Principals and Representatives
(Abbreviations Used in Report)

Witnesses

Vacation Alberta Corporation
(The Applicant/Vacation Alberta)

Richard Secord
Margaret Waddell
Karin Buss

Doug Mulholland
Doug Thornton
Len Addison
(all of Vacation Alberta)
Dr. Ron Wallace
Bonnie Gray
Paul Glen
Dave Reid
Dr. Dennis Trotter
Liv Hundal
Steven Foley

(all of HBT AGRA Ltd.)

(William Rutledge

Bill Rutledge
Architects Ltd.)
Richard Walker

(William Resource Group)

(Westwinds Tourism

Bernie Campbell
Consultants)
Dan Begley

(Begley Consulting Ltd.)

(D.A. Westworth

Tom Boag
& Associates)
Dr. Peter McCart

(Aquatic Environments Ltd.)

Jeffrey Green
Garry Hornbeck

(both of The Delta Group Ltd.)

(Cottonwood Golf

Douglas Clark, P. Eng.
Jay Leach
& Country Club)
Gordon Russell

(Westcastle Ski Hill)

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Alberta Alpine Ski Association

Warren Vaile

Warren Vaile

Alberta Back Country Horsemen
Association

Celeste Fletcher

Alberta Association For Disabled Skiers -
Zone 1

Darryl Medoruma
Norman Beck
Darrel Piehl

Alberta Off-Highway Vehicle Association,
Southern Alberta

Darryl Lewko

Alpenland Ski & Sports Ltd./
What's Your Racquet?

Jerry Strate

Dr. David Balfour (self)

Dr. David Balfour

Brent Barbero (self)

Brent Barbero

Bed and Breakfast Operators of
Southwest Alberta

John Eggertson
Shirley Sara

Irene Bruzga (self)

Irene Bruzga

Canadian Ski Patrol System,
Southern Alberta Zone Association

F. Murray Pritchard

Carefree Express Ltd.

Les Collins

Chinook Country Tourist Association

Frank Dietrich
Jane Kremeniuk

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City of Lethbridge

Mayor David Carpenter
Alderman Sean Ward
Alderman Tosh Kanishiro

Coaldale Ecology Club

Debby Gregorash

County of Lethbridge No. 26

Roelof Heinen

Eugene Cyr (self)

Eugene Cyr

Roy Davidson

Roy Davidson
(Land Owners & Families Panel)

DU Ranch - Former Westcastle
Manager

Dan McKim

Employees of Westcastle Park Ski Area

Brian Cusack

Keith Everts (self)

Keith Everts

Otto Fischbuch (self)

Otto Fischbuch

Harold Ganske (self)

Harold Ganske
Merle Ganske

Government of Alberta, Department of Economic
Development & Tourism

Pam Wight

Dr. Atif Kubursi

Government of Alberta
Alberta Environmental Protection

Stan Rutwind
Bob Stone
Bonnie McGill

Lorne Fitch
(Fish & Wildlife Division)
Marc Zubel, P. Eng.
(Hydrology Branch)
Dr. Gordon Walder

(Sirius Aquatic Sciences)

Government of Canada, Department of Canadian Heritage,
Canadian Parks Service,

Bill Dolan

Bill Dolan, Chief Park Warden
(Waterton Lakes National Park)

Dave Mattson
(Montana State University)

Dr. Fred Allendorf
(University of Manitoba)

Government of Canada, Transport Canada,
Coast Guard, Navigable Waters,

Reg Watkins

Government of Canada, Department of Fisheries
& Oceans

Garry Linsey

Norris Graham Family

Norris Graham

Len Grant (self)

Len Grant

Improvement District of Ranchlands No. 6
(ID #6)

Bruce Ramsay
Ron Davis

Ron Davis
(Advisory Council Member)

Bruce Ramsay
(Ramsay & Associates Consulting Services
Inc.)

Mac Blades
(Advisory Council Member)

Harry Streeter
(Advisory Council Member)

Lethbridge Fish & Game Association

Heinz Plontke

12-20

Lethbridge Construction Association/
Lethbridge Homebuilders Association

Gary Becker

Lethbridge Chamber of Commerce

Jim Duff

Lethbridge and Area Families

George Virtue
Rod Lanier
Brian McGurk

Hugh Lynch-Staunton Family

Hugh Lynch-Staunton

Sybille Manneschmidt (self)

Sybille Manneschmidt

Ken Nodge (self)

Ken Nodge

Off-Highway Vehicle Enthusiasts

Dan Stepanic

Oldman River Regional Planning Commission
(ORRPC)

Mike Burla

Peigan Nation

Louise Mandell
Dale Smith

Hilton Pharis (self)

Hilton Pharis

Pincher Creek Farmers & Ranchers Group

Doug McClelland

Pincher Creek Golf Club Society Executive

Bruce Pettigrew

Pincher Creek & District Chamber of Commerce

Douglas Woodruff
Dennis Johnson

12-21

Pincher Creek and Area Hunters
and Fishermen

Randy Dykin

Pincher Creek Mountaineers Snowmobile Club

Jacques Daignault

Pincher Creek and District Economic
Development Board

Art Bonertz
John Ellingson

Pincher Creek Regional Parks and
Recreation Board

Diane Stuckey

Leo Puerzer (self)

Leo Puerzer

Beaver Mines Residents & Residents
Along Highway #507

Connie Noble

Dr. & Mrs. John Rottger/Dr. Irving

Dr. John Rottger

Senior Skiers

Dr. George S. Balfour

Southern Alberta Educators
(School Ski Program)

Charles (Bud) West
Pearl Murphy

Southern Alberta Fish & Game
Association - "Not Represented"

Rod Taylor

Southern Alberta Water
Management Committee

Don LeBaron

Southern Alberta Municipalities
Town of Claresholm

12-22

Town of Fort MacLeod
Town of Cardston
MD of Willow Creek #26

Terry McMaster

Southern Alberta Chambers
of Commerce

Sean Patience

Southern Alberta "Other Users"

Haven Lane

Southwest Alberta Economic
Diversification Association

John Ellingson

Bob Toney (self)

Bob Toney

Town of Pincher Creek

Mayor Juan Teran
Shirley Osterlee, Councillor
Bill Stitt, Councillor

Municipal District of Pincher Creek No. 9
(MD #9)

Reeve George Huddlestun
Rob Mitchell, Councillor
Tom Ferguson, Councillor
Dale Uhrbach

Trappers & Outfitters Wilderness Coalition (TOWC)
Alberta Trappers Association

12-23

Alberta Wilderness Association (AWA)
Speak Up for Wildlife Foundation
Diamond Hitch Outfitters
Independent Trappers
Rocky Mountain Ecosystem Coalition
Porcupine Creek Outfitters Ltd.

Valerie Danielson
Mike Judd
Maryhelen Posey
(Diamond Hitch Outfitters/AWA)

Michael Sawyer
(Hyduke & Associates Ltd.)
Mike Judd

Dr. Brian Horejsi
Dr. T. Andrew Hurly
Jim Perras
(InfoGroup Inc.)
Dianne Pachal
(AWA)
Ralph Cervo
Vern Vare
Gordon Hoffmann
(all of Independent Trappers)
Ken Hildebrand
(Alberta Trappers Association)
R. Brent Sinclair
(Porcupine Creek Outfitters)

Trout Unlimited - Southern
Alberta Dissenters

Roger McAdam

West Castle Ecosystem Coalition (WCEC)
Canadian Parks and Wilderness Society
Castle-Crown Wilderness Coalition
Trout Unlimited (Canada) & Crowsnest River Chapter
Alberta Fish & Game Association, Southern Alberta
Federation of Alberta Naturalists

Harvey Locke
Dr. Dave Sheppard
Ardell Harris

Dr. Bruce McLellan
(B.C. Ministry of Forestry)
Dr. Luigi Morgantini, P. Biol.

12-24

Ross MacDonald

(Wildlife Resources Consulting Ltd.)
Dr. Job Kuijt
(University of Victoria, B.C.)
Carey Johannesson
Dave Fernet, P. Biol.
(both of EMA Environmental Management
Associates Ltd.)
Dr. Ray Rasker
(Montana State University)
Michael Thompson, P. Eng.
Lucien Lyness, P. Geol.
(both of Komex International Ltd.)
Nancy Tripp
Ardell Harris
Michael Gerrand
Jim Rennie
Ernie Whelan
Jack Reedman
Dr. Dave Sheppard
Denis Gourdeau
Ross MacDonald
Sarah Simmons
Rodney Cyr
Maryhelen Posey
(Federation of Alberta Naturalists)
Don Pike
(Trout Unlimited)
Dr. Klaus Jericho
Dr. Peter Letkemann

Westcastle Ski School

Jim Wilson

Westcastle Ski Club Coaches

Tom Tataryn

Tom Tataryn

General Manager, Westcastle Ski Area

Gordon Russell

Gordon Russell
(Ski Community Panel)

Westcastle Ski Club/Alberta Alpine
Ski Association

12-25

Warren Vaile

Warren Vaile

Westcastle Community Association

Derrill Murphy

Westcastle Families Society

Jephson Virtue

Westcastle Development Authority (WDA)

Don Haavardsrud

Don Haavardsrud
Hugh Lynch-Staunton
Bob Toney
Gordon Russell
(Westcastle Ski Hill)

WRITTEN SUBMISSIONS ONLY

Adams, Mr. Don President, What's Your Racket?

Alberta Weekly Newspapers Association

Cole, Bob and Barb

Graham, Madge

Huntley, Judy

Jackson, Dr. A. Colin

Little, Thomas B.

Pincher Creek Boards of Education

Rood, Dr. Stewart

Southern Alberta Environmental Group

Steed, Dr. M. Greg

Stewart, G. R.

Tweedie, James

Warren, Keith

Wereweka, Devin

Wright, Brian

Zazalack, Larry

Zazalack, Judie

Natural Resources Conservation Board
(NRCB)

William Kennedy
Joyce Ingram
Dr. Robert Powell
Patrick Cleary
Jim McKee
Dr. Albert van Roodselaar
(all Board staff)
Dr. Paul Paquet
Dr. Roy Crowther
(consultants to the Board)

APPENDIX B

SUMMARY OF DEVELOPMENT SCHEDULE AND ASSOCIATED COSTS

(Reproduced from Exhibit #99 as presented by the Applicant)

APPENDIX C

SUMMARY OF WILDLIFE MITIGATION MEASURES

PROPOSED BY THE APPLICANT

SUMMARY OF WILDLIFE MITIGATION MEASURES

PROPOSED BY THE APPLICANT

The following wildlife mitigation measures are excerpted verbatim from Vacation Alberta Corporation's Environmental Impact Assessment:

Moose, Elk, Mule Deer, White-tailed Deer

- C establish a regional plan to ensure that "strip" type development along Secondary Highway #774 does not occur in a fashion that will compromise wildlife management objectives to maintain viable ungulate populations in the region (e.g., maintenance of movement corridors and contiguous blocks of important habitat);
- C schedule construction window closures to avoid sensitive periods in the year, such as calving and wintering. For example, construction would best be scheduled between July to December to avoid disturbances during mid and late winter, and the calving period;
- C identify probable ungulate crossing sites along Secondary Highway #774 through future monitoring, and install wildlife warning and crossing signs;
- C implement reduced speed limits (e.g., less than 60 km/h) on Secondary Highway #774 south of Beaver Mines;
- C prohibit the use of road salt (CaCl_2) on Secondary Highway #774 and on local access roads to minimize attraction of ungulates and other wildlife to this salt source;
- C through future monitoring surveys, identify potentially sensitive sites for moose and other ungulates which may be affected by sensory disturbances from winter and summer trail use. If substantial conflicts are identified between trail locations and these areas, relocation of these trails to less sensitive areas is recommended. Seasonal restrictions on trail use is to be considered (e.g., seasonal limits on trail use and types of use). For example, trail use might be restricted to low numbers of people during 15 May to 15 June to avoid conflicts

with calving moose (as well as potential aggressive attacks to humans by female moose);

- C a strict policy of leashing all dogs in the project area and in adjacent back country areas in the West Castle Valley should be established and enforced to reduce potential for harassment of ungulates and other wildlife by dogs;
- C restrict increased levels of winter recreation (particularly snowmobiling and nordic skiing) in the backcountry areas to the south of the development site. This may involve designation of specific trails for use, trail re-design, limits on numbers of users, and/or restrictions on overnight camping. Winter recreational use of the golf course should be prohibited; and
- C during construction and operation of the proposed Westcastle Expansion, the West Castle Valley on either side of Secondary Highway #774, south of Beaver Mines, should be closed to sport harvest of moose and other wildlife to allow wildlife to adapt to the increased disturbance levels, human presence and habitat losses in the project area. Restrictions on future hunting in the southern West Castle Valley should be developed in cooperation with the Alberta Fish and Wildlife Division.

Mountain Goats and Bighorn Sheep

- C restrict increased levels of winter recreation (particularly snowmobiling) in the back country areas to the south of the development site and in Syncline Valley. This may involve designation of specific trails for use, trail and road restrictions or re-design, limits on numbers of users, restrictions on overnight camping. Restrictions to public land usage need be developed in cooperation with AFLW. The objective of this measure should be to restrict levels of back country use (see monitoring) during critical seasons (wintering, lambing and kidding);
- C identify for protection, prior to construction of the resort, bighorn sheep lambing cliffs, seasonal migration routes, and winter and summer ranges for bighorn sheep;
- C identify bighorn sheep crossing sites along Secondary Highway #774, and if necessary install wildlife warning and crossing signs;

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- C use a seed mix suitable for bighorn sheep forage for reclamation of disturbed areas at higher elevations;
- C prohibit use of road salt during winter on Secondary Highway #774 and on local access roads; and
- C a strict policy of leashing all dogs in the project area and in adjacent back country.

Grizzly Bear, Black Bear, Cougar, Wolf, Wolverine, Lynx

- C limit the area of the ski-hill facilities open to night skiing;
- C implementation of a garbage collection system with bear proof containers. This will service the winter day-use facilities as well as hikers, backpackers and horse campers during the summer months;
- C close the ski facilities and snowmobile use by 31 March to minimize overlap of alpine skiing and dispersed snowmobile activities with the emergence of grizzly bear in the spring (e.g., when grizzly bears emerge from dens and descend to lower elevation habitats);
- C there may be a need for seasonal restrictions on public use of the south half of the West Castle Valley (e.g., restrictions on the numbers and frequency of users);
- C removal or restriction of currently existing sources of impact to grizzly bear and other wildlife due to competition for foods and/or disturbance. These include cattle grazing, currently a source of human/bear problems in southwestern Alberta, and the use of snowmobiles and ATV's;
- C removal of the special draw grizzly hunting season from within the confines of the West Castle Valley;
- C strict enforcement of a leash policy for dogs in backcountry areas and within the project area;
- C implement a public awareness program for bears, as is done for the National Parks;
- C implementation of a bear-proof, garbage collection system; and

- C design and construction of trails for spring, summer and fall away from important habitats for large carnivores.

Coyote and Red Fox

- C minimize the clearing of tree and shrub cover during the construction of the various project facilities;
- C replant disturbed areas, including the rough verges within the golf course with native species of grasses and forbs, and avoid intense management (e.g., frequent mowing) to promote establishment of grassland-associated small mammals (which will provide a prey base for small canids);
- C retain a buffer zone of riparian vegetation (e.g., 30 m) along the West Castle River and other watercourses to minimize changes to the prey base for coyotes and red foxes (small mammals, waterfowl, upland game birds, songbirds); and
- C avoid use of rodenticides to control ground squirrels on the golf course.

Mink, Marten, Fisher

- C maintain as much of the riparian tree and shrub cover in the valley bottom as possible. This will reduce habitat losses, especially for mink, and to a lesser degree for marten and fisher;
- C minimize the width of clearings. Where possible, maximum widths of clearings should not exceed 200 m. Irregular edges and residual blocks of tree and shrub cover within clearings would help maintain local movements of mustelids through the project area;
- C re-seed and maintain some disturbed sites in native grass and forb cover to promote re-establishment of small mammals as a prey base for mustelids and other furbearers;
- C restrict use of the golf course area by snowmobiles. This may involve development of new trails, relocation of old trails, restrictions on total numbers of users and season of use, and day use only;

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- C maintain the wildlife movement corridor, as proposed, and minimize any crossings of the corridor by trails or other human disturbances; and
- C enforce a leashing requirement for dogs within the project area and in back country areas to minimize harassment of furbearers by dogs.

Beaver

- C minimize clearing of riparian tree and shrub cover, as well as upland deciduous cover within a 100 m distance from the West Castle River;
- C if beaver damage to landscaping becomes a problem, utilize precautionary measures such as one meter high page wire guards around the bottom of trees and shrubs to control the problem prior to any removal of animals; and
- C if beaver dams on culverts or watercourses become a problem, utilize vertical (standpipe) culvert drains in preference to destroying the dam or removing the beaver. This technique has the added benefit of retaining important habitat for waterfowl, amphibians, and some other mammals;

Small Mammals

- C retain as large a buffer zone as possible between the West Castle River and cleared areas for the two golf courses to minimize losses of important riparian habitats;
- C design all resort, residential, golf course and ski hill areas to minimize clearing and disturbance of native vegetation;
- C maximize the size of residual blocks of native cover within all development areas, particularly the two golf courses;
- C utilize native species of ground covers, shrubs and trees in all reclamation areas, and as much as possible in landscaping within the development area. In particular, native grass and forb species should be used to reclaim new or modified ski runs and trails;

- C ensure that water levels and water quality is maintained within the wetland complex immediately downstream of the project area to avoid losses of important riparian habitat;
- C schedule clearing activities outside of the spring period (e.g., 1 April to 15 June) to minimize accidental mortality of nestlings;
- C minimize or exclude maintenance (e.g., mowing) in native grassland and shrub meadow areas;
- C conduct maintenance mowing of rough verges within the golf courses, and road-side and trail-side grass/shrub cover after 15 June to minimize mortality of nestlings; and
- C implement strict animal control bylaws to prohibit free-roaming domestic pets (e.g., cats, dogs) within the development area and the adjacent back-country areas to minimize accidental mortality and harassment of small mammals.

Birds

- C development in or near sensitive or irreplaceable habitats should be avoided. These habitat types include climax fir-spruce forest, alpine meadows, krummholz and other upper subalpine habitats, mature forests, bogs and wetlands. These habitats are sensitive to habitat alteration and/or erosion. Grazing by pack animals and overnight camping in these habitats should be controlled or discouraged;
- C sites that are important to raptors, rare species or species sensitive to disturbance should be identified and preserved. Also, scrub and forest habitats in areas that may provide food and cover for migrating birds (e.g., riparian zones along major streams, ponds) should be preserved;
- C mature (or the most mature) forest habitats should be preserved;
- C establish buffer zones along the West Castle River within the proposed development area, and around the wetlands (e.g., willow shrub wetland, beaver ponds) north of the development area. The buffer zones should be at least of 30 m wide on either side of the river, and 30 m back from the edge of wetland vegetation. Human activity within the buffer zones should be prohibited. If pathways are necessary, then pathways should be aligned perpendicular to (rather

than along) shorelines (this applies to all wetlands, including the West Castle River south of the development area). Buffer zones may be delineated with fences (not chain-link fences) that allow passage underneath by walking birds (e.g., young upland game birds). Signs should be posted so that recreationists are aware that human activity is not allowed within the buffer areas;

- C access by recreationists to sensitive habitats outside of buffer zones and the development area should be limited, or restricted to well designed and well maintained trails. Human activity outside the development area should generally be confined to established trails. Soil erosion and potential disturbances to wildlife must be considered when designing trails;
- C development should be limited to areas that would be least affected by development, and support bird species that would remain in the area after development (e.g., disturbed areas or areas having a high percentage of edge species);
- C forest fragmentation should be avoided. Minimize clearing of natural vegetation (including grassland) and maximize residual blocks of native habitats within the development area. In the West Castle Valley, such measures would include reclaiming old roadways and paths to native vegetation (e.g., in the southern half of the valley and up Syncline Brook). Decreasing the width of the right-of-way for Secondary Highway #774 and reclaiming a portion of the right-of-way to adjacent native vegetation types would increase habitat available to birds. Existing access routes into the valley should be used, and additional access routes should not be created;
- C recreational sites should maintain tree species diversity or maintain an original tree species composition. Dense native shrubbery may be planted in some areas to prevent access, trampling or other disturbances in adjacent native habitats;
- C snags should be retained to provide adequate habitat for cavity nesting birds. Nest boxes can also be used for some cavity nesting species, although the nest boxes should be monitored and managed to prevent use by non-native species (European Starling, House Sparrow);
- C use native plant species in reclamation and landscaping. There should be minimal or no regular maintenance of natural communities;

- C in fences are to be built in the study area, then they should be of a type that will not obstruct movements by walking birds (e.g., ducklings, young upland game birds);
- C rigorous waste disposal would help prevent the proliferation of non-native species and native scavengers that are nest predators;
- C destruction of habitat around day use areas (e.g., picnic sites) should be strictly controlled. After project completion, removal of native vegetation should be prevented in all areas. If facilities for campfires are to be provided, then firewood and kindling should be provided to minimize use of deadwood and snags. Campfires in backcountry areas (especially at high altitudes) should be discouraged to prevent use of deadwood;
- C grazing by cattle should be strictly controlled because grazing can have adverse effects on habitat for grassland species;
- C off-road vehicles and their use in the study area should be prohibited;
- C all pets should be leashed to prevent disturbance to wildlife, especially during the breeding season when ground nesting birds are most sensitive. Animal control bylaws should be implemented to prohibit free-ranging cats and dogs;
- C pamphlets and signs of ethics, information and laws should be available to the public to minimize disturbance to nesting birds and other wildlife. Areas should be patrolled by personnel with the authority to fine persons in disregard of rules designed to minimize impacts to wildlife;
- C site clearing activities should be scheduled from September to February to minimize destruction of nests, eggs and unfledged young during the breeding season. Maintenance of fairway verges, trail edges and roadsides should be scheduled outside of the breeding season; and
- C for raptors, a project biologist should survey each development area prior to clearing to ensure that no active nests will be disturbed, and valuable habitat areas for rare or sensitive raptor species should be preserved (see Section 5.5.6.9: Recommended Monitoring Program). Retain forested buffer zones (250 to 500 m wide) around identified nesting sites for sensitive raptor species. Such buffers not only retain critical raptor habitat, but also help visually isolate raptors from

disturbances (Postovit and Postovit 1987). The size of adequate buffer zones may vary between area and even individual birds, so no single guide can be used to determine appropriate buffer sizes. Stalmaster and Newman (1978) therefore recommended that raptor behaviour be monitored before developing recommendations. If such programs are not conducted for the West Castle Valley and the above recommended buffers (e.g., 250-500 m) appear excessive, then recognize and consider that recommendations for buffer zones around Golden Eagle nests have ranged up to 2400 m for frequent, noisy stimuli (Postovit and Postovit 1987). Design power poles in the study area to minimize raptor electrocutions (see Olendorff *et al.* [1981] and Miller *et al.* [1975] for suggested modifications of pole designs). Injured raptors should be rehabilitated. The benefits of rehabilitation are not merely biological, but also educational, political and humanitarian (Postovit and Postovit 1987). If rodent control becomes necessary within the project area, do not use toxic pesticides because secondary mortality of raptors may occur. Physical means (trapping) or anticoagulant rodenticides rather than poisons are preferred.

Reptiles and Amphibians

- C maintain as many of the wetland and poorly-drained areas within the development area as possible, as well as natural drainage patterns which affect these wetlands;
- C create potential wetland habitat by isolating the backwater area located to prevent fish from becoming isolated from the West Castle River as recommended after spring flooding (Part 5.3.2);
- C minimize clearing and cutting of riparian shrub and tree communities during the development of the two golf courses and associated facilities to reduce potential losses of habitat;
- C minimize use of all pesticides within a 30 m buffer distance from the West Castle River to minimize contamination of the surface water. Avoid spraying during high wind periods to minimize overspray;
- C ensure that all possible precautions are utilized to prevent entry of sediments into the West Castle River during clearing, grubbing and recontouring. These operations should be scheduled outside of the 1 April to 30 August period to avoid suspension of sediments and smothering of eggs and larvae through siltation;

- C during upgrading of Secondary Highway #774, avoid widening of the road bed so it will encroach on of the Site C wetland. An environmental protection plan should be developed for the road construction, and in particular the Site C section, to minimize impacts to wetland habitats;
- C if substantial road kills of amphibians or reptiles are documented, particularly in the vicinity of the Site C wetland, provide under-road crossings as recommended by Langton (1989) (e.g., a culvert tunnel);
- C use of road salt (CaCl) should be prohibited; and
- C install interpretive signage and provide information materials to residents and guests explaining the need to avoid collection of live amphibians or reptiles.

APPENDIX C

SUMMARY OF WILDLIFE MITIGATION MEASURES

PROPOSED BY THE APPLICANT

SUMMARY OF WILDLIFE MITIGATION MEASURES

PROPOSED BY THE APPLICANT

The following wildlife mitigation measures are excerpted verbatim from Vacation Alberta Corporation's Environmental Impact Assessment:

Moose, Elk, Mule Deer, White-tailed Deer

- C establish a regional plan to ensure that "strip" type development along Secondary Highway #774 does not occur in a fashion that will compromise wildlife management objectives to maintain viable ungulate populations in the region (e.g., maintenance of movement corridors and contiguous blocks of important habitat);
- C schedule construction window closures to avoid sensitive periods in the year, such as calving and wintering. For example, construction would best be scheduled between July to December to avoid disturbances during mid and late winter, and the calving period;
- C identify probable ungulate crossing sites along Secondary Highway #774 through future monitoring, and install wildlife warning and crossing signs;
- C implement reduced speed limits (e.g., less than 60 km/h) on Secondary Highway #774 south of Beaver Mines;
- C prohibit the use of road salt (CaCl_2) on Secondary Highway #774 and on local access roads to minimize attraction of ungulates and other wildlife to this salt source;
- C through future monitoring surveys, identify potentially sensitive sites for moose and other ungulates which may be affected by sensory disturbances from winter and summer trail use. If substantial conflicts are identified between trail locations and these areas, relocation of these trails to less sensitive areas is recommended. Seasonal restrictions on trail use is to be considered (e.g., seasonal limits on trail use and types of use). For example, trail use might be restricted to low numbers of people during 15 May to 15 June to avoid conflicts

with calving moose (as well as potential aggressive attacks to humans by female moose);

- C a strict policy of leashing all dogs in the project area and in adjacent back country areas in the West Castle Valley should be established and enforced to reduce potential for harassment of ungulates and other wildlife by dogs;
- C restrict increased levels of winter recreation (particularly snowmobiling and nordic skiing) in the backcountry areas to the south of the development site. This may involve designation of specific trails for use, trail re-design, limits on numbers of users, and/or restrictions on overnight camping. Winter recreational use of the golf course should be prohibited; and
- C during construction and operation of the proposed Westcastle Expansion, the West Castle Valley on either side of Secondary Highway #774, south of Beaver Mines, should be closed to sport harvest of moose and other wildlife to allow wildlife to adapt to the increased disturbance levels, human presence and habitat losses in the project area. Restrictions on future hunting in the southern West Castle Valley should be developed in cooperation with the Alberta Fish and Wildlife Division.

Mountain Goats and Bighorn Sheep

- C restrict increased levels of winter recreation (particularly snowmobiling) in the back country areas to the south of the development site and in Syncline Valley. This may involve designation of specific trails for use, trail and road restrictions or re-design, limits on numbers of users, restrictions on overnight camping. Restrictions to public land usage need be developed in cooperation with AFLW. The objective of this measure should be to restrict levels of back country use (see monitoring) during critical seasons (wintering, lambing and kidding);
- C identify for protection, prior to construction of the resort, bighorn sheep lambing cliffs, seasonal migration routes, and winter and summer ranges for bighorn sheep;
- C identify bighorn sheep crossing sites along Secondary Highway #774, and if necessary install wildlife warning and crossing signs;

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- C use a seed mix suitable for bighorn sheep forage for reclamation of disturbed areas at higher elevations;
- C prohibit use of road salt during winter on Secondary Highway #774 and on local access roads; and
- C a strict policy of leashing all dogs in the project area and in adjacent back country.

Grizzly Bear, Black Bear, Cougar, Wolf, Wolverine, Lynx

- C limit the area of the ski-hill facilities open to night skiing;
- C implementation of a garbage collection system with bear proof containers. This will service the winter day-use facilities as well as hikers, backpackers and horse campers during the summer months;
- C close the ski facilities and snowmobile use by 31 March to minimize overlap of alpine skiing and dispersed snowmobile activities with the emergence of grizzly bear in the spring (e.g., when grizzly bears emerge from dens and descend to lower elevation habitats);
- C there may be a need for seasonal restrictions on public use of the south half of the West Castle Valley (e.g., restrictions on the numbers and frequency of users);
- C removal or restriction of currently existing sources of impact to grizzly bear and other wildlife due to competition for foods and/or disturbance. These include cattle grazing, currently a source of human/bear problems in southwestern Alberta, and the use of snowmobiles and ATV's;
- C removal of the special draw grizzly hunting season from within the confines of the West Castle Valley;
- C strict enforcement of a leash policy for dogs in backcountry areas and within the project area;
- C implement a public awareness program for bears, as is done for the National Parks;
- C implementation of a bear-proof, garbage collection system; and

- C design and construction of trails for spring, summer and fall away from important habitats for large carnivores.

Coyote and Red Fox

- C minimize the clearing of tree and shrub cover during the construction of the various project facilities;
- C replant disturbed areas, including the rough verges within the golf course with native species of grasses and forbs, and avoid intense management (e.g., frequent mowing) to promote establishment of grassland-associated small mammals (which will provide a prey base for small canids);
- C retain a buffer zone of riparian vegetation (e.g., 30 m) along the West Castle River and other watercourses to minimize changes to the prey base for coyotes and red foxes (small mammals, waterfowl, upland game birds, songbirds); and
- C avoid use of rodenticides to control ground squirrels on the golf course.

Mink, Marten, Fisher

- C maintain as much of the riparian tree and shrub cover in the valley bottom as possible. This will reduce habitat losses, especially for mink, and to a lesser degree for marten and fisher;
- C minimize the width of clearings. Where possible, maximum widths of clearings should not exceed 200 m. Irregular edges and residual blocks of tree and shrub cover within clearings would help maintain local movements of mustelids through the project area;
- C re-seed and maintain some disturbed sites in native grass and forb cover to promote re-establishment of small mammals as a prey base for mustelids and other furbearers;
- C restrict use of the golf course area by snowmobiles. This may involve development of new trails, relocation of old trails, restrictions on total numbers of users and season of use, and day use only;

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- C maintain the wildlife movement corridor, as proposed, and minimize any crossings of the corridor by trails or other human disturbances; and
- C enforce a leashing requirement for dogs within the project area and in back country areas to minimize harassment of furbearers by dogs.

Beaver

- C minimize clearing of riparian tree and shrub cover, as well as upland deciduous cover within a 100 m distance from the West Castle River;
- C if beaver damage to landscaping becomes a problem, utilize precautionary measures such as one meter high page wire guards around the bottom of trees and shrubs to control the problem prior to any removal of animals; and
- C if beaver dams on culverts or watercourses become a problem, utilize vertical (standpipe) culvert drains in preference to destroying the dam or removing the beaver. This technique has the added benefit of retaining important habitat for waterfowl, amphibians, and some other mammals;

Small Mammals

- C retain as large a buffer zone as possible between the West Castle River and cleared areas for the two golf courses to minimize losses of important riparian habitats;
- C design all resort, residential, golf course and ski hill areas to minimize clearing and disturbance of native vegetation;
- C maximize the size of residual blocks of native cover within all development areas, particularly the two golf courses;
- C utilize native species of ground covers, shrubs and trees in all reclamation areas, and as much as possible in landscaping within the development area. In particular, native grass and forb species should be used to reclaim new or modified ski runs and trails;

- C ensure that water levels and water quality is maintained within the wetland complex immediately downstream of the project area to avoid losses of important riparian habitat;
- C schedule clearing activities outside of the spring period (e.g., 1 April to 15 June) to minimize accidental mortality of nestlings;
- C minimize or exclude maintenance (e.g., mowing) in native grassland and shrub meadow areas;
- C conduct maintenance mowing of rough verges within the golf courses, and road-side and trail-side grass/shrub cover after 15 June to minimize mortality of nestlings; and
- C implement strict animal control bylaws to prohibit free-roaming domestic pets (e.g., cats, dogs) within the development area and the adjacent back-country areas to minimize accidental mortality and harassment of small mammals.

Birds

- C development in or near sensitive or irreplaceable habitats should be avoided. These habitat types include climax fir-spruce forest, alpine meadows, krummholz and other upper subalpine habitats, mature forests, bogs and wetlands. These habitats are sensitive to habitat alteration and/or erosion. Grazing by pack animals and overnight camping in these habitats should be controlled or discouraged;
- C sites that are important to raptors, rare species or species sensitive to disturbance should be identified and preserved. Also, scrub and forest habitats in areas that may provide food and cover for migrating birds (e.g., riparian zones along major streams, ponds) should be preserved;
- C mature (or the most mature) forest habitats should be preserved;
- C establish buffer zones along the West Castle River within the proposed development area, and around the wetlands (e.g., willow shrub wetland, beaver ponds) north of the development area. The buffer zones should be at least of 30 m wide on either side of the river, and 30 m back from the edge of wetland vegetation. Human activity within the buffer zones should be prohibited. If pathways are necessary, then pathways should be aligned perpendicular to (rather

than along) shorelines (this applies to all wetlands, including the West Castle River south of the development area). Buffer zones may be delineated with fences (not chain-link fences) that allow passage underneath by walking birds (e.g., young upland game birds). Signs should be posted so that recreationists are aware that human activity is not allowed within the buffer areas;

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- C development should be limited to areas that would be least affected by development, and support bird species that would remain in the area after development (e.g., disturbed areas or areas having a high percentage of edge species);
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- C use native plant species in reclamation and landscaping. There should be minimal or no regular maintenance of natural communities;

- C in fences are to be built in the study area, then they should be of a type that will not obstruct movements by walking birds (e.g., ducklings, young upland game birds);
- C rigorous waste disposal would help prevent the proliferation of non-native species and native scavengers that are nest predators;
- C destruction of habitat around day use areas (e.g., picnic sites) should be strictly controlled. After project completion, removal of native vegetation should be prevented in all areas. If facilities for campfires are to be provided, then firewood and kindling should be provided to minimize use of deadwood and snags. Campfires in backcountry areas (especially at high altitudes) should be discouraged to prevent use of deadwood;
- C grazing by cattle should be strictly controlled because grazing can have adverse effects on habitat for grassland species;
- C off-road vehicles and their use in the study area should be prohibited;
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- C for raptors, a project biologist should survey each development area prior to clearing to ensure that no active nests will be disturbed, and valuable habitat areas for rare or sensitive raptor species should be preserved (see Section 5.5.6.9: Recommended Monitoring Program). Retain forested buffer zones (250 to 500 m wide) around identified nesting sites for sensitive raptor species. Such buffers not only retain critical raptor habitat, but also help visually isolate raptors from

disturbances (Postovit and Postovit 1987). The size of adequate buffer zones may vary between area and even individual birds, so no single guide can be used to determine appropriate buffer sizes. Stalmaster and Newman (1978) therefore recommended that raptor behaviour be monitored before developing recommendations. If such programs are not conducted for the West Castle Valley and the above recommended buffers (e.g., 250-500 m) appear excessive, then recognize and consider that recommendations for buffer zones around Golden Eagle nests have ranged up to 2400 m for frequent, noisy stimuli (Postovit and Postovit 1987). Design power poles in the study area to minimize raptor electrocutions (see Olendorff *et al.* [1981] and Miller *et al.* [1975] for suggested modifications of pole designs). Injured raptors should be rehabilitated. The benefits of rehabilitation are not merely biological, but also educational, political and humanitarian (Postovit and Postovit 1987). If rodent control becomes necessary within the project area, do not use toxic pesticides because secondary mortality of raptors may occur. Physical means (trapping) or anticoagulant rodenticides rather than poisons are preferred.

Reptiles and Amphibians

- C maintain as many of the wetland and poorly-drained areas within the development area as possible, as well as natural drainage patterns which affect these wetlands;
- C create potential wetland habitat by isolating the backwater area located to prevent fish from becoming isolated from the West Castle River as recommended after spring flooding (Part 5.3.2);
- C minimize clearing and cutting of riparian shrub and tree communities during the development of the two golf courses and associated facilities to reduce potential losses of habitat;
- C minimize use of all pesticides within a 30 m buffer distance from the West Castle River to minimize contamination of the surface water. Avoid spraying during high wind periods to minimize overspray;
- C ensure that all possible precautions are utilized to prevent entry of sediments into the West Castle River during clearing, grubbing and recontouring. These operations should be scheduled outside of the 1 April to 30 August period to avoid suspension of sediments and smothering of eggs and larvae through siltation;

- C during upgrading of Secondary Highway #774, avoid widening of the road bed so it will encroach on of the Site C wetland. An environmental protection plan should be developed for the road construction, and in particular the Site C section, to minimize impacts to wetland habitats;
- C if substantial road kills of amphibians or reptiles are documented, particularly in the vicinity of the Site C wetland, provide under-road crossings as recommended by Langton (1989) (e.g., a culvert tunnel);
- C use of road salt (CaCl) should be prohibited; and
- C install interpretive signage and provide information materials to residents and guests explaining the need to avoid collection of live amphibians or reptiles.

APPENDIX C

SUMMARY OF WILDLIFE MITIGATION MEASURES

PROPOSED BY THE APPLICANT

SUMMARY OF WILDLIFE MITIGATION MEASURES
PROPOSED BY THE APPLICANT

The following wildlife mitigation measures are excerpted verbatim from Vacation Alberta Corporation's Environmental Impact Assessment:

Moose, Elk, Mule Deer, White-tailed Deer

- C establish a regional plan to ensure that "strip" type development along Secondary Highway #774 does not occur in a fashion that will compromise wildlife management objectives to maintain viable ungulate populations in the region (e.g., maintenance of movement corridors and contiguous blocks of important habitat);
- C schedule construction window closures to avoid sensitive periods in the year, such as calving and wintering. For example, construction would best be scheduled between July to December to avoid disturbances during mid and late winter, and the calving period;
- C identify probable ungulate crossing sites along Secondary Highway #774 through future monitoring, and install wildlife warning and crossing signs;
- C implement reduced speed limits (e.g., less than 60 km/h) on Secondary Highway #774 south of Beaver Mines;
- C prohibit the use of road salt (CaCl_2) on Secondary Highway #774 and on local access roads to minimize attraction of ungulates and other wildlife to this salt source;
- C through future monitoring surveys, identify potentially sensitive sites for moose and other ungulates which may be affected by sensory disturbances from winter and summer trail use. If substantial conflicts are identified between trail locations and these areas, relocation of these trails to less sensitive areas is recommended. Seasonal restrictions on trail use is to be considered (e.g., seasonal limits on trail use and types of use). For example, trail use might be restricted to low numbers of people during 15 May to 15 June to avoid conflicts

with calving moose (as well as potential aggressive attacks to humans by female moose);

- C a strict policy of leashing all dogs in the project area and in adjacent back country areas in the West Castle Valley should be established and enforced to reduce potential for harassment of ungulates and other wildlife by dogs;
- C restrict increased levels of winter recreation (particularly snowmobiling and nordic skiing) in the backcountry areas to the south of the development site. This may involve designation of specific trails for use, trail re-design, limits on numbers of users, and/or restrictions on overnight camping. Winter recreational use of the golf course should be prohibited; and
- C during construction and operation of the proposed Westcastle Expansion, the West Castle Valley on either side of Secondary Highway #774, south of Beaver Mines, should be closed to sport harvest of moose and other wildlife to allow wildlife to adapt to the increased disturbance levels, human presence and habitat losses in the project area. Restrictions on future hunting in the southern West Castle Valley should be developed in cooperation with the Alberta Fish and Wildlife Division.

Mountain Goats and Bighorn Sheep

- C restrict increased levels of winter recreation (particularly snowmobiling) in the back country areas to the south of the development site and in Syncline Valley. This may involve designation of specific trails for use, trail and road restrictions or re-design, limits on numbers of users, restrictions on overnight camping. Restrictions to public land usage need be developed in cooperation with AFLW. The objective of this measure should be to restrict levels of back country use (see monitoring) during critical seasons (wintering, lambing and kidding);
- C identify for protection, prior to construction of the resort, bighorn sheep lambing cliffs, seasonal migration routes, and winter and summer ranges for bighorn sheep;
- C identify bighorn sheep crossing sites along Secondary Highway #774, and if necessary install wildlife warning and crossing signs;

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- C use a seed mix suitable for bighorn sheep forage for reclamation of disturbed areas at higher elevations;
- C prohibit use of road salt during winter on Secondary Highway #774 and on local access roads; and
- C a strict policy of leashing all dogs in the project area and in adjacent back country.

Grizzly Bear, Black Bear, Cougar, Wolf, Wolverine, Lynx

- C limit the area of the ski-hill facilities open to night skiing;
- C implementation of a garbage collection system with bear proof containers. This will service the winter day-use facilities as well as hikers, backpackers and horse campers during the summer months;
- C close the ski facilities and snowmobile use by 31 March to minimize overlap of alpine skiing and dispersed snowmobile activities with the emergence of grizzly bear in the spring (e.g., when grizzly bears emerge from dens and descend to lower elevation habitats);
- C there may be a need for seasonal restrictions on public use of the south half of the West Castle Valley (e.g., restrictions on the numbers and frequency of users);
- C removal or restriction of currently existing sources of impact to grizzly bear and other wildlife due to competition for foods and/or disturbance. These include cattle grazing, currently a source of human/bear problems in southwestern Alberta, and the use of snowmobiles and ATV's;
- C removal of the special draw grizzly hunting season from within the confines of the West Castle Valley;
- C strict enforcement of a leash policy for dogs in backcountry areas and within the project area;
- C implement a public awareness program for bears, as is done for the National Parks;
- C implementation of a bear-proof, garbage collection system; and

- C design and construction of trails for spring, summer and fall away from important habitats for large carnivores.

Coyote and Red Fox

- C minimize the clearing of tree and shrub cover during the construction of the various project facilities;
- C replant disturbed areas, including the rough verges within the golf course with native species of grasses and forbs, and avoid intense management (e.g., frequent mowing) to promote establishment of grassland-associated small mammals (which will provide a prey base for small canids);
- C retain a buffer zone of riparian vegetation (e.g., 30 m) along the West Castle River and other watercourses to minimize changes to the prey base for coyotes and red foxes (small mammals, waterfowl, upland game birds, songbirds); and
- C avoid use of rodenticides to control ground squirrels on the golf course.

Mink, Marten, Fisher

- C maintain as much of the riparian tree and shrub cover in the valley bottom as possible. This will reduce habitat losses, especially for mink, and to a lesser degree for marten and fisher;
- C minimize the width of clearings. Where possible, maximum widths of clearings should not exceed 200 m. Irregular edges and residual blocks of tree and shrub cover within clearings would help maintain local movements of mustelids through the project area;
- C re-seed and maintain some disturbed sites in native grass and forb cover to promote re-establishment of small mammals as a prey base for mustelids and other furbearers;
- C restrict use of the golf course area by snowmobiles. This may involve development of new trails, relocation of old trails, restrictions on total numbers of users and season of use, and day use only;

- C maintain the wildlife movement corridor, as proposed, and minimize any crossings of the corridor by trails or other human disturbances; and
- C enforce a leashing requirement for dogs within the project area and in back country areas to minimize harassment of furbearers by dogs.

Beaver

- C minimize clearing of riparian tree and shrub cover, as well as upland deciduous cover within a 100 m distance from the West Castle River;
- C if beaver damage to landscaping becomes a problem, utilize precautionary measures such as one meter high page wire guards around the bottom of trees and shrubs to control the problem prior to any removal of animals; and
- C if beaver dams on culverts or watercourses become a problem, utilize vertical (standpipe) culvert drains in preference to destroying the dam or removing the beaver. This technique has the added benefit of retaining important habitat for waterfowl, amphibians, and some other mammals;

Small Mammals

- C retain as large a buffer zone as possible between the West Castle River and cleared areas for the two golf courses to minimize losses of important riparian habitats;
- C design all resort, residential, golf course and ski hill areas to minimize clearing and disturbance of native vegetation;
- C maximize the size of residual blocks of native cover within all development areas, particularly the two golf courses;
- C utilize native species of ground covers, shrubs and trees in all reclamation areas, and as much as possible in landscaping within the development area. In particular, native grass and forb species should be used to reclaim new or modified ski runs and trails;

- C ensure that water levels and water quality is maintained within the wetland complex immediately downstream of the project area to avoid losses of important riparian habitat;
- C schedule clearing activities outside of the spring period (e.g., 1 April to 15 June) to minimize accidental mortality of nestlings;
- C minimize or exclude maintenance (e.g., mowing) in native grassland and shrub meadow areas;
- C conduct maintenance mowing of rough verges within the golf courses, and road-side and trail-side grass/shrub cover after 15 June to minimize mortality of nestlings; and
- C implement strict animal control bylaws to prohibit free-roaming domestic pets (e.g., cats, dogs) within the development area and the adjacent back-country areas to minimize accidental mortality and harassment of small mammals.

Birds

- C development in or near sensitive or irreplaceable habitats should be avoided. These habitat types include climax fir-spruce forest, alpine meadows, krummholz and other upper subalpine habitats, mature forests, bogs and wetlands. These habitats are sensitive to habitat alteration and/or erosion. Grazing by pack animals and overnight camping in these habitats should be controlled or discouraged;
- C sites that are important to raptors, rare species or species sensitive to disturbance should be identified and preserved. Also, scrub and forest habitats in areas that may provide food and cover for migrating birds (e.g., riparian zones along major streams, ponds) should be preserved;
- C mature (or the most mature) forest habitats should be preserved;
- C establish buffer zones along the West Castle River within the proposed development area, and around the wetlands (e.g., willow shrub wetland, beaver ponds) north of the development area. The buffer zones should be at least of 30 m wide on either side of the river, and 30 m back from the edge of wetland vegetation. Human activity within the buffer zones should be prohibited. If pathways are necessary, then pathways should be aligned perpendicular to (rather

than along) shorelines (this applies to all wetlands, including the West Castle River south of the development area). Buffer zones may be delineated with fences (not chain-link fences) that allow passage underneath by walking birds (e.g., young upland game birds). Signs should be posted so that recreationists are aware that human activity is not allowed within the buffer areas;

- C access by recreationists to sensitive habitats outside of buffer zones and the development area should be limited, or restricted to well designed and well maintained trails. Human activity outside the development area should generally be confined to established trails. Soil erosion and potential disturbances to wildlife must be considered when designing trails;
- C development should be limited to areas that would be least affected by development, and support bird species that would remain in the area after development (e.g., disturbed areas or areas having a high percentage of edge species);
- C forest fragmentation should be avoided. Minimize clearing of natural vegetation (including grassland) and maximize residual blocks of native habitats within the development area. In the West Castle Valley, such measures would include reclaiming old roadways and paths to native vegetation (e.g., in the southern half of the valley and up Syncline Brook). Decreasing the width of the right-of-way for Secondary Highway #774 and reclaiming a portion of the right-of-way to adjacent native vegetation types would increase habitat available to birds. Existing access routes into the valley should be used, and additional access routes should not be created;
- C recreational sites should maintain tree species diversity or maintain an original tree species composition. Dense native shrubbery may be planted in some areas to prevent access, trampling or other disturbances in adjacent native habitats;
- C snags should be retained to provide adequate habitat for cavity nesting birds. Nest boxes can also be used for some cavity nesting species, although the nest boxes should be monitored and managed to prevent use by non-native species (European Starling, House Sparrow);
- C use native plant species in reclamation and landscaping. There should be minimal or no regular maintenance of natural communities;

- C in fences are to be built in the study area, then they should be of a type that will not obstruct movements by walking birds (e.g., ducklings, young upland game birds);
- C rigorous waste disposal would help prevent the proliferation of non-native species and native scavengers that are nest predators;
- C destruction of habitat around day use areas (e.g., picnic sites) should be strictly controlled. After project completion, removal of native vegetation should be prevented in all areas. If facilities for campfires are to be provided, then firewood and kindling should be provided to minimize use of deadwood and snags. Campfires in backcountry areas (especially at high altitudes) should be discouraged to prevent use of deadwood;
- C grazing by cattle should be strictly controlled because grazing can have adverse effects on habitat for grassland species;
- C off-road vehicles and their use in the study area should be prohibited;
- C all pets should be leashed to prevent disturbance to wildlife, especially during the breeding season when ground nesting birds are most sensitive. Animal control bylaws should be implemented to prohibit free-ranging cats and dogs;
- C pamphlets and signs of ethics, information and laws should be available to the public to minimize disturbance to nesting birds and other wildlife. Areas should be patrolled by personnel with the authority to fine persons in disregard of rules designed to minimize impacts to wildlife;
- C site clearing activities should be scheduled from September to February to minimize destruction of nests, eggs and unfledged young during the breeding season. Maintenance of fairway verges, trail edges and roadsides should be scheduled outside of the breeding season; and
- C for raptors, a project biologist should survey each development area prior to clearing to ensure that no active nests will be disturbed, and valuable habitat areas for rare or sensitive raptor species should be preserved (see Section 5.5.6.9: Recommended Monitoring Program). Retain forested buffer zones (250 to 500 m wide) around identified nesting sites for sensitive raptor species. Such buffers not only retain critical raptor habitat, but also help visually isolate raptors from

disturbances (Postovit and Postovit 1987). The size of adequate buffer zones may vary between area and even individual birds, so no single guide can be used to determine appropriate buffer sizes. Stalmaster and Newman (1978) therefore recommended that raptor behaviour be monitored before developing recommendations. If such programs are not conducted for the West Castle Valley and the above recommended buffers (e.g., 250-500 m) appear excessive, then recognize and consider that recommendations for buffer zones around Golden Eagle nests have ranged up to 2400 m for frequent, noisy stimuli (Postovit and Postovit 1987). Design power poles in the study area to minimize raptor electrocutions (see Olendorff *et al.* [1981] and Miller *et al.* [1975] for suggested modifications of pole designs). Injured raptors should be rehabilitated. The benefits of rehabilitation are not merely biological, but also educational, political and humanitarian (Postovit and Postovit 1987). If rodent control becomes necessary within the project area, do not use toxic pesticides because secondary mortality of raptors may occur. Physical means (trapping) or anticoagulant rodenticides rather than poisons are preferred.

Reptiles and Amphibians

- C maintain as many of the wetland and poorly-drained areas within the development area as possible, as well as natural drainage patterns which affect these wetlands;
- C create potential wetland habitat by isolating the backwater area located to prevent fish from becoming isolated from the West Castle River as recommended after spring flooding (Part 5.3.2);
- C minimize clearing and cutting of riparian shrub and tree communities during the development of the two golf courses and associated facilities to reduce potential losses of habitat;
- C minimize use of all pesticides within a 30 m buffer distance from the West Castle River to minimize contamination of the surface water. Avoid spraying during high wind periods to minimize overspray;
- C ensure that all possible precautions are utilized to prevent entry of sediments into the West Castle River during clearing, grubbing and recontouring. These operations should be scheduled outside of the 1 April to 30 August period to avoid suspension of sediments and smothering of eggs and larvae through siltation;

- C during upgrading of Secondary Highway #774, avoid widening of the road bed so it will encroach on of the Site C wetland. An environmental protection plan should be developed for the road construction, and in particular the Site C section, to minimize impacts to wetland habitats;
- C if substantial road kills of amphibians or reptiles are documented, particularly in the vicinity of the Site C wetland, provide under-road crossings as recommended by Langton (1989) (e.g., a culvert tunnel);
- C use of road salt (CaCl) should be prohibited; and
- C install interpretive signage and provide information materials to residents and guests explaining the need to avoid collection of live amphibians or reptiles.

APPENDIX D

FORM OF APPROVAL

THE PROVINCE OF ALBERTA
NATURAL RESOURCES CONSERVATION BOARD ACT
NATURAL RESOURCES CONSERVATION BOARD

IN THE MATTER of a project of
Vacation Alberta Corporation for
the construction of recreational
and tourism facilities in the
West Castle Valley

APPROVAL NO. 5

WHEREAS the construction of recreational and tourism facilities proposed for the West Castle Valley by Vacation Alberta Corporation is a reviewable project under s.4(b) of the *Natural Resources Conservation Board Act* being chapter N-5.5 of the Revised Statutes of Alberta, 1990; and

WHEREAS the Natural Resources Conservation Board is prepared to grant the application by Vacation Alberta Corporation for the construction of recreational and tourism facilities in the West Castle Valley, subject to the conditions herein contained, and the Lieutenant Governor in Council has given authorization, hereto attached.

THEREFORE, the Natural Resources Conservation Board hereby orders as follows:

1. The project of Vacation Alberta Corporation hereinafter called "Vacation Alberta" for construction of recreational and tourism facilities in the West Castle Valley as described in Application No. 9201 from Vacation Alberta to the Board dated December 11, 1992 and descriptive material supporting the Application marked as exhibits at the Pincher Creek, Alberta hearing by the Board from June 21, 1993 to July 19, 1993, including undertakings of the Applicant, is approved, subject to the terms and conditions herein contained.
2. The construction of the expansion of the ski facilities on Haig Ridge and Gravenstafel Ridge with a design capacity of 3,200 skiers per day is approved as set out in the Application.
3. The construction of the resort accommodation facilities capable of accommodating up to 2,500 people including the two hotels, 8 chateaux containing 192 apartment units, 12 villas containing 48 stacked townhouse units, 12 chalets containing 48 fourplex units, 72 recreation vehicle parking spaces, 24 staff housing units, ancillary maintenance buildings, and associated access roads are approved provided such facilities are located on the lower valley lands west of the West Castle River and north of the location proposed by Vacation Alberta for Lift E.
4. The development of four minor river crossings to accommodate skier access to the base of the proposed Lift D are approved as shown in the Application, and if necessary a second road crossing for access purposes.
5. The construction of the clear water storage pond and related service facilities are approved for the location on the east side of the West Castle River as shown in the Application.
6. Vacation Alberta shall not develop the golf courses in the West Castle Valley as shown in the Application. The location of the golf courses may be changed to the area north of the resort, 400 m or more downstream of the wetlands, on the west side of the West Castle River, provided that the changes are satisfactory to Alberta Environmental Protection with respect to location, provision of buffers, and wildlife corridors.
7. Prior to the construction of any facilities, Vacation Alberta shall confirm to the satisfaction of Alberta Environmental Protection, that the highest rates for groundwater withdrawal being requested for permit approval will not have significant adverse effects on the habitat and fisheries during any time of the year in the West Castle River.
8. Vacation Alberta shall not take water for use in the project in a manner that will result in a reduction in the surface flows of the West Castle River.
9. Vacation Alberta shall not discharge any treated sewage waste water to the West

Castle River.

10. The clear water storage pond shall be constructed to prevent any hydraulic connection with groundwater.

11. Vacation Alberta shall maintain a minimum 30 m buffer along the bank of the West Castle River except as approved by Alberta Environmental Protection.

12. In order to control noxious weeds designated under the *Weed Control Act* Vacation Alberta shall: not import topsoil from areas infested with such weeds; and use mowing and not the application of herbicides to sites on which it has deposited topsoil within one year of such deposition.

13. Vacation Alberta shall submit a detailed environmental mitigation plan to Alberta Environmental Protection for approval prior to proceeding with construction. The plan shall describe detailed measures that Vacation Alberta will employ to reduce both general and site-specific adverse impacts of the development and shall include

- all of the mitigative measures for wildlife recommended by Vacation Alberta's consultants in Vol. I of its Environmental Impact Assessment that are within Vacation Alberta's power to put into effect;
- provisions to use hand clearing on ski slopes except where cut and fill construction is needed;
- the results of surveys to identify and plans to protect: populations and habitat of long-tailed weasel, long-tailed vole, red-tailed chipmunk, hoary bat, silver-haired bat and wandering shrew, and rare plants growing in areas that may be disturbed by construction of the project;
- the results of surveys to locate and mitigation plans for raptor nesting sites, songbird species and waterfowl;
- the results of surveys to locate and plans to protect denning habitat for bears, wolverines, foxes and wolves, and important feeding sites (if any) for grizzly bears;
- plans to implement temporary closures of golf courses and the ski hill when bears are present or nearby; and
- plans to monitor road kills of ungulates, reptiles and amphibians and for remedial action to reduce the number of road kills detected by such monitoring.

14. This Approval comes into force upon the coming into force of a regulation, order, or other statutory instrument of the Government of Alberta establishing a special area for wildland recreation purposes substantially similar in area and land uses to that delineated by the Board in its Decision Report as the Waterton-Castle Wildland Recreation Area.