

# **Proposed Porters Ski Area Expansion**

## **ECONOMIC IMPACTS**

**Final Report**

**July 2010**

**Butcher Partners Ltd**

## HIGHLIGHTS

If the Porters Ski Area proceeds to full development over the next ten years as provided for in the plan change then the total net impacts on the district, regional and national economy are:

### Construction Impacts of Expanded Ski Area and Village

	Selwyn District	Canterbury Region	New Zealand
Output (\$m)	120	1,030	1,250
Employment (job years)	650	5,500	6,600
Value Added (\$m)	41	380	480
Household Income (\$m)	30	260	310

### Operations Impacts of Expanded Ski Area and Village at Full Development

	Selwyn District	Canterbury Region	New Zealand
Output (\$m/ yr)	92	126	69
Employment (full-time jobs)	730	960	550
Value Added (\$m/ yr)	46	62	37
Household Income (\$m/ yr)	25	36	22

## EXECUTIVE SUMMARY AND RESULTS

1. Porters Ski Area Ltd (Porters) proposes to undertake a significant expansion of the on-mountain infrastructure at Porter Heights, including the installation of a gondola to take guests direct from the proposed accommodation to the ski field, additional lifts to access a different part of the mountain to that which is serviced by the current lifts, and additional roads, snow-making facilities and other infrastructure.
2. Porters proposes to also develop a range of accommodation and a village centre containing a range of commercial and tourist related activities and facilities. The village will be complementary to the Ski Areas and mountain-based recreation, and will be located at the base of the ski field. The accommodation, which Porters has aligned with and based on the skier capacity, is intended to cater for 3,400 guests, will be the only public on-field skier accommodation in New Zealand. The accommodation and village are expected to cater to a market which wants good quality accommodation and a skiing experience that does not entail daily travel to and from the field. This includes new markets which do not currently visit New Zealand ski fields.
3. Developments such as the proposed Porters expansion require an evaluation of costs and benefits under the RMA. Such evaluations are based on a wide range of factors. The net commercial benefits need to be combined with any non-commercial costs and benefits of the project to provide a view of whether, on balance, the development of the Proposed Porters Ski Area is an efficient use of resources. The development of the proposed ski field also has implications for regional income and employment which are relevant under sections 7(b) and 5(2) of the RMA.
4. Porter's decision to proceed with the project will imply that from a market perspective there is a net benefit from the project. In imperfect markets an increase in jobs and income will generate a social benefit over and above that implied by the commercial market analysis (i.e. externalities). In my view the most reasonable approach to assess efficiency and net economic welfare benefits is to weigh up the implied market benefits plus any identified non-market benefits, such as the employment and income externalities I refer to and the environmental gains which Porters is proposing, against any non-market costs, including environmental costs, that are identified.
5. This report estimates the economic impacts associated with the construction of these assets, and with the ski field and village operations once the project is completed. The construction impacts are based on budget estimates from Porters and relevant multipliers developed by Butcher Partners Ltd BPL) for this project. The ski field operational impacts are based on Tourism Resource Consultants (TRC) estimates of field revenues after 5 and 10 years, and on field capacity estimates provided by Porters Ltd. Ski field economic multipliers have been developed by BPL on the basis of budgets prepared by Porters. Other tourism impacts are based on numbers of visitor nights and per night expenditure provided by TRC, and on average tourism expenditure multipliers developed for this project.
6. The estimates of economic impacts contained in this report are of net impacts. That is, they are after deducting negative impacts on other businesses in the region of interest from which Porters may have attracted away business. The proportion of Porters

business which comes from other businesses has been estimated by TRC. Most of the business is new business from the perspective of Selwyn District, a significant part is new business from the perspective of Canterbury region, and a modest part of the business is new business from the perspective of New Zealand. This last arises because Porters could be influential in developing new ski markets for New Zealand.

7. Limitations to my analysis include:

- Estimates of capital and operating cost are approximate only at this stage;
- The source of construction labour has not been finally determined at this stage;
- Operational input purchases have been estimated on the basis of Selwyn's ability to provide inputs, and on existing ski field experience. The final outcomes may differ from this, but are as likely to be greater as to be lesser.
- The multipliers used at each geographic level are a weighted average of individual multipliers for skiing and for other visitor spending. All multipliers have a margin of error which cannot be rigorously estimated statistically, but are probably within the range  $\pm 20\%$ .

8. Economic impacts can be analysed from several geographical perspectives, and I have considered the impacts from the perspective of Selwyn District, the Canterbury region and New Zealand. I have estimated national and sub-national multipliers based on the most recent national input output model that is available (2005 – 06)<sup>1</sup>.

## IMPACTS

### Construction:

9. Construction is estimated to cost \$70 million for developments on the ski field and a further \$433 million for developments at the proposed village. My analysis (see Summary Table 1) suggests that construction will generate total output of \$120 million in Selwyn District. Associated with this will be \$41million of value added<sup>2</sup>, including \$30 million of wages and salaries, and 650job-years of work.

**Summary Table 1 Economic Impacts of Construction**

	Selwyn District	Canterbury Region	New Zealand
Direct			
Output (\$m)	82	417	420
Employment (job-years)	430	2,200	2,300
Value Added (\$m)	24	123	125
Household Income (\$M)	20	103	105
Total			
Output (\$m)	120	1,030	1,250
Employment (job-years)	650	5,500	6,600
Value Added (\$m)	41	380	480
Household Income (\$M)	30	260	310

<sup>1</sup> Nana and Stroombergen (2008). Based on Statistics New Zealand data manipulated in SNZ's Data Lab.

<sup>2</sup> Value added is the returns to land, labour and capital. In accounting terms it is EBITDA + labour costs.

10. In the Canterbury region as a whole (including Selwyn District) the increase in output will be \$1,030 million and an associated \$380 million of value added, including \$260 million of wages and salaries, and 5,500 job-years of work.
11. At the national level the impacts are likely to be considerably greater with an additional \$1,250 million of output being generated along with an associated \$480 million of value added, including \$310 million of wages and salaries, and 6,600 job-years of work.
12. Note that these impacts are total impacts over the entire construction period, the duration of which is currently uncertain. I have not assumed any particular construction period, but if, for example, construction took place over 5 years, the average annual impacts would be one fifth of those shown in Summary Table 1, which implies that at the district level there would be value added of \$8 million per year and an average of 130 jobs continuing over the five years.

### Operational

13. The on-going operational impacts have been estimated on the basis of estimates of ski field visitation and visitor expenditure provided by TRC, using their 5 year and 10 year “conservative” and “optimistic” figures (see Summary Table 2). There is uncertainty about the achievable market. For this reason, and also to indicate the economic impacts of operations in the long term, we have estimated the economic impacts at full field capacity (300,000 skier-days per year). Porters itself believes these may be achieved within 10 – 15 years, although they also recognise that rates of growth are uncertain.

**Summary table 2      Ski-field Visitor Numbers.**

	Conservative (TRC)		Optimistic (TRC)		Field Capacity
	Year 5	Year 10	Year 5	Year 10	
Canterbury	60,900	64,000	66,900	73,200	131,000
Domestic Destination Skier	22,900	24,800	24,000	31,300	56,000
Existing Australian Market	17,360	20,918	21,200	27,800	50,000
New Australian Stay-at-Home market	12,600	15,800	13,900	29,300	53,000
International Market	4,200	4,700	4,900	5,700	10,000
<b>Total</b>	119,100	130,200	131,000	167,300	300,000

14. Summary Table 2 also shows the origin of the skiing visitors to Porters in terms of existing and potential markets, and this information has been used to estimate the net economic impacts at each geographic level.
15. Details of the assumptions underlying the net direct economic impacts are provided in the body of this report. Net direct impacts were estimated for ski fields and skier accommodation, while net total economic impacts, including multiplier effects, were calculated for the combination of ski fields, skier accommodation and the extra visitor activity associated with skiers spending additional time in New Zealand doing things other than skiing.

16. From the perspective of Selwyn District, net direct output in ski fields and the village is expected to increase by between \$24 million and \$34 million per year by year 10, and by \$70 million per year at full development (see Summary Table 3). By year 10 total regional output, including multiplier effects, is expected to have increased to \$31 - 44 million / year. Accompanying this increase in output by year 10 will be an increase of 240 - 340 FTE jobs and \$16 – 22 million per year in Value Added (regional GDP), including \$8 – 12 million of earned household income.

**Summary Table 3 Selwyn District Net Economic Impacts**

	Conservative		Optimistic		Full Development
	Yr 5	Yr 10	Yr 5	Yr 10	
<b>Net Direct Spend (Output \$m/yr)</b>	21	24	23	34	70
<b>Direct Net Impact Ski Fields &amp; Villages</b>					
Output (\$m / yr)	21	24	23	34	70
Employment (FTEs)	180	210	200	300	630
Value Added (\$m / yr)	11	12	12	17	36
Household Income (\$m / yr)	6	7	7	9	20
<b>Total NET Impact</b>					
Output (\$m / yr)	27	31	31	44	92
Employment (FTEs)	210	240	240	340	730
Value Added (\$m / yr)	14	16	16	22	46
Household Income (\$m / yr)	7	8	8	12	25

Note: Totals have been rounded

17. From the regional perspective, net direct output in ski fields, skier accommodation and tourism is expected to increase by between \$21 million and \$30 million per year by year 10, and by \$68 million per year at full development (see Summary Table 4).

**Summary Table 4 Canterbury Region Net Economic Impacts**

	Conservative		Optimistic		Full Development
	Yr 5	Yr 10	Yr 5	Yr 10	
<b>Net Direct Spend (Output \$m/yr)</b>	19	22	21	31	68
<b>Direct Impact Ski Fields &amp; Villages</b>					
Output (\$m / yr)	18	21	20	30	65
Employment (FTEs)	170	200	190	280	610
Value Added (\$m / yr)	9	10	10	15	32
Household Income (\$m / yr)	5	6	6	9	19
<b>Total NET Impact</b>					
Output (\$m / yr)	35	41	40	59	130
Employment (FTEs)	270	310	300	450	960
Value Added (\$m / yr)	17	20	20	29	62
Household Income (\$m / yr)	10	12	11	17	36

Note: Totals have been rounded to avoid spurious accuracy

18. Multiplier effects increase these values, and by year 10 regional output is expected to have increased by \$41 - 59 million / year. Accompanying this increase in output by year 10 will be an increase of 310 - 450 FTE jobs and \$20 – 29 million per year in Value Added (regional GDP), including \$12 – 17 million of earned household income. These total regional impacts are greater than the district impacts because of the much larger multipliers associated with the more diverse economic base of the regional economy. At full field development regional output will have increased by \$130 million per year. Accompanying this will be 960 FTE jobs and \$62 million per year of added value, including \$36 million per year of earned household income.
19. From the national perspective, net direct output in ski fields, skier accommodation and tourism is expected to increase by between \$8 million and \$15 million per year by year 10, and by \$31 million per year at full development (see Summary Table 5). These figures are much lower than the district and regional direct totals because of the significant proportion of Porter's business which is assumed to have been attracted away from other fields in New Zealand.

**Summary Table 5                      New Zealand Net Economic Impacts**

	Conservative		Optimistic		Full Development
	Yr 5	Yr 10	Yr 5	Yr 10	
<b>Net Direct Spend (Output \$m/yr)</b>	7	8	8	15	31
<b>Direct Impact Ski Fields &amp; Villages</b>					
Output (\$m / yr)	4	5	4	9	20
Employment (FTEs)	40	50	40	90	200
Value Added (\$m / yr)	2	3	2	5	10
Household Income (\$m / yr)	1	2	1	3	6
<b>Total NET Impact</b>					
Output (\$m / yr)	15	19	17	32	69
Employment (FTEs)	120	150	140	260	550
Value Added (\$m / yr)	8	10	9	17	37
Household Income (\$m / yr)	5	6	6	10	22

Note: Totals have been rounded to avoid spurious accuracy

20. Multiplier effects increase these values and by year 10 national output is expected to have increased by \$19 - 32 million / year. Accompanying this increase in output by year 10 will be an increase of 150 - 260 FTE jobs and \$10 – 17 million per year in Value Added (regional GDP), including \$6 – 10 million of earned household income. At full field development national output will have increased by \$69 million per year. Accompanying this will be 550 FTE jobs and \$37 million per year of added value, including \$22 million per year of earned household income.

# **1. BACKGROUND**

Porters Ski Area Ltd (Porters) proposes to undertake a significant increase in the on-mountain infrastructure at Porters, including the installation of a gondola to take guests direct from the proposed new accommodation to the ski field, additional lifts to access a different part of the mountain to that which is serviced by the current lifts, and additional roads, snow-making facilities and other infrastructure.

Porters proposes to also develop a range of accommodation and a village centre containing a range of commercial and tourist related activities and facilities. The village will be complementary to the Ski Areas and mountain-based recreation, and will be located at the base of the ski field. The accommodation, which Porters has aligned with and based on the skier capacity, is intended to cater for 3,400 guests, will be the only public on-field skier accommodation in New Zealand. The accommodation and village are expected to cater to a market which wants good quality accommodation and a skiing experience that does not entail daily travel to and from the field. This market includes skiers who do not currently visit New Zealand ski fields.

Porters has asked Butcher Partners Ltd (BPL) to estimate the economic impacts associated with both the construction phase and with ski field operations once the proposal is completed. To estimate the latter impacts, forecasts of future visitor numbers 5 and 10 years out have been developed by Tourism Resource Consultants (TRC). TRC also reviewed the proposal in the context of competing facilities in New Zealand to form a view as to what proportion of the visitors to Porters may divert from other fields in New Zealand and Canterbury, and what proportion are either international ski visitors who would not have otherwise come to New Zealand or domestic visitors who would otherwise have gone to overseas fields. These last are in effect new markets for New Zealand skiing which will develop because of the proposed Porters development.

The development of the proposed ski field has implications for economic efficiency (relevant under section 7 (b) of the RMA), and for regional income and employment (relevant under section 7 (b) and section 5 (2) of the RMA which refer to enabling communities to provide for their social and economic well-being).

Section 1 of this paper describes the analytical framework and regional impact models used, while Section 2 describes the economic impacts associated with construction of the accommodation and other facilities and with the expansion of the ski field. Section 3 provided brief comment on the commercial benefits and implications for efficiency use of resources associated with the field. The net commercial benefits need to be combined with any non-commercial costs and benefits of the proposal to provide a view of whether, on balance, the proposal is an efficient use of resources. To the extent that any external effects can be internalised to Porters, for example by imposing appropriate conditions on the consent such that any adverse environmental effects are offset or mitigated, then these effects will be incorporated into the net commercial benefits and can be ignored when comparing the commercial benefits with any non-commercial costs and benefits.



## **2. Cost, Benefits and Economic Impacts: Their Place under the RMA**

### **2.1 Cost, Benefits and Efficiency**

A Cost Benefit Analysis (CBA) relates to the efficiency objective associated with section 7(b) of the RMA. An efficient outcome is one in which the value of the resources used as inputs is less than the value of the goods and services produced as output. Porters' decision to proceed with the project will imply that from a market perspective there is a net benefit from the project. This is because Porters has to compete with other potential users of inputs and will only be able to afford the resources if their value to Porters, measured by what users are prepared to pay, is greater than their value to other potential users. Of course there is no guarantee that the benefits to Porters will be greater than the costs (i.e. will be profitable), but certainly Porters has the strongest possible incentive to ensure that it correctly estimates the potential costs and benefits because it is Porters' money which is at stake.

In a perfect market the generation of jobs or additional income is presumed not to constitute a net benefit because use of resources by Porters will mean that it is not available for use in some project or in some other region which would also have generated employment and income. However, markets are not perfect, and in times of underemployment, or in regions that will benefit from a larger economic mass<sup>3</sup>, an increase in jobs and income will generate a social benefit over and above that implied by the commercial market analysis. To this extent, employment and income is a positive externality and is relevant to decisions under the RMA.

Decision makers under the RMA have to weigh up the market benefits, which are implied by the willingness of Porters investors to pursue this proposal with any other non-market factors (externalities) when deciding whether the Porters project will overall be an efficient use of resources. The information I have presented on employment and income effects is relevant in this assessment. Also relevant are any other externalities arising from the project, such as landscape and other environmental effects.

In principle economics can try and place a market value on some of these effects, and techniques for doing so have been developed and applied in a number of cases. The "Travel Cost" method is of value in assessing some use values, although it is fraught with both theoretical and practical limitations. Other techniques also exist to value non-use attributes, such as preservation of the environment. However, the conditions under which realistic and reliable estimates of non-use values can be made are demanding, error margins are high, and for this reason such estimates are generated only rarely. I have not attempted to generate any non-use values associated with this project, and in my view the most reasonable approach to assess efficiency and net benefits is to weigh up the implied market benefits plus any identified non-market benefits, such as the employment I refer to and the environmental gains which Porters is proposing, against any non-market costs, including environmental costs, that are identified either by other consultants' reports on this proposal or submitters to a hearing.

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<sup>3</sup> Increased economic mass has the potential to generate benefits through increased choice to consumers, increased competition which forces efficiency gains, and economies of scale.

## 2.2 Economic Impacts

I have described in the previous section the way in which economic impacts are relevant to an assessment of efficiency under section 7 of the RMA. Economic impacts are also relevant under section 5 of the RMA, which outlines the object of the Act as being to enable people and communities to provide for their social, economic and cultural well-being. This report details the value added<sup>4</sup>, employment and household income which are generated by the construction and operation of the ski field. It cannot automatically be assumed that increased income and employment opportunities of the sort which Porters propose to generate are necessary to enable a community to provide for its economic and social well-being. There are, for example, communities which face environmental limits to growth and don't want increases in tourism or the associated employment and implied population growth. However, Selwyn District is not such a community. Evidence of this is the Council's funding of an economic development agency and specific references in the District Plan, prior to the Porters Plan Change, to encouraging and enabling increased economic activity in the District.

## 2.3 Limitations of Analysis

The data sources and the limitations to my analysis include:

- Estimates of capital and operating cost are approximate only at this stage. Porters advise that the margin of error is approximately 20 %;
- The precise source of construction labour has not been finally determined at this stage and will depend on who the successful contractors are, the commercial arrangements they make with subcontractors and the project management decisions that are finally made. I have assumed Selwyn District contractors will win only 20 % of the construction activity, because in spite of some locational advantages which Selwyn has, it has only 10 % of the combined Selwyn and Christchurch construction workforce; and
- The operational employment will, by definition, be within Selwyn District, but operational input purchases have been estimated on the basis of Selwyn's ability to provide inputs, and on existing ski field experience. The final outcomes may differ from this, but are as likely to be greater as to be lesser.
- The multipliers used at each geographic level are a weighted average of individual multipliers for skiing<sup>5</sup> and for other visitor spending (accommodation and restaurants, retail spending and transport being the major categories). The weights depend on the specific proportions of additional spending which are in each category in a given geographical area.

Results in this report are often given to 3 or even 4 significant figures. This is done to enable readers to follow the analysis, and should not be taken to imply that the figures are accurate to this degree. Any given figures are believed to be realistic estimates, but the error margin is generally at least + / - 20 per cent.

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<sup>4</sup> Value Added is the return to labour and capital and can be seen as Business Income (after deducting intermediate inputs), plus earned Household income. It is equivalent to GDP, and from an accounting perspective is equivalent to EBITDA + wages and salaries.

<sup>5</sup> A specific multiplier was developed for the ski field operation, based on financial data supplied by Porters.

### **3. ECONOMIC IMPACT ANALYSIS**

#### **3.1 Geographical Perspective and Net Impacts**

In an economic impact analysis there are several geographical perspectives that could be considered. In this particular case I have considered the impacts from the perspective of Selwyn District, the Canterbury region and New Zealand. All of these are relevant to deciding whether the Plan change is appropriate.

Economic impact analysis focuses on net impacts, where “net” refers to the gross positive impacts generated by the project *less* any gross negative impacts generated by the project. Typically the negative impacts of a tourism project will be that some of the visitors to the new project have been attracted away from some other project. The project may also generate positive economic impacts beyond the project boundaries. In the case of Porters, such positive impacts are likely to be generated when visitors attracted to the region by Porters also decide to stay elsewhere in the region during their trip.

As the geographic scope of analysis widens, there is an increase in the proportion of additional visitors to Porters who have been attracted from other facilities in the region and hence do not generate a net increase in economic activity. However, offsetting this is the fact that as the scope of analysis widens, there will be an increasing number of additional visitor-nights spent in the region by visitors attracted to the region by the Porters ski field. The larger the region being considered, the larger will be the number of additional days. The TRC report provides some evidence on how many additional days there will be.

The numbers of visitors who are additional to the region depend on the origins of the forecast visitors to Porters, and whether they represent a transfer of existing skiers or new skiers attracted to the market. The unpolished worksheets which underlie the TRC report have been made available to us, and these contain data which enable us to determine at each geographic level which proportion of the proposed market come from existing visitors and which are from visitors attracted to the market. We have also calculated the number of additional visitor-days spent in the area and not at Porters.

## 4 Estimates of Economic Impacts

### 4.1 Economic Models and Multipliers

We have developed regional input-output models for Selwyn District and for Canterbury region (for details see Appendix 1), and have also adopted a 2005-06 national input output model developed by Stroombergen and Nana and supplemented this with information on employment by industry. We have then calculated output, value added, household income and employment multipliers for Selwyn District, Canterbury region and New Zealand.

### 4.2 Economic Impacts of Construction

Construction is estimated to cost \$70 million for developments on the ski field and a further \$433 million for developments at the proposed village. This is split between various categories as shown in Table 1. The estimates of New Zealand content were made by Porters. The proportion of that content coming from Selwyn District and Canterbury Region were estimates based on our knowledge of the size of the relevant industries in Selwyn and Canterbury.

**Table 1 Construction Expenditure and Location**

		Total Cost (\$ (m))	New Zealand Content (\$m)	% of NZ content sourced from	
				Canty	Selwyn
On Mountain	Lifts & Snow-making	53.0	16.0	100%	20 %
	Machinery & Equipment	1.9	0.6	50 %	0 %
	Earthworks, roads, utilities	8.3	8.2	100 %	20 %
	Buildings	3.6	4.4	100 %	20%
	Professional Fees & consents	3.3	3.0	80 %	10 %
	<b>Sub-total (\$m)</b>	<b>70</b>	<b>31.2</b>	<b>\$30m</b>	<b>\$6 m</b>
Village	Buildings incl. basement carparks	397	356	100 %	20 %
	garages, recreation facilities, project office& miscellaneous				
	Roads, bridges, utilities,	26	23	100 %	20 %
	landscaping	10	8	100 %	10 %
	Sales, Marketing, Development mgt				
	<b>Sub-Total (\$m)</b>	<b>433</b>	<b>387</b>	<b>\$387m</b>	<b>\$76m</b>
<b>TOTAL (\$m)</b>		<b>503</b>	<b>418</b>	<b>\$417m</b>	<b>\$82m</b>

It is expected that Selwyn will have a greater proportion of the construction activity (20 %) than its share of construction activity in the wider region (10 %) because of its locational advantages over competing districts. It will have a modest proportion of professional fees and consents, principally because Selwyn District council will be primarily responsible for processing the plan

change and later resource consent applications, and because some of the marketing and management is likely to be focused within the District. Some of the agents supplying ski field machinery and equipment are in Selwyn, and all of them will be in Canterbury. Some professional services are likely to be supplied from outside the region.

### ***Direct and Total Impacts***

The direct and total economic impacts associated with construction have been estimated on the basis of construction and development costs provided by Porters, combined with the economic models and associated multipliers developed for the district, region and New Zealand. The results (see Table 2) suggest that over the construction period, development of the proposed Porters Ski field will generate total output of \$120 million in Selwyn District. Associated with this will be \$41million of value added, including \$30 million of wages and salaries, and 650job-years of work.

In Canterbury region as a whole (including Selwyn District) the increase in output will be \$1,030 million and an associated \$380 million of value added, including \$260 million of wages and salaries, and 5,500 job-years of work.

At the national level the impacts are likely to be considerably greater with an additional \$1,250 million of output being generated along with an associated \$480 million of value added, including \$310 million of wages and salaries, and 6,600 job-years of work. While it is possible that some of the construction will be at the expense of other ski field projects which might otherwise go ahead, the majority of the impact is associated with the development of the village, and Porters is not aware of any other proposal for an on-the-mountain ski village in New Zealand.

**Table 2            Direct & Total Economic Impacts of Construction**

	Selwyn District	Canterbury Region	New Zealand
Direct			
Output (\$m)	87	417	420
Employment (job-years)	430	2,200	2,300
Value Added (\$m)	24	123	125
Household Income (\$M)	20	103	105
Total			
Output (\$m)	120	1,030	1,250
Employment (job-years)	650	5,500	6,600
Value Added (\$m)	41	380	480
Household Income (\$M)	30	260	310

Note that these impacts are total impacts over the entire construction period, the duration of which is currently uncertain. I have not assumed any particular construction period but if, for example, construction took place over 5 years, the average annual impacts would be one fifth of those noted above and shown in table 2. Hence at the district level there would be value added of \$8.2 million per year and an average of 130 jobs continuing over the five years.

### 4.3 Economic Impacts of Operations – Visitation & Visitor Spending

The on-going operational impacts have been estimated on the basis of estimates of ski field visitation and visitor expenditure provided by TRC using the 5 year and 10 year “conservative” and “optimistic” figures (see Table 3).

**Table 3                      Ski-field Visitor Numbers and Source**

	Conservative (TRC)		Optimistic (TRC)		Field Capacity
	Year 5	Year 10	Year 5	Year 10	
Canterbury	60,900	64,000	66,900	73,200	131,000
Domestic Destination Skier	22,900	24,800	24,000	31,300	56,000
Existing Australian Market	17,360	20,918	21,200	27,800	50,000
New Australian Stay-at-Homemarket	12,600	15,800	13,900	29,300	53,000
International Market	4,200	4,700	4,900	5,700	10,000
<b>Total</b>	119,100	130,200	131,000	167,300	300,000

As the TRC report makes clear, there is uncertainty about the rate of growth of visitor numbers, and the figures of 130,000 (conservative) and 167,000 (optimistic) skier days per year by year 10 have a considerable error margin. For this reason, and also to indicate the economic impacts of operations in the long term, we have also estimated the economic impacts at full field capacity (300,000 skier-days per year). Porters is confident these will be achieved within 10 – 15 years, although they also recognise the uncertainty regarding rates of growth.

### 4.4 Total and Net Economic Impacts – Assumptions

The total economic impacts associated with the field are determined by the number of visitors, their spending in the region of interest, and the economic multipliers associated with that region. As described earlier in this report, there are several regions of interest including Selwyn District, the Canterbury region and New Zealand as a whole. In each case care must be taken to distinguish between visitors to the ski field and the Village, as reported by TRC, and the net increase in skier-days and visitor-days to the region.

#### *Selwyn District*

From the Selwyn District perspective, all the skiers are additional, with the exception of the skiers who would visit the existing Porter Heights ski field if the planned expansion did not proceed<sup>6</sup>. We understand the current number of skiers to be of the order of 30,000 skier-days per year. Each skier is presumed to spend \$80 per day on the mountain.

<sup>6</sup> I am informed by Porters that the existing field is not commercially viable, and the alternative to expansion is closure. If that is the case then the impacts I have calculated for Selwyn are conservative. Assuming existing skiers would go to other Canterbury fields if Porters closed, the closure alternative would not affect Canterbury and New Zealand impact estimates.

It is assumed that for skiers who are not part of the Canterbury market, there will be one person-night spent in the proposed village for each skier- day on the mountain (see TRC pp 22). Expenditure at the village is expected to average \$240 per person per night. This figure is higher than for existing average skiers in New Zealand, but reflects the quality of the offer at Porters. Note that by 2010 the number of skier-nights at the village is 94,000. Given the proposed 3,400 beds and a season of approximately 120 days<sup>7</sup>, then the available number of bed nights is 408,000. At full development, the annual demand for beds will be 203,000 bed-nights, which represents an average occupancy rate over the ski season of 50 %. . No bed-nights at Porters are attributed to skiers who are part of the existing Canterbury market but who come from out of the region<sup>8</sup>. To this extent the economic impacts estimated here are conservative.

TRC notes<sup>9</sup> that the average international visitor to the Southern Lakes ski fields spend 9.3 days in the region (which has 5 commercial ski fields) and 5.2 days in other areas of New Zealand. Hence international visitor-days spent elsewhere in New Zealand are equivalent to 55 % of days at existing ski fields in the region. In the case of Porters, which is a single field from which visitors are likely to visit other fields in the region as well as other parts of New Zealand, the additional days are likely to be an even higher proportion of days spent at Porters. However, very few of the days away from Porters are likely to be spent in Selwyn District and any positive impacts from this source have been ignored.

### ***Canterbury Region***

From the Canterbury Region perspective, all skiers who are not part of the existing Canterbury market will create an additional economic impact on the ski field.

It is assumed that for all these skiers, each skier- day on the mountain will be associated with one person-night spent in the proposed village. Off-mountain expenditure at the village is expected to average \$240 per person per night. There will be no off-setting loss of economic impact from existing skiers who have been attracted away from other accommodation in Canterbury, because none of these skiers is assumed to stay at the village. Again, this is a conservative assumption.

We assume that all international skiers who are additional to the Canterbury market will spend 0.55 additional visitor-days elsewhere in New Zealand for every day they spend at Porters, and that perhaps 25 % of these additional days will be spent in Canterbury either at other ski fields such as Mt Hutt, or in Christchurch which will be the international entry and exit point for Porters, and which is also a tourist destination in its own right. These additional visitor days are assumed to generate an economic impact of \$150<sup>10</sup> per person-day.

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<sup>7</sup> TRC notes that the field is currently open for an average of 70 days in a season lasting from early July to early October, which is about 100 days. While the field may not be open on some days because of weather conditions, this does not mean that visitors will not be staying at the village on those days. Development of the ski field is expected to increase the season to 120 days.

<sup>8</sup> For example, North Island and Australian skiers who currently ski at Mt Hutt or Porters, and who stay in Methven or Christchurch

<sup>9</sup> Pp 23

<sup>10</sup> Source: TRC Table 12

### ***New Zealand***

From the New Zealand perspective, only the new Australian skiers who have been attracted to New Zealand by the new Porters ski field will create an additional economic impact on the ski field. All the domestic and existing international market skiers will have been attracted away from other ski fields in New Zealand.

It is assumed that for each skier at Porters who is not part of the existing Canterbury market, each skier- day on the mountain will be associated with one person-night spent in the proposed village. Off-mountain expenditure at the village is expected to average \$240 per person per night. There will an off-setting loss of economic impact from all those who have been attracted from existing markets in New Zealand. We assume that they would otherwise have spent the same amount at these other destinations as they would spend at Porters. Again, this is a conservative assumption because we understand that spending at other destinations is generally less than is expected at Porters.

We assume that all the additional international visitor-days attracted by expanding the New Zealand ski market will generate an additional 0.55 days stay in New Zealand.

## **4.5 Total and Net Economic Impacts – Results**

As is shown in Table 4, the annual spend at the ski field itself is expected to be \$9 million per year by year 5, and to rise to \$10 – 13 million per year by year 10 of operations and \$24 million per year at full development of the field. The net increase in spending in the district will be less because some skiers would come to the existing field even in the absence of development<sup>11</sup>. Spend at the village will be \$14 million per year by year 5 and increase to \$16 – 22 million per year by year 10 and \$49 million per year at full development.

### ***Selwyn District Economic Impacts***

From the district perspective, net direct output in ski fields and skier accommodation and meals is expected to increase by between \$24 million and \$34 million per year by year 10, and by \$70 million per year at full development (see Table 4).

Multiplier effects increase these values, and by year 10 regional output is expected to have increased by \$31 - 44 million / year. Accompanying this increase in output by year 10 will be an increase of 240 - 340 FTE jobs and \$16 – 22 million per year in Value Added (regional GDP), including \$8 – 12 million of earned household income.

At full field development district output will have increased by \$92 million per year. Accompanying this will be 730 FTE jobs and \$46 million per year of added value, including \$25 million per year of earned household income.

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<sup>11</sup> There is a possibility that the field would otherwise close, in which case the year 10 impacts would be 5 % greater at the district level than is shown in this report.



**Table 4****Selwyn District Direct and Total Net Economic Impacts**

	Conservative		Optimistic		Full Development
	Yr 5	Yr 10	Yr 5	Yr 10	
Spend at field	9.4	10.4	10.5	13.4	24.0
<i>Less</i> transfer from other fields	- 2.4	- 2.4	- 2.4	- 2.4	- 2.4
Spend at Village	13.7	15.9	15.4	22.6	48.6
<i>Less</i> Transfer from other places	-	-	-	-	-
Extra Visitor Spend	-	-	-	-	-
<b>Net Direct Spend (Output) (\$m / yr)</b>	21	24	23	34	70
<b>Direct Net Impact Ski Fields &amp; Villages</b>					
Output (\$m / yr)	21	24	23	34	70
Employment (FTEs)	180	210	200	300	630
Value Added (\$m / yr)	11	12	12	17	36
Household Income (\$m / yr)	6	7	7	9	20
<b>Total NET Impact</b>					
Output (\$m / yr)	27	31	31	44	92
Employment (FTEs)	210	240	240	340	730
Value Added (\$m / yr)	14	16	16	22	46
Household Income (\$m / yr)	7	8	8	12	25

Note: Totals have been rounded to avoid spurious accuracy

***Canterbury Region Economic Impacts***

From the regional perspective, net direct output in ski fields, skier accommodation and tourism is expected to increase by between \$22 million and \$31 million per year by year 10, and by \$68 million per year at full development (see Table 5). This is somewhat less than the district impact because of the greater proportion of activity which is transferred from elsewhere in the region, even though this is partially offset by additional visitor nights generated away from the ski field,

Multiplier effects increase these values, and by year 10 regional output is expected to have increased by \$41 - 59 million / year. Accompanying this increase in output by year 10 will be an increase of 310 - 450 FTE jobs and \$20 – 29 million per year in Value Added (regional GDP), including \$12 – 17 million of earned household income. These total regional impacts are greater than the district impacts because of the much larger multipliers associated with the more diverse economic base of the regional economy.

At full field development regional output will have increased by \$130 million per year. Accompanying this will be 960 FTE jobs and \$62 million per year of added value, including \$36 million per year of earned household income (see bottom of right hand column table 5).

**Table 5 Canterbury Region Direct and Total Net Economic Impacts**

	Conservative		Optimistic		Full Development
	Yr 5	Yr 10	Yr 5	Yr 10	
Spend at field	9.4	10.4	10.5	13.4	24.0
<i>Less</i> transfer from other fields	- 4.9	- 5.1	- 5.4	- 5.9	- 7.8
Spend at Village	13.7	15.9	15.4	22.6	48.6
<i>Less</i> Transfer from other places	-	-	-	-	-
Extra Visitor Spend	0.7	0.9	0.8	1.3	2.8
<b>Net Direct Spend (Output) (\$m/yr)</b>	19	22	21	31	68
<b>Direct Net Impact Ski Fields &amp; Villages</b>					
Output (\$m / yr)	18	21	20	30	65
Employment (FTEs)	170	200	190	280	610
Value Added (\$m / yr)	9	10	10	15	32
Household Income (\$m / yr)	5	6	6	9	19
<b>Total NET Impact</b>					
Output (\$m / yr)	35	41	40	59	126
Employment (FTEs)	270	310	300	450	960
Value Added (\$m / yr)	17	20	20	29	62
Household Income (\$m / yr)	10	12	11	17	36

Note: Totals have been rounded to avoid spurious accuracy

### ***New Zealand Economic Impacts***

From the national perspective, net direct output in ski fields, skier accommodation and tourism is expected to increase by between \$8 million and \$15 million per year by year 10, and by \$31 million per year at full development (see

Table 6). These figures are much lower than the district and regional direct totals because of the significant proportion of Porter's business which is assumed to have been attracted away from other fields in New Zealand.

Multiplier effects increase these values, and by year 10 national output is expected to have increased by \$19 - 32 million / year. Accompanying this increase in output by year 10 will be an increase of 150 - 260 FTE jobs and \$10 – 17 million per year in Value Added (regional GDP), including \$6 – 10 million of earned household income.

At full field development national output will have increased by \$69 million per year. Accompanying this will be 550 FTE jobs and \$37 million per year of added value, including \$22 million per year of earned household income.

**Table 6****New Zealand Direct and Total Net Economic Impacts**

	Conservative		Optimistic		Full Development
	Yr 5	Yr 10	Yr 5	Yr 10	
Spend at field	9.4	10.4	10.5	13.4	24.0
<i>Less</i> transfer from other fields	- 8.4	- 9.2	- 9.4	-11.0	-18.9
Spend at Village	13.7	15.9	15.4	22.6	48.6
<i>Less</i> Transfer from other places	-10.7	-12.1	-12.0	-15.5	-33.5
Extra Visitor Spend	2.8	3.4	3.3	5.2	11.2
<b>Net Direct Spend (Output)</b>	7	8	8	15	31
<b>Direct Net Impact Ski Fields &amp; Villages</b>					
Output (\$m / yr)	4	5	4	9	20
Employment (FTEs)	40	50	40	90	200
Value Added (\$m / yr)	2	3	2	5	10
Household Income (\$m / yr)	1	2	1	3	6
<b>Total NET Impact</b>					
Output (\$m / yr)	15	19	17	32	69
Employment (FTEs)	120	150	140	260	550
Value Added (\$m / yr)	8	10	9	17	37
Household Income (\$m / yr)	5	6	6	10	22

Note: Totals have been rounded to avoid spurious accuracy

## References

Butcher 1985 Regional Income, Output and Employment Multipliers: Their Uses & Estimates of Them. Vol.4 of Cost Benefit Handbook. Min. of Agriculture and Fisheries, Wellington, 1985

Strombergen, A. and Nana, G, 2008. New Zealand Inter-Industry Table (2005-06)  
(unpublished)

West 1982.

## Appendix 1      Input Output Methodology

This Appendix contains definitions of terms used in this report and a summary of the way in which regional economic tables were developed and multipliers calculated. The section on the theory of economic impact models is brief, and assumes the reader has some prior understanding. Those who wish to know more should consult one of the numerous texts on the subject<sup>12</sup>.

### A.1.1 Definitions

#### *Employment*

Employment is work done by employees and self-employed persons, and is measured in Full-Time-Equivalent jobs (FTEs) based on a 40 hour week through the whole year. Where work is seasonal, the conversion to FTEs is based on 12 months' work per year. So a seasonal worker working full time for six months per year is 0.5 FTEs, and a part time seasonal worker working ten hours per week for six months is 0.125 FTEs.

#### *Output*

Output is the value of sales by a business. In the case of wholesale and retail trade, it is the total value of turnover (and not simply gross margins)<sup>13</sup>.

#### *Value-Added*

Value-added includes household income (wages and salaries and self-employed income), and returns to capital (including interest, depreciation and profits). It also includes all direct and indirect taxes. It is a measure which is equivalent to GDP in a national accounts context, and to EBITDA<sup>14</sup> + wages and salaries in an accounting context. It is the income, after direct expenses, accruing to businesses and those who work in them.

#### *Household Income*

Household income is the gross earned income of households, and hence is a sub-set of value added. Household Income includes the income of self-employed persons. There is sometimes considerable uncertainty as to the proportion of business income which goes to households and particularly in small businesses where tax accounts are more likely to show various forms of income and drawings which are tax effective as opposed to a realistic assessment of the actual flows of funds during the year.

#### *Direct Economic Impacts*

The direct impact arises from the purchase of goods and services by visitors to Porters, including there purchases of ski field services. Direct output is the value of sales made by these businesses, direct employment is people who work in these businesses, direct household income is the wages and salaries earned by those working in the businesses and direct direct value-added is the value-added in those businesses.

#### *Indirect Economic Impact*

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<sup>12</sup> For example, Richardson et al (1972, Jensen and West (1982), Butcher 1985).

<sup>13</sup> Care has to be taken in combining retail sales figures with employment per \$m of output from input – output tables. In these tables, output is generally defined as gross margin. By contrast, businesses statistics figures usually only give employment per \$m of turnover.

<sup>14</sup> Earnings before interest, tax, depreciation and amortization.

Indirect impact arises from increased spending by businesses as they buy additional inputs so that they can increase production. This indirect effect can be envisaged as an expanding ripple effect. A hotel sells rooms, but has to buy laundry services and transport to get the laundry to the hotel. The transport company has to buy fuel and get its trucks serviced by a mechanic. The mechanic has to purchase electricity and waste disposal services to operate his business. All of these businesses have to employ more staff to cope with the increase in work. All the increased employment, output and value-added (apart from that in the hotel) is the indirect effect. Note that indirect effects only include “upstream” effects (via buying more inputs), but do not include any stimulated development downstream which is addressed separately.

### ***Induced Economic Impact***

The induced impact is the result of increased household income being earned and spent by those in both the direct and indirect businesses, and this spending leads to a further ripple effect of increased employment, output and income.

### ***Downstream Impacts***

Impacts which are not driven by an activity’s demand for extra inputs, but which might arise as a result of a particular activity, are sometimes called the “downstream impacts”. An example for ski fields is accommodation. Accommodation does not provide an input into the ski field, and hence is not an indirect or induced effect of the ski field. Accommodation and other off-field visitor spending are downstream effects and have been estimated separately in this study.

### ***Total Economic Impacts***

The total impact is the sum of the direct, indirect and induced impacts.

## **A.1.2 Generation of a Study Area Economic Model and Multipliers**

Regional economic models can be generated using a national production function and modifying the input coefficients to reflect average regional self-sufficiency in the various input industries. This approach presumes that input structures for a given industry are the same in different regions. Where possible, analysis should establish the input structure (type and origin) of the industry in question (in this case skiing.) in the particular region.

While one can assess the ski field budgets to determine the nature and location of purchases, this gives only the first round of indirect impacts. To estimate the further impacts caused by the spending of businesses further down the chain, one has the option of surveying all those businesses as well (which is prohibitively expensive), or estimating the probable pattern of their expenditure on the basis of information that already exists about national average expenditure patterns of businesses of this type, and the regional location of businesses that supply those inputs. For example, if we know that one per cent of all ski field costs are spent on staff clothing and skis and we know that the region has no factory producing uniforms or skis, then we can assume that this one per cent of costs is imported into the region.

All the information and assumptions are incorporated into a separately estimated regional input-output model. This specific regional model is generated using an existing national input-output model, information about the regional distribution of employment and output, and a mathematical technique called GRIT<sup>15</sup> (Generation of Regional Input-output Tables - which

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<sup>15</sup> Developed in Australia and widely used there and in New Zealand. See West *et al* (1982) or Butcher (1985)

estimates the source of inputs into regional industries). This model is then adjusted by incorporating into it the data that has been gathered about the type and source of purchases by the ski field. The input-output model can be used to calculate the total effects on all sectors of an increase in output of any single sector. These total effects include the original effect and all the consequential rounds of indirect and induced effects. Note that it does not include any downstream impacts (see definition of indirect impacts above), which have to be calculated separately.

The regional economic model generated for this study is based on the national inter-industry model for 2005/06<sup>16</sup> and regional shares of output were based on 2008 business survey employment data, gathered by the Department of Statistics. The GRIT process uses regional output by industry as its starting point. There is limited information currently available on regional output by industry, and Statistics New Zealand will not release disaggregated data on the grounds that to do so would breach commercial confidentiality of businesses supplying the data. The most detailed data that are available relates to employment as measured by the census and the annual Business Enterprise survey.

Once the survey information had been incorporated into the regional model, employment, output, value-added and household income multipliers can be estimated using matrix algebra<sup>17</sup>. Type II multipliers (which include induced effects) were calculated. It is clear that the increased direct household income from employment at Porters ski field and accommodation stimulates household spending and hence economic activity in the regional, and for this reason it seems appropriate that Type II multipliers be used to calculate total economic impacts.

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<sup>16</sup> Stroombergen and Nana (2008)

<sup>17</sup> Customised software (e.g. IO7 – available from the author) which undertakes the matrix manipulation is readily available. Numerous texts are available which describe general input – output models.