

**An Assessment of the Economic Benefits
of the
Proposed Jumbo Glacier Resort Project**

Prepared for Ktunaxa Nation Council

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Executive Summary

- The purpose of this report is to assess the economic benefits of the proposed Jumbo Glacier project, consistent with the principles of benefit-cost analysis.
- Employment impacts do not measure economic benefits. The economic benefits of the jobs created as a result of a project depend on the social or opportunity cost of labour – the wages the workers would otherwise have earned or the value of the activity they would otherwise have engaged in. The economic benefits also depend on the incremental as opposed to total number of jobs created – that is, the net increase in employment with versus without the project taking impacts on other resorts and business into account.
- Government revenue impacts similarly do not measure economic benefits. The economic benefits to government depend on the incremental revenues generated by a project (i.e., the increase in revenues due to the project relative to what government would otherwise receive) less the incremental expenditures government incurs.
- Neither the proponent in its Master Plan or other reports nor the Environmental Assessment Office (EAO) in its review considered key factors governing the economic benefits of the Jumbo Glacier project. There is no analysis or estimates to support the conclusion of the Executive Director of the EAO that the project is in the public interest because of the economic benefits it offers.
- The proponent plans to develop the Jumbo Glacier project in three phases over 20 years. It forecast that there would be 70,000 winter skier visits in the first year of operation, increasing to 141,100 by the end of Phase 1 (year 5) and 500,410 by year 20. The assumed average growth rates are very high: 19% per year from year 1 to year 5; 11% per year through to year 20. Even higher growth rates are assumed for the number of overnight visitors because of a forecast shift from predominately local (i.e., residents from the surrounding or nearby communities of the ski resort) to non-local visitors.
- Independent assessments of the financial feasibility of the project undertaken for the EAO in 1999 and 2004 questioned the basis and validity of these market forecasts. Recent market trends suggest there is even more reason to question them today. Overnight and skier visitor data indicate that there is a downward trend in the number of visitors from the important U.S. and Japanese markets; the trend in the number of skier visits in Canada and British Columbia is relatively flat; and an increasing proportion of skiing activity is by locals.

- The recent trends do not support the high rate of growth and shift from local to non-local visitors assumed for Jumbo Glacier. It is consequently not clear when and if the project would proceed to the second and third phases of development. In any event, with lower growth rates, the impacts of the project would be markedly less than what was presented in the proponent's reports.
- In its Master Plan report, the proponent estimated that the initial phase of construction would support a workforce of 50-70 and generate \$12 to \$14 million in income. Operations would support 250-350 full time jobs by year 5 and 865 at full build out. The proponent reported that industry average earnings in ski operations were \$20,000 per year. Based on the forecast number and origin of visitors, and their average spending per day, the total economic impact was estimated at \$32 million per year.
- The proponent's impact estimates implicitly assume that all of the visitor spending is incremental – would not otherwise be spent in the region. That is clearly incorrect. Spending by local and regional visitors at Jumbo Glacier would leave less disposable income to spend at other resorts or for other goods and services. Very little of their spending would be incremental to the region, province and country as a whole. The incremental spending and consequent impacts would be much less than the gross impacts presented in the proponent's reports, which in themselves are likely overstated because of the market forecast on which they were based.
- Whatever the incremental employment impact, the economic benefit depends on the opportunity cost of the workers hired, which in turn depends on what they would otherwise be doing. Significant benefits will only arise if the workers' opportunity cost is low relative to the wages they receive, for example if they would otherwise be involuntarily unemployed.
- The proponent did not estimate the opportunity cost of the labour that would be hired as a result of its project. It did, however, provide information on the nature and average wages of the jobs that would be created, as well as economic conditions in the Kootenay region.
- Unemployment rates were high in the Kootenays when the proponent's impact assessments were undertaken. Since then they have been cyclical, falling in the middle of the past decade and returning to relatively high levels since the financial crash of 2008. The key issue is what they are likely to be in the future when the project would be developed and operated.
- Labour market analysts and studies indicate that there will be a large number of job openings in the next decade; labour shortages are expected throughout B.C., including the Kootenay region. The creation of new jobs is

more likely to result in in-migration than the hiring of local or even B.C. residents who would otherwise be involuntarily unemployed. Already ski resorts throughout the province are having to recruit internationally to fill the positions they have. Given this labour market outlook, there is no reason to believe, or evidence to suggest that there would be significant economic benefits associated with any new jobs generated by the project.

- The proponent estimated that there would be \$11.4 million in tax revenues generated each year as a result of the project: \$6.4 million to the federal government, \$3.4 million to the province, and \$1.6 million locally. The proponent did not estimate what the incremental revenues to government would be or what the net benefit would be after taking incremental expenditures into account.
- There would be some incremental tax revenues generated by the project resulting from new property development, income or other taxes paid by in-migrants and the rental payments paid in accordance with the province's All Season Resort policy. However, these would be much smaller than the gross revenue impacts presented by the proponent.
- While there would be some incremental revenues, there would be incremental government expenditures to provide services required as a result of the in-migration and the road or other infrastructure improvements and maintenance required by the project. The proponent indicated it would contribute to the infrastructure costs in accordance with consistently applied government policy. Based on experience with road improvements elsewhere, that could leave significant costs borne by government.
- The net impact on government is unclear. With no estimate of incremental revenues or incremental costs, there is no basis to conclude there would be a net benefit for government.
- Land and resource use impacts can give rise to benefits or costs to other resource users and interests. The proponent did not estimate the magnitude of these benefits or costs but did assess the nature and significance of the impacts.
- The most significant land use impact would be the displacement of existing heli-ski operations, an impact the heli-ski operator maintained would be devastating for its business, but an independent assessment undertaken for the EAO suggested could be largely mitigated by relocation and joint marketing and access initiatives with Jumbo Glacier.
- With respect to other recreational resource impacts, there would be both benefits and costs – benefits due to the enhanced access to high alpine

recreation afforded by the project; costs due to the loss of remote wilderness opportunities. Both would be limited by the controls on access outside the resort area that would be implemented.

- There would be some impacts on primary resource industries – a loss of some forest base and mineral staking opportunity. The direct impacts would be very small. Significant costs would only result if there were visual management restrictions imposed on operations or other activity, something that the proponent has agreed not to pursue but could be pursued by others.
- The land and resource use benefits and costs are likely to be relatively small. As with the employment and government impacts, there is no basis to conclude there would be any overall net benefit due to the project.

1.0 Introduction

In its Jumbo Glacier Resort Master Plan report, the proponent, Pheidias Project Management Corp., stated: *“employment creation is a critical feature and benefit of this project”*.¹ In her letter of recommendation for the Jumbo Glacier Report Project, the Executive Director and Deputy Minister of the B.C. Environmental Assessment Office stated: *“The Project is in the broad public interest in that it provides significant economic benefits to government and the region”*.²

The purpose of this report is to assess the economic benefits of the employment and other impacts that would be generated by this project, consistent with the principles of benefit-cost analysis. In benefit-cost analysis, and the principles of economics generally, an impact in itself is not a benefit. The existence and extent of any benefit depends on what the impact means for those affected – whether and how it improves their well-being relative to what they would otherwise realize or could otherwise expect.³

Thus, the number of jobs a project may generate is not a measure of the benefit that the project may have. As P. Grady and R. Muller wrote in the Canadian Journal of Program Evaluation, *“output and employment impacts in program and project evaluation... are often used inappropriately... many evaluators tend to confuse the output and employment impacts of a program [or project] with its benefits”*.⁴ *“The correct treatment of employment gains [depends] on the social cost of labour.”*⁵

The creation of jobs gives rise to costs. People who take the new jobs must forego the wages or value of what they would otherwise be doing. In-migrants incur relocation costs and government the costs of providing the public services they need.⁶ The economic benefits of job creation therefore must be measured by the difference between what the jobs offer and what they cost, *“the difference between the wages paid on the project or program and the social cost of labour”*.⁷ And that

¹ Pheidias Project Management Group, *Jumbo Glacier Resort Master Plan*, 2007, p.6-35.

² Derek Griffen for Joan Hesketh, Executive Director and Deputy Minister of the Environmental Assessment Office, *Jumbo Glacier Resort Project: Recommendations of the Executive Director and Reasons for Recommendations*, August 3, 2004, p.3.

³ For a discussion of the basic concepts of value and measurement of benefits and costs see: Marvin Shaffer, *Multiple Account Benefit-Cost Analysis: A Practical Guide for the Systematic Evaluation of Project and Policy Alternatives*, University of Toronto Press, 2010, pp.3-14; R. Kopp et. al., *Cost-Benefit Analysis and Regulatory Reform: An Assessment of the Science and the Art*, Resources for the Future Discussion Paper 97-19, January, 1997, pp.4-5; and Treasury Board of Canada Secretariat, *Canadian Cost-Benefit Analysis Guide: Regulatory Proposals*, 2007, pp.11-26.

⁴ P. Grady and R. Muller, “On the Use and Misuse of Input-Output Based Impact Analysis in Evaluation”, *Canadian Journal of Program Evaluation*, Vol. 3, No. 2, 1968, p. 49.

⁵ *Ibid.*, p.55.

⁶ T.M. Horbulyk, “The social cost of labour in rural development: job creation benefits re-examined”, *Agricultural Economics*, Vol. 24, No. 2, 2001, pp.199-208.

⁷ Chun-Yan Kuo, “Estimating the Social Cost of Job Creation”, *Canadian Journal of Program Evaluation*, Special Issue, 1997, p. 68.

difference can only be applied to the incremental number of jobs created by the project – the increase in the number of jobs taking impacts on all parties (i.e., not only Jumbo Glacier but all other resorts and businesses) into account.⁸

Similarly, the amount of tax revenues a project and its workers may generate is not a measure of the benefit for government. The benefit to government depends on the incremental taxes and other revenues that government receives (the increase in revenues due to the project relative to what government would otherwise receive) in relation to the incremental costs government incurs (the increase in costs due to the project relative to what government would otherwise spend).⁹

Neither the proponent in its Master Plan and related reports, nor the Environmental Assessment Office (EAO) in its review¹⁰ considered key factors governing the employment, government or other benefits of the Jumbo Glacier Project. There was no assessment and estimation of the *incremental* number of jobs that would be generated or the social cost of the labour that would be employed; no estimate of the *incremental* taxes the project and its employees would generate or the incremental costs government might incur. There is as a result no analysis or estimates that support the conclusion the Executive Director put forward in her letter of recommendation or that the proponent asserted in its Master Plan document.

The factors that need to be considered and what they suggest with respect to the benefits of the Jumbo Glacier Project are addressed in this report.

⁸ An incremental effect is the difference between what one could expect in the jurisdiction or area of interest (in this case with respect to the number of jobs) with and without the project. That need not be the same as the direct effects (e.g. number of jobs) in the project itself. See Treasury Board of Canada Secretariat, *Canadian Cost-Benefit Analysis Guide: Regulatory Proposals*, 2007, p.4.

⁹ For a discussion of the factors underlying the magnitude of incremental government revenues and costs see Marvin Shaffer, *Multiple Account Benefit-Cost Analysis: A Practical Guide for the Systematic Evaluation of Project and Policy Alternatives*, University of Toronto Press, 2010, p.66-71.

¹⁰ Environmental Assessment Office, Jumbo Glacier Resort Project Assessment Report, August 3, 2004.

2.0 Development Plan

The Jumbo Glacier Project is being proposed as a year round resort focused on snow sports and sightseeing, located within a world renowned resort destination.¹¹ It would be marketed as a unique high alpine environment, attracting international as well as local and regional visitors.

As set out in section 4 of the Master Plan report, the proponent plans to develop the resort in three distinct phases. The first phase would establish the basic ski lift and related infrastructure, and provide for the development and sale of 'cold' bed vacation homes. The sale of vacation homes is intended to generate funds to recover the initial investment and provide capital for phase 2 expansion.¹²

Phase 2 would see the expansion of ski lift infrastructure and service as well as a significant amount of condo and other 'warm' bed development. The third phase would expand the facilities, services and accommodation further, with the development of some 5500 tourist beds and 750 employee beds at full build-out. The proponent states that the total project would take 15 to 20 years to complete if there are no major pauses in the development process, but recognizes that the speed of development would depend on market acceptance.¹³

The market forecast underlying the proponent's development plan is set out in section 4.6 of the Master Plan report, with the underlying market analysis presented in section 6.5. The proponent forecasts that in the first year of operation there would be 70,000 winter skier visits, growing to 141,110 by year 5 (the end of phase one) and 500,410 by year 20 with full build-out. Initially a high percentage of the skier visits would be local, accounting for some 70% of the winter total. The local share is forecast to fall to 62% by year 5 and 33% by year 20.¹⁴

There is also forecast to be a significant number of non-skier winter and summer skier and sightseeing visits. The total number of overnight visitors, winter and summer, is forecast at 35,652 in the first year of operation, increasing to 108,039 by year 5 and 561,730 by year 20.¹⁵

The proponent's forecasts suggest that Jumbo Glacier will reach winter skier visits comparable to Sunshine Village and Lake Louise today. The winter skier numbers imply a growth rate of over 19% per year from the first year through the end of Phase 1 (year 5) and almost 11% per year through to full build out in year 20. The forecast of overnight visitors implies a growth rate of 32% per year from year 1 to year 5 and 15.6% per year from year 1 to 20.

¹¹ Sno.Engineering, *Jumbo Glacier Alpine Resort Feasibility Study*, prepared for the B.C. Environmental Assessment Office, March, 1999, p.49.

¹² Pheidias Project Management Group, *Jumbo Glacier Resort Master Plan*, 2007, p.4-68.

¹³ *Ibid.*, p.4-72 to 4-73.

¹⁴ *Ibid.*, p.4-96 to 4-97.

¹⁵ *Ibid.*, p.4-99 to 4-106.

These are very high growth rates. A key question is: are they likely to be realized? The financial feasibility and extent and timing of full development depend on whether there would in fact be the number of visitors as the proponent has forecast.

An independent review of the feasibility of the Jumbo Glacier project undertaken for the EAO in 1999 concluded that the analyses provided by the proponent were not sufficient to support the market forecast and financial feasibility of the project. It stated that the B.C. and regional visitation statistics on which the market forecasts were based need to be updated; data supporting the summer and sightseeing demand is lacking; the U.S. and overseas demand, which together are forecast to account for some 55%-65% of the total demand, are unrealistic in the short term; and the limited bed base in the first phase will inhibit development as a destination resort. It also noted that convenient and reasonably priced flights to Fairmont airport, a matter not adequately addressed in the Master Plan, are crucial for attracting more distant visitors (with Calgary and possibly Cranbrook airport being too far from the resort for convenient air-road access).¹⁶

A subsequent independent review of a proponent-commissioned feasibility analysis again questioned the market forecasts. It recognized the 'boutique' or 'niche' market that Jumbo Glacier was intended to serve, but stated more analysis of the target markets was required. It specifically stated "visitor projections must be derived by market penetration rather than a derivative of skier carrying capacity".¹⁷

The EAO, in its review of the project, noted the information deficiencies that had been identified in the analysis of the project's financial feasibility, including matters related to economic viability, the availability of employee and warm beds in the early phases, and the market absorption of land sales. It stated, however, that the proponent had answered many questions and that the unanswered feasibility questions could be addressed as part of the Ski Area Master Plan process.¹⁸

There are no public reports indicating that the proponent has in fact addressed the 'unanswered feasibility questions' since the release of the EAO's review. Recent market trends suggest if anything there is even more question and doubt about the market forecasts underlying the proponent's plans and feasibility assessment.

In a review of market trends and characteristics undertaken for this report, tourism analysts at the consulting division of Meyers Norris Penny LLP noted that the skier market in British Columbia, including the Kootenays, has changed substantially

¹⁶ Sno.Engineering, *Jumbo Glacier Alpine Resort Feasibility Study*, prepared for the B.C. Environmental Assessment Office, March, 1999, pp. 48-57.

¹⁷ SE Group (formerly Sno.Engineering), *Review of IRIS Environmental Systems Independent Feasibility Study for the Jumbo Glacier Resort Project*, prepared for the B.C. Environmental Assessment Office, June, 2004, p.2.

¹⁸ Environmental Assessment Office, *Jumbo Glacier Resort Project Assessment Report*, August 3, 2004, p.21.

since the Jumbo Glacier market forecasts were developed and the EAO review was done.¹⁹ If the market forecasts were uncertain then, they are even more so now. Some of the key market factors and trends that have emerged are as follows:

- As shown in Table 1, the total number of international overnight visitors to British Columbia has been declining in recent years. The number of U.S., Japanese, Taiwanese, Korean and U.K. overnight visitors have all exhibited significant declines. While the reduction in the number of overnight visitors was clearly exacerbated by the financial crisis of 2008, the downward trend for the U.S. and Japanese markets started before 2008, and is forecast to continue due to the slow rate of recovery in their economies and for U.S. visitors, the relatively low value of the American dollar.

Table 1 : Market Origin of Overnight Visitors to British Columbia, 2006–2010²⁰

	2006	2007	2008	2009	2010	% change
USA	3,368,517	3,352,776	2,983,318	2,901,670	2,881,597	-14.5%
Japan	215,562	190,876	156,934	113,780	127,279	-41.0%
South Korea	126,063	123,696	114,614	86,575	105,874	-16.0%
United Kingdom	231,864	246,443	235,696	203,187	208,921	-9.9%
Other International	101,020	119,198	123,165	93,410	87,947	-12.9%
TOTAL VISITORS	4,810,596	4,837,209	4,459,340	4,179,100	4,271,422	-11.2%

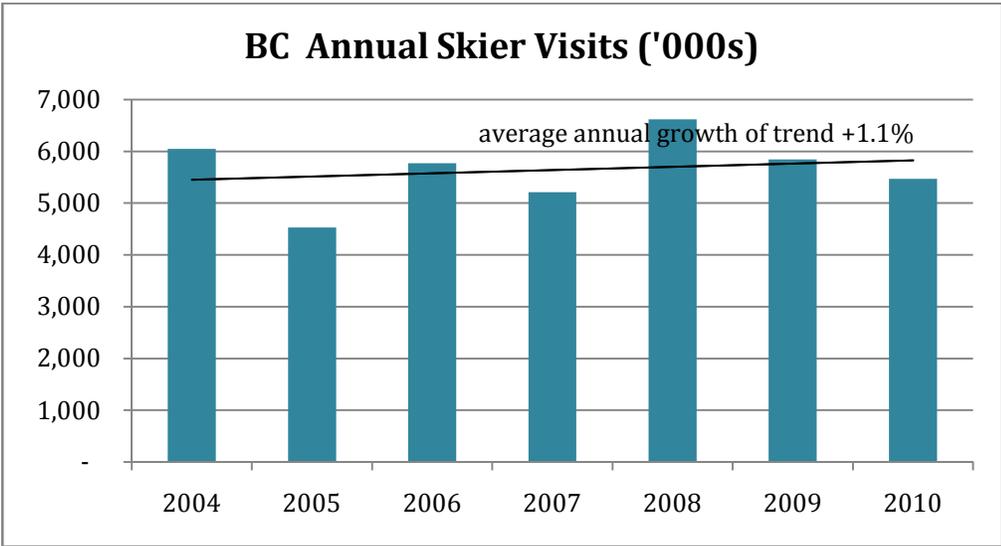
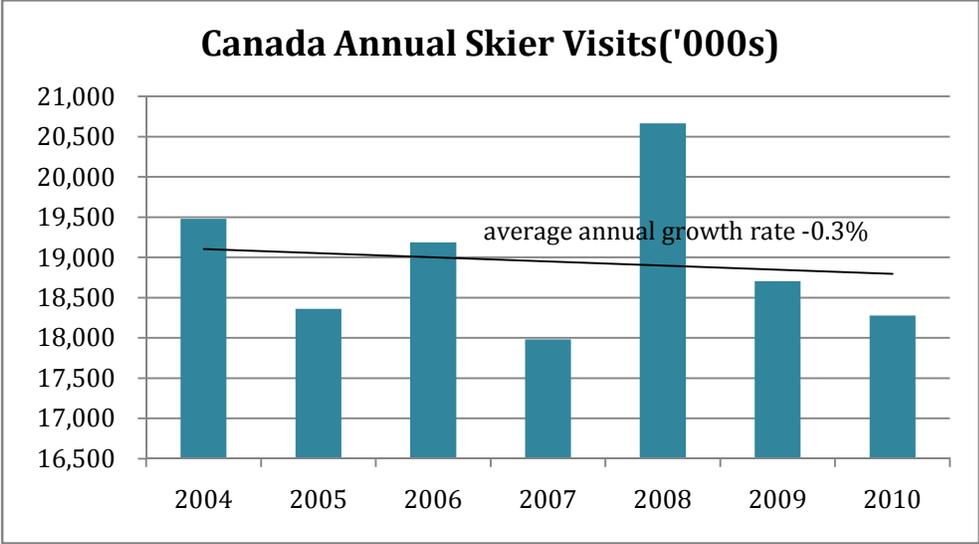
- While the annual number of skier visits²¹ has fluctuated markedly from year to year depending in part on snow conditions, the trend in the number of skier visits in Canada, B.C. and Alberta have been relatively flat since 2004. The trend in total national heli-ski visits would appear to be in modest decline.²²

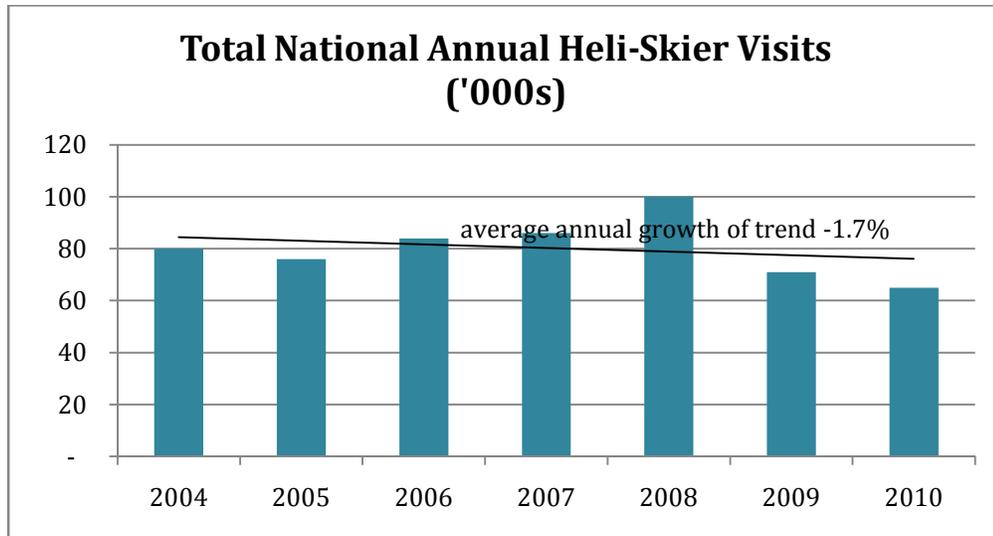
¹⁹ Meyers Norris Penny LLP, “MNP Review of Jumbo Glacier Ski Resort Master Plan, Tourism Market Analysis”, research assistance undertaken for Marvin Shaffer & Associates Ltd., 2011.

²⁰ Source: BC Ministry of Tourism, Tourism Research, “International Visitor Arrivals”, <http://www.jti.gov.bc.ca/research/IndustryPerformance/InternationalVisitorArrivals.htm>

²¹ A skier visit represents one skier or boarder participating at a resort for one day and is the accepted measure of activity in the industry. Source: Natalie Laplante & Jim Lee, Canadian Ski Council, “2009-2010 Canadian Skier and Snowboarder Facts and Stats”, 2010, p.3.

²² Source: Natalie Laplante & Jim Lee, Canadian Ski Council, “2009-2010 Canadian Skier and Snowboarder Facts and Stats”, 2010.





- Of the skier visits, the percentage from the U.S. and international markets has fallen. The percentage share of Canadian skiers has correspondingly increased. BC Stats reports that local residents (residents from the surrounding community of the ski resort) are accounting for an increasing share of total skier visits in all regions of the province.²³
- Visits to U.S. ski resorts have shown similar trends to what is observed in Canada and B.C. There was a 5.1% reduction in the number of overnight visitors to U.S. ski resorts between 2004/05 and 2007/08.²⁴

These trends raise considerable doubt with respect to the market assumptions underlying the extent and timing of development set out in the Jumbo Glacier Master Plan. They do not support the forecast very high rate of growth nor the markedly increasing share of non-local visitors. They certainly cast doubt on the role of traditionally key international markets, in particular the U.S. and Japan, in generating the forecast number of visitors.²⁵

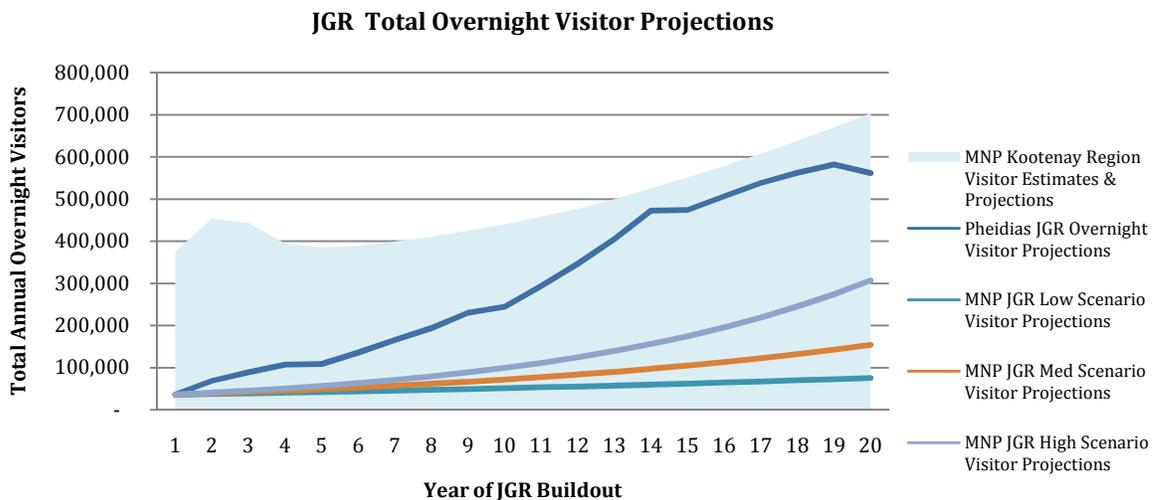
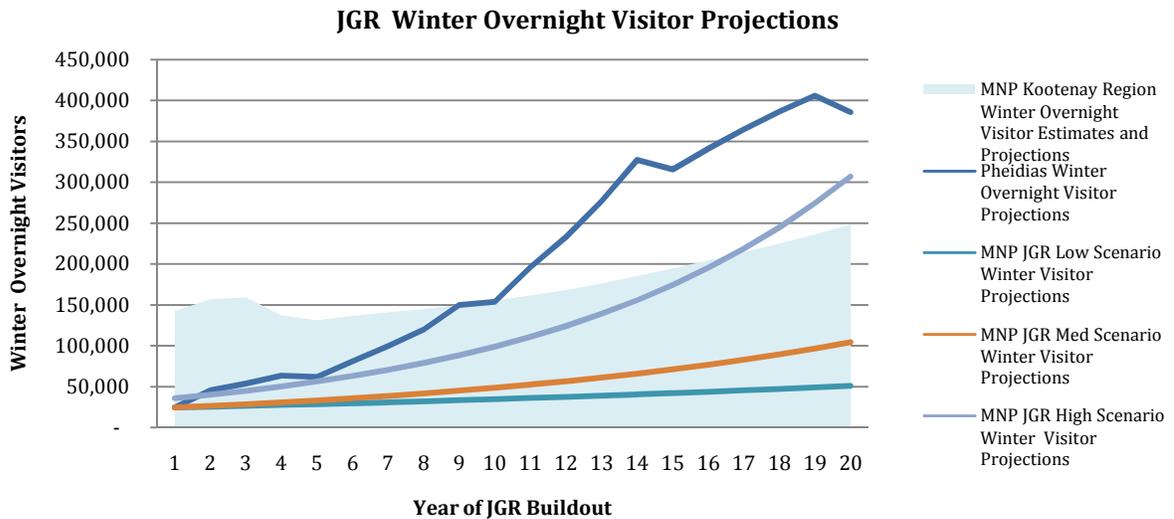
Tourism analysts at the consulting division of Meyers Norris Penny LLP estimated the number of Kootenay overnight visitors (staying in hotel accommodations) based on BC Stat room revenue data and average hotel rates and occupancy per room. It also projected the growth in total Kootenay overnight visitors based on discussions with regional tourism officials, assuming a recovery of tourism growth at an annual rate of 3% by 2012 increasing to an arguably optimistic rate of 5% per year by 2017.

²³ BC Stats, "Tourism Sector Monitor", April 2010, p. 6.

²⁴ Ibid., p. 7.

²⁵ The United States and Japan were specifically cited as two major markets for Jumbo Glacier. Pheidias Project Management Group, *Jumbo Glacier Resort Master Plan*, 2007, p.6-79.

They then projected low, medium and high forecasts of overnight visitor growth for the Jumbo Glacier project with slightly below the assumed regional growth rate in the low case (a growth rate of 4%/year), slightly above the regional growth rate (a rate of 6%) for the medium case, and a relatively high growth rate (8% per year) in the high case. As shown in the graphs below, all of these cases exhibit a much lower rate of growth and number of visitors to Jumbo Glacier than forecast by the proponent. In the case of winter overnight visitors, the proponent's forecast after year 10 exceeds the projected total number of overnight visitors for the Kootenays as a whole.²⁶



²⁶ Meyers Norris Penny LLP, "MNP Review of Jumbo Glacier Ski Resort Master Plan, Tourism Market Analysis", research assistance undertaken for Marvin Shaffer & Associates Ltd., 2011.

It is beyond the scope of this study to provide a revised forecast of the demand for the Jumbo Glacier resort project based on current market conditions and outlook. However, what recent trends and current data suggest, and these low, medium and high projections clearly indicate, is that the proponent's forecast is very high. Much lower growth in the number of visitors at Jumbo Glacier would appear to be very likely. The implications of a smaller number and different mix of visitors (with greater reliance on regional and local as compared to international visitors) is significant. When, and indeed whether phases two and three would proceed is unclear. In any event, the impacts of the project would be much less than what is presented in the proponent's Master Plan report.

3.0 Employment Benefits

Estimates of the employment directly generated by the Jumbo Glacier project are set out in section 6.3.3 of the Master Plan report. Total economic impacts, including indirect and induced effects are set out in section 6.3.4.

The proponent estimated that the initial phase of construction would cost \$35 million and generate \$12 to \$14 million in wage income. A workforce of 50 to 70 people would be required over the construction period. The development of the second phase could require a workforce of 150 people. Continuing resort development would sustain construction work, generating an annual income of some \$4 to \$8 million per year.²⁷

Resort operations would initially require an estimated 120 to 125 workers in the winter; 80-90 in the summer. That would increase to 250-350 full-time workers through phase 1 and 865 full-time workers when the resort is fully developed. The industry average full-time wage was estimated in the Master Plan at \$20,000 per year.²⁸

Based on the forecast number and origin of visitors and their average spending per day, the proponent estimated that by the fifth year of operations the resort would generate almost \$23 million in tourist spending. The total economic impact from resort operations, including indirect and induced effects, was estimated at \$32 million per year.²⁹ That would increase with the increased number of visitors in later phases of the project.

These estimates raise a number of questions, for example in the proportions of full-time versus seasonal work.³⁰ As well, for reasons explained in the previous section, the impact estimates must be recognized as highly uncertain, particularly the impacts through to full build out. It is not clear, based on current market trends, if or when those full-build out (or even year 5) employment and visitor spending impacts would occur. A continuation of current trends would result in fewer visitors to the resort and a greater proportion of local skiers, with less spending and impact per visitor day, than what the proponent forecast.

More importantly, as noted in the introduction, impact estimates in themselves do not indicate what, if any, economic benefits would be generated. The magnitude of any economic benefit depends on what *incremental* demand for labour and services

²⁷ Pheidias Project Management Group, *Jumbo Glacier Resort Master Plan*, 2007, p.6-36.

²⁸ *Ibid.*, p.6-37.

²⁹ *Ibid.*, p.6-50 to 6-51.

³⁰ In its review, the EAO noted that the Ministry of Small Business and Economic Development submitted that the proportion of the workforce that would be seasonal was understated. (Environmental Assessment Office, *Jumbo Glacier Resort Project Assessment Report*, August 3, 2004, p.76)

is generated by the resort – what net increase in demand there would be with versus without the project – and what net return (wages less social cost) they yield.

The proponent did not estimate what proportion of the demand for labour and services generated by its project would be incremental – constitute a net increase – for the region, British Columbia and Canada as a whole. It argued that the international target market for the resort would complement, not compete with other Kootenay region resorts. However, that would not apply to the local and regional skiers who would constitute a large share of the total number of visitors in the early phases, and possibly well beyond given recent trends.

The estimated economic impacts shown in the Master Plan reports implicitly assume that all of the visitor spending, including that of day and regional overnight visitors is incremental – would not otherwise be spent – in the region. There is no valid basis for such an assumption. Spending by locals and regional visitors at Jumbo Glacier means that households will have less disposable income to spend at other ski destinations or for other goods and services.

Taking this factor into account greatly reduces what the net increase in spending due to the project would be. The proponent estimated, for example, that annual winter visitor spending at Jumbo Glacier would total \$17.4 million by the fifth year of operation. However, over one third of that, some \$5.9 million, was estimated by the proponent to be by local residents. Very little if any of their spending would constitute a net increase in spending in the region. For the most part it would just change where and on what local residents were spending their disposable income.

Further, a significant percentage of the non-local, overnight visitors would be residents from elsewhere in British Columbia or Canada as a whole (in particular Alberta). Their spending at Jumbo Glacier would reduce the amount that they would spend elsewhere in the province or country as a whole.

More detailed analysis of the visitor mix and likely alternative spending patterns would be required to develop reliable estimates of the incremental impacts of the proposed Jumbo Glacier resort. However, it is clear that the incremental impact would be far less than the gross impacts presented by the proponent, which in themselves are likely overstated.

Whatever the exact magnitude of incremental spending and consequent employment impacts, the economic benefit will depend on the social cost of the workers who are hired – the value of the work or activity they would otherwise be engaged in, or in economic terms, their opportunity cost. It is the difference between the wages they would receive at (or as a result of) Jumbo Glacier and their opportunity cost that governs the benefit of the new jobs. The greater the opportunity cost in relation to the wages paid, the less would be the economic benefit from any incremental spending and employment due to the project.

The opportunity cost of labour will depend on a number of factors, but fundamentally it will depend on what the workers would otherwise be doing, and therefore what income or other activity they would be giving up in taking a job at or as a result of Jumbo Glacier.

If the workers who are hired would otherwise be working at comparable jobs, their opportunity cost will be close to the wages they receive. The benefit would be limited to the wage premium or other inducement required to attract them from other work. That is what one could expect for skilled workers in short supply or jobs created in generally tight labour market conditions. The opportunity cost of labour will also be close to wages paid, and consequently net benefits limited, in low paid or otherwise relatively unattractive jobs that are generally hard to fill. The wages in those circumstances reflect what is needed to be paid to attract the required workforce.

Only under conditions of widespread unemployment, or for jobs created in occupations or regions where as a result of collective agreements or other factors there is a qualified workforce willing but unable to work at the prevailing wages will the opportunity cost of labour be significantly below the wages that are paid. It is only in those circumstances, therefore, where there would be significant economic benefits from job creation.

The proponent did not estimate the opportunity cost of labour for the workers likely to be hired at Jumbo Glacier. However, the Master Plan does provide information on the skills and positions that would be required and average wages. Information was also provided on trends and conditions in the regional economy.

Construction of the Jumbo Glacier resort would require a range of skilled trades and construction labourers. The average wages would be relatively high based on the proponent’s estimate of the size of the workforce and amount of wages paid.

Table 2: Construction phase positions at Jumbo Glacier Resort ³¹

Carpenters	Electricians
Pipefitters	Boilermakers
Plumbers	Heavy Equipment Operators
Labourers	

Operations would require a range of service positions for the resort and ski area as well as some supervisory and managerial staff. Wages paid during operations would for the most part be relatively low. The hourly rates for the different service

³¹Pheidias Project Management Group, *Jumbo Glacier Resort Master Plan*, 2007, p.6-36

positions range from \$8 to \$20 per hour. The industry average full time wage during operations was estimated to be \$20,000 per year.

Table 3: Operational positions at Jumbo Glacier Resort³²

Management	Trades
Supervisors	Labourers
Lift operations	Food and beverage servers
Ticket sellers/checkers	Bartenders
Clerks	Chefs
Ski/board instructors	Kitchen workers
Ski technicians	Room attendants
Rental technicians	Front Desk
Ski patrol	Reservations
Grooming	Transportation

Table 4: 2002 Kootenay Region Ski Area Wages³³

Position	Base Wage Rate	Top Wage Rate
Lift Operator	\$ 8.14	\$ 9.75
Rental Attendant	8.25	9.86
Repair Technician	8.68	10.80
Labourer	8.25	9.07
Janitor	8.60	10.85
Ticket Seller/Cashier	8.49	10.69
Guest Services Clerk	8.68	9.93
Short Order Cook	8.68	10.84
Busser/Dishwasher	8.28	9.04
Server	8.21	8.49
Bartender	8.29	9.29
Day Care Worker	8.46	9.80
Reception	9.21	10.78
Ski Patrol	9.45	15.38
Cook	10.01	11.85
Groomer	10.60	16.06
Journeyman Lift Mechanic	18.33	20.38
Journeyman Heavy Duty Mechanic	18.40	20.43
Journeyman Electrician	18.50	20.31
Non-Ticketed Tradesperson	10.03	13.85
Level 1 Ski/Board Instructor	9.00	10.06
Level 2 Ski/Board Instructor	10.14	12.22

³² Ibid., p.6-36

³³ Ibid., p.6-41

Level 3 Ski/Board Instructor	11.68	13.63
Level 4 Ski/Board Instructor	14.13	15.35
Entry Level Supervisor	10.88	15.46

The proponent indicated that it would be impossible to predict from exactly where the workers would originate. However, it was suggested that based on the experience of other resort developments in the area, the construction workforce would be roughly one-third local, one-third regional and one-third from elsewhere in the province.³⁴ There was no indication about the sourcing of the operations workforce.

Where the workers would originate from and what they would otherwise be doing depends not only on the types of jobs and their average wages, but also the state of the economy. At the time the Master Plan document was prepared and the EAO review prepared, the unemployment rate in the region was quite high – over 10%. The proponent noted that traditional resource industries (forestry and mining) were in decline and tourism was seen as an important source of economic growth.

As shown in Table 5 below, economic conditions in the Kootenays have been quite cyclical. The region was in a period of cyclical decline in the early part of the 2000-2010 decade, exacerbating the unemployment situation. The labour market conditions were much different from 2005 through 2008 when the unemployment rate ranged from 5 to 6%.

Relatively high unemployment rates have reappeared in the Kootenay region since the financial crash in 2008. However, a key issue governing the social cost of labour and benefit from new job opportunities from Jumbo Glacier is what the labour market conditions will be like in the future when the project is developed and in operation.

Table 5: Labour Force Activity - Kootenay Region - Annual Averages³⁵

	Labour Force			Unemployment Rate
	Total	Employed	Un-employed	
	(000s of persons)			(%)
2000	79.0	71.1	7.9	10.0
2001	78.0	70.4	7.6	9.7

³⁴ Ibid., p.6-44 to 6-45.

³⁵ Source: B.C. Stats, *Labour Force Activity by B.C. Development Region – Annual Averages* (<http://www.bcstats.gov.bc.ca/data/dd/handout/lfsregn.pdf>), February 2011

2002	73.5	66.2	7.3	9.9
2003	75.5	66.7	8.8	11.7
2004	72.6	65.8	6.7	9.2
2005	72.3	67.8	4.5	6.2
2006	72.8	68.4	4.5	6.2
2007	81.2	76.7	4.5	5.5
2008	75.3	71.6	3.7	4.9
2009	77.8	71.0	6.8	8.7
2010	76.5	69.4	7.1	9.3

Most labour market analysts and studies are predicting that instead of widespread unemployment, shortages of workers can be expected. WorkBC is forecasting that there will be 1.1 million job openings in British Columbia over the next decade, some 60% of which will be due to retirements. Tight labour market conditions are expected throughout the province, including the Kootenays, with demand outstripping supply as early as 2014 as shown in Table 6 below.

Table 6 – Supply Demand Balance all occupations, Kootenay region³⁶

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Demand Outlook	74390	74070	74530	75930	77190	78340	79660	81260	83370	85590	87590
Supply Outlook	77100	76730	76620	77190	77250	77670	78450	79630	81410	83550	85900
Supply less Demand	2710	2660	2090	1260	60	-670	-1210	-1630	-1960	-2040	-1690

WorkBC has specifically projected labour shortages in the Kootenay region for construction-related trades and occupations such as:

- Contractors and supervisors, trades and related workers
- Electrical trades and telecommunication workers
- Plumbers, pipefitters and gas fitters
- Carpenters and cabinet makers
- Masonry and plastering trades

It is also forecasting labour shortages for ski-operation related personnel such as:

- Managers in retail trade
- Managers in food service and accommodation
- Sales and service supervisors
- Chefs and cooks
- Retail sales persons and sales clerks

³⁶ Work BC, *BC Labour Market Outlook: 2009-2019* (<http://www.workbc.ca/docs/BCLMOutlook.pdf>), p.12

- Food and beverage service workers
- Food counter attendants, kitchen helpers and related occupations
- Cleaners³⁷

It is most likely that in-migrants from outside the province and possibly Canada would be needed to fill the jobs created by the Jumbo Glacier project. The need for in-migrants to fill ski operations positions is already common in British Columbia. As reported in a Vancouver employment and business magazine: “Ski resorts in the Okanagan, the B.C. Interior and the Kootenays have turned to hiring fairs in Europe and Australia to meet staffing demands as local employees become harder to find.”³⁸

Part of the challenge for ski resorts is the relatively low wages and in some cases seasonal nature of the job opportunities. BC Stats reports that the average household earnings in the Kootenays was \$75,000 in 2009. While household earnings represent the income of all family members, the \$75,000 figure suggests that \$20,000 would make a relatively small contribution. By itself it certainly would not be of interest to principal earners of most Kootenay households; a very small percentage of households have incomes at or below \$20,000 per year (see Table 7).³⁹

Table 7: East Kootenay family Income distribution in 2009

Family Income	% Distribution
< \$20,000	6.8
\$20,000 - \$79,999	56.7
\$80,000+	36.4

As the proponent indicated in the Master Plan report, average weekly recreation and service industries jobs, like those at Jumbo Glacier, are approximately one-half to one-third the average weekly earning in forestry or mining. The Jumbo Glacier jobs would not likely attract workers from the resource sector or other much higher paying industries that are in decline.

Table 8: Average Weekly Earnings for salaried and hourly employees in selected industries in BC - 2002⁴⁰

Industry	Average weekly earnings (including overtime)
Construction	\$ 770.33

³⁷ Ibid., pp.97-117

³⁸ Andrew Petrozzi, “Out of town ski resorts go international for recruitment”, The Employment Paper, BIV Media Group, Nov 1-7, 2008.

(http://employmentinvancouver.com/index.php?option=com_content&view=article&id=436:out-of-town-ski-resorts-go-international-for-recruitment-&catid=55:feature&Itemid=399)

³⁹ Source: BC Stats, East Kootenay Statistical Profile *Regional District 1 – East Kootenay Statistical Profile* (http://www.bcstats.gov.bc.ca/data/sep/rd/Rd_1.pdf), p.3.

⁴⁰ Based on Statistics Canada data reported in Pheidias Project Management Group, *Jumbo Glacier Resort Master Plan*, 2007, p.6-39 to 6-43.

Transportation and Warehousing	\$ 815.55
Information and Cultural Industries	\$ 766.91
Arts, Entertainment and Recreation	\$ 515.90
Management of Companies and Enterprises	\$ 847.42
Admin and Support, Waste Management and Remediation	\$ 549.25
Accommodation and Food Services	\$ 318.69
Real Estate and Rental and Leasing	\$ 643.46
Forestry	\$ 962.56
Mining and oil and gas	\$ 1181.28

Given the labour market outlook there is no basis to argue that the creation of jobs in itself would provide significant net economic benefit. There is no reason to believe that the jobs at Jumbo Glacier would provide employment to persons who would otherwise be unemployed – not with the labour market conditions forecast for the coming decade. There is no evidence that the workers hired as a result of the Jumbo Glacier project would earn wages significantly in excess of their opportunity cost.

4.0 Government Benefits

The proponent estimated that the Jumbo Glacier project would generate \$11.4 million in tax revenues for government: \$6.4 million federal, \$3.4 million provincial, and \$1.6 million local (Master Plan, p. 6-51 to 6-52). The assumptions underlying this estimate, or exactly what it includes, are not clear. It would appear to be based, at least for the federal and provincial components, on the impact analysis of estimated total visitor spending by year 5 of the development. The local tax estimate presumably relates to the expanded local tax base, which the proponent had estimated at \$1 million. Whether and to what extent it includes payments for local services is unclear.

The proponent did not provide any estimate of the incremental taxes that would be generated by the project – the tax revenues over and above what governments would have received without the project. For reasons discussed in the previous sections and summarized below, the incremental taxes generated by the project are much smaller than the gross estimates provided.

- The gross estimates of spending on which the tax estimates are based are likely overstated. The market outlook suggests much lower growth rates than what the proponent assumed.
- Whatever the gross levels of spending, the incremental taxes generated by the project depend on the incremental level of spending – the spending at Jumbo Glacier less the spending that would otherwise have been made at other resorts or on other goods and services.
- Finally, whatever the incremental level of spending, the incremental amount of income taxes will depend on what the affected workers and businesses would otherwise be doing. To the extent, for example, that workers hired as a result of Jumbo Glacier would otherwise have been working at comparable jobs, the net increase in taxes paid would be minimal.

Though far less than the \$11.4 million presented in the Master Plan report, there would be some incremental taxes generated by the project.

- Development of the land base would increase local property taxation. The net impact would depend on the amount of development that takes place and the extent to which it diverts recreational development from other areas.
- In-migration to the province and country to meet the resort workforce requirements would increase the total amount of income taxes paid. (The hiring of persons who would otherwise be unemployed would also have that effect, though the labour market outlook indicating widespread shortages of

workers suggests that would not occur to any great extent).

- There would be rental payments under the province's All Season Resort Policy. For the province the incremental revenues would depend on the gross revenues subject to the 2% Commercial Recreational Area rental fee at Jumbo Glacier net of any reduction at other ski resorts.

While there would be some incremental tax revenues due to the project, there would be incremental costs. In-migration and increased activity in the region would give rise to increased local and provincial government health care and other service costs. There would also be significant road upgrade and maintenance costs required as a result of the resort development. McElhanney Consulting Services estimated that the upgrade to the Jumbo Creek road, built to a 50 km per hour standard, would cost \$6 million. Improvements required on the Toby Creek road were estimated at \$3 million. If the improvements were made to higher standards (e.g., 80 km per hour) the costs would be significantly greater.⁴¹ There would in addition be annual road maintenance and snow removal costs.

The proponent has indicated that it would pay for required road infrastructure improvements as required by government policy and consistently applied elsewhere. It is not clear what specific policy or agreement would apply in this development, but the example of the Sea-to-Sky project cited by the proponent suggests that it expects it would not be paying the full costs.⁴²

The net impact on government is unclear. There is no basis to conclude there would be any net benefit.

⁴¹ McElhanney Consulting Services, *Route Study Report for Jumbo Glacier Resort Access Roads*, December 1, 2003, pp.6-1 to 6-3.

⁴² Pheidias Project Management Group, *Jumbo Glacier Resort Master Plan*, 2007, p.5-6.

5.0 Land and Resource Use Effects

The land and resource impacts of a project, in this case the impacts associated with the dedication of land to a commercial ski resort, can give rise to benefits or costs depending on the effects on access, opportunities and activities or operations of other resource interests and users. The magnitude of the benefits or costs is measured by the net income gain or loss for commercial resources, and the welfare gain or loss for recreational or other non-commercial resources.⁴³

The proponent and EAO did not estimate the magnitude of the resource and land use benefits or costs associated with proposed Jumbo Glacier project. They did, however, assess the nature and potential significance of the impacts.

The most direct and controversial land use impact would be the displacement of the existing heli-ski operations in the Jumbo Valley area. The heli-ski operator maintained the displacement would have severe consequences for its business as the Jumbo Valley terrain provides the only predictable bad-weather access for its operations. However, based on the position of the proponent and an independent study by Sierra Systems⁴⁴, the EAO concluded that the adverse impacts could be largely mitigated by the relocation of activity to other areas unaffected by the project, and the development of cooperative marketing and access measures with the resort.⁴⁵

Notwithstanding the potential for mitigating impacts, it was recognized that the heli-ski operations would be adversely affected, at least to the extent of the relocation costs and impacts. The EAO recommended that as a condition of the approval of Jumbo Glacier, the developer must assume financial responsibility for any successful claims for compensation by the heli-ski operator against the government.

To the extent the heli-ski operator were to pursue and succeed in compensation claims that fully offset the adverse impacts, the heli-ski operator would not bear an external land use cost due to the Jumbo Glacier project.⁴⁶ On the other hand, if for

⁴³ The welfare gains or losses would be measured by what economists term the compensating variation. For positive impacts, the compensating variation would be the maximum amount the alternative user would be willing to pay or give up for the benefit they derive. For negative impacts the compensating variation would be measured by their willingness to pay to avoid the impact, or the compensation they would have to receive to offset it depending on the alternative users' rights to the resource. See Marvin Shaffer, *Multiple Account Benefit-Cost Analysis: A Practical Guide for the Systematic Evaluation of Project and Policy Alternatives*, University of Toronto Press, 2010, p. 78-80.

⁴⁴ Sierra Systems, Report to Environmental Assessment Office Jumbo Valley Assessment, July 28, 2004.

⁴⁵ Court of Appeal for British Columbia, *Reasons for Judgement, RK Heli-Ski Panorama v Glassman*, BCCA9, June 2007, p.11.

⁴⁶ An external benefit or cost refers to one that is borne by third parties, in this case the heli-ski operator that is a third party to the lease arrangement between Jumbo Glacier and the government.

whatever reason such compensation were not paid, there would be a net cost borne by the heli-ski operator.

With respect to other recreational resource impacts, the development of the Jumbo Glacier resort would improve access for high alpine viewing and other resort-based activity (the development of a hiking trail in the development area is proposed). On the other hand, there would be the loss of remote wilderness hiking opportunities in Jumbo Valley. There would also be reduced access to adjacent wilderness hiking areas if restrictions on motorized access were put in place to protect grizzly bears. Overall, one could expect both recreational benefits and costs accruing to different parties – the benefits more for new visitors to the area; the costs for existing users. The overall net benefit or cost is unclear. Given the proposed mitigation measures to control access from the resort to adjacent remote areas, the net effect would likely be small.

With respect to impact on resource industries, the development of the resort would reduce the forest land base as well as restrict mineral staking activity within the resort area. In both cases, however, these direct impacts would be minor. The forest base would only be reduced by 100 hectares, with virtually insignificant impacts on the annual allowable cut in the region. The restriction in mineral staking activity would also be insignificant if confined to the resort area.

Of greater concern would be the impacts caused by constraints on logging activity in the access corridor to mitigate what some might see as undesirable visual effects of logging. Similarly, constraints on mining activity outside the resort area because of visual or other concerns could have more significant effects on that industry.

The proponent has agreed not to pursue visual management controls should the resort development proceed, though that would not restrict others, for example those who have bought recreational property at the resort, from pursuing restrictions on those primary resource activities. There is therefore some potential for a net cost, though the magnitude is unclear.

Overall, there could be some benefits (specifically with respect to new high alpine recreational access) and some costs (to the existing heli-skiing operation, existing recreational activity and future forestry and mining activity). The net benefit or cost is unclear but likely small. What one can conclude, however, is that as with the employment and government impacts, there is no basis to suggest there would be any resource and land use net benefit due to the project.