



# The Economic Value of **SNOWMOBILING IN VALEMOUNT**

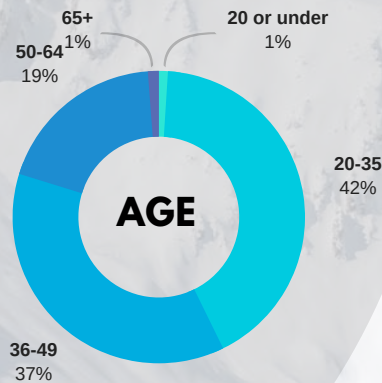
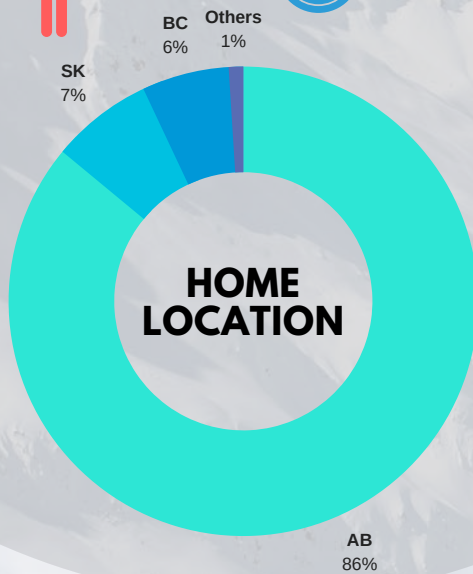
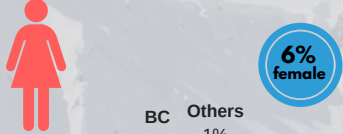
September 2018



PC: Boosted Imagery



## Who snowmobiles in Valemount?



## A typical snowmobile trip to Valemount



## VARDA incorporated 2004

is the not for profit organization that partners with government on behalf of snowmobilers to manage five local snowmobiling areas.

**190** 2017/18 members

**16,131** 2017/2018 snowmobiler days

Snowmobilers account for approximately **14%** of tourism revenue in Valemount

## Average Daily Spending per Snowmobiler

 **\$114.49**  
Accommodation

 **\$100.07**  
Fuel

 **\$74.63**  
Restaurants & bars

 **\$59.76**  
Other spending

# The Economic Value of Snowmobiling in Valemount

## 2017 Regional Impact of Snowmobiling in Valemount

**\$ 5.7 million** of Economic Output

**\$ 640,000** in Regional & Municipal Tax

**\$ 3.0 million** of Gross Domestic Product

**\$ 40,000** in MRDT Revenue

**\$ 1.8 million** of Household Income

**55** Jobs

## Executive Summary

The village of Valemount carries a rich history of an economy built on resource extraction, which has more recently shifted towards tourism. While summer tourism was the first to come to the area, the 1990s marked the beginning of winter tourism when snowmobilers began visiting to ride in the surrounding mountains. In 2004 this economic contribution was cemented with the formation of the Valemount and Area Recreation Development Association (VARDA) to manage trail grooming and shelters in local snowmobiling areas.

Since the rise of snowmobiling in the community there have been anecdotal observations about its impact on the local economy but few studies into its actual economic value. The purpose of this report is to determine the economic value of snowmobiling through business and snowmobiler surveys that gather information about the snowmobilers, their spending, and their impact on the local economy.

From a sample of snowmobilers surveyed, it was found that snowmobilers, typically males aged 20-49, spent approximately \$6.46 million during the 2017/2018 winter season in Valemount. Alberta was the home location of 86% of the snowmobilers, with 7% from Saskatchewan and 6% from British Columbia. The average snowmobiler visits Valemount 15 days each season to snowmobile, spreading those days over five separate three-night trips. Snowmobilers reported spending an average each day of \$114.49 on accommodation, \$100.07 on fuel, \$74.63 on restaurants and bars, and \$59.76 on other spending including groceries, alcohol, parts, repairs and accessories, rentals, guiding and instruction, and trail fees.

An economic impact analysis using input-output tables determined that snowmobiler spending (direct, indirect and induced) accounts for the following within the regional district:

- \$5.7 million of economic output
- \$3.0 million of gross domestic product
- 55 jobs
- \$1.8 million of household revenue
- \$640,000 of regional and municipal tax revenue
- \$40,000 of specifically Municipal and Regional District Tax (MRDT) revenue

In addition to the direct impacts from spending, there are longer-term values that are more difficult to measure. These include the support from snowmobiler spending that allows businesses to remain open during the winter months for other customers, contributing to the development of tourism marketing through the Municipal and Regional District Tax (MRDT), the formation of VARDA to manage other local projects, and the development of real estate in the area. While snowmobiling is just one factor of many, it is a significant driver of the economy in the winter months, creating a year-round tourism industry in the village. Snowmobiling is important to Valemount and the village is clearly a special place for many visiting snowmobilers. Survey participants discussed their reasons for snowmobiling in Valemount, their concerns about its future, their favourite parts of the village, as well as offering suggestions for improvement.

Overall, snowmobiling provides economic value for Valemount through revenue from visitors outside the village and the province. Snowmobilers have a strong awareness of the privilege they have of riding in the surrounding mountains. Given the significant contribution these snowmobilers make to the local economy, it will be important for Valemount to continue to support VARDA in the successful management of these areas for the public to enjoy into the future.

# The Economic Value of Snowmobiling in Valemout

September 2018

*Prepared by Miranda Murphy, CPA and Pacific Analytics  
on behalf of Valemout & Area Recreation Development Association*

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## Introduction

In the snow-covered streets of Valemount on a winter evening, one of the main drivers of the village's economy is easy to see. Trucks and trailers fill the town's hotels and restaurants, carrying visitors' snowmobiles, still covered in snow from a long day in the mountains. Snowmobiling has become a major part of Valemount's economy and community since snowmobile technology improved, allowing the machines to travel through the mountainous terrain and deep snow that characterize the area.

## A resource economy

Valemount, situated in the Regional District of Fraser-Fort George, has an economy deeply rooted in its natural resources. The land surrounding Valemount was originally the summer hunting, foraging and fishing ground of the Simpcw people<sup>1</sup>. Its strategic location at the headwaters of the Fraser River played an important role in trade with the arrival of Europeans, who eventually established a settlement in the area. Since then, forestry has been a key driver of the local economy, however its cyclical nature has not always been dependable. Historically, a policy known as appurtenancy was applied to the forestry industry, ensuring trees harvested in the Robson Valley region were processed in the area. However this policy was eliminated in 2006 and the area mill shut down permanently in 2007, taking with it the livelihood of many people living locally.<sup>2</sup>

## Snowmobiling makes its way to the mountains

In the 1990s Valemount began to see a shift towards the tourism sector, coinciding with changes to the capability of snowmobiles. The 1990s marked improvements to the engine displacement and overall design of machines, which significantly pushed the boundaries of where snowmobilers could travel in mountainous terrain and deep snow. Snowmobile manufacturers began developing machines specifically for mountain travel – a trend that continues today. Modern snowmobiles are powerful and relatively reliable machines that can carry a snowmobiler through the deep snow found high in the mountains. The limitation for snowmobilers today is finding areas to ride with ideal snow conditions, big mountains and groomed trails to access the alpine terrain. Fortunately, this is exactly what the village of Valemount offers to snowmobilers.

## VARDA is born

At the beginning of the 2000s it was widely recognized that “winter recreation activities, such as heli-skiing and snowmobiling, are a major driver of the local economy” in Valemount and surrounding areas.<sup>3</sup> Supporting these activities would provide local economic and recreational opportunities for residents and visitors. Spearheaded by the need for conflict resolution surrounding backcountry use, the recreational community incorporated the Valemount Area Recreation Development Association (VARDA) to represent their land use in front of government. VARDA's role in managing these recreational areas is outlined in the Sustainable Resource Management Plan (SRMP) created by the provincial government in 2004.

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<sup>1</sup> Simpcw First Nation, 'Our History', Barriere, BC, <http://www.simpcw.com/our-history.htm>

<sup>2</sup> The Village of Valemount, 'Valemount British Columbia Community Profile', Valemount, B.C., 2010, p.7, <https://valemount.civicweb.net/document/11853>

<sup>3</sup> The Province of British Columbia, 'Valemount to Blue River Winter Recreation Sustainable Resource Management Plan (SRMP)', 2005, p.2, <https://www2.gov.bc.ca/gov/content/industry/natural-resource-use/land-use/land-use-plans-objectives/thompson-okanagan-region/valemountblueriver-srmp>

VARDA is a not-for-profit organization under the B.C. Societies Act responsible for managing five Valemount snowmobile areas on Crown Land under a partnership agreement with the provincial government. The agreement allows users to be charged fees on a cost recovery basis “to pay for services such as [shelter] and trail construction and maintenance, snowmobile patrol, and grooming.”<sup>4</sup> With the existence of VARDA, there was an increased opportunity for the organization to work with local businesses and stakeholders to develop the snowmobile industry and garner support to offer even more to visiting snowmobilers. With a dedicated team of staff, reliable grooming, avalanche forecasting, active social media and continuous fundraising, VARDA has driven Valemount to be one of the top snowmobile destinations in British Columbia – both by visitor numbers and popular votes in snowmobile publications.<sup>5</sup>

## What does snowmobiling mean to Valemount?

If you ask Valemount locals, they will say that snowmobiling means a source of winter revenue for local businesses. It was the surge in snowmobilers coming to visit beginning in the 1990s that made operations during the winter season feasible and increased the number of hotels in the village. A 2004 economic report on the village states snowmobiling as “the only significant destination market that Valemount services,” which is still true as of 2018.<sup>6</sup> It was snowmobiling that turned Valemount into a year-round destination.

It is obvious that this has an economic impact on the area, but the work to determine economic contributions from snowmobilers has not previously been done. While collecting data to create this report, it also became apparent that although snowmobiling means a lot to the economy of the village, Valemount means even more to the snowmobilers who come back to the mountains each year.

## Purpose and Objectives

The purpose of this research is to provide VARDA and Valemount with a greater understanding of the value of snowmobiling to their community and economy.

The objective of this report is to provide knowledge to VARDA that will increase its capacity to:

- Demonstrate the social and economic value of snowmobiling to municipal, provincial and federal governments
- Create a tangible value of the industry in the eyes of the community and stakeholders
- Demonstrate the local industry’s value when applying for grants and financial aid
- Report back to sponsors and supporters on the snowmobiler user group visiting Valemount

## Background

In the past there have been some reports and one in-depth research study done to collect data and discuss the economic and community value of snowmobile tourism in Valemount.

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<sup>4</sup> *Valemount to Blue River Winter Recreation Sustainable Resource Management Plan*. 2005, p. 5.

[https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/thompsonokanagan-region/valemountblueriver-srmp/valemount\\_srmp.pdf](https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/thompsonokanagan-region/valemountblueriver-srmp/valemount_srmp.pdf)

<sup>5</sup> Brent Harley and Associates Inc. Socio Economic Opportunity Study for the Valemount Area. Whistler, B.C., 2004, p. 21.

<http://www.rdffq.bc.ca/uploads/reports/Economic-Development/ValemountSocioEconomicStudy.pdf>

<sup>6</sup> Brent Harley and Associates Inc. p.21



In 2001 Michael Haener of the Canadian Forest Service completed a survey of snowmobilers at trailheads in the McBride and Valemount areas to describe the number of users, the origin and characteristics of user groups and the self-reported spending in Valemount. This survey captured groups snowmobiling on weekends during most of the winter. The most notable contribution of this survey was the reporting on snowmobiler average expenditures that estimated how much each person spent on accommodation, food, fuel and other expenses per day of a snowmobile trip to the area.

Since this research was completed, subsequent economic reports and community documents have been prepared that reference its findings. Given this survey was completed almost two decades ago, it is reasonable to expect the industry and associated expenditures have grown.

## Models and Methods

### Economic value

An economic impact analysis determines the value of an activity's contribution to the local Valemount economy. On the surface, it could be assumed that the economic contribution of snowmobilers can be measured by the sum of the total expenditures they make while visiting on a snowmobile trip. However, this measure would ignore the complexities within economies. Even Valemount's relatively small economy has intermediate suppliers, different types of businesses, capital investment, and different workforce locations. Calculations of economic value are more accurate when they take these detailed relationships into account.

### Input-output tables<sup>7</sup>

Economic input-output models are designed using statistical information on the economy and the flow of goods and services through different industries. By supplying the model with the inputs – in this case, snowmobiler expenditures – the model will calculate the resulting output in the economy using the impact types discussed below. These tables are developed using regionally based economic data as well as informed assumptions from the data about the flow of goods and services. This report uses the consulting services of Pacific Analytics and their input-output models developed for Destination BC to calculate the economic value generated from snowmobiler spending in Valemount.<sup>8</sup>

### Types of impact

There are three types of connections identified by economic impact analyses to outline these different forces:

- **Direct impact** refers to the purchases made by the local businesses operations.
- **Indirect impact** refers to the purchases made and employees hired by the suppliers of these local businesses.
- **Induced impact** refers to the household spending of employees from the businesses in the local economy.

Economic value is not as simple as the amount of expenditures made by snowmobilers in the community. Because of the linkages within the economy and the interaction of local business and employee spending, the economic effect of snowmobiling is greater than the dollars initially spent.

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<sup>7</sup> Appendix B includes the input-output tables produced by Pacific Analytics Inc.

<sup>8</sup> Johnson, Jim. Pacific Analytics Inc. <http://pacificanalytics.ca/about>

## Measures of economic activity

There are standard measures of economic activity that allow results to be compared across other economies and inputs. These are defined as follows:

- **Output** is the sum value of all goods and services including intermediate purchases produced due to snowmobiler spending.
- **Gross Domestic Product (GDP)** is the additional value of the goods and services produced due to snowmobiler spending.
- **Employment** is the number of employee jobs that support snowmobiler spending.
- **Household income** is the value of wages paid to these employees.
- **Tax Revenue** is the value of tax generated through snowmobiler spending.

## Data collection

Data was collected using surveys of snowmobilers and businesses, and in face-to-face interviews with businesses and community stakeholders.

### *Economic data*

In order to determine the total expenditures in the economy from snowmobilers, a survey of local businesses and a survey of snowmobilers was conducted.<sup>9</sup> The snowmobiler survey asked about snowmobiler demographics, the duration and number of trips they take to Valemount, and the typical spending per trip within Valemount on accommodation, fuel, restaurants and bars, groceries, parts, repairs and accessories, guiding or instructional services, and other expenses. This survey was distributed online through VARDA social media channels, snowmobile forums and VARDA's email list. The survey was available for 19 days and accumulated 542 unique survey responses. By determining the number of days of snowmobiling reported by each respondent, it is estimated that this sample population accounted for 51% of annual snowmobiler days in the 2017/2018 winter season.

The business survey included questions to determine the types and amount of revenue businesses collected from snowmobilers during 2017. There was a good response from businesses with snowmobile specific operations, however without sufficient data from the accommodation and restaurant sector, there is more validity in the estimates provided by the snowmobiler survey self-reported spending.

The third source of data was income and expenditure from VARDA itself. VARDA provided access to its financial information to demonstrate the income associated with snowmobiling (including trail pass fees, memberships, sponsorship, donations, grants and advertising sales) and details on expenditures made by the organization. This income reflects expenditures made by snowmobilers to ride in Valemount, but also includes associated money that enters the Valemount community because of snowmobiling through the efforts of VARDA (sponsorship, donations, advertising sales and grants).

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<sup>9</sup> Appendix A includes the survey distributed to snowmobilers.



The data source used to determine total snowmobiler expenditures for each category of expense is as follows:

| <b>Expenditure Category</b>  | <b>Data Source</b>          |
|--|-----------------------------|
| Accommodation  | Snowmobiler survey          |
| Fuel   | Snowmobiler survey          |
| Restaurant and bars  | Snowmobiler survey          |
| Groceries  | Snowmobiler survey          |
| Parts, repairs and accessories   | Business survey             |
| Guiding or instructional services  | Business survey             |
| Other expenses   | Snowmobiler survey          |
| VARDA income (trails fees, memberships, sponsorships, advertising sales, etc.) | VARDA financial information |

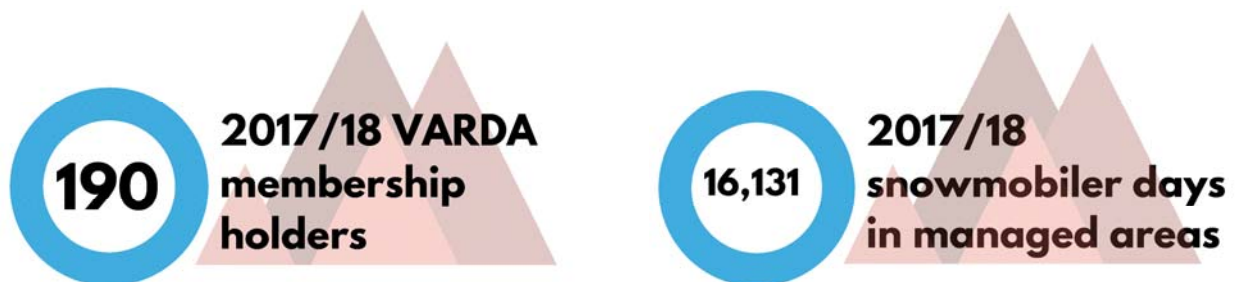
### ***Qualitative data***

While the economic value of snowmobiling in Valemount is important, there are also details to the story that describe the character of this economic contribution and discuss value that is difficult to measure. In this report, a qualitative data set was built mainly as a collective narrative from surveys and interviews with the following sources:

- VARDA stakeholders
- Local businesses and employees
- Local government
- Snowmobilers from inside and outside of the community

## **Results**

VARDA is a not-for-profit organization supported by payment of membership fees, sponsorships, donations and advertising sales.

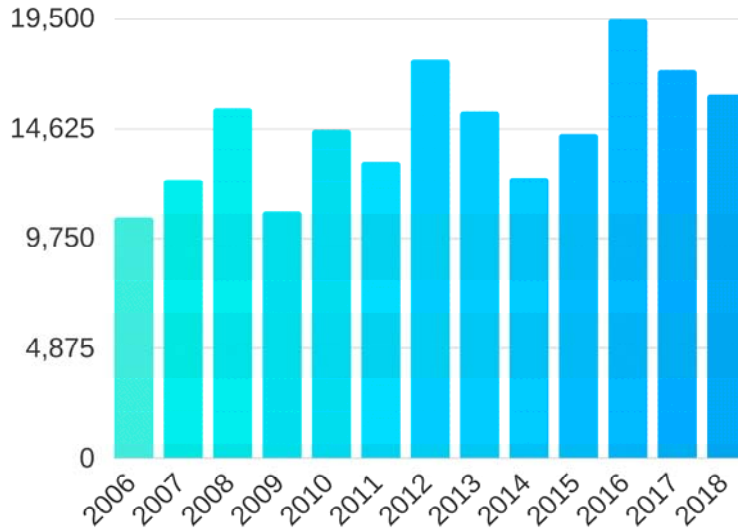


As part of a partnership agreement with the province of British Columbia for the managed areas, VARDA collects trail fees to cover the costs associated with providing grooming, public communication and management services at five of the most popular snowmobiling areas surrounding Valemount – Clemina Creek, Allan Creek, Chappell Creek, Keyhole and Crystal Ridge snowmobile-assisted ski hill.



Since the 2006 winter season, data has been collected at the trailheads and represents the total number of snowmobiler days in these areas per season. Growth in snowmobilership averages 5.9% per year over the 13-year period. However, these comparisons are difficult as the length and quality of snowmobiling seasons fluctuate due to snow conditions.

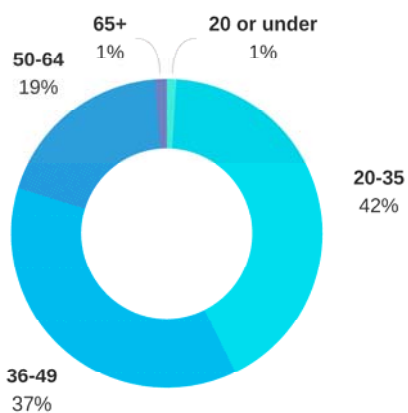
Snowmobiler days per season at VARDA managed areas



**Snowmobiler demographics**

The snowmobiler survey results give a reasonable estimate of the general population of snowmobilers who visit Valemount. The survey generated 542 responses and, based on the reported number of days per season, these snowmobilers estimated they collectively snowmobiled 8257 days at managed areas. This accounts for approximately 51% of the 16,131 snowmobiler days recorded during the 2017/18 season. The results below represent demographic data collected from this surveyed population.

Snowmobiler Age



Most snowmobilers fall between the ages of 20-49 (78.7%) with 19.0% in the 50-64 age bracket, and 1% each for 20 and under and 65 and over.

Snowmobiler Gender

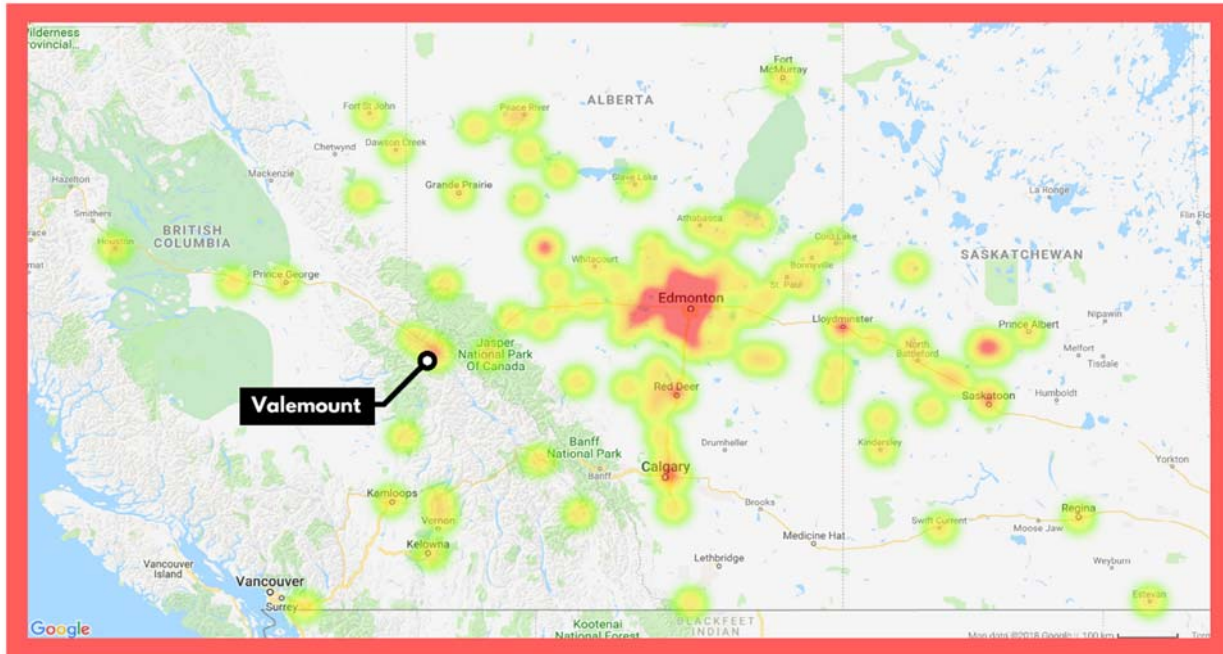
Unsurprisingly to anyone who has spent time snowmobiling, 93.7% of the snowmobilers who visit Valemount are male and 6.3% are female.





The snowmobilers' homes are mostly located in Alberta (86%) with a fraction of them travelling from Saskatchewan (7%) and elsewhere in British Columbia (5%). Just over 1% of snowmobilers travel from other provinces and the USA. Only 1% of snowmobilers surveyed were from the area surrounding Valemount. These statistics are very important for the economic analysis of snowmobiling in Valemount as they indicate that 99% of snowmobiler money spent originates from outside of the area's economy and is an export of the village.

### Snowmobiler Home Locations



### An average snowmobiling trip to Valemount

Depending on how far snowmobilers live from Valemount, the typical snowmobiling trip starts with a long drive. Most snowmobilers travel from the Edmonton area, which can be a drive of five hours or more given the variable, snowy road conditions during winter. Driving snowy roads is not a deterrent for snowmobilers because snowfall means ideal snowmobiling conditions in the mountains. This also means snowmobilers typically stay overnight in the village.

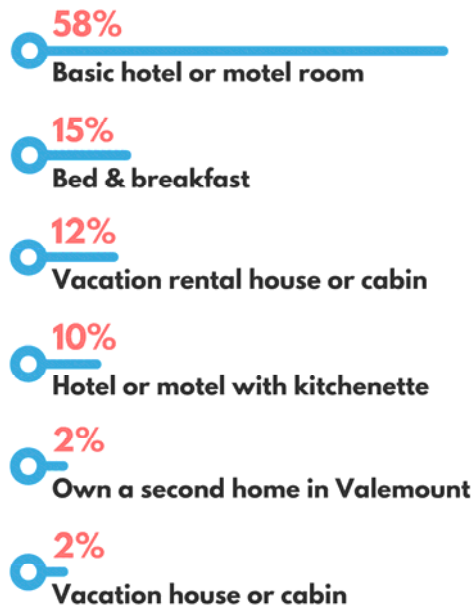
### Trip Characteristics



The average snowmobiler surveyed takes 5.2 trips to Valemount each winter season. The average trip is the length of a weekend including 2.9 days of riding and 3.1 nights staying in Valemount. Most snowmobilers spend their evenings in local establishments, eating out at restaurants an average of 2.7 dinners per trip.



### Accommodation preferences



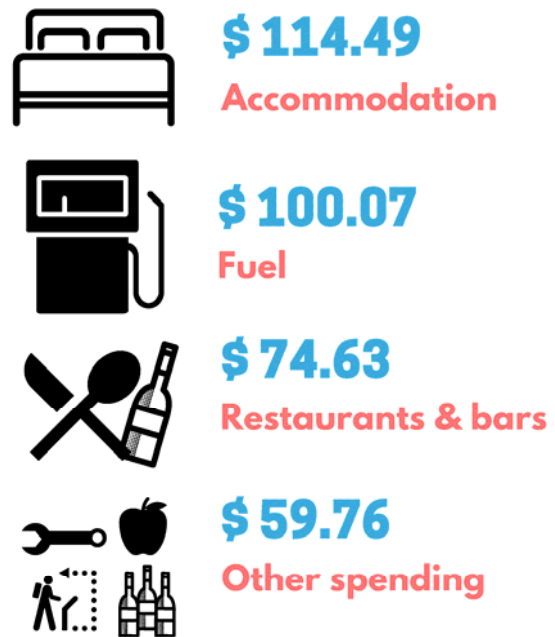
Snowmobilers were asked what their preferred accommodation type is when they stay in the village. The survey allowed multiple accommodation types to be chosen. Over half of snowmobilers prefer to book a basic hotel or motel room, with the second choice being a bed and breakfast and the third a vacation home.

### Self-reported spending by snowmobilers

Because 99% of snowmobilers do not live and work in Valemount, the expenditures they make while visiting are more valuable to the local economy. In economic terms, snowmobilers travelling to ride means that Valemount is exporting its snowmobiling product. The money that snowmobilers spend is new to the local economy, and therefore adds more value than money spent by snowmobilers who earn their income within the local economy.

### Average Daily Expenditures

The snowmobilers surveyed gave an estimate of their average expenditure in different categories per trip including accommodation, fuel, restaurants and bars, groceries, parts, repairs and accessories, guiding and instructional services, and other expenditures. These were divided by the number of days in their typical trip to give the average daily expenditure for each snowmobiler and for the surveyed population. Due to the small number of businesses operating in the categories other than accommodation, fuel and restaurants and bars, the data for the remaining categories have been combined into the 'Other spending' category.



### Economic value

For the purposes of this research, the economic value reported focuses on the aggregated estimated annual snowmobiler expenditures in the 2017/18 winter season in Valemount. This data is partially gathered through the self-reporting of expenditures by snowmobilers in the online survey, and, where more accurate, through actual reporting of revenue received from snowmobilers by Valemount businesses and organizations.

## Estimated Expenditures in 2017

| <b>Expenditure Category</b>  | <b>Data Source</b>          | <b>2017 Estimated Spending</b> |
|--|-----------------------------|--------------------------------|
| Accommodation  | Snowmobiler survey          | \$ 1,937,287                   |
| Fuel   | Snowmobiler survey          | \$ 1,693,397                   |
| Restaurants and Bars   | Snowmobiler survey          | \$ 1,262,847                   |
| Groceries  | Snowmobiler survey          | \$ 1,043,732                   |
| Parts, repairs and accessories   | Business survey             |                                |
| Guiding or instructional services  | Business survey             |                                |
| Other expenses   | Snowmobiler survey          |                                |
| VARDA income (trails fees, memberships, sponsorships, advertising sales, etc.) | VARDA financial information | \$ 526,868                     |
|  | <b>Total</b>                | <b>\$ 6,464,131</b>            |

The total expenditures for groceries, parts, repairs and accessories, guiding and instructional services, and other expenses were added together after analysis with the input-output tables for confidentiality due to the small number of businesses in Valemout producing each of these services.

The impacts of the expenditures below are regional impact estimates based on supplier industry output, census employment data and labour force statistics. These impacts are estimated for the Regional District of Fraser-Fort George, in which Valemout is located.<sup>10</sup>

In a document prepared in 2016 for the Resort Municipality Initiative Resort Collaborative, it was estimated that annual tourism spending in 2015 in Valemout was \$45,767,902.<sup>11</sup> This is the most recent economic impact data collected for the area. While recognizing the limitations involved in comparing data from two different years, the spending estimated by snowmobilers in 2017 accounts for approximately 14% of the overall tourism spending from 2015.

**Output<sup>12</sup>**

Economic output is a measure of the sum value of all goods and services including intermediate purchases produced due to snowmobiler spending. The total value of the output of snowmobiler spending in Valemout including direct, indirect and induced spending is \$5.69 million.

**Economic Output**

|  |                     |
|--|---------------------|
| Direct suppliers of snowmobile tourism | 4,566,614           |
| Indirect suppliers                     | 767,858             |
| Induced effect                         | 351,283             |
| <b>Total change in output</b>          | <b>\$ 5,685,755</b> |

<sup>10</sup> Appendix C includes additional information about the input-output tables and economic models used.

<sup>11</sup> Resort Municipality Initiative Resort Collaborative, 'Resort Municipality Initiative Funding', 2016, p. 59.

<sup>12</sup> Data is subject to rounding in all tables.

**Gross Domestic Product**

Gross domestic product (GDP) is the additional value of the goods and services produced added into the economy due to snowmobiler spending. The total value of GDP added to the Valemount economy due to snowmobiler spending including direct, indirect and induced spending is \$3.00 million.

**GDP Effects**

|  |                     |
|--|---------------------|
| Direct suppliers of snowmobile tourism | 2,312,720           |
| Indirect suppliers                     | 433,373             |
| Induced effect                         | 250,632             |
| <b>Total effects</b>                   | <b>\$ 2,996,725</b> |

**Employment**

Employment is the number of employee jobs that are made available in Valemount due to snowmobiler spending. The total number of jobs added, including direct jobs as well as jobs created by indirect and induced spending, is 54.9.

**Number of Employees**

|  |             |
|--|-------------|
| # of employees supported by snowmobile tourism | 48.6        |
| Indirect employment                            | 4.7         |
| Induced effect                                 | 1.6         |
| <b>Total employees</b>                         | <b>54.9</b> |

Most of the jobs created by snowmobiling are included in the accommodation and food service industry, which employs 15.4% of Valemount's labour force according to 2016 census data.<sup>13</sup>

**Household Income**

Household income is the total payments made for labour in Valemount that are due to snowmobiler spending. Total household income including that generated from direct, indirect and induced spending is \$1.79 million.

**Household Income**

|   |                     |
|---|---------------------|
| Household income provided by snowmobile tourism | 1,495,897           |
| Indirect household income                       | 237,212             |
| Induced effect                                  | 60,866              |
| <b>Total household income</b>                   | <b>\$ 1,793,975</b> |

**Tax Revenue**

Tax revenue is the amount of additional tax that is available municipally, provincially and federally due to spending by snowmobilers in Valemount. The most significant of these numbers is the regional and municipal tax generated by snowmobiler spending, as this is spent on local infrastructure and expenses. Total regional and municipal taxes generated from direct,

<sup>13</sup> Statistics Canada. *The Village of Valemount Census Profile*.  
<https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CSD&Code1=5953007&Geo2=PR&Code2=47&Data=Count&SearchText=Cariboo&SearchType=Begins&SearchPR=01&B1=All>

indirect and induced snowmobiler spending is \$640,841, which includes \$40,673 of MRDT tax revenue.<sup>14</sup>

### **Municipal Tax Revenue**

|  |                   |
|--|-------------------|
| Tax revenue provided by snowmobile tourism     | 579,321           |
| Change in subsequent-round supplier industries | 30,293            |
| Induced effect                                 | 31,227            |
| <b>Total tax revenue</b>                       | <b>\$ 640,841</b> |

Outside of municipal tax revenues, snowmobiling in Valemount also generates provincial and federal tax revenue.

### **Distribution of Tax Revenue**

#### *Federal*

|                                |            |
|--------------------------------|------------|
| Provided by snowmobile tourism | 596,973    |
| Indirect and induced           | 63,757     |
| Total                          | \$ 660,730 |

#### *Provincial*

|                                |            |
|--------------------------------|------------|
| Provided by snowmobile tourism | 868,981    |
| Indirect and induced           | 92,279     |
| Total                          | \$ 961,260 |

### **Total Tax Revenue**

**\$ 1,621,990**

### ***Limitations of the data***

It is most important to note that estimates of economic value are limited by the number of snowmobiler days. While average expenditures per snowmobiler were calculated on a current spending estimate, they were multiplied by the number of user days tracked in the 2017/2018 winter season. The number of user days each season does vary considerably, however 2017/2018 was a relatively average year in terms of user numbers.

The data multiplied in the tables estimates the impacts on the Regional District of Fraser-Fort George. This is a larger area than just Valemount, however, given the direct measurement of expenditures in Valemount and the likelihood that most supplies are imported from outside the regional district, the data is a reasonable estimate of the impacts on the village of Valemount.

The economic value data presented above is a conservative estimate of the actual economic value added by snowmobiling to the economy of Valemount. There is a relatively small number of snowmobilers who visit Valemount before and after trail fees are collected each season whose days are not included in this estimate, which may increase the actual economic value. There are also snowmobilers who spend days outside of areas where user data is collected who are not captured in this data.

<sup>14</sup> Because of the difficulties involved in calculating property taxes from output, the input-output model used does not currently calculate Regional and Municipal Taxes, however they can be estimated as 2/3 of Provincial Taxes. Because of this assumption outside of the model calculations, these values are approximate.



Business data includes the majority of businesses providing services in each category but may not include some smaller businesses. In particular, the business data from accommodation and restaurants was not sufficient to provide an analysis. In this case, the self-reported data from the snowmobiler survey was used to aggregate their annual spending from daily averages. In future reports it would be more accurate to obtain greater samples of business data to allow for a more accurate analysis directly determined from business revenue.

### **The greater economic value of snowmobiling**

The economic value of snowmobiling in Valemount within the scope of this research focuses on the impact of snowmobiler expenditures in the 2017/2018 season. However, the overall value to the community would presumably be larger and much more difficult to measure if it were to include the impacts indirectly related to snowmobiling.

#### ***A winter economy***

Determining the exact linkages in the relationship between snowmobiling and the growth of tourism in Valemount would be nearly impossible due to the complexity of factors in an economy. However, from interviewing business and community stakeholders in the village, there are some generally agreed upon assumptions about these connections. As snowmobiling grew in popularity in the 1990s, hotels began to open in the winter. According to local business owners this also allowed more businesses – like restaurants, hotels, bed and breakfasts, and repair shops - to have feasible year-round operations. These businesses added more year-round employment and activity to the economy. One thing that was clear was that without snowmobiling, the ability to maintain year-round businesses in Valemount would be much more challenging, or not possible. If hotels and restaurants were not open in the winter, they would be unable to offer their services to non-snowmobiling visitors during the season.

#### ***Tourism marketing programs***

Another benefit from snowmobiling is the additional revenue for tourism marketing collected through the Municipal and Regional District Tax (MRDT). This tax is charged on hotel accommodation, which is part of the resort municipality initiative to raise revenues for local tourism marketing, programs and projects.<sup>15</sup> In part due to the large number of hotel rooms in Valemount, the municipality began to participate in the MRDT program through the province of British Columbia in 2007. Currently, this program collects about \$170,000 per year for tourism marketing from hotel visitors – a number that has been growing since the MRDT program in Valemount began. In addition to marketing the area, the MRDT revenue and government fund matching has paid for capital projects such as the Cranberry Marsh boardwalk and the Bigfoot Trail. Snowmobilers contribute to this funding directly whenever they pay for accommodation at a hotel eligible to collect and remit the 2% tax.

#### ***The development of VARDA***

A direct result of snowmobiling was the creation of VARDA in 2004. With the call for more land planning by the province in the early 2000s, the provincial government spearheaded development of a Sustainable Resource Management Plan. VARDA was created to manage the partnership between snowmobilers and the province of British Columbia in allowing sustainable access to recreational snowmobiling areas surrounding Valemount. This partnership enabled

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<sup>15</sup> Destination British Columbia. *MRDT FAQ*. Question 10.

<https://www.destinationbc.ca/BC-Tourism-Industry/Municipal-and-Regional-District-Tax-Program/MRDT-FAQ.aspx#Question10>

VARDA to collect trail fees from snowmobilers to ensure well-managed grooming of the trails. In addition to developing trail grooming, VARDA has shaped Valemount into one of the leading snowmobile destinations in British Columbia. VARDA has developed and implemented an avalanche safety plan and forecasting program for its grooming operations, and operated a snow host program to educate users about safety and wildlife. A VARDA staff member currently sits on the Avalanche Canada board of directors and chairs the snowmobile advisory committee. Snowmobilers surveyed say one of the main factors they appreciate about snowmobiling in Valemount is the management of VARDA and its participation in the larger community of snowmobiling.

VARDA has led to further developments for the community outside of snowmobiling. With its experience, knowledge and relationship with the province in managing the winter snowmobile partnerships, it has also developed partnerships for snowmobile access ski runs, and a vehicle access mountain bike park. These areas add to the repertoire that Valemount has on offer to attract tourists of different demographics to the area in all seasons.

### ***Real estate development***

Snowmobilers have begun to make more a long-term investment in Valemount through real estate. There has been an influx of real estate development in Valemount targeted at snowmobilers looking for a winter vacation home or investment property to rent out to other visiting snowmobilers. While this capital investment has not been captured in the above survey, it is important to note that these developments contribute to the Valemount economy through construction, and over the long term through the property tax revenue collected annually.

### **What snowmobilers have to say**

Snowmobilers are a passionate group. Online surveys typically do not reach a large portion of the population. However, by extrapolating the self-reported number of days the snowmobilers who responded to the survey ride per season (approximately 15 days per respondent), this survey population represents approximately 51% of the user days recorded in 2017. Most likely, those who responded to the survey are the most engaged and frequent user group within the general snowmobiler population. Because of this response, there was a depth of information included in their responses to the survey questions.



## **WHY do you snowmobile in Valemount?**

*"Valemount has a special place in my heart."  
"[I] love to support local people working so  
hard to support an industry."*

Most snowmobilers do not need any other reason to snowmobile in Valemount other than the **mountains and terrain available** in the many nearby snowmobile areas. Snowmobilers appreciate the variety of terrain in the areas between Valemount, McBride and Blue River, using Valemount as a hub. The areas are all close to town and easy to access with short trails to the alpine. The areas are large and have varied terrain, so snowmobilers of all riding abilities can choose terrain to stay relatively safe in different avalanche conditions. Of course, the fact that

**Valemount is one of the closest places** to where most of them live (in Edmonton and surrounding area) is a major bonus. There is nowhere in Alberta or Saskatchewan with mountain riding and Valemount is the closest with the best highways to get there.

The snow conditions speak for themselves. There **is reliably deep snow**; snowmobilers are rarely disappointed with the snow conditions. And, the town has everything they need. Snowmobilers love the town and its **many options for great accommodation and decent food**. There are also helpful local shops that keep them riding when they have mechanicals.

**VARDA is a big part** of making the trip easy and enjoyable. Areas, trails, staff and shelters are organized, well-managed, well-groomed and signed for wildlife closures and boundaries. VARDA works hard to share information about trails and conditions so snowmobilers are aware of what is happening before they go.

The **community and people** of Valemount are friendly and welcoming, and always willing to help others out. There is community support for snowmobiling and a great small town atmosphere. The **beauty of the riding areas** in Valemount is something everyone should experience. Getting out to see the mountains is what makes it worth coming.

Valemount is a familiar destination for many of the repeat snowmobilers. Riding in “Vale,” as many snowmobilers affectionately call it, is a long-time tradition (some have been returning for up to 30 years!) or frequent enough trip that **they are familiar** with the riding areas and the town. Staying with family and friends in the area is also a big draw. Valemount is also **less busy and less expensive** than some other riding areas.



## What **CONCERNS** you about snowmobiling in Valemount?

*“That one day we will not be able to sled there”*

By far the most common concern from snowmobilers is **the potential for closures** of snowmobile areas around Valemount. They are concerned that issues such as conflict with other user groups and wildlife will lead to loss of riding areas. There is a general distrust in the provincial government’s ability to make land use decisions based on real information and research, that take into account the interests and value of snowmobiling. As a recreational group, snowmobilers are concerned about their ability to have a voice among private corporations and environmental groups.

Snowmobilers are also concerned about the minority of **snowmobilers who don’t follow the rules**, ride in closures, don’t obey signage, aren’t considering avalanche considerations, litter, and drink and ride. With the issue of closures in particular, it is concerning that this uneducated minority might be ruining the riding for everyone else.

Many snowmobilers had **no concerns at all** about snowmobiling in Valemount.

Other snowmobilers were concerned about the **density of users** in snowmobile areas, particularly the consequences to snowmobiler density if any closures were introduced. A higher density of snowmobilers would make it difficult to enjoy the mountains and the snow safely with the same experience they are used to. Concerns about **avalanches** are also in the minds of many snowmobilers, in Valemount and other areas. They are dedicated to bringing the correct gear and riding safely for the conditions.

Snowmobilers are concerned about **potential change** to Valemount. As Valemount gets busier, they are worried about the cost of accommodation, fuel and services increasing. With the potential for a ski hill development, they are concerned that the town will change focus to cater toward skiers, and leave snowmobilers behind. In particular, they are worried that the already limited accommodation and restaurant options will be even more difficult to secure in the winter.



## What is your FAVOURITE part about the village of Valemount and its services?

*"The community is full of extremely happy and kind individuals. Guaranteed to put a smile on your face just being here."*

Snowmobilers' favourite part about Valemount is its **small town feel**. Most often mentioned are the friendly locals who go above and beyond to welcome their guests. It is also a great place to meet other snowmobilers. They feel welcome, and that everyone is looking out for one another. **Local hospitality** is a favourite as well, with a lot of praise for the local restaurants and accommodation available. Being able to relax in a hot tub at the end of a long day is a particular favourite.

Overall, Valemount feels like **it caters to snowmobilers**. Whether it is parking for their big rigs, mechanics to deal with snowmobile trouble or providing a big meal after a long day, Valemount has catered its services to be convenient and accessible for snowmobilers. In such a small town, there is also no need to drive after the day is over. Most restaurants and services are **walking distance** from accommodation.

The **mountains and scenery** surrounding the village are almost as beautiful as the views from up high on a snowmobile. That paired with the **central location** between McBride and Blue River offers a variety of riding choices from a central location.





## What do you think would make the village of Valemout and its services BETTER?

*"It's kinda perfect."*

Most snowmobilers would be happy to have the choice of **more restaurants** in town. While they are happy with the existing choices, more variety would add to their stay. They would also like to see **more updated accommodation** as they can find it difficult to find a modern place to stay unless they book months in advance. Some are interested in seeing more nightlife establishments, and others would like more family-friendly activities so they can bring their families and visit more often.

Many snowmobilers say they enjoy Valemout **just how it is**, or had nothing to say about adding to the village. They find they have mostly everything that is necessary and recognize the constraints such a small village population faces in providing services to its visitors.

**Business hours** can sometimes be a challenge for snowmobilers. Late opening, early closing and irregular schedules can be frustrating when there are limited services available and the snowmobilers are on the mountain all day. **Parking** is also sometimes an issue as snowmobilers typically drive large trucks pulling trailers with their snowmobiles. Finding a place to park can be an issue, as well as concerns about security for their rigs when they do park. Once they find a good spot they like to keep it for the night, which can make it tricky to get around town given the limited taxi service.

**Cheaper fuel prices** are a request of snowmobilers. While they recognize this is typically beyond control of Valemout; having marked premium gasoline available for snowmobiles was a suggestion.

Some snowmobilers are interested in the **growth of the village**. Adding more managed riding areas is one request. Others are interested in seeing Valemout grow with new housing developments and the proposed ski hill.

## Conclusion

While snowmobiling is a visible part of the village of Valemout during the winter months and is a known contributor to those businesses that cater to the needs of visiting snowmobilers, this is the first report with a goal of measuring its economic value to the community. Since Valemout has transitioned from a wholly resource-based economy to focusing on developing tourism, snowmobiling has been steadfast in supporting the economy during the winter months. Partly due to the natural surroundings and ideal snow conditions, Valemout, through VARDA, has also succeeded in becoming a leading destination thanks to grooming, area management and marketing its product. It is evident that snowmobiling makes a significant direct contribution to the area's economy and supports the ability of the village to maintain year-round business operations through the slower winter months.

Snowmobiling in Valemount is also important to the snowmobilers who contributed to the survey. With a strong survey response, these people feel like Valemount is their second home and are truly appreciative of the opportunity they have to snowmobile in the area. It is a privilege for people to recreate in the backcountry, and given the importance to the local economy, it is important for the people of Valemount to continue to support the snowmobilers' ability to enjoy their mountains. Protecting the access and carefully managing this local asset will be important in maintaining the significant value that snowmobiling brings to the local economy.

## Appendix A

# The Value of Snowmobiling in Valemount

The Valemount & Area Recreation Development Association (VARDA) is working to measure the value of snowmobiling in Valemount, and needs help from you - the riders! Please take 10 minutes and give us your information. We are collecting info about you, your trips to Valemount, your spending in Valemount and comments about snowmobiling in the following form. Tell us anything you would like to say about your experiences snowmobiling in our mountains and staying in our town.

Don't worry - this form does not collect personal identification information. Individual results are collected by Miranda Murphy, CPA, the consultant performing the research. Information will be used to communicate to the public and stakeholders of VARDA in a report style, which will be used to demonstrate the social and economic value of snowmobiling in Valemount. Individual quotes may be used in this report, but will not be identified to any demographic or personal information.

Thank you for your help!

### 1. How old are you?

*Mark only one oval.*

- 20 or under
- 20-35
- 36-49
- 50-64
- 65+

### 2. Gender

*Mark only one oval.*

- Female
- Male
- Prefer not to say
- Other: \_\_\_\_\_

### 3. What city do you live in?

\_\_\_\_\_

**4. Did you have a VARDA Seasons Pass for the trails this winter?**

*Mark only one oval.*

Yes

No

**5. Why do you snowmobile in Valemount?**

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**6. How many snowmobile trips per year do you make to Valemount?**

*Mark only one oval.*

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25+



**7. When you snowmobile in Valemount, how many days do you ride per trip on average?**

*Mark only one oval.*

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16+

**8. When you snowmobile in Valemount, how many days per trip do you ride in areas where a trail fee is collected?**

*Mark only one oval.*

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16+

**9. When you snowmobile in Valemount, how many nights do you stay on average?**

*Mark only one oval.*

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16+

**10. What type of accommodation do you prefer to book in Valemount?**

*Check all that apply.*

- Basic hotel or motel room
- Hotel or motel with kitchenette
- Bed and breakfast
- Vacation rental house
- Other: \_\_\_\_\_

**11. How many nights per trip do you eat out at restaurants while in Valemount?**

*Mark only one oval.*

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16+

**Trip Expenditures**

Please estimate how much you spend personally in Valemount on an average trip on the following (per person for shared expenses, i.e. truck fuel if you shared a vehicle):

**12. Accommodation**

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**13. Fuel (truck and sled)**

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**14. Restaurants & Bars**

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**15. Grocery Stores**

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**16. Parts, repairs & snowmobile accessories**

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**17. Guiding or instructional services**

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**18. Other expenses (and what are they?)**

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**The Value of Snowmobiling in Valemount**

Tell us what your thoughts are about snowmobiling in Valemount!

**19. What do you appreciate about snowmobiling in the Valemount area?**

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**20. What concerns you about snowmobiling in the Valemount area?**

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**21. What is your favourite part about the village of Valemount and its services?**

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**22. What do you think would make the village of Valemount and its services better?**

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**23. Tell a story about snowmobiling in Valemount - or add any other comments you have here.**

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**Thank you!**

Your thoughts, information and comments are greatly appreciated.

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## Appendix B

### Impacts from Snowmobiler Spending in Valemount

| CONSUMER SPENDING IMPACTS              |                            |           |           | Total Valemount Spending |                          |           |           |                  |                   |
|--|----------------------------|-----------|-----------|--------------------------|--------------------------|-----------|-----------|------------------|-------------------|
|  | REGION: Fraser-Fort George |           |           | 26                       | REST OF BRITISH COLUMBIA |           |           |                  |                   |
|  | Direct                     | Indirect  | Induced   | REGIONAL TOTAL           | Direct**                 | Indirect  | Induced   | REST OF BC TOTAL | TOTAL IMPACTS, BC |
| <b>Spending</b>                        | \$5,937,263                |           |           |                          |                          |           |           |                  |                   |
| <b>Domestic Output*</b>                | \$4,067,249                | \$596,395 | \$309,247 | \$4,972,891              | \$92,317                 | \$839,495 | \$614,109 | \$1,545,921      | \$6,518,811       |
| <b>GDP at Basic Prices</b>             | \$2,112,477                | \$334,898 | \$220,545 | \$2,667,920              | \$32,713                 | \$446,967 | \$359,093 | \$838,773        | \$3,506,693       |
| <b>Material Inputs</b>                 | \$1,954,772                | \$261,497 | \$88,702  | \$2,304,971              | \$59,604                 | \$392,528 | \$255,016 | \$707,148        | \$3,012,118       |
| <b>Labour Income</b>                   | \$1,367,333                | \$166,401 | \$53,637  | \$1,587,371              | \$19,397                 | \$246,398 | \$154,544 | \$420,340        | \$2,007,711       |
| <i>Wages and Salaries</i>              | \$1,186,813                | \$134,688 | \$44,491  | \$1,365,992              | \$15,488                 | \$199,581 | \$128,420 | \$343,488        | \$1,709,481       |
| <i>Mixed Income</i>                    | \$39,795                   | \$12,784  | \$2,686   | \$55,265                 | \$109                    | \$20,220  | \$7,621   | \$27,950         | \$83,215          |
| <i>Employers' social contributions</i> | \$140,724                  | \$18,930  | \$6,460   | \$166,114                | \$3,800                  | \$26,598  | \$18,503  | \$48,902         | \$215,015         |
| <b>Employment (jobs)</b>               | 42.6                       | 3.3       | 1.4       | 47.3                     | 0.3                      | 4.6       | 3.6       | 8.5              | 55.8              |
| <b>Total Taxes</b>                     | \$1,413,039                | \$65,597  | \$64,442  | \$1,543,078              | \$6,792                  | \$91,077  | \$106,295 | \$204,165        | \$1,747,243       |
| <b>Total Federal Taxes</b>             | \$563,158                  | \$30,584  | \$20,307  | \$614,049                | \$3,359                  | \$43,982  | \$48,942  | \$96,283         | \$710,332         |
| <i>Total Indirect Taxes</i>            | \$384,748                  | \$2,626   | \$8,252   | \$395,625                | \$154                    | \$3,641   | \$18,123  | \$21,919         | \$417,544         |
| <b>Fed Trading Profits Tax</b>         | \$0                        | \$0       | \$37      | \$37                     | \$0                      | \$0       | \$73      | \$73             | \$110             |
| <b>Fed Gasoline Tax</b>                | \$91,238                   | \$499     | \$377     | \$92,113                 | \$37                     | \$717     | \$824     | \$1,578          | \$93,692          |
| <b>Fed Excise Tax</b>                  | \$112                      | \$5       | \$2       | \$118                    | \$0                      | \$6       | \$5       | \$12             | \$130             |
| <b>Fed Excise Duties</b>               | \$16,870                   | \$66      | \$561     | \$17,497                 | \$3                      | \$99      | \$1,225   | \$1,326          | \$18,823          |
| <b>Fed Air Transport Tax</b>           | \$153                      | \$58      | \$306     | \$517                    | \$3                      | \$82      | \$616     | \$701            | \$1,218           |
| <b>Fed Import Duties</b>               | \$5,734                    | \$122     | \$98      | \$5,954                  | \$68                     | \$174     | \$1,079   | \$1,321          | \$7,275           |
| <b>GST</b>                             | \$265,361                  | \$942     | \$6,189   | \$272,493                | \$3                      | \$1,406   | \$12,580  | \$13,989         | \$286,483         |
| <b>Fed Proportion of HST</b>           | \$0                        | \$0       | \$0       | \$0                      | \$0                      | \$0       | \$0       | \$0              | \$0               |
| <b>Indirect Taxes on Production</b>    | \$5,281                    | \$933     | \$683     | \$6,897                  | \$40                     | \$1,158   | \$1,720   | \$2,918          | \$9,815           |
| <b>Personal Income Taxes</b>           | \$112,973                  | \$18,178  | \$5,492   | \$136,642                | \$1,949                  | \$27,294  | \$14,767  | \$44,011         | \$180,653         |
| <b>Corp. Income Taxes</b>              | \$65,437                   | \$9,781   | \$6,564   | \$81,782                 | \$1,255                  | \$13,047  | \$16,052  | \$30,353         | \$112,135         |
| <b>Total Provincial Taxes</b>          | \$849,881                  | \$35,013  | \$44,135  | \$929,029                | \$3,433                  | \$47,095  | \$57,354  | \$107,882        | \$1,036,911       |
| <i>Total Indirect Taxes</i>            | \$759,627                  | \$20,791  | \$37,211  | \$817,629                | \$1,771                  | \$26,947  | \$39,936  | \$68,654         | \$886,283         |
| <b>Prov Environmental Tax</b>          | \$131,385                  | \$1,155   | \$1,381   | \$133,921                | \$395                    | \$1,662   | \$1,708   | \$3,765          | \$137,686         |
| <b>Prov Trading Profits Tax</b>        | \$50,980                   | \$298     | \$11,649  | \$62,927                 | \$19                     | \$436     | \$3,620   | \$4,076          | \$67,003          |
| <b>Prov Gas Tax</b>                    | \$196,523                  | \$1,131   | \$1,495   | \$199,149                | \$225                    | \$1,619   | \$1,155   | \$3,000          | \$202,148         |
| <b>Prov Other Tax</b>                  | \$8,757                    | \$0       | \$968     | \$9,725                  | \$0                      | \$0       | \$198     | \$198            | \$9,923           |
| <b>Land Transfer Tax</b>               | \$0                        | \$0       | \$0       | \$0                      | \$0                      | \$0       | \$0       | \$0              | \$0               |
| <b>Municipal Sales Tax</b>             | \$39,558                   | \$144     | \$616     | \$40,318                 | \$14                     | \$195     | \$284     | \$493            | \$40,811          |
| <b>PST</b>                             | \$249,691                  | \$3,451   | \$10,396  | \$263,539                | \$487                    | \$4,888   | \$6,026   | \$11,401         | \$274,940         |
| <b>Provincial Proportion of HST</b>    | \$0                        | \$0       | \$0       | \$0                      | \$0                      | \$0       | \$0       | \$0              | \$0               |
| <b>Aboriginal Trading Profits</b>      | \$0                        | \$0       | \$0       | \$0                      | \$0                      | \$0       | \$0       | \$0              | \$0               |
| <b>Indirect Taxes on Production</b>    | \$82,733                   | \$14,612  | \$10,705  | \$108,050                | \$630                    | \$18,147  | \$26,945  | \$45,722         | \$153,773         |
| <b>Personal Income Taxes</b>           | \$42,266                   | \$7,050   | \$2,110   | \$51,426                 | \$742                    | \$10,581  | \$5,646   | \$16,969         | \$68,395          |
| <b>Corp. Income Taxes</b>              | \$47,987                   | \$7,173   | \$4,814   | \$59,974                 | \$921                    | \$9,568   | \$11,771  | \$22,259         | \$82,233          |

\*Domestic Output is equal to Revenues minus consumer taxes minus indirect taxes on production.

\*\*Other BC Direct: The producer cost of goods (i.e., the cost excluding wholesale, retail and transportation margins, taxes, etc.) is measured at the factory gate.

For some consumer spending (think the purchase of clothing) those factories may be located in other regions. Consumer taxes are assigned to Fraser-Fort George

Impacts from VARDA

| Financial Input Impacts: VARDA  |                            |           |          |                |            |           |          |                  |                   |
|---------------------------------|----------------------------|-----------|----------|----------------|------------|-----------|----------|------------------|-------------------|
|                                 | REGION: Fraser-Fort George |           |          | 26             | REST OF BC |           |          | REST OF BC TOTAL | TOTAL IMPACTS, BC |
|                                 | Direct                     | Indirect  | Induced  | REGIONAL TOTAL | Direct*    | Indirect  | Induced  |                  |                   |
| Revenue/Spending                | \$526,868                  |           |          |                |            |           |          |                  |                   |
| Domestic Output*                | \$499,366                  | \$171,463 | \$42,036 | \$712,864      | \$0        | \$212,095 | \$80,859 | \$292,954        | \$1,005,818       |
| GDP at Basic Prices             | \$200,243                  | \$98,476  | \$30,086 | \$328,806      | \$0        | \$119,547 | \$47,328 | \$166,875        | \$495,681         |
| Material Inputs                 | \$299,122                  | \$72,987  | \$11,949 | \$384,059      | \$0        | \$92,547  | \$33,531 | \$126,078        | \$510,137         |
| Labour Income                   | \$128,565                  | \$70,810  | \$7,228  | \$206,604      | \$0        | \$77,036  | \$20,312 | \$97,349         | \$303,952         |
| Wages and Salaries              | \$116,395                  | \$58,374  | \$5,996  | \$180,765      | \$0        | \$63,289  | \$16,880 | \$80,168         | \$260,934         |
| Mixed Income                    | \$0                        | \$6,249   | \$361    | \$6,610        | \$0        | \$6,476   | \$999    | \$7,474          | \$14,084          |
| Employers' social contributions | \$12,170                   | \$6,188   | \$871    | \$19,229       | \$0        | \$7,272   | \$2,434  | \$9,706          | \$28,935          |
| Employment (jobs)               | 6.0                        | 1.4       | 0.2      | 7.6            | 0.0        | 1.5       | 0.5      | 1.9              | 9.5               |
| Total Taxes                     | \$52,916                   | \$21,429  | \$4,567  | \$78,912       | \$0        | \$23,079  | \$11,243 | \$34,322         | \$113,234         |
| Total Federal Taxes             | \$33,816                   | \$11,004  | \$1,862  | \$46,681       | \$0        | \$12,355  | \$4,640  | \$16,994         | \$63,675          |
| Total Indirect Taxes            | \$23,084                   | \$654     | \$224    | \$23,962       | \$0        | \$803     | \$557    | \$1,360          | \$25,322          |
| Fed Trading Profits Tax         | \$0                        | \$0       | \$0      | \$0            | \$0        | \$0       | \$0      | \$0              | \$0               |
| Fed Gasoline Tax                | \$273                      | \$276     | \$14     | \$563          | \$0        | \$263     | \$38     | \$300            | \$863             |
| Fed Excise Tax                  | \$7                        | \$1       | \$0      | \$8            | \$0        | \$1       | \$1      | \$2              | \$10              |
| Fed Excise Duties               | \$468                      | \$15      | \$7      | \$490          | \$0        | \$22      | \$28     | \$50             | \$540             |
| Fed Air Transport Tax           | \$43                       | \$36      | \$2      | \$82           | \$0        | \$35      | \$5      | \$39             | \$121             |
| Fed Import Duties               | \$246                      | \$75      | \$8      | \$329          | \$0        | \$68      | \$26     | \$94             | \$423             |
| GST                             | \$21,650                   | \$50      | \$99     | \$21,799       | \$0        | \$261     | \$231    | \$491            | \$22,290          |
| Fed Proportion of HST           | \$0                        | \$0       | \$0      | \$0            | \$0        | \$0       | \$0      | \$0              | \$0               |
| Indirect Taxes on Production    | \$398                      | \$200     | \$94     | \$692          | \$0        | \$154     | \$230    | \$384            | \$1,076           |
| Personal Income Taxes           | \$10,732                   | \$7,681   | \$741    | \$19,154       | \$0        | \$8,443   | \$1,943  | \$10,387         | \$29,541          |
| Corp. Income Taxes              | \$0                        | \$2,668   | \$896    | \$3,564        | \$0        | \$3,108   | \$2,139  | \$5,247          | \$8,812           |
| Total Provincial Taxes          | \$19,100                   | \$10,426  | \$2,705  | \$32,231       | \$0        | \$10,725  | \$6,603  | \$17,328         | \$49,559          |
| Total Indirect Taxes            | \$15,014                   | \$5,518   | \$1,763  | \$22,295       | \$0        | \$5,194   | \$4,291  | \$9,484          | \$31,779          |
| Prov Environmental Tax          | \$601                      | \$439     | \$52     | \$1,092        | \$0        | \$491     | \$137    | \$627            | \$1,720           |
| Prov Trading Profits Tax        | \$1,993                    | \$65      | \$45     | \$2,104        | \$0        | \$94      | \$111    | \$204            | \$2,308           |
| Prov Gas Tax                    | \$630                      | \$624     | \$32     | \$1,286        | \$0        | \$597     | \$79     | \$675            | \$1,961           |
| Prov Other Tax                  | \$0                        | \$0       | \$3      | \$3            | \$0        | \$0       | -\$3     | -\$3             | \$0               |
| Land Transfer Tax               | \$0                        | \$0       | \$0      | \$0            | \$0        | \$0       | \$0      | \$0              | \$0               |
| Municipal Sales Tax             | \$280                      | \$69      | \$6      | \$354          | \$0        | \$68      | \$15     | \$84             | \$438             |
| PST                             | \$5,277                    | \$1,181   | \$159    | \$6,616        | \$0        | \$1,532   | \$354    | \$1,886          | \$8,502           |
| Provincial Proportion of HST    | \$0                        | \$0       | \$0      | \$0            | \$0        | \$0       | \$0      | \$0              | \$0               |
| Aboriginal Trading Profits      | \$0                        | \$0       | \$0      | \$0            | \$0        | \$0       | \$0      | \$0              | \$0               |
| Indirect Taxes on Production    | \$6,233                    | \$3,140   | \$1,466  | \$10,840       | \$0        | \$2,412   | \$3,598  | \$6,010          | \$16,850          |
| Personal Income Taxes           | \$4,087                    | \$2,951   | \$285    | \$7,323        | \$0        | \$3,252   | \$743    | \$3,995          | \$11,318          |
| Corp. Income Taxes              | \$0                        | \$1,956   | \$657    | \$2,614        | \$0        | \$2,279   | \$1,569  | \$3,848          | \$6,462           |

\*Domestic Output is equal to Revenues minus consumer taxes minus indirect taxes on production.

\*\*Other BC Direct: The producer cost of goods (i.e., the cost excluding wholesale, retail and transportation margins, taxes, etc.) is measured at the factory gate.

For some consumer spending (think the purchase of clothing) those factories may be located in other regions. Consumer taxes are assigned to Fraser-Fort George



Total Impacts from Snowmobiling in Valemount

| Data included in report                              |             |           |           |                |                          |             |           |                  |                   |
|--|-------------|-----------|-----------|----------------|--------------------------|-------------|-----------|------------------|-------------------|
| CONSUMER SPENDING IMPACTS Total Snowmobiler Spending |             |           |           |                |                          |             |           |                  |                   |
| REGION: Fraser-Fort George                           |             |           |           | 26             | REST OF BRITISH COLUMBIA |             |           |                  |                   |
|  | Direct      | Indirect  | Induced   | REGIONAL TOTAL | Direct**                 | Indirect    | Induced   | REST OF BC TOTAL | TOTAL IMPACTS, BC |
| Spending   | \$6,464,131 |           |           |                |                          |             |           |                  |                   |
| Domestic Output*                                     | \$4,566,614 | \$767,858 | \$351,283 | \$5,685,755    | \$92,317                 | \$1,051,590 | \$694,968 | \$1,838,875      | \$7,524,629       |
| GDP at Basic Prices                                  | \$2,312,720 | \$433,373 | \$250,632 | \$2,996,725    | \$32,713                 | \$566,514   | \$406,421 | \$1,005,649      | \$4,002,374       |
| Material Inputs                                      | \$2,253,894 | \$334,484 | \$100,651 | \$2,689,029    | \$59,604                 | \$485,075   | \$288,547 | \$833,226        | \$3,522,255       |
| Labour Income  | \$1,495,897 | \$237,212 | \$60,866  | \$1,793,975    | \$19,397                 | \$323,435   | \$174,857 | \$517,689        | \$2,311,664       |
| Wages and Salaries                                   | \$1,303,208 | \$193,062 | \$50,488  | \$1,546,757    | \$15,488                 | \$262,869   | \$145,299 | \$423,657        | \$1,970,414       |
| Mixed Income   | \$39,795    | \$19,032  | \$3,047   | \$61,875       | \$109                    | \$26,696    | \$8,620   | \$35,424         | \$97,299          |
| Employers' social contributions                      | \$152,895   | \$25,117  | \$7,331   | \$185,343      | \$3,800                  | \$33,870    | \$20,937  | \$58,608         | \$243,950         |
| Employment (jobs)                                    | 48.6        | 4.7       | 1.6       | 54.9           | 0.3                      | 6.1         | 4.0       | 10.4             | 65.3              |
| Total Taxes  | \$1,465,954 | \$87,027  | \$69,009  | \$1,621,990    | \$6,792                  | \$114,157   | \$117,538 | \$238,487        | \$1,860,477       |
| Total Federal Taxes                                  | \$596,973   | \$41,588  | \$22,169  | \$660,730      | \$3,359                  | \$56,337    | \$53,582  | \$113,278        | \$774,007         |
| Total Indirect Taxes                                 | \$407,832   | \$3,280   | \$8,476   | \$419,587      | \$154                    | \$4,444     | \$18,680  | \$23,279         | \$442,866         |
| Fed Trading Profits Tax                              | \$0         | \$0       | \$37      | \$37           | \$0                      | \$0         | \$73      | \$73             | \$110             |
| Fed Gasoline Tax                                     | \$91,510    | \$775     | \$391     | \$92,676       | \$37                     | \$980       | \$862     | \$1,879          | \$94,555          |
| Fed Excise Tax                                       | \$119       | \$5       | \$2       | \$126          | \$0                      | \$7         | \$6       | \$13             | \$139             |
| Fed Excise Duties                                    | \$17,337    | \$82      | \$568     | \$17,987       | \$3                      | \$120       | \$1,253   | \$1,376          | \$19,363          |
| Fed Air Transport Tax                                | \$196       | \$95      | \$308     | \$598          | \$3                      | \$116       | \$621     | \$740            | \$1,339           |
| Fed Import Duties                                    | \$5,980     | \$198     | \$106     | \$6,283        | \$68                     | \$242       | \$1,105   | \$1,415          | \$7,698           |
| GST  | \$287,011   | \$993     | \$6,288   | \$294,292      | \$3                      | \$1,667     | \$12,811  | \$14,481         | \$308,773         |
| Fed Proportion of HST                                | \$0         | \$0       | \$0       | \$0            | \$0                      | \$0         | \$0       | \$0              | \$0               |
| Indirect Taxes on Production                         | \$5,679     | \$1,133   | \$777     | \$7,589        | \$40                     | \$1,312     | \$1,950   | \$3,302          | \$10,891          |
| Personal Income Taxes                                | \$123,704   | \$25,859  | \$6,233   | \$155,796      | \$1,949                  | \$35,738    | \$16,711  | \$54,398         | \$210,194         |
| Corp. Income Taxes                                   | \$65,437    | \$12,449  | \$7,461   | \$85,346       | \$1,255                  | \$16,155    | \$18,191  | \$35,601         | \$120,947         |
| Total Provincial Taxes                               | \$868,981   | \$45,439  | \$46,840  | \$961,261      | \$3,433                  | \$57,820    | \$63,956  | \$125,209        | \$1,086,470       |
| Total Indirect Taxes                                 | \$774,641   | \$26,309  | \$38,974  | \$839,924      | \$1,771                  | \$32,141    | \$44,227  | \$78,138         | \$918,063         |
| Prov Environmental Tax                               | \$131,986   | \$1,594   | \$1,433   | \$135,013      | \$395                    | \$2,153     | \$1,845   | \$4,392          | \$139,406         |
| Prov Trading Profits Tax                             | \$52,973    | \$363     | \$11,694  | \$65,031       | \$19                     | \$530       | \$3,731   | \$4,280          | \$69,311          |
| Prov Gas Tax   | \$197,152   | \$1,755   | \$1,527   | \$200,435      | \$225                    | \$2,216     | \$1,234   | \$3,675          | \$204,110         |
| Prov Other Tax                                       | \$8,757     | \$0       | \$971     | \$9,728        | \$0                      | \$0         | \$195     | \$195            | \$9,923           |
| Land Transfer Tax                                    | \$0         | \$0       | \$0       | \$0            | \$0                      | \$0         | \$0       | \$0              | \$0               |
| Municipal Sales Tax                                  | \$39,838    | \$212     | \$622     | \$40,673       | \$14                     | \$263       | \$300     | \$577            | \$41,250          |
| PST  | \$254,968   | \$4,632   | \$10,555  | \$270,155      | \$487                    | \$6,420     | \$6,380   | \$13,287         | \$283,442         |
| Provincial Proportion of HST                         | \$0         | \$0       | \$0       | \$0            | \$0                      | \$0         | \$0       | \$0              | \$0               |
| Aboriginal Trading Profits                           | \$0         | \$0       | \$0       | \$0            | \$0                      | \$0         | \$0       | \$0              | \$0               |
| Indirect Taxes on Production                         | \$88,966    | \$17,752  | \$12,171  | \$118,890      | \$630                    | \$20,559    | \$30,543  | \$51,732         | \$170,622         |
| Personal Income Taxes                                | \$46,353    | \$10,001  | \$2,395   | \$58,749       | \$742                    | \$13,832    | \$6,389   | \$20,964         | \$79,712          |
| Corp. Income Taxes                                   | \$47,987    | \$9,129   | \$5,471   | \$62,587       | \$921                    | \$11,847    | \$13,340  | \$26,107         | \$88,695          |

\*Domestic Output is equal to Revenues minus consumer taxes minus indirect taxes on production.

\*\*Other BC Direct: The producer cost of goods (i.e., the cost excluding wholesale, retail and transportation margins, taxes, etc.) is measured at the factory gate.

For some consumer spending (think the purchase of clothing) those factories may be located in other regions. Consumer taxes are assigned to Fraser-Fort George

Total Provincial Taxes above includes Provincial, Regional and Municipal Taxes.

(Regional & Municipal Taxes are estimated as 2/3 of Provincial Taxes within this model, however these values are approximate)

|                            |           |          |          |           |
|----------------------------|-----------|----------|----------|-----------|
| Provincial Taxes           | \$289,660 | \$15,146 | \$15,613 | \$320,420 |
| Regional & Municipal Taxes | \$579,321 | \$30,293 | \$31,227 | \$640,840 |
| Total Provincial Taxes     | \$868,981 | \$45,439 | \$46,840 | \$961,261 |

## Appendix C

### Regional Input-Output Model (Ver. 3.0)

*Prepared by Pacific Analytics*

The Regional Input-Output (I/O) Model (Ver. 3.0) is comprised of three main tables:

1. **Supply Table:** The Supply table details the various commodities (of a possible 488 different commodity output types) produced by each of 234 individual industries. It is possible (likely) that an industry produces a number of different commodities;
2. **Use Table:** The Use table details the various commodity inputs used by each industry. The 488 material commodities (in contrast to the use of labour, product taxes, and operating surplus, aka, the value-added inputs) used by each industry are also known as intermediate inputs;
3. **Final Demand Table:** The Final Demand table details the commodity purchases by each of the final demand sectors. These final demand sectors include **Personal Expenditures** (which is itself subdivided into 100 aggregate spending components such as “Food”, “Major Appliances”, “Major Durables for Outdoor Recreation”, etc.), **Capital Investment** (disaggregated into “Construction”, “Machinery & Equipment”, and “Intellectual Property” with each of these three components subdivided into 54 industry subsectors); **Government Expenditures** (by nine expenditure types), **Inventory Changes, Imports** (International and Interprovincial) and **Exports**.

Input-output analysis works by keeping the supply of each commodity equal to the demand for that same commodity in the economy. Demand is equal to the final demand plus the intermediate demand for the commodity. If demand goes up (by say, an increase in purchases by a tourist) then there must, by definition, be an increase in supply. This increase in supply can come from either an increase in production by domestic industries or by an increase in imports of that same commodity. If the increase in supply comes from imports, there is no improvement to the economy (other than any associated domestic transport and wholesale/retail costs); if the increase comes from an increase in domestic production, then those industries producing the commodity will increase their own purchases of material inputs, increase their employment and thus wages and salaries paid, and will see the level of taxes they pay increase. The overall effects of this increase in purchases of material inputs (indirect impacts) and increase in wages paid (induced impacts) are discussed below under the heading **Inverse Matrix**.

The three tables: Supply, Use, and Final Demand are the main tables of the I/O. There are, however, two more tables that are important:

1. **Tax Table:** The Tax table highlights the taxes paid (by individual tax type) for each commodity by Industry sector and by Final Demand sector. There are 19 different tax

types<sup>1</sup> which potentially are paid on each of the 488 commodities (for many commodities there will be no payment for a particular tax). These taxes by commodity are identified and set to different rates by those paid on inputs purchased by industry (input taxes), those paid by consumers (consumer taxes), and those paid on investments (investment taxes);

2. **Margin Table:** When a commodity is purchased, either as an input to industry production or by consumers or for investment purposes, under I/O accounting standards, the cost of the commodity (the “purchaser price”) is **NOT** what the industry or consumer paid. Rather, the purchaser price is made up of the “cost of the commodity at the factory gate” (also known as the “Basic Cost”), the taxes (already documented) associated with each commodity, and the “margins” embedded in that cost.

The Margin table highlights the various margins embedded (by individual margin type) in each commodity by Industry sector and Final Demand sector. There are three major margin categories: Wholesale Margins (eight categories), Retail Margins (12 categories), and Transport Margins (12 categories).<sup>2</sup> Each of these margins potentially are embedded in each of the 488 commodities (although in practice for many commodities there will not be any margin).

### ***The Inverse Matrix***

Critical to estimating the indirect<sup>3</sup> and induced<sup>4</sup> impacts of a change in demand is the “Inverse matrix”. When there is an increase in demand for a commodity, there is a corresponding increase in the demand for the inputs used to produce that commodity. As describe above, the Use table, after all imports, taxes are removed and margins reallocated, will identify the increase in those inputs. However, the increase in demand for those inputs will, itself, cause additional increases in production to satisfy that demand. But then, that increase in demand will cause more increases in production and even more increases in demand. Accounting for all increases gives the indirect impacts.

Just as an increase in demand will cause increases in the demand for inputs, there will also be a corresponding increase in labour requirements and therefore in wages earned. These wages, once all personal income taxes and savings are removed, are available to be spent as Personal

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<sup>1</sup> Federal Trading Profits; Federal Gasoline Tax, Federal Excise Tax, Federal Excise Duties, Federal Air Transport Tax, Federal Import Duties, Prov Environmental Tax, Prov Gallonage Tax (not applicable in BC), Prov Trading Profits Tax, Prov Gas Tax, Prov Amusement Tax (not applicable in BC), Prov Other Tax, Land Transfer Tax, Municipal Amusement

<sup>2</sup> **Wholesale Margins** include margins on: farm products, petroleum products, food products, household products, autos, construction, machinery, and other. **Retail Margins** include margins on: autos, furniture, electronics, construction, food, health, auto fuel, clothing, sport, other, household fuel, and household natural gas. **Transport Margins** include margins on: oil pipeline distribution, natural gas distribution, storage, air transport, rail transport, water transport, general truck transport, specialized truck transport, water supplies, road supplies, brokerage, and other.

<sup>3</sup> **Indirect Impacts:** the impacts resulting from the purchase of goods and services by a firm or industry used in the production process. The purchase of goods or services increases the economic activity of the supplying firms and, in turn, the supplying firms themselves must purchase their own goods and services which generates further economic activity in those supplying firms.

<sup>4</sup> **Induced Impacts:** the impacts resulting from the spending of wages paid by a firm or industry. When wages and salaries are spent (less income taxes and savings), the economic activity of the firms supplying those consumer goods and services increases. As well, the supplying firms themselves will pay additional wages and salaries to their own employees which, when spent, generates additional economic activity.

Expenditures. After removing the imports and taxes and reallocating margins, this increase in expenditures will increase demand. Accounting for all increases due to the increase in wages gives the induced impacts.

Calculating the Inverse Matrix is a complicated matrix manipulation of the various tables and rates plus the inverting of the resulting manipulated tables. It is far too complicated to detail here<sup>5</sup>, but suffice to say that the resulting inverse matrix details how, for a \$1 increase in demand for a specific commodity, the ultimate demand for different commodities increases.

The Regional Input-Output (I/O) Model has five different ways that an analyst can determine impacts: **Consumer Spending** (the impacts if consumers or tourists increase their spending); **Business Spending** (the impacts if a business or industry increases its spending), **Output** (the impacts if an industry increases its output); **Capital Investment** (the impacts of an increase in investment either construction, machinery and equipment, or intellectual property); and **Financial Inputs** (a method to determine impacts when a full financial statement for a business/industry is known).

### ***Assumptions***

Like any model, there are a number of underlying assumptions that are critical to the results generated.

The first four assumptions listed deal with commodity tax rates. The **GST** default is set at 5% but can be changed in each of the Impact worksheets. In the “Consumer Spending Impacts” worksheet, different GST values can be selected. **PST** can be changed in a similar way. The Model also enables the user to see the impacts of reverting back to the **HST**.

The final rate that can be changed is the Municipal Tax Rate (**MST**) on accommodation (also known as the Municipal and Regional District Tax – MRDT). The Model rate used is 2% which is the appropriate value in the Village of Valemount.

The estimates of employment in the Model are based on the level of wages and salaries and mixed income earned in each industry divided by the average wage rate in the same industry. As the average wage rate changes each year, so does the level of employment (the number of jobs generated from a \$1 million in wages and salaries is less if the average wage is \$80,000 than if the average wage is \$70,000).

There are three important assumptions with regards to estimating induced impacts.

1. The first is the level of Savings that the new wage-earners maintain.
2. The second is the level of the new employees that were covered by EI. If a new employee were collecting EI, then the additional new income that can be spent in the economy is equal to the new wages less incomes taxes less savings less the amount of EI the employee was receiving. It is difficult to determine the “right” answer here; it depends a lot on the level of unemployment in the region, the type of jobs that are being created, and the like. As a first estimate, the Model assumes that half of all the new employees were on EI, but again, this can be changed to whatever value is considered better.

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<sup>5</sup> See: “The Canadian and Inter-Provincial Input-Output Models: The Mathematical Framework”, Ghanem, Ziad, Industry Accounts Division, Statistics Canada, April 2010.

- The third assumption is the pattern of spending of the new disposable income. The default assumption is that wage earners will spend their money on goods and services in the same pattern as the general public. However, at times, the analyst may wish to exclude spending on owner-occupied rent (this assumption implies that new employees will not purchase their own homes as a result of getting one of these jobs). Alternatively, depending on what type of analysis is being undertaken, one may wish to exclude spending on tourism outside the province.

### Input-Output Primer

National Accounting (also termed Economic Accounting) assumes a company undertakes two steps in its production process. First, it purchases material inputs from other industries; and second, it transforms those material inputs into finished goods (or services) ready for resale. Take as an example a Restaurant. The Restaurant buys raw food items from the Food Wholesaling sector. Using other material inputs (e.g., electricity, gas, rent, utensils, etc.), it transforms the raw food into a completed restaurant meal, which, in turn, is sold to the restaurant patron at a selling price higher than the cost of its material inputs. The difference between the selling price of the meal and the material input cost is the “mark-up” or “value-added”. This value-added is used to pay for the labour, any taxes levied by governments, the depreciation of equipment, any interest costs the Restaurant may have, and will also generate, the owner hopes, a profit.

National Accounting asserts that the value which the Restaurant sector adds to the economy (hence, the term “value added”) is equal **not** to the total revenues of the Restaurant, but only to this “mark-up” value. That is, the value of an industry to an economy is the difference between the value of its output (effectively, total operating revenues) and the cost of its material inputs. In this way, the Restaurant industry does not claim the value of the raw food inputs it uses, which should rightly be accounted for by the Agriculture and Food Manufacturing industries. Using “Value-Added”, there is no double counting when measuring the value of an industry.

In terms of a Restaurant, the value-added of the Restaurant will be equal to the revenue received minus all of its material costs for goods or services uses in preparing the meals (material inputs), or:

$$\text{Value Added} = \text{Revenue} - \text{Material Inputs}$$

Another way of defining value added is that it is the sum of an industry’s payments for labour, for indirect taxes, for depreciation and interest costs, and for profit:

$$\text{Value Added} = \text{Labour} + \text{Indirect taxes} + \text{Depreciation} + \text{Interest Costs} + \text{Profit}$$

In other words, the resulting value-added of any firm (or industry) is available to be shared among labour (wages, salaries and benefits), indirect taxes and “operating surplus.” The operating surplus itself is shared between payments for the use of physical capital (depreciation), payments for the use of monetary capital (interest costs), and payments (profits) to the owner(s) of the enterprise. Value-added is an industry’s contribution to, or **direct impact** on, the economy. And the sum of value-added of all industries is termed the country’s Gross Domestic Product (GDP).

An important distinction needs to be made between Financial Accounting and National Accounting. Under financial accounting, an industry which has a high value added (i.e.,



contributes a lot to the economy), can be unprofitable if, for example, its payments to labour or for interest costs are too high. Alternatively, low value-adding industries can be very profitable to their owners, depending on their usage of labour and their capital structure.

Economists have standardised the measure of the flows of commodities between industries and the inter-relationships of inputs and outputs among industries through the concept of Input-Output (I/O) analysis. The **SUPPLY** matrix identifies the various types of output the sector produces (the Restaurant industry produces “restaurant” services). The **USE** matrix highlights all the various types of inputs used to produce that output (the Restaurant industry uses a variety of inputs including raw foods, electricity, natural gas, rent, etc.).<sup>6</sup> By mathematically manipulating these matrices, it is possible to determine by how much the supply of each commodity will increase when the output of an industry increases by one dollar.

The GDP-to-Output ratio is a measure of the direct contribution to the economy *per dollar of output*. Clearly, an industry that requires a lower dollar value of inputs to produce a given dollar of output is a higher value-adding industry. One must note, however, that a higher GDP-to-Output ratio does *not* imply that the industry is more important to the economy. It merely states that for every dollar of output the impact on the economy is greater. Obviously, when examining an industry’s importance to an economy one must also take into account the total output of the industry. There is, however, another important characteristic of an industry that must be examined if one is to determine the importance of a sector to the local economy: its *linkages* to other industries.

When inputs such as raw foods are purchased by the Restaurant sector, the industries supplying those goods and services (in this case, the Agricultural and Food Manufacturing industries) increase their own economic activity. This increased activity itself creates demand for other products. The Agricultural industry, for example, may need more fertilizer. Fertilizer producers themselves may need more chemicals and fuel oil. The demand for extra chemicals and fuel oil will, in turn, stimulate activity in the chemical and petroleum industries. The increased activity in the chemical industry will create greater demand for its own inputs, perhaps some other primary chemicals. And so it continues down the chain of industries. The sum effects of all this additional economic activity are known as *indirect impacts*.

Such indirect impacts (also known as “multiplier effects” or “spin-offs”) on the economy clearly are important. They should not be ignored (as they usually are with financial accounting) if we are to measure the true benefits of an industry to an economy. An interesting observation is that, while it is true that high value-adding industries generally have low indirect impacts, those industries with relatively lower direct impacts have relatively higher indirect impacts. This is because, by definition, low value-adding industries consume more inputs per dollar of output and thus have a greater impact on their supplying industries. It should be noted, however, that the level of indirect impacts is highly influenced by the type of goods and services demanded and by the propensity of the companies (or the economy) to import those particular goods and services. The higher the propensity to import the required goods and services, the lower will be the effects on the local economy. Indeed, an industry that imports all its inputs will have virtually no indirect impact on the economy, save the small level of distributive activity (wholesale, retail and transportation margins) the imports may generate.

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<sup>6</sup> Output is closely associated with industry revenues but there are important differences. Likewise, inputs are highly related to industry expenses. But, again, the differences are important. For a summary of these differences, see the next sub-section: *Technical Differences*.

Increased industrial activity has a third effect on the economy. When additional wages and salaries are paid out, those dollars (appropriately adjusted for taxes and savings) are available to be re-spent on consumer goods and services. Take, for example, an additional \$1 million in wages resulting in say, an increase of \$750,000 in disposable income. Depending on the spending patterns, this may result in extra consumer spending of say, \$500,000 in the retail sector (the remaining being spent in the entertainment sector, restaurant sector, etc.). This will increase the economic activity of the manufacturers and other suppliers of consumer goods to the retail sector who, in turn, will increase their own employment and their own wage payments. The sum effects of this additional activity due to increased wages are known as ***induced impacts***. Again, it should be clear that, like indirect impacts, induced impacts are highly influenced by the economy's propensity to import as well as by the economy's taxation and savings rates, the level of wages paid to employees and the level of capacity at which the economy is operating.

The question arises: given that there are many levels of indirect and induced spending which affect many, many different firms and industrial sectors, how can we estimate these impacts on the economy? Fortunately, economists have developed a method to estimate these impacts, by using the same input-output tables to which we already have been introduced.<sup>7</sup> However, since the base information is coming from financial statement data directly provided by operators, it is critical to understand how financial statement data are re-structured to meet National Accounting standards. These differences are discussed below.

### ***Technical Differences***

Although the National Accounting (Input-Output) measurement of the value and impacts of an industry begins with the same set of data as the financial results of the industry, a number of adjustments are required in order to conform to strict National Accounting standards. To avoid possible confusion, these technical differences between Financial Accounting and National Accounting should be understood, although not all the differences relate to the Restaurant example we are using in this primer. The intent here is not to provide a comprehensive or definitive discussion of these differences, however, but rather to provide a cursory overview. For a more in-depth discussion of the differences and of the methodology underlying National Accounting, the interested reader is referred to the National Accounting compendium published by the UN.<sup>8</sup>

The following outlines the major differences:

1. The first and perhaps most important difference is that National Accounting measures all non-tax related revenues and expenses related to production, even those not itemized on the corporate income statement. Hence, gratuities paid to staff are included as output. This increases output but not material inputs, and therefore it increases the estimate of GDP (Output – Inputs) by precisely the amount of gratuities. Using our other definition of GDP (GDP = indirect taxes + wages, salaries and benefits + operating surplus), we see that the increase in GDP is reflected in an increase in wages and salaries equal to the reported gratuities.
2. Another (usually) off-budget item is an estimate of the value of imputed room and board provided to employees. On the Output side there is an increase in lodging revenues and,

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<sup>7</sup> For a detailed discussion of the underlying mathematics of Input-Output analysis, see *Input-Output Analysis: Foundations and Extension*, Ronald E. Miller and Peter D. Blair, Prentice Hall, 1985

<sup>8</sup> *System of National Accounts*, Statistical Papers Series F No 2 Rev. 4, New York, 1993

since the provision of room and board is a value to the employee, it is considered equivalent to a wage, and thus contributes to overall GDP equal to the value of the imputed room and board. Statistics Canada has standard values that it uses to assess the value of this room and board. At the same time, National Accounting omits revenues not directly related to the production process. Generally, these incomes are limited to interest and dividend earnings, but include non-operating revenues related to rental incomes, commissions and the like.

3. A third difference is that, under National Accounting, the value of each input in the **USE** matrix is stated in “producer” or “basic” prices. That is, all wholesale, retail, and transportation costs included in the “purchaser” price of a commodity are removed, as are all commodity taxes, indirect taxes and import duties. These “distributive and tax margins,” as they are called, are explicitly recognized in the **USE** matrix as separate line items. For the Restaurant industry, the purchase cost of food will be equal to the “producer” cost of food (the cost at the manufacturer’s plant gate) plus the cost of transporting the food (the “transportation” margin) plus any retail/wholesale mark-ups plus any indirect taxes. The reader should understand that this does not in any way reduce the total cost of inputs to the industry; it simply re-assigns the costs to different input categories.
4. A fourth difference lies in the treatment of merchandise sales. National Accounting treats the purchase of merchandise as partly a purchase from the manufacturer of the good (equal to the cost price of the good less distributive and tax margins) and partly a purchase from the retailer (equal to the mark-up for the good). Consequently, in an input-output table for a sector selling retail goods, there is no recognition of the cost of the merchandise on the input (**USE**) side, and only the mark-up value is recognized on the output (**SUPPLY**) side. The cost of the merchandise is captured in the Manufacturing sector as output.