

Canadian Sport Tourism Alliance



Alliance canadienne du tourisme sportif

2009 World Sledge Hockey Challenge

Economic Impact Assessment

February 2010

The following analysis provides the economic impact of the 2009 World Sledge Hockey Challenge, hosted in Charlottetown, Prince Edward Island from November 17-21, 2009 as generated by the Sport Tourism Economic Assessment Model, Professional version.

Economic Impact Assessment Funding Partner

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We would also like to thank the City of Charlottetown, along with Laurel Lea and Amanda Hamel for their considerable assistance in completing the survey component of the study.

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1.0 Background

From November 17 to 21, 2009, the City of Charlottetown, P.E.I. played host to the 2009 World Sledge Hockey Challenge. It was the second year in a row that the event was held in the city, with the 2009 edition of the event seeing Team Canada's two year winning streak broken with a loss to the United States in overtime of the final game. Canada and the United States were joined by sledge hockey teams from Japan and Norway, with each team playing three round-robin games, and the top two teams advancing to play in the gold medal competition on the final day.

In hosting the event, the City of Charlottetown not only provided a venue for the athletes to perform and showcase their talents, they also garnered a significant economic benefit as a result of the expenditures made by the athletes, spectators, and event organizers. This report details the measurement of the economic impact of the 2009 World Sledge Hockey Challenge, with the next section of the report providing details of the intercept survey that was conducted in order to ascertain both the number of visitors and the expenditures that visitors made while in the Charlottetown for the event. Section 3 provides details of operational expenditures and revenues that further contributed to the impact of the event, while Section 4 presents the STEAM-PRO¹ results from the combined expenditures of the athletes, spectators and the host society's operational expenditures. Section 5 concludes the document with a summary of the findings. The appendices include some of the detailed survey results, additional information regarding the economic impact model, a glossary of the terms used and a copy of the survey.

¹The Canadian Sport Tourism Alliance's (CSTA's) **Sport Tourism Economic Assessment Model**, Professional version (STEAM PRO) was used to generate the economic impact estimates detailed in this report. STEAM PRO, which was developed in 2006, is a model that has been designed to incorporate the results of primary data collected from event visitors and the budget / capital expenditures of event organizers and others to prepare economic impact assessments. The model is based on the Canadian Tourism Research Institute's (CTRI - a branch of The Conference Board of Canada) TEAM model, which is the most widely used tourism economic impact model in Canada. The results of STEAM PRO are fully consistent with the CSTA's STEAM model. A more detailed description of STEAM PRO is contained within Appendix 1.

2.0 Methodology / Survey Results

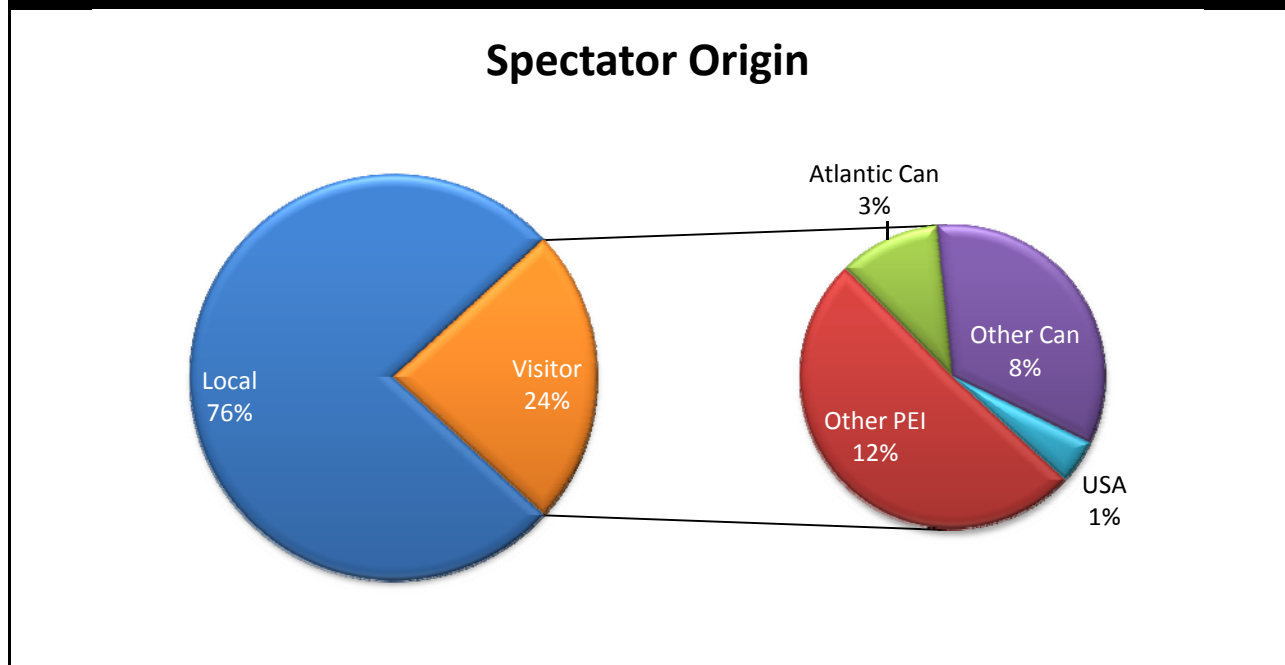
Information regarding the composition and spending of spectators and participants at the 2009 World Sledge Hockey Challenge was collected through the administration of a face-to-face intercept survey. The survey captured essential information to determine the origin of spectators attending the event and the expenditures of out-of-town visitors to Charlottetown. The survey was conducted using Palm PDAs running Techneos Entryware software.² A copy of the survey instrument used can be found in Appendix 4.³

Survey Results

A total of 223 visitor parties were approached over the course of the event, with 192 parties agreeing to participate (a rejection rate of 13.7%). Of this group, 41 parties had been previously surveyed (20.8%), yielding a total of 152 valid surveys. The overall sample of valid surveys found that nearly one-quarter (24.0%) of the visitors interviewed was from out-of-town. For the visitors attending the 2009 World Sledge Hockey Challenge, just over half of the respondents were from PEI, with the remainder being from Atlantic Canada (11%), other Canada (34%), and the U.S. (5%).⁴

Figure 2.1 Visitor Origin

(Where are you from?)



²For more information please visit www.techneos.com.

³The survey and methodology were prepared in consultation with the "Guidelines for Measuring Tourism Economic Impact At Gated Festivals and Events", available at:

<http://www.tourism.gov.on.ca/english/tourdiv/research/resources.htm>

⁴This sample size of 35 out of town responses representing 130 out of town spectators yields a statistically significant confidence interval of +/- 6.3 % for statistics reporting all visitors.

In calculating the total attendance at the event, the first step was to determine the relative share of locals and visitor in attendance which was based on the response to the survey, then weighted by the total party size. Multiplying the relative visitor origin shares by the total attendance figures provides the total attendance by origin, which is then divided by the average number of games attended to give the number of individuals in attendance. The calculations are illustrated in table 2.1, and show that total event attendance of 4,655 spectators was made by 992 local residents and 247 visitors who attended 3.6 and 4.5 games per person, respectively.

Table 2.1 Visitor Attendance Calculations

	Local	Visitor
Overall Attendance	4,655	
Visitor Share	76.3%	23.7%
Avg. games per person	3.58	4.46
Total Spectators	992	247

The survey asked detailed trip information of out of town visitors. As previously noted, approximately half of all out of town visitors intercepted were from Prince Edward Island. Visitors from P.E.I. had an average party size of 3.5 people, and all of the respondents indicated that they would be making day-trips to Charlottetown with the average party indicating they would be making 3.1 day trips over the course of the event.

Out of town respondents came primarily from Canada, with many respondents coming from Atlantic Canada or Ontario. The average party size was 4.0 members, and they stayed for an average of 4.7 nights in Charlottetown.

Visitor Expenditures

Spectators

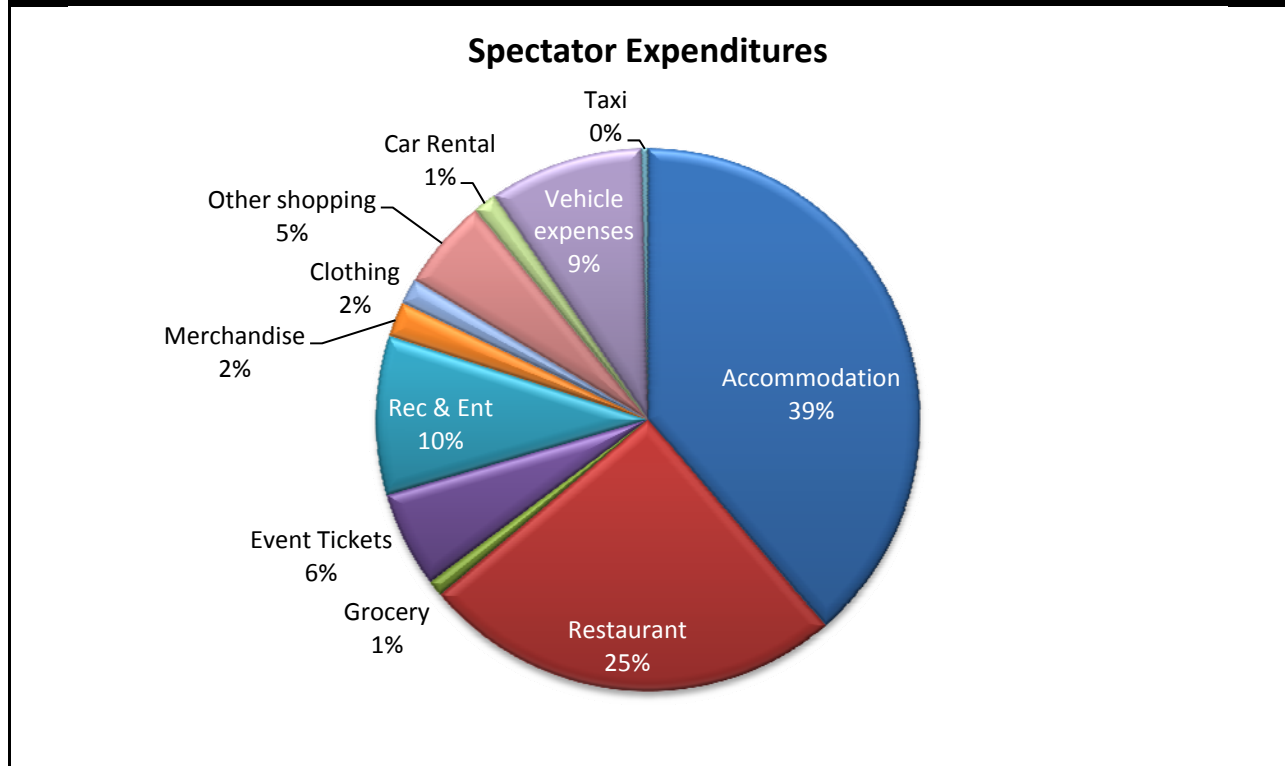
Out-of-town visitors were asked about their expenditures while in Charlottetown. The typical visitor to the 2009 World Sledge Hockey Challenge spent \$302 per person, or \$1,122 per party. Table 2.2 and Figure 2.2 below illustrate the expenditures made by spectators at the competition. The largest component of visitor expenditures was made on accommodation, accounting for 39% of the overall expenditures, followed by spending on restaurant and concessions (25%).

Table 2.2: Visitor Expenditures

	Spectators		
	Per party	Per person	Total
Accommodation	\$434.29	\$116.92	\$33,130
Restaurant	\$282.00	\$75.92	\$21,513
Grocery / Other Food & Bev	\$10.57	\$2.85	\$806
Event Tickets	\$64.26	\$17.30	\$4,902
Recreation & Entertainment	\$106.57	\$28.69	\$8,130
Merchandise	\$23.29	\$6.27	\$1,776
Clothing	\$17.14	\$4.62	\$1,308
Other shopping	\$61.03	\$16.43	\$4,656
Car Rental	\$15.71	\$4.23	\$1,199
Vehicle Expenses	\$103.00	\$27.73	\$7,857
Taxi	\$4.29	\$1.15	\$327
Transit	\$0.00	\$0.00	\$0
Total	\$1,122.14	\$302.12	\$85,604

Figure 2.2 Total Spectators Expenditure by Expense Category

(How much will you and your party spend in Charlottetown for the duration of your trip?)



Participants, Media & Others

In addition to the spending made by spectators at the event, the survey and subsequent research for the study also captured the expenditures of the event participants, members of the media, and others (such as Hockey Canada) made in Charlottetown as a result of attending the 2009 World Sledge Hockey Challenge. In total, an estimated \$256,000 was spent by visitors to Charlottetown as a result of hosting the event.

3.0 Operations Expenditures

The overall budget featured capital expenditures of approximately \$20,000 and an operational budget of just under \$60,000. These expenditures were categorized and included as part of the analysis.

While not included as a direct expenditure in the budget, the event was supported by 108 volunteers, who each contributed 4 to 8 hours on each day of the event. The success of the event was due in a large part to the outstanding support from volunteers.

4.0 Economic Impact Results

The combined spending of the participants, spectators, members of the media and others who attended the 2009 World Sledge Hockey Challenge in Charlottetown, plus the capital and operational expenditures made by the organizers of the event generated a net economic activity (GDP) of \$381,000 throughout the Province, with \$238,000 occurring in the City of Charlottetown. These expenditures generated an estimated \$778,000 in economic activity for the Province of Prince Edward Island, of which \$507,000 occurred in the City of Charlottetown. These expenditures supported \$272,000 in wages and salaries in the Province through the support of 8.6 jobs, of which an estimated 6.8 were in Charlottetown (Table 4.1).⁵

Considerable tax revenues were also produced by the event, totaling \$175,000. The event supported federal government tax revenues of \$75,000 while an additional \$77,000 in taxes accrued to the Province of Prince Edward Island. Moreover, \$22,000 in taxes was supported in Prince Edward Island municipalities, of which \$18,000 accrued in Charlottetown.

⁵ Jobs reported in this study refer to the number of jobs, vs. full time equivalent (FTE: two people working half time would represent two jobs or one FTE).

Table 4.1 Total Economic Impact

		Total P.E.I.		Total Charlottetown		Rest of P.E.I.
Initial Expenditure		\$328,787		\$328,787		\$0
Gross Domestic Product						
Direct Impact		\$141,868		\$141,868		\$0
Indirect Impact		\$125,059		\$40,601		\$84,457
Induced Impact		\$114,331		\$55,550		\$58,781
Total Impact		\$381,258		\$238,019		\$143,239
Industry Output						
Direct & Indirect		\$546,411		\$394,815		\$151,597
Induced Impact		\$231,612		\$112,038		\$119,574
Total Impact		\$778,023		\$506,853		\$271,170
Wages & Salaries						
Direct Impact		\$105,284		\$105,284		\$0
Indirect Impact		\$83,807		\$43,603		\$40,204
Induced Impact		\$83,079		\$40,994		\$42,085
Total Impact		\$272,170		\$189,881		\$82,289
Employment (Full-year jobs)						
Direct Impact ⁶		4.4		4.4		0.0
Indirect Impact		2.1		1.1		1.0
Induced Impact		2.1		1.4		0.8
Total Impact		8.6		6.8		1.8
Taxes (Total)						
Federal		\$75,293		\$51,661		\$23,632
Provincial		\$76,872		\$55,778		\$21,094
Municipal		\$22,410		\$17,588		\$4,822
Total		\$174,575		\$125,027		\$49,548

⁶ Direct employment impact is generally extra shifts or overtime for existing workers rather than new employment.

5.0 Conclusion

The 2009 World Sledge Hockey Challenge was a tremendous success with four days of intense competition between four countries from around the world. The Canadian team finished second, with a loss in overtime, in front of a crowd of nearly one thousand people in Charlottetown. The spending of the participants, spectators, and others, in combination with the operational expenditures and capital construction costs of the event organizers totaled \$329,000, resulting in a net increase in economic activity of \$381,000 throughout the Province, of which \$238,000 occurred in Charlottetown. The total industry output (or gross economic activity) supported by the event was \$778,000, supporting \$272,000 in wages and salaries throughout the Province. In Charlottetown, a total of \$190,000 in wages and salaries and 6.8 jobs were supported by the event.

Appendix 1: Comprehensive Survey Results

Day of Survey

	Number	Percent
Game 1	5	2.2
Game 2	5	2.2
Game 3	10	3.3
Game 4	23	10.1
Game 5	19	8.3
Game 6	65	28.5
Game 7 (Bronze)	25	11.0
Game 8 (Gold)	73	32.0
Total	225	100.0

Hello, my name is _____, and I am conducting a survey as to the economic impact of the 2009 World Sledge Hockey Challenge on the behalf of the event organizers. Can I please speak to someone in your travel party who is knowledgeable with your trip planning and expenditures?

	Number	Percent
Yes	192	86.3
No	31	13.7
Total	223	100%

Have you or anyone in your party previously been surveyed at this event?

	Number	Percent
Yes	41	20.8
No	152	79.2
Total	193	100%

Did you travel from outside of Charlottetown to attend the 2009 WSHC?

	Number	Percent
Yes, out of town	39	25.0
No, from C'town	117	75.0
Total	152	100.0%

Including you; how many people are in your immediate travel party?

	Number	Percent
1	23	15.1
2	45	29.6
3	28	18.4
4	23	15.1
5	10	6.6
6-9	15	9.9
10 or more	8	3.9
Total	152	100.0

What is the primary role of your immediate travel party?

Role	Number	Percent
Spectator	126	82.9
Participant family member	7	4.6
Other	19	12.5
Total	152	100.0

How many games have you / will you attend?

Average Party Size

	Local	Visitor
Games	3.6	4.5
Party Size	3.6	3.7

Where do you normally reside?

	Number	Percent
Other PEI	19	54.3
Atlantic Canada	4	11.4
Other Canada	10	28.6
USA	2	5.7
Total	35	100.0

Are you making day trips or staying overnight away from home?

	Number	Percent
Same Day	17	48.6
Overnight	18	51.4
Total	35	100

How many nights in Charlottetown?

Nights in Charlottetown	
Total	4.5

On a scale of 0 to 10, with 10 indicating that the 2009 WSHC was the only reason you came, how important was the event in your decision to come to Charlottetown?

Importance – Spectators (n=35)	
Mean	8.8

Appendix 2: Economic Impact Methodology – Sport Tourism Economic Assessment Model

Background

Briefly, the purpose of STEAM is to calculate both the provincial and regional economic impacts of sport tourism. The economic impacts are calculated on the basis of capital and operating expenditures on goods, services and employee salaries, and on the basis of tourist spending within a designated tourism sector. The elements used to measure the economic impacts are Gross Domestic Product (GDP), Employment, Taxes, Industry Output and Imports. STEAM measures the direct, indirect & induced effects for each of these elements.

Technical Description of the Impact Methodology used by STEAM

STEAM and many other impact studies are based on input-output techniques. Input-output models involve the use of coefficients that are based on economic or business linkages. These linkages trace how tourist expenditures or business operations filter through the economy. In turn, the coefficients applied are then used to quantify how tourism related activity in a particular region generates employment, taxes, income, etc. The input-output approach indicates not only the direct and indirect impact of tourism, but can also indicate the induced effect resulting from the re-spending of wages and salaries generated.

All impacts generated by the model are given at the direct impact stage (i.e. the "front line" businesses impacted by tourism expenditures), indirect impact stage (i.e. those industries which supply commodities and/or services to the "front line" businesses) and the induced impact stage (induced consumption attributable to the wages and salaries generated from both the direct and indirect impact). In this sense, the model is closed with respect to wages. Imports are also determined within the model, so the model is closed with respect to imports. Exports are not endogenized (i.e. additional exports are not assumed with the induced impact) which consequently generates more conservative impacts. Another assumption of the model, which leads to more conservative impacts, is that not all commodities and/or services purchased are assumed to have at least one stage of production within the province. This assumption is crucial for souvenirs, gasoline and other commodities.

Taxes and employment are key economic considerations. However, as these concepts fall outside of the System of National Account Provincial input/output tables, their impacts must be calculated separately. Current tax and employment data for each region is used to econometrically estimate a series of coefficients and rates. These coefficients and/or rates are then applied to measures determined within the input-output framework of the model, yielding the final tax and employment figures.

Regional (Sub-Provincial) Impact Methodology

The method used to simulate intraprovincial commodity flows and ultimately regional impacts follows directly from regional economic principles. The principle is referred to as the "gravity model". Basically the "gravity model" states that the required commodity (& service) inputs will be "recruited" in a manner that takes into consideration economies of scale (i.e. production costs), transportation costs and the availability of specific industries. Economies of scale (i.e. lower production costs) are positively correlated with input demand while greater transportation costs are negatively correlated with input demand. Fulfilling that demand from other provincial regions is contingent on the fact that the specific industry does actually exist. An advantage of using the "gravity model" to simulate intraprovincial commodity flows is that as the industrial composition of the labour force changes, or as new industries appear for the first time in specific regions, the share of production between the various sub-provincial regions also changes.

By following this principle of the gravity model, all sub-provincial regions of a province are assigned a coefficient for their relative economies of scale in each industry (using the latest industry labour force measures) as well as a coefficient to represent the transportation cost involved to get each industry's output to the designated market. One variation on the "gravity model" principle involves the estimation of "relative trade distances" by incorporating different "weights" for different modes of transport. Once these coefficients are generated for all regions and over all industries, a measure of sensitivity (mostly relative to price, but in the case of service industries also to a "local preference criteria") is then applied to all commodities. Another variation on the strict "gravity model" approach is that the measure of sensitivity is adjusted by varying the distance exponent (which in the basic "gravity model" is 2) based on the commodity or service required. The variation in distance exponents revolve, principally, around two research hypotheses: (1) the greater the proportion of total shipments from the largest producer (or shipper), the lower the exponent, and (2) the greater the proportion of total flow which is local (intraregional), the higher the exponent.

Appendix 3: Glossary of Terms Used by STEAM

Initial Expenditure - This figure indicates the amount of initial expenditures or revenue used in the analysis. This heading indicates not only the total magnitude of the spending but also the region in which it was spent (thus establishing the "impact" region).

Direct Impact - Relates ONLY to the impact on "front-line" businesses. These are businesses that initially receive the operating revenue or tourist expenditures for the project under analysis. From a business perspective, this impact is limited only to that particular business or group of businesses involved. From a tourist spending perspective, this can include all businesses such as hotels, restaurants, retail stores, transportation carriers, attraction facilities and so forth.

Indirect Impact - Refers to the impacts resulting from all intermediate rounds of production in the supply of goods and services to industry sectors identified in the direct impact phase. An example of this would be the supply and production of bed sheets to a hotel.

Induced Impact - These impacts are generated as a result of spending by employees (in the form of consumer spending) and businesses (in the form of investment) that benefited either directly or indirectly from the initial expenditures under analysis. An example of induced consumer spending would be the impacts generated by hotel employees on typical consumer items such as groceries, shoes, cameras, etc. An example of induced business investment would be the impacts generated by the spending of retained earnings, attributable to the expenditures under analysis, on machinery and equipment.

Gross Domestic Product (GDP) - This figure represents the total value of production of goods and services in the economy resulting from the initial expenditure under analysis (valued at market prices).

NOTE: The multiplier (A), Total/Initial, represents the total (direct, indirect and induced) impact on GDP for every dollar of direct GDP. This is a measure of the level of spin-off activity generated as a result of a particular project. For instance if this multiplier is 1.5 then this implies that for every dollar of GDP directly generated by "front-line" tourism businesses an additional \$0.50 of GDP is generated in spin-off activity (e.g. suppliers).

The multiplier (B), Total/\$ Expenditure, represent the total (direct, indirect and induced) impact on GDP for every dollar of expenditure (or revenue from a business perspective). This is a measure of how effective project related expenditures translate into GDP for the province (or region). Depending upon the level of expenditures, this multiplier ultimately determines the overall level of net economic activity associated with the project. To take an example, if this multiplier is 1.0, this means that for every dollar of expenditure, one dollar of total GDP is generated. The magnitude of this multiplier is influenced by the level of withdrawals, or imports, necessary to sustain both production and final demand requirements. The less capable a region or province is at fulfilling all necessary production and final demand requirements, all things being equal, the lower the eventual economic impact will be.

GDP (at factor cost) - This figure represents the total value of production of goods and services produced by industries resulting from the factors of production. The distinction to GDP (at market prices) is that GDP (at factor cost) is less by the amount of indirect taxes plus subsidies.

Wages & Salaries - This figure represents the amount of wages and salaries generated by the initial expenditure. This information is broken down by the direct, indirect and induced impacts.

Employment - Depending upon the selection of employment units (person-years or equivalent full-year jobs) these figures represent the employment generated by the initial expenditure. These figures distinguish between the direct, indirect and induced impact. “Equivalent Full-Year Jobs”, if selected, include both part-time and full-time work in ratios consistent with the specific industries.

NOTE: The multiplier (B) is analogous to Multiplier (B) described earlier with the exception being that employment values are represented per \$1,000,000 of spending rather than per dollar of spending. This is done to alleviate the problem of comparing very small numbers that would be generated using the traditional notion of a multiplier (i.e. employment per dollar of initial expenditure).

Industry Output - These figures represent the direct & indirect and total impact (including induced impacts) on industry output generated by the initial tourism expenditure. It should be noted that the industry output measure represents the **sum** total of all economic activity that has taken place and consequently involve double counting on the part of the intermediate production phase. Since the Gross Domestic Product (GDP) figure includes only the **net** total of all economic activity (i.e. considers only the value added), the industry output measure will always exceed or at least equal the value of GDP.

Taxes - These figures represent the amount of taxes contributed to municipal, provincial and federal levels of government relating to the project under analysis. This information is broken down by the direct, indirect and induced impacts.

Imports - These figures indicate the direct, indirect and induced final demand and intermediate production requirements for imports both outside the province and internationally.

Appendix 4: 2009 World Sledge Hockey Challenge Survey

Sledge 09 v1

Day1

1 Game

- Tues Game 1
- Tues Game 2
- Wed Game 3
- Wed Game 4
- Thurs Game 5
- Thurs Game 6
- Sat - Bronze
- Sat - Gold

Intro

2 Hello, my name is _____, and I am conducting a survey as to the economic impact of the 2009 World Sledge Hockey Challenge on the behalf of the Hockey Canada. Can I please speak to someone in your travel party who is knowledgeable with your trip planning and expenditures?

- Yes
- No

Previous

3 Have you or anyone in your party previously been surveyed at this event by a surveyor using a PDA?

- Yes
- No

PtySize

4 Including yourself, how many people are in your immediate (travel) party?

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 or more _____
- Define Travel Party

Games1

5 (Respondent only) In total, how many games have you / will you attend the 2009 World Sledge Hockey Challenge? (note all is 8)

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

Role

6 (Respondent Only) What is your primary role at the World Sledge Hockey Challenge?

- Spectator family member
- Participant
- Spectator
- Team Delegation / Coach / Mgr, etc.
- Other

Local

7 Did you travel from outside of Charlottetown to attend the Sledge Hockey Challenge?

- Yes, out of town
- No, from Charlottetown

Origin

8 Where are you from?

- Other PEI
- Atlantic Canada
- Other Canada
- USA
- Norway
- Japan
- Other Int'l

Origin2

9 Other City / Prov / State / Country

Sameday

10 Are you making day trips or staying overnight away from home?

Sameday

Overnight

NumDT

11 How many same day trips have you / will you be making?

Answer: _____

Nights1

12 How many nights have you / will you be spending away from home?

Answer: _____

Nights2

13 Will all of these nights be spent in Charlottetown?

Yes

No

NightsPEI

14 How many nights have you / will you spend in PEI?

Answer: _____

NightsCtown

15 How many nights have you / will you spend in Ctown?

Answer: _____

NightsComm

16 How many nights have you / will you spend in commercial accommodation? (Hotel, Motel, B&B)

Answer: _____

Ptyverify

17 Are you able to report the spending for all [@PtySize] members of your party for the duration of your stay in Charlottetown or would a different size be more appropriate?

- Yes, responses for [@PtySize] is fine
- No, a different size would be better

PtySize2

18 Please enter a more appropriate party size:

Answer: _____

Spendintro

19 Now think about the money that you and your travel party have spent in Charlottetown on this trip. How much will your party spend on each of the following items? If your trip is not yet over, please provide your best estimate as to what you and your entire travel party will spend for your entire stay in Charlottetown. How much was spent on the following:

Spending

20 Spending per party per trip:

- Accommodation _____
- OtherRestaurant/Bar/Concession _____
- Grocery/Other F&B _____
- Event Tickets _____
- Recreation & entertainment (movie, casino, attractions)? _____
- Merchandise _____
- Retail clothing _____
- Other shopping _____
- Car rental (in C'town only) _____
- Vehicle expenses (gas, parking in C'town) _____
- Taxi/airport bus _____
- Public transit _____

Importance

21 On a scale of 0 to 10, with 10 indicating that the 2009 World Sledge Hockey Challenge was the only reason you came, how important was the event in your decision to come to Charlottetown?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

Timing

22 Did you change the timing of a trip that you would normally take to Charlottetown in order to attend the World Sledge Hockey Challenge?

- Yes
- No

lengthen

23 Did you lengthen a regular or planned trip to Charlottetown in order to attend the World Sledge Hockey Challenge?

- Yes
- No

Lengthdays

24 By how many days?

Answer: _____

Thankyou

25 Surveyor Comments
