

*Canadian Sport Tourism Alliance*



*Alliance canadienne du tourisme sportif*

# 2016 World Sledge Hockey Challenge

Bridgewater, Nova Scotia

---

Economic Impact Assessment

May 2016

---

*The following analysis provides the economic impact of the 2016 World Sledge Hockey Challenge, hosted at the Lunenburg County Lifestyle Centre in Bridgewater, Nova Scotia from January 17-23, as generated by the STEAM PRO, economic assessment model.*

## Economic Impact Assessment Funding Partners

The Canadian Sport Tourism Alliance wishes to acknowledge the support of Events Nova Scotia in the completion of this study.

---

For more information about this report, please contact:

Tony Fisher, Canadian Sport Tourism Alliance, [research@canadiansporttourism.com](mailto:research@canadiansporttourism.com)

Angela Dennison, Events Nova Scotia, [angela.dennison@novascotia.ca](mailto:angela.dennison@novascotia.ca)

## 1.0 Background

The 2016 World Sledge Hockey Challenge is an annual event hosted by Hockey Canada that features prominently on the world sledge hockey calendar. The 2016 edition featured four teams: Canada, the United States, Russia, and Korea and was hosted at the Lunenburg County Lifestyle Centre in the province of Nova Scotia from January 17 to 23, 2016. The gold medal game, which was broadcast on TSN and RDS, saw the Canadians eliminate a two goal deficit against the United States; however they came up short, losing 3-2 in Overtime. The bronze medal game was won by Korea who defeated Russia by a score of 2-0. The World Sledge Hockey Challenge provides tremendous benefits on a number of levels: the Town of Bridgewater and Lunenburg had the opportunity to work with Hockey Canada and host an international tournament; the participants experienced a world class tournament and Maritime hospitality while hockey fans witnessed intense competition between the world's best sledge hockey players. The combined spending of out of town participants and spectators, along with the expenditures made by the organizers in hosting the 2016 World Sledge Hockey Challenge resulted in a considerable boost in economic activity for the economies of Bridgewater and Nova Scotia.

The next section of the report provides some detail from the spectator survey that was conducted on site at the tournament. The survey results were used to ascertain both the number and origin of spectators and the expenditures that out of town visitors made while in Bridgewater for the competition. Section 3 provides details of operational expenditures that further contributed to the impact of the event, while Section 4 presents the STEAM PRO<sup>1</sup> results from the combined expenditures of the visitors and the host committee's operational expenditures. The appendices include additional information regarding the economic impact model and a glossary of the terms used.

---

<sup>1</sup>The 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 origin and spending of spectators attending the 2016 World Sledge Hockey Challenge was collected through an on-site intercept survey that was administered by trained volunteers. The survey asked a variety of questions collecting information the origin of spectators, the number of days they were attending the event. Out of town visitors were also asked questions about their visit and the expenditures while they were in Bridgewater. The survey was run on tablet PDAs using Survey Analytics' Survey Pocket software.<sup>2</sup>

### *Survey Results*

A total of 1,052 parties were approached over the duration of the tournament with 65 parties choosing not to participate (6%) and a further 176 respondents (17%) had been surveyed, leaving 811 valid responses. Among the respondents, the majority of spectators (86%) were from Bridgewater (under 40km) while an additional 11% were from the other parts of Nova Scotia, including 4% from Halifax, 5% who were regional visitors (under 200km) within Nova Scotia and 2% were Nova Scotia Residents who travelled more than 200km to reach Bridgewater. Only 1% of all spectator respondents were from other parts of Atlantic Canada, 1% was from non-Atlantic Canada and 1% were international respondents.

The first step of the analysis is to determine the number of unique individuals attending the 2016 World Sledge Hockey Challenge. This was done through the use of ticketing information in combination with the survey results. The 2016 WSHC sold a total of 850 full event and sponsor passes and 2,429 day passes. The survey found that the typical spectator using a day pass went to 2.37 games, and with 2 games per day, this means the average spectator used 1.2 day passes suggesting a total of 2,048 individuals used day passes. The final category of spectators was those who either didn't need a ticket or were given a ticket. Based on the survey results, there were an additional 401 spectators who fell in these categories. The next step in the analysis was to determine the origin of the spectators which was done by breaking out the visitor origins based on the type of ticket used. As shown in Table 2.1, there were a total of 3,299 individual spectators at the World Sledge Hockey Challenge, of which 428 spectators were from outside of Bridgewater.

---

<sup>2</sup> [www.surveypocket.com](http://www.surveypocket.com)

**Table 2.1 2016 World Sledge Hockey Challenge – Spectators by Origin**

Origin	Full Event / Sponsor Packages	Single Day Tickets	Don't Need / Given Tickets	Total Attendance
Bridgewater	707	1,854	311	2,871
HRM	43	62	23	127
Other Regional <i>(within 200km of Bridgewater)</i>	37	84	32	153
Other Nova Scotia	43	18	5	65
Other Atlantic Canada	11	9	12	31
Other Canada	11	13	12	35
International	0	9	7	16
<b>Total</b>	<b>850</b>	<b>2,048</b>	<b>401</b>	<b>3,299</b>
<i>Visitors</i>	<i>143</i>	<i>194</i>	<i>90</i>	<i>428</i>

### Visitor Expenditures

As mentioned, out of town spectators were asked as to their expenditures while attending the World Sledge Hockey Challenge in Bridgewater. With the size of the sample collected, out of town spectators were divided into two categories: sameday travellers and overnight travellers. The typical sameday traveller spent \$58 per person or \$23 per person per day while attending the WSHC tournament. Overnight visitors spent considerably more, with an average of \$539 per person during their stay (an average of 4.0 nights) for an average of \$133 per person per night.

Combining the average spending with the attendance figures shows that out of town spectators who came to Bridgewater to attend the 2016 World Sledge Hockey Challenge spent \$89,000 (Table 2.3).

**Table 2.2 Spending per Person**

Per Person	Day Trip	Overnight Trip	Average
Accommodation	\$0.00	\$243.73	\$76.73
Restaurants	\$25.77	\$162.63	\$68.85
Grocery / Other Food & Beverage	\$7.02	\$37.55	\$16.63
Recreation & Entertainment	\$6.00	\$11.88	\$7.85
Shopping	\$5.34	\$21.63	\$10.47
Vehicle Expenses	\$13.47	\$44.29	\$23.18
Taxi / Shuttle / Transit	\$0.24	\$16.79	\$5.45
<b>Total</b>	<b>\$57.85</b>	<b>\$538.51</b>	<b>\$209.17</b>
<i>PPPD/PPPN</i>	<i>\$23.42</i>	<i>\$133.29</i>	<i>\$58.01</i>

**Table 2.3 Aggregate Spending**

Aggregate	Day Trip	Overnight Trip	Total
<i>Visitors</i>	293	135	428
Accommodation	\$0	\$32,813	\$32,813
Restaurants	\$7,550	\$21,894	\$29,444
Grocery / Other Food & Beverage	\$2,057	\$5,056	\$7,113
Recreation & Entertainment	\$1,758	\$1,600	\$3,358
Shopping	\$1,566	\$2,912	\$4,477
Vehicle Expenses	\$3,948	\$5,963	\$9,911
Taxi / Shuttle / Transit	\$71	\$2,260	\$2,332
<b>Total</b>	<b>\$16,950</b>	<b>\$72,497</b>	<b>\$89,446</b>

As a final step, spectators from outside of Bridgewater were asked as to the importance of the 2016 World Sledge Hockey Challenge in the respondent's decision to travel. The survey found that the importance of the event was relatively high with an overall score of 93% for sameday travellers and 84% for overnight traveller.<sup>3</sup> The attribution factor is then applied to the aggregate expenditure calculation to determine the amount of spending that is directly as a result of hosting the event. The results show that the spending directly attributable to the 2016 World Sledge Hockey Challenge was nearly \$77,000 (Table 2.4).

**Table 2.4 Spending Adjusted for Importance of WSHC in Decision to Travel**

Attributable	Day Trip	Overnight Trip	Total
<i>Importance (1-10)</i>	9.3	8.4	8.6
Accommodation	\$0	\$27,530	\$27,530
Restaurants	\$7,036	\$18,369	\$25,406
Grocery / Other Food & Beverage	\$1,917	\$4,242	\$6,159
Recreation & Entertainment	\$1,638	\$1,342	\$2,981
Shopping	\$1,459	\$2,443	\$3,902
Vehicle Expenses	\$3,679	\$5,003	\$8,682
Taxi / Shuttle / Transit	\$67	\$1,896	\$1,963
<b>Total</b>	<b>\$15,797</b>	<b>\$60,825</b>	<b>\$76,622</b>

<sup>3</sup> Respondents were asked to rate the importance of the tournament in their decision to travel to Bridgewater using a scale of 1 to 10, with scores of 10 being given a 100% attribution, 9 given a 90% attribution, etc.

## ***Athlete Expenditures***

While not surveyed directly, estimates of the spending made by athletes, coaches and managers over and above the spending made on their behalf by the competition organizers were also included in the analysis.

## ***Additional Survey Results***

The World Sledge Hockey Challenge was the first visit to Nova Scotia for 54% of out of province respondents. Out of province visitors were also asked if they visited any websites prior to coming to the event, with the tournament website being the most commonly used site (46%). Surprisingly, a considerable number of respondents (42%) did not visit a website prior to their visit.

**Table 2.5 Overall Rating**

<b>Response</b>	<b>Share</b>
First Visit to NS	54%
WSHC Website Hockey Canada	46%
Did not visit a website	42%
<a href="http://www.novascotia.com">www.novascotia.com</a>	19%
<a href="http://www.tripadvisor.ca">www.tripadvisor.ca</a>	4%
<a href="http://www.explorenovascotia.com">www.explorenovascotia.com</a>	4%
<a href="http://www.novascotiatourismagency.ca">www.novascotiatourismagency.ca</a>	4%
Other please list	4%

### 3.0 Operations Expenditures

In organizing and hosting the 2016 World Sledge Hockey Challenge, a considerable investment was made to run a top caliber event. Expenses were focused on items such as direct venue costs, transportation, marketing and food for athletes.<sup>4</sup>

In addition, the 2016 World Sledge Hockey Challenge was supported by hundreds of volunteers who contributed greatly to the event, thereby ensuring the success of the tournament.

---

<sup>4</sup> The event budget was provided for analysis by the CSTA; however the detailed results are not included in this report for confidentiality reasons.



## 4.0 Economic Impact Results

The combined spending of out of town spectators in combination with the expenditures made by the organizers in hosting 2016 World Sledge Hockey Challenge totaled \$406,000. This supported an estimated \$930,000 in economic activity for the Province of Nova Scotia, of which \$596,000 occurred in Bridgewater. These expenditures supported \$279,000 in wages and salaries in the Province through the support of 9 jobs, of which an estimated 7 jobs and \$156,000 in wages and salaries were supported in Bridgewater.<sup>5</sup> The total net economic activity (GDP) generated by the event was \$443,000 through the Province, with \$223,000 occurring in Bridgewater.

Considerable tax revenues were also produced by the event, totaling \$171,000. The event supported federal government tax revenues of \$77,000 with an additional \$76,000 in taxes accruing to the Province of Nova Scotia. Moreover, \$18,000 in municipal taxes was supported in Nova Scotia municipalities with \$13,000 of the municipal tax base in the Bridgewater being supported by the 2016 World Sledge Hockey Challenge.

**Table 4.2 World Sledge Hockey Challenge Economic Impact Summary Table**

	Total Nova Scotia	Bridgewater
Initial Expenditure	\$406,036	\$406,036
GDP	\$442,745	\$222,743
Wages & Salaries	\$279,475	\$155,805
Employment	9.2	6.8
Industry Output	\$930,451	\$596,082
Total Taxes	\$171,345	\$102,760
Federal	\$76,680	\$43,392
Provincial	\$76,177	\$46,652
Municipal	\$18,488	\$12,716

<sup>5</sup> Jobs reported in this study refer to the number of jobs, vs. full time equivalent (i.e.: two people working half time in a job that typically features half time employment would represent two jobs or one FTE). Additionally, the direct employment effects are generally extra shifts or overtime for existing workers rather than new employment.

**Table 4.2 Total Economic Impact**

	Total Nova Scotial	Total Bridgewater	Rest of Nova Scotia
Initial Expenditure	\$406,036	\$406,036	\$0
<b>Gross Domestic Product</b>			
Direct Impact	\$93,188	\$93,188	\$0
Indirect Impact	\$236,171	\$86,594	\$149,577
Induced Impact	\$113,385	\$42,960	\$70,425
Total Impact	\$442,745	\$222,743	\$220,002
<b>Industry Output</b>			
Direct & Indirect	\$690,706	\$505,206	\$185,499
Induced Impact	\$239,745	\$90,876	\$148,870
Total Impact	\$930,451	\$596,082	\$334,369
<b>Wages &amp; Salaries</b>			
Direct Impact	\$67,953	\$67,953	\$0
Indirect Impact	\$142,640	\$62,235	\$80,405
Induced Impact	\$68,882	\$25,616	\$43,266
Total Impact	\$279,475	\$155,805	\$123,670
<b>Employment (Full-year jobs)</b>			
Direct Impact <sup>6</sup>	4.6	4.6	-
Indirect Impact	3.0	1.3	1.7
Induced Impact	1.6	0.8	0.8
Total Impact	9.2	6.8	2.4
<b>Taxes (Total)</b>			
Federal	\$76,680	\$43,392	\$33,288
Provincial	\$76,177	\$46,652	\$29,525
Municipal	\$18,488	\$12,716	\$5,772
Total	\$171,345	\$102,760	\$68,585

<sup>6</sup> Jobs reported in this study refer to the number of jobs, vs. full time equivalent (i.e.: two people working half time in a job that typically features half time employment would represent two jobs or one FTE). Additionally, the direct employment effects are generally extra shifts or overtime for existing workers rather than new employment.

## 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 and event based 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 (intra-regional), the higher the exponent.

## Appendix 2: Glossary of Terms used by STEAM PRO

**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.