

Canadian Sport Tourism Alliance



Alliance canadienne du tourisme sportif

2012 IIHF World Junior Championship

Economic Impact Assessment

June 2012

The following analysis provides the economic impact of the 2012 IIHF World Junior Championship hosted by Hockey Canada in the cities of Calgary and Edmonton, Alberta, from December 26, 2011 to January 5, 2012, as well as an estimate of the impact arising from the pre-tournament and exhibition games hosted throughout the province prior to the event, as generated by the Sport Tourism Economic Assessment Model, Professional version.

Economic Impact Assessment Funding Partner

The Canadian Sport Tourism Alliance wishes to acknowledge the financial support of the 2012 IIHF World Junior Championship host organizing committee in the completion of this report.

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1.0 Background

The 2012 IIHF World Junior Hockey Championship ran from December 26, 2011 to January 5, 2012 and featured a total of 31 games in the Province of Alberta, with 10 games being hosted in Edmonton and the remainder being held in Calgary. The ten best national junior teams in the world, consisting of Latvia, Slovakia, Switzerland, Russia, Sweden, Denmark, Finland, the Czech Republic, the United States and Canada competed over the 11 days of the event. The tournament was a tremendous success, with 445,218 fans attending the games, of which 297,206 were in Calgary and 148,012 in Edmonton. An additional 53,000 spectators attended the pre-competition games which were hosted throughout the province, making the championships truly an ‘Alberta United’ event. Sweden won the tournament, giving them their first gold medal in 30 years, while Canada’s bronze medal gives Team Canada their 14th consecutive medal at the IIHF World Junior Championships.

In addition to showcasing the talents of the world’s top junior hockey players, the event provided a significant economic boost to the economies of the host communities by attracting thousands of spectators to the province. The combined expenditures of these visitors, along with those of the event organizers, generated substantial economic benefits in the host cities of Edmonton and Calgary, the other pre-tournament host communities, and for the Province of Alberta as a whole. This report details the measurement of the economic impact of the 2012 IIHF World Junior Championship for the host cities and the exhibition game host communities. Section 2 of the report provides details of the intercept survey that was conducted in order to ascertain both the number of visitors and the expenditures that visitors made while attending the event. Section 3 provides details of the operational and capital expenditures that further contributed to the impact of the event, while Section 4 presents the STEAM-PRO¹ results from the combined expenditures these groups. Section 5 concludes the document with a summary of the findings. The appendices include 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 at the 2012 IIHF World Junior Championships was collected through the administration of a face to face intercept survey. The survey captured essential information to determine the composition of spectators attending the event and the expenditures of out-of-town visitors to the host communities. The survey was conducted using Palm PDAs running Techneos Entryware software.² A copy of the survey instrument used can be found in Appendix 3.³

Survey Results

A total of 1,662 visitor parties were approached at the two venues over the course of the event (676 in Edmonton, 986 in Calgary), with 1,570 parties agreeing to participate (611 in Edmonton, 959 in Calgary; a rejection rate of 9.6% / 2.7%). Of this group, 101 parties had been previously surveyed (70 in Edmonton (11.5%) and 31 in Calgary (3.2%)), yielding a total of 1,469 complete surveys (541 in Edmonton, 928 in Calgary). Spectators were asked if they were from the host city or from out of town, with the survey finding 35% of Edmonton respondents coming from outside of the Greater Edmonton region while 26% of Calgary respondents were from outside of Calgary. In both cities, visitors from other parts of the province were the primary source of spectators, accounting for 67% of spectators in Edmonton and 60% of spectators in Calgary. Figure 2.1 illustrates the origin of visitors to both Edmonton and Calgary.⁴

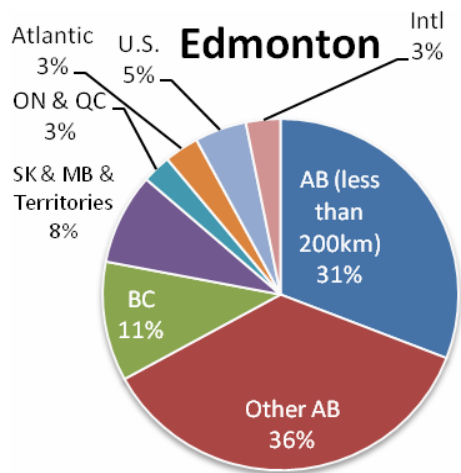
The average local spectator attended 3.6 games in Edmonton and 5.7 games in Calgary. In Edmonton, the number of games attended sameday travelers was slightly lower, before increasing to more than 4 games for Canadian visitors and more than 5 games for international visitors. In Calgary, out of town residents attended more games than locals, with out of town visitors seeing an average of 6.9 games per person. (Figure 2.2).

²For more information see www.techneos.com.

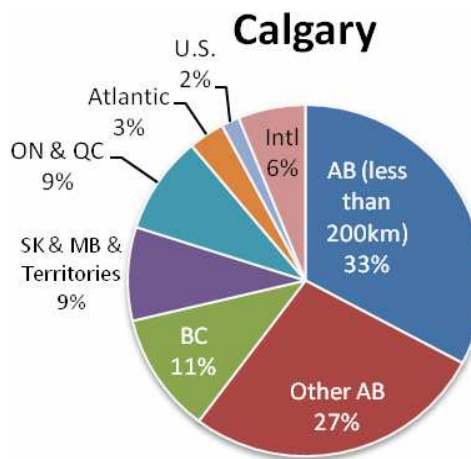
³The survey and methodology were prepared in consultation with the “Guidelines for Measuring Tourism Economic Impact At Gated Festivals and Events”, available at:
<http://www.tourism.gov.on.ca/english/tourdiv/research/resources.htm>

⁴. For the statistics which are broken out by visitor origin, the sample sizes are as follows: Edmonton: Sameday (n=62), AB under 200km (n=16), Other AB (n=53), Other Can (n=43), Int'l (n=14). Calgary: Sameday (n=91), AB under 200km (n=14), Other AB (n=47), Other Can (n=72), Int'l (n=16). The sample size of 188 parties representing 521 out of town visitors in Edmonton spectators yields statistically significant confidence intervals of +/- 4.2% for statistics reporting all visitors. For Calgary, the sample of 240 parties representing 648 spectators yields a confidence interval of +/- 3.7% for statistics reporting all visitors.

Figure 2.1 Survey Respondent Origin

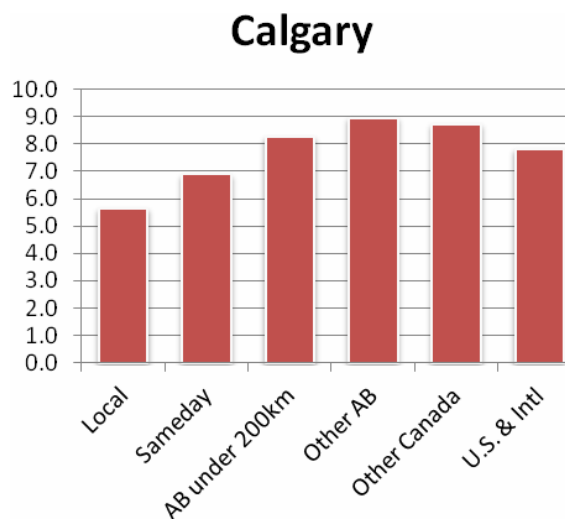
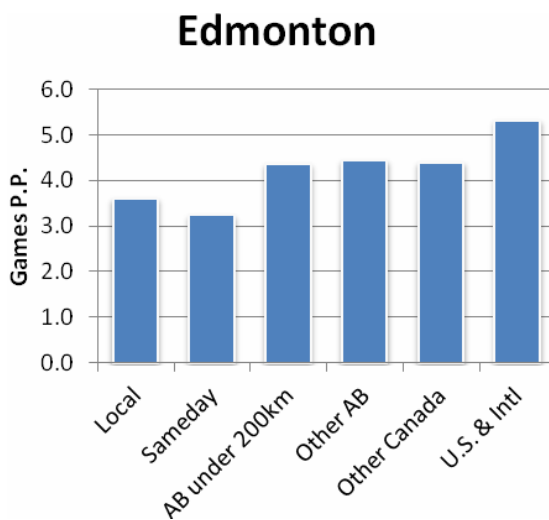


Sample Size = 191



Sample Size = 244

Figure 2.2 Games Attended – Local vs. Out-of-Town



Attendance at the event was calculated through the use of the survey results, as detailed in Table 2.1 Total attendance at each of the host cities was split into the shares of locals and visitors based on the survey findings. Next, these total attendance figures were divided by the average number of games attended per spectator for locals and visitors. Despite the fact that two thirds of the tickets sold were in Calgary, more out of town visitors actually came to Edmonton as the proportion of visitors was higher

(35% vs. 26%) and the number of games attended per person was lower (3.6 vs. 5.7). In total, the 2012 IIHF World Junior Championships attracted 24,788 out-of-town spectators, and was attended by an additional 65,169 local spectators.

Table 2.1 Spectator attendance calculations

		Edmonton	Calgary	Total
Total Attendance		148,012	297,206	445,218
Local / Visitor Share of Attendance	Local (%)	64.6%	73.7%	70.7%
	Visitor (%)	35.4%	26.3%	29.3%
Attendance	Local	95,660	218,977	314,637
	Visitor	52,352	78,229	130,581
Games / Spectator	Local	3.6	5.7	4.8
	Visitor	3.9	6.9	5.3
Spectators	Local	26,459	38,710	65,169
	Visitor	13,504	11,284	24,788

Visitor Expenditures

Out-of-town visitors that were surveyed at the WJC were asked about their expenditures while in the host city. Excluding the costs of World Junior Championship tickets, the typical visitor to Edmonton spent \$589 over the course of the tournament, while visitors to Calgary spent an average of \$653 each. The average overnight visitor to Edmonton spent 4.9 nights in the community, increasing to 7.1 nights in Calgary. The average spending per person per day was lower in Calgary, however, as a result of a higher share of visitors either making day trip or staying with friends and relatives, as illustrated in Figure 2.3. Multiplying the average spending figures by the number of spectators, as shown in Table 2.3, found that the total spectator spending at the 2012 World Junior Championship reached \$7.4 million in Edmonton and \$6.5 million in Calgary, for a total of \$13.9 million.

Figure 2.3 Visitor Accommodation Use

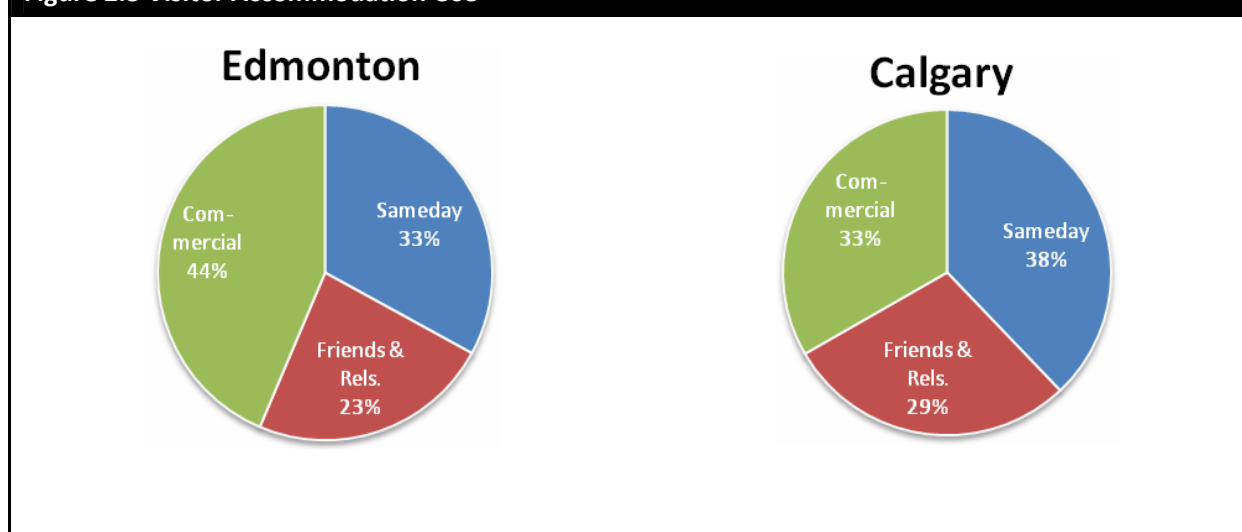


Table 2.2 Visitor Expenditure per Person per Trip

	Edmonton						Calgary					
	Sameday	AB under 200km	Other AB	Other Canada	U.S. & Intl	Average	Sameday	AB under 200km	Other AB	Other Canada	U.S. & Intl	Average
Accommodation	\$0.00	\$117.64	\$127.82	\$189.02	\$469.19	\$180.26	\$0.00	\$51.18	\$172.81	\$214.18	\$309.62	\$200.14
Restaurant	\$73.27	\$347.43	\$175.36	\$289.70	\$556.76	\$200.22	\$91.57	\$135.00	\$286.06	\$288.46	\$382.00	\$209.67
Rec & Ent	\$15.83	\$67.05	\$35.62	\$31.89	\$105.11	\$34.24	\$5.02	\$38.82	\$33.60	\$31.53	\$91.96	\$27.35
WJC Merchandise	\$27.74	\$62.17	\$38.72	\$35.16	\$141.26	\$41.23	\$51.51	\$51.47	\$75.99	\$72.35	\$41.79	\$61.63
Other Shopping	\$21.61	\$36.57	\$90.03	\$76.64	\$193.39	\$66.39	\$10.74	\$64.71	\$78.36	\$106.45	\$134.91	\$64.58
Own Car	\$36.39	\$70.70	\$62.22	\$56.80	\$79.46	\$54.23	\$67.35	\$115.00	\$70.40	\$57.70	\$47.17	\$66.24
Taxi	\$1.37	\$14.63	\$6.30	\$6.62	\$5.47	\$5.39	\$1.65	\$3.24	\$2.88	\$11.98	\$4.91	\$5.12
Car Rental	\$0.14	\$0.00	\$0.00	\$6.56	\$40.61	\$3.83	\$0.00	\$0.00	\$1.87	\$16.56	\$96.23	\$12.85
Transit	\$0.17	\$5.49	\$3.98	\$4.39	\$10.51	\$3.33	\$1.43	\$1.82	\$8.28	\$7.28	\$14.15	\$5.58
Total	\$176.52	\$721.68	\$540.05	\$696.77	\$1,601.75	\$589.15	\$229.26	\$461.24	\$730.23	\$806.49	\$1,122.74	\$653.14

Table 2.3 Aggregate Visitor Expenditure

	Edmonton						Calgary					
	Sameday	AB under 200km	Other AB	Other Canada	U.S. & Intl	Total	Sameday	AB under 200km	Other AB	Other Canada	U.S. & Intl	Total
Accommodation	\$0	\$135,202	\$486,625	\$583,825	\$471,836	\$1,677,489	\$0	\$33,685	\$381,851	\$725,004	\$232,911	\$1,373,451
Restaurant	\$326,314	\$399,301	\$667,612	\$894,818	\$559,898	\$2,847,943	\$391,763	\$88,859	\$632,105	\$976,448	\$287,359	\$2,376,532
Rec & Ent	\$70,491	\$77,058	\$135,604	\$98,486	\$105,698	\$487,338	\$21,462	\$25,554	\$74,240	\$106,723	\$69,178	\$297,157
WJC Merchandise	\$123,538	\$71,454	\$147,420	\$108,607	\$142,058	\$593,078	\$220,363	\$33,879	\$167,918	\$244,899	\$31,438	\$698,496
Other Shopping	\$96,252	\$42,032	\$342,756	\$236,720	\$194,484	\$912,244	\$45,953	\$42,590	\$173,148	\$360,351	\$101,482	\$723,524
Own Car	\$162,052	\$81,261	\$236,886	\$175,426	\$79,908	\$735,533	\$288,130	\$75,694	\$155,554	\$195,323	\$35,483	\$750,184
Taxi	\$6,111	\$16,813	\$23,968	\$20,457	\$5,496	\$72,844	\$7,043	\$2,130	\$6,359	\$40,564	\$3,690	\$59,786
Car Rental	\$611	\$0	\$0	\$20,254	\$40,842	\$61,707	\$0	\$0	\$4,133	\$56,071	\$72,386	\$132,590
Transit	\$764	\$6,305	\$15,151	\$13,570	\$10,570	\$46,359	\$6,127	\$1,200	\$18,298	\$24,641	\$10,645	\$60,911
Total	\$786,134	\$829,426	\$2,056,022	\$2,152,163	\$1,610,790	\$7,434,534	\$980,841	\$303,591	\$1,613,606	\$2,730,024	\$844,571	\$6,472,632

Media Expenditures

Estimates were also prepared for the impacts arising from the considerable numbers of media who attended the event. In total, there were 480 accredited media members in Calgary and Edmonton for the 2012 IIHF World Junior Championships, of which approximately 380 were out of town visitors. The vast majority of media members stayed for the duration of the tournament with many arriving early in preparation for the event. Estimates were made of the total media expenditures and were included in the economic impact analysis.

Regional Visitor Impacts

As previously noted, a number of pre-tournament events were directly associated with Alberta's hosting of the 2012 IIHF World Junior Championships, including the summer development camp, the December selection camp and pre-competition camp, as well as the 11 pre-tournament exhibition games that were hosted throughout the province. Surveys were undertaken at the development camp hosted in Edmonton / Fort McMurray, as well as at the pre-tournament exhibition games to determine the level of visitation associated with the games. Overall, the survey found that 90% of those attending the games were local residents. The share of spectators coming from out of town was divided equally between same-day and overnight spectators who spent either one day or one night in the host community as part of their trip. All of the visitor expenditures, as well as the associated operational costs were entered into the STEAM PRO model for each community, with the results detailed in Tables 4.1 and 4.2.

3.0 Operations / Capital Expenditures

The 2012 IIHF World Junior Championship host organizing committee invested significantly in producing a high-caliber event in both Edmonton and Calgary. In addition, operational expenditures were also made by Hockey Canada, event sponsors, and members of the media, which have been factored into the analysis. The event also provided for some capital upgrades to the host venues, totaling \$250,000.

The event also benefited from the efforts of more than 1,200 volunteers, who made a significant contribution to the success of the Championship.

4.0 Economic Impact Results

The combined spending of the more than 30,000 visitors who attended the pre-competition and tournament games associated with the 2012 IIHF World Junior Championship, plus the revenues and expenditures of the host organizing committee, media, and the capital upgrades to facilities as a result of hosting event totaled \$51.0 million. This spending generated an estimated \$86.2 million in economic activity for the Province of Alberta, of which \$30.9 million occurred in Edmonton and \$36.8 million occurred in Calgary. These expenditures supported \$18.6 million in wages and salaries in the Province through the support of 396 jobs, of which an estimated 164 were in Edmonton and 146 were in Calgary.⁵ The total net economic activity (GDP) generated by the event was \$56.1 million throughout the Province, with \$20.0 million occurring in Edmonton and \$24.4 million occurring in Calgary.

Considerable tax revenues were also supported by the event, totaling \$11.5 million. The event supported federal government tax revenues of \$5.6 million, and an additional \$3.1 million in taxes accrued to the Province of Alberta. Moreover, \$2.8 million in taxes was supported in the Alberta municipalities, of which \$1.3 million accrued in Edmonton and \$1.2 million accrued in Calgary.

⁵ A job reported in this study refers 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 Alberta*	Total Calgary**	Total Edmonton**	Rest of Alberta
Initial Expenditure	\$51,002,826	\$22,193,239	\$27,443,879	\$1,365,708
Gross Domestic Product				
Direct Impact	\$33,078,259	\$14,606,899	\$18,074,101	\$397,259
Indirect Impact	\$13,423,941	\$2,753,554	\$3,474,468	\$279,171
Induced Impact	\$9,646,192	\$2,688,786	\$2,849,699	\$210,633
Total Impact	\$56,148,392	\$20,049,239	\$24,398,267	\$887,062
Industry Output				
Direct & Indirect	\$66,965,076	\$25,504,997	\$31,166,327	\$1,670,051
Induced Impact	\$19,209,618	\$5,362,835	\$5,662,419	\$417,893
Total Impact	\$86,174,693	\$30,867,832	\$36,828,746	\$2,087,944
Wages & Salaries				
Direct Impact	\$5,739,837	\$2,804,450	\$2,785,490	\$149,897
Indirect Impact	\$7,524,134	\$2,090,359	\$2,592,675	\$208,362
Induced Impact	\$5,384,173	\$1,545,629	\$1,647,802	\$119,475
Total Impact	\$18,648,144	\$6,440,439	\$7,025,967	\$477,735
Employment (Full-year jobs)				
Direct Impact ⁶	159.0	86.9	66.9	5.2
Indirect Impact	132.3	39.8	43.6	4.3
Induced Impact	105.1	37.5	35.8	2.9
Total Impact	396.4	164.2	146.2	12.4
Taxes (Total)				
Federal	\$5,582,349	\$1,908,875	\$2,018,158	\$144,513
Provincial	\$3,103,319	\$1,025,237	\$1,110,391	\$76,854
Municipal	\$2,811,972	\$1,288,029	\$1,217,852	\$32,064
Total	\$11,497,641	\$4,222,141	\$4,346,401	\$253,430

*Note: Includes the total economic impact reported in Table 4.2 as well as indirect and induced effects arising from the initial expenditure.

** Note: does not include pre-tournament camp / games expenditures, which are reported in Table 4.2

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

Table 4.2 Economic Impact – Pre-Tournament Games

	Total Alberta*	Red Deer	Calgary**	Okotoks	Olds	Camrose	Brooks	Lethbridge	Edmonton **	Three Hills	Fort McMurray
Initial Expenditure	\$1,365,708	\$298,422	\$440,340	\$62,434	\$60,536	\$75,893	\$48,950	\$95,296	\$269,456	\$26,987	\$49,827
Gross Domestic Product											
Direct Impact	\$397,259	\$88,840	\$126,518	\$20,880	\$20,451	\$23,924	\$14,711	\$28,313	\$63,731	\$7,926	\$22,845
Indirect Impact	\$672,757	\$52,583	\$101,825	\$9,335	\$8,525	\$11,517	\$8,055	\$16,850	\$67,481	\$4,415	\$7,919
Induced Impact	\$397,663	\$44,585	\$69,631	\$10,199	\$9,753	\$11,367	\$7,081	\$14,150	\$38,171	\$3,781	\$12,114
Total Impact	\$1,467,680	\$186,007	\$297,974	\$40,413	\$38,728	\$46,808	\$29,848	\$59,313	\$169,384	\$16,122	\$42,878
Industry Output											
Direct & Indirect	\$2,126,590	\$357,143	\$550,944	\$74,242	\$71,404	\$89,427	\$57,981	\$114,084	\$333,408	\$31,811	\$63,848
Induced Impact	\$788,939	\$88,594	\$138,061	\$20,390	\$19,508	\$22,657	\$14,078	\$28,114	\$75,077	\$7,507	\$24,296
Total Impact	\$2,915,529	\$445,737	\$689,005	\$94,632	\$90,913	\$112,084	\$72,059	\$142,199	\$408,485	\$39,318	\$88,144
Wages & Salaries											
Direct Impact	\$149,897	\$36,206	\$45,669	\$11,467	\$11,467	\$11,467	\$6,174	\$11,467	\$8,246	\$3,090	\$16,111
Indirect Impact	\$385,472	\$40,417	\$74,055	\$7,377	\$6,782	\$9,053	\$6,300	\$12,976	\$49,055	\$3,461	\$6,263
Induced Impact	\$221,582	\$25,297	\$39,499	\$5,797	\$5,521	\$6,432	\$4,035	\$8,054	\$21,590	\$2,150	\$6,896
Total Impact	\$756,952	\$101,921	\$159,223	\$24,641	\$23,770	\$26,952	\$16,510	\$32,497	\$78,891	\$8,702	\$29,270
Employment (Full-year jobs)											
Direct Impact	5.2	1.3	1.4	0.3	0.4	0.5	0.2	0.4	0.3	0.1	0.6
Indirect Impact	7.6	0.9	1.4	0.1	0.1	0.2	0.1	0.3	1.1	0.1	0.1
Induced Impact	4.5	0.7	0.9	0.1	0.1	0.2	0.1	0.2	0.5	0.1	0.2
Total Impact	17.2	2.8	3.6	0.6	0.7	0.9	0.4	0.9	1.9	0.3	0.9
Total Taxes											
Federal	\$229,779	\$31,232	\$47,783	\$7,839	\$7,600	\$8,449	\$5,081	\$9,945	\$22,532	\$2,659	\$9,232
Provincial	\$127,176	\$16,360	\$25,688	\$3,958	\$3,817	\$4,323	\$2,644	\$5,214	\$12,450	\$1,392	\$4,966
Municipal	\$46,757	\$7,153	\$10,359	\$1,931	\$1,892	\$2,030	\$1,180	\$2,273	\$3,614	\$610	\$2,952
Total	\$403,713	\$54,745	\$83,830	\$13,727	\$13,309	\$14,802	\$8,905	\$17,432	\$38,597	\$4,661	\$17,150

*Note: Included in the aggregate economic impact reported in the first and fourth columns of Table 4.1. The municipal subtotals listed above do not sum to the total Alberta column due to the indirect and induced economic impacts attributable to communities other than the host community..

**Edmonton and Calgary in this table refers to visitors who only attended exhibition games. Visitors who attended both exhibition and WJC tournament games are included in Table 4.1

5.0 Conclusion

The 2012 IIHF World Junior Championship was a tremendous success by all measures, with the event showcasing the talents of the world's top young hockey players. The event was enjoyed by thousands of local spectators, and supported through the efforts of more than 1,200 volunteers. Moreover, the event attracted nearly 25,000 visitors to the cities of Edmonton and Calgary, with an additional 5,500 visitors at the pre-competition communities throughout Alberta. In the two host cities, visitor expenditures were in excess of \$13.9 million. These expenditures, in combination with the operational expenditures and revenues of the host organizing committee, members of the media, and capital upgrades to the event venues, totaled \$51.0 million, resulting in a net increase in economic activity of \$56.1 million throughout the Province, of which \$20.0 million occurred in Edmonton and \$24.4 million occurred in Calgary. The total industry output (or gross economic activity) supported by the event was \$86.2 million, supporting \$18.7 million in wages and salaries throughout the Province. In the Edmonton and Calgary, a total of \$13.5 million in wages and salaries were supported by the event, along with 164 jobs in Edmonton and 146 jobs in Calgary.

Appendix 1: 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 intra-provincial 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 intra-provincial 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 2: 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 3: 2012 IIHF World Junior Championship Survey