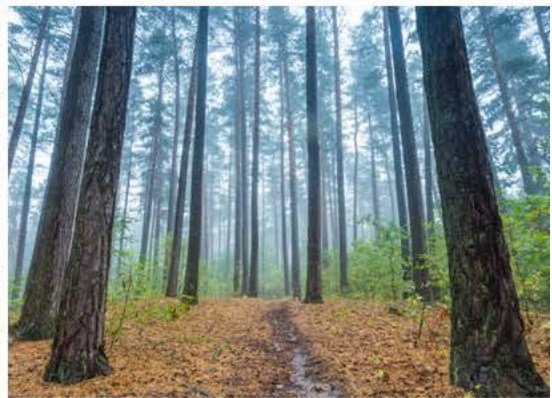


# ECONOMIC IMPACT OF THE HERMANTOWN AMATEUR HOCKEY ASSOCIATION ON DULUTH, HERMANTOWN, AND PROCTOR, MINNESOTA

January 17, 2020



**BUREAU OF BUSINESS AND  
ECONOMIC RESEARCH**

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*The BBER was asked to supply an economic impact analysis only. This analysis does not consider the social or environmental impacts of the project and should not be viewed as a cost benefit analysis or environmental impact assessment.*

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## Executive Summary

The Hermantown Amateur Hockey Association (HAHA), the governing organization for youth hockey in the city of Hermantown, provides services including managing the use of Hermantown Arena; fundraising for arena improvements, scholarships, and ice costs; acting as a local hockey liaison with state and national organizations; and improving youth hockey.

The Bureau of Business and Economic Research (BBER) at the University of Minnesota Duluth's Labovitz School of Business and Economics was contacted by HAHA to estimate the economic impacts<sup>1</sup> of Hermantown hockey on the study area.<sup>2</sup> For the purpose of this report, Hermantown hockey includes all of HAHA's youth games and tournaments, the Hermantown High School hockey program (uses the Hermantown arena), and the operations of the Hermantown Arena. HAHA also requested research on the potential economic impacts of adding a second sheet of ice to the arena that would add capacity for additional games and tournaments throughout the season. The BBER first focused on Hermantown hockey's current impacts on the economy and then estimated the possible impacts of expanding the existing arena.

In addressing the first objective of this study, the research team analyzed Hermantown Arena's spending for the fiscal year 2019, outlining all operational expenditures, employment numbers, and payroll estimates. This information was provided by HAHA. The organization's representatives also provided game and tournament schedules for the most recent season (2018-19) as well as the number of participating teams and the length of each tournament.

To calculate the potential economic impacts of adding a second ice rink that would add capacity for additional tournaments throughout the season, the arena staff provided estimated operational spending, employment, and potential growth in the number of tournaments and games that would result from the additional rink.

Table 1 shows the current and projected economic impact of HAHA's operations. In 2019, the operations of the ice arena contributed over \$1.2 million in output, employed 20 people, and added more than \$450,000 in labor income to the study area's economy. If the city were to build a second rink, the research team estimates that the economic impacts of the ice arena's operations could increase to more than \$2.0 million in output and 28 employees.

**Table 1. Current and Projected Economic Impacts from Hermantown Hockey Operations (in millions)**

<i>Impact Type</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Current	20	\$0.5	\$0.7	\$1.3
Projected	28	\$0.7	\$1.0	\$2.0

*SOURCE: IMPLAN*

In addition to the arena's operations, Hermantown hockey has a significant impact on the local area by bringing visiting teams, players, coaches, and spectators from outside the study area who contribute to the local economy by spending money on food, lodging, retail, and gasoline, among other things. The economic

<sup>1</sup> A full list of definitions can be found in Appendix A, Definitions Used in this Report.

<sup>2</sup> The study area used in modeling included all zip codes within the cities of Hermantown, Duluth, and Proctor.

impact attributable to HAHA’s tournaments relates only to new money injected into the study area’s economy by out-of-town guests attending the organization’s games and tournaments.

During the 2018-19 season, HAHA hosted ten tournaments between November and March, more than 150 youth games, a youth district playoff event, and a summer league. In total, the organization brought more than 200 visiting teams to the region to participate in its events. In addition, the Hermantown High School hockey program hosted 33 visiting teams throughout their season.

Overall, throughout the 2018-19 season, the research team estimates that more than 14,500 visitors including players, family members, and additional spectators were in Hermantown for a hockey game or tournament. On average, each visitor spent \$150 during their stay. The largest expense for overnight and weekend guests was lodging, while the largest expense for day guests was dining. Throughout the season, Hermantown hockey visitors spent nearly \$2.3 million in the local economy.

HAHA representatives estimate that with an increase in tournaments and games through the addition of the second ice rink, the number of visitors could potentially increase by more than 30%, which would result in an increase in visitor spending.

Table 2 shows the current and projected impacts for Hermantown hockey games and tournaments played at either the Hermantown Arena or at other arenas within the study area. In 2018-2019, visitors coming to the study area for the purpose of Hermantown hockey games and tournaments supported 43 jobs in the study area, added \$1.1 million in labor income, nearly \$2.0 million in value added spending, and \$3.5 million in output. With the addition of a second rink, those numbers could potentially increase to 57 jobs, \$1.6 million in labor income, \$2.8 million in value added spending, and \$5.0 million in output.

**Table 2. Current and Projected Economic Impacts from Games & Tournaments (in millions)**

<i>Impact Type</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Current	43	\$1.1	\$1.9	\$3.5
Projected	57	\$1.6	\$2.8	\$5.0

*SOURCE: IMPLAN*

During the construction of the second ice rink, there will also be a temporary economic impact from the increased economic activity related to construction. The project is expected to create roughly 280 jobs per year for the two-year period. Over the two years, construction of the new arena will contribute \$13.3 million to the local GDP and \$25.1 million in output.

# The Economic Impact of Hermantown Amateur Hockey Association

## I. Project Description

The Hermantown Amateur Hockey Association (HAHA) is the governing organization for youth hockey in the city of Hermantown. The services provided by the organization include managing the use of Hermantown Arena; fundraising for arena improvements, scholarships, and ice costs; acting as a local hockey liaison with state and national organizations; and improving youth hockey in Hermantown. HAHA's youth hockey teams include bantam, peewee, and squirt levels, and three women's levels (U-10, U-12 and U-15).

During the 2018-19 season, HAHA hosted 10 tournaments, more than 150 games, and a summer league. Combined, these events brought more than 200 visiting hockey teams to the study area, which includes the cities of Hermantown, Duluth, and Proctor. In addition, the Hermantown High School (HHS) hockey program (which includes men's varsity, men's junior varsity, and women's mirage) brought 33 visiting teams to the area for their hosted games. These visitors provide a substantial economic benefit to the cities of Duluth, Hermantown, and Proctor, particularly in the off-peak winter months.

HAHA contacted the Bureau of Business and Economic Research (BBER) to conduct a study on the economic impacts of Hermantown hockey, including HAHA as well as Hermantown High School, and the economic benefits that Hermantown hockey provides to the city of Hermantown and the surrounding area. In addition, the organization requested information on the potential economic benefits of adding a second rink to the existing arena, which would add capacity for additional games and tournaments throughout the season.

The data used was the most recent IMPLAN<sup>3</sup> data available, which is for the year 2018. All results are reported in 2019 dollars.

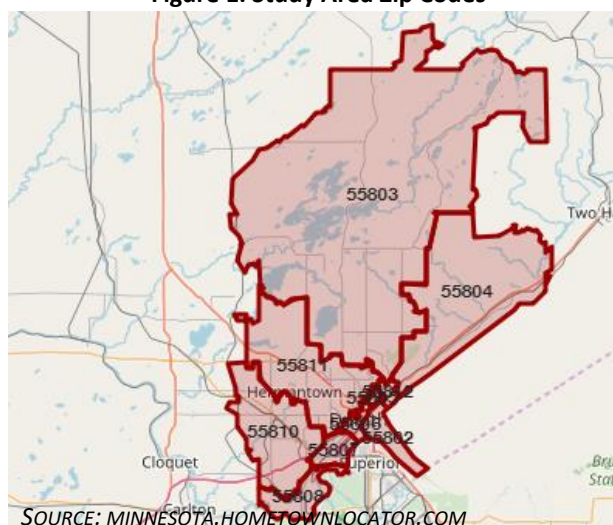
### **Study Area**

The geographic scope for this economic impact analysis are the cities of Duluth, Hermantown, and Proctor. All estimates and figures shown in this report reflect the specified tri-city study area.

Figure 1 shows shaded regions for most of the study area's zip code region. A total of 10 zip codes were used for the study area.<sup>4</sup>

Figure 2 shows the contribution of each IMPLAN sector<sup>5</sup> to the overall Gross Regional Product (GRP) for the tri-city study area. The service sector, which includes all professional services as well as the tourism

**Figure 1. Study Area Zip Codes**



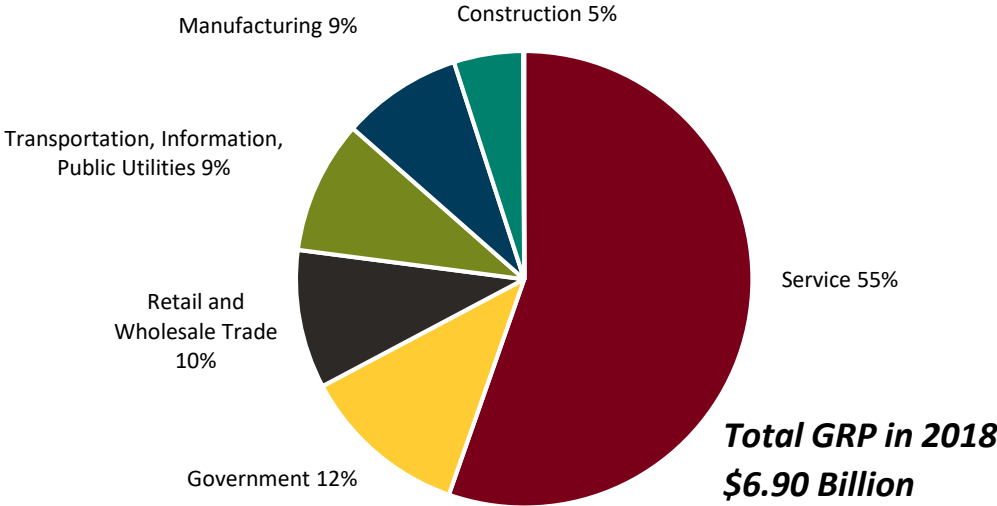
<sup>3</sup> A full list of data sources and modeling assumptions used in IMPLAN's input-output model can be found in Appendix B.

<sup>4</sup> The study area used in modeling included all zip codes within the cities of Hermantown, Duluth, and Proctor (55802, 55803, 55804, 55805, 55806, 55807, 55808, 55810, 55811, 55812).

<sup>5</sup> Combined, the agriculture and mining sectors represent less than 1% of the study area's GRP and are not represented in the figure.

and hospitality industries, contributes more than half of the value added spending to the region's GRP, at 55%. Other major contributors to the study area's GRP include government (12%), retail and wholesale trade (10%), and the transportation, information and public utilities sector (9%). Each IMPLAN sector consists of a number of related industries.

**Figure 2. Percentage of Total GRP by IMPLAN Sector, 2018**

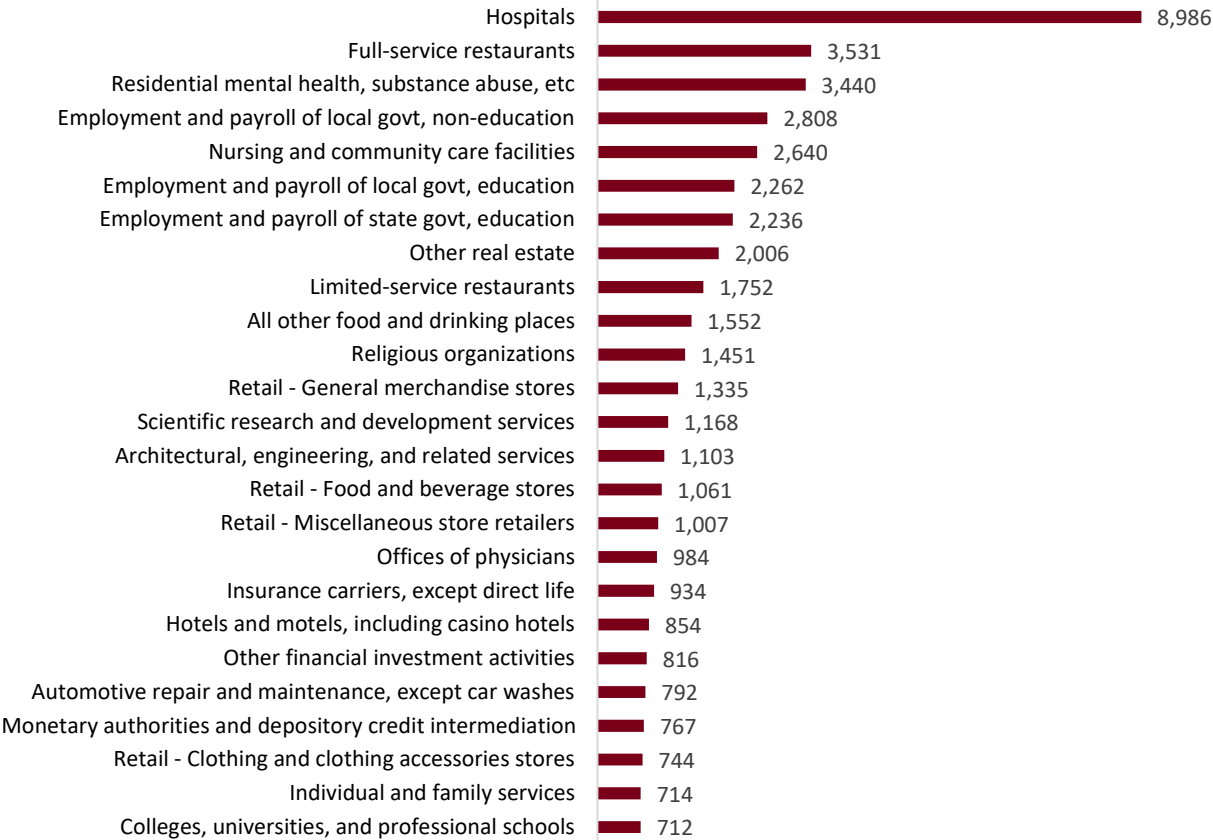


SOURCE: IMPLAN



Figure 3 shows the top 25 industries within the study area as measured by overall employment in 2018. In total, hospitals (e.g. within the health care systems of Essentia Health and St. Luke’s) employed the most people in the study area by far, with roughly 9,000 jobs. Restaurants, residential care facilities, government, and wholesale trade were other industries with notable employment numbers in the study area. Of the top 25 industries in the study area, eight could be considered to be related to hospitality and tourism and might be impacted by spending on the part of Hermantown hockey’s visiting teams and spectators. These industries include restaurants (full service and limited service), food and drinking places, retail (general merchandise, food and beverage, miscellaneous, and clothing stores), and hotels/motels, which in total contribute nearly 12,000 jobs to the study area’s economy.

**Figure 3. Top 25 Industries in Study Area, by Employment, 2018**



SOURCE: IMPLAN

## II. Tournaments & Games

During the 2018-19 season, the Hermantown Amateur Hockey Association (HAHA) hosted 10 tournaments, more than 150 games, and a summer league. Combined, these events brought a total of 170 visiting hockey teams to the study area, which includes the cities of Hermantown, Duluth, and Proctor.<sup>6</sup> In addition, the Hermantown High School (HHS) hockey team brings visiting teams to the area for their hosted games. In total, Hermantown hockey (HAHA and HHS) games and tournaments brought 240 teams to Hermantown from around the state, which equaled more than 14.5 thousand players, coaches, and spectators. These visitors spent money at local hotels, restaurants, and stores. Their spending ripples throughout the local economy, providing the study area with a significant economic impact.

This chapter includes an estimate of the economic impacts that result from visitors coming to the study area for Hermantown hockey games and tournaments during the 2018-19 season using HAHA and HHS game and tournament data as inputs. In addition, the research team estimated the projected economic impacts from additional games and tournaments assuming the construction of the second ice rink.

### *Inputs*

The inputs required for modeling the current impacts of Hermantown hockey include the tournament and game schedules, the number of visiting teams (including players, coaches, and spectators) participating in each game and tournament, and estimated spending patterns for each visitor type, based upon duration of stay. In addition, HAHA representatives provided game and tournament projections that would likely result from the additional ice rink. Throughout the project, the BBER worked closely with HAHA to ensure the accuracy of the assumptions and resulting models.

The economic impact attributable to the Hermantown hockey tournaments and games relates only to new money injected into the study area's economy by visiting attendees. Expenditures by study-area residents represent only a recycling of money that already exists in the local economy. Most likely, if local hockey players and their families did not spend their money as a result of their participation in the local tournaments and games, they would have spent it elsewhere in the study area. It is for this reason that the analysis is concerned only with visitor spending as a result of the Hermantown hockey tournaments and games.

HAHA provided data on the number of teams that attended each tournament or game and the average number of players and coaches on each team. In addition, the research team assumed that two spectators (e.g. parent, sibling, etc.) would accompany each player.<sup>7</sup> Using the numbers provided, the team estimated the total number of visitors for the 2018-19 season, as shown in Table 3 on the following page.

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<sup>6</sup> The study area used in modeling included all zip codes within the cities of Hermantown, Duluth, and Proctor.

<sup>7</sup> For summer league tournaments, it was assumed that three spectators accompanied each player.

**Table 3. Current Hermantown Hockey Tournament and Game Attendance**

<i>Event Category</i>	<i>Teams*</i>	<i>Players</i>	<i>Coaches</i>	<i>Spectators</i>	<i>Visitors</i>
Youth games	111	2,036	454	4,072	6,562
High school games	33	660	165	1,320	2,145
Summer league games	26	520	78	1,040	1,638
Youth tournaments	59	1,064	219	2,128	3,411
Youth district playoff tournaments	4	76	18	152	246
Summer league tournaments	7	119	28	357	504
<b>Total</b>	<b>240</b>	<b>4,475</b>	<b>962</b>	<b>9,069</b>	<b>14,506</b>

\*The total number of players was calculated by multiplying the average number of players per team by the number of participating teams in that league. The total number of coaches per league was calculated similarly by multiplying the average number of coaches per team in that league by the number of teams. The total number of spectators was calculated by multiplying the number of players per category by two. The total number of visitors was calculated by adding the total number of players, coaches, and spectators.

*SOURCE: HAHA*

Youth hockey events include youth games, summer league games, youth district playoff tournaments, and summer league tournaments. High school events include all HHS varsity, junior varsity, and mirage games. For each category of game or tournament, the number of teams, players, coaches, and spectators that attended each game or tournament is shown in the table.<sup>8</sup> The total number of visitors per event category is shown in the last column in Table 3. In total, the research team estimated that 240 teams, 4,475 players, 962 coaches, and 9,069 spectators came to the study area for Hermantown hockey's games or tournaments: more than 14,500 visitors during the 2018-19 season.

Depending on the type of game or tournament, visitors typically fall into one of four travel scenarios, as shown in Table 4. For games, visitors stay for either the day or overnight, depending on their distance from Hermantown. Teams located within a 100-mile radius were assumed to be day visitors, and those beyond were assumed to be overnight visitors. For tournaments, visitors were identified as either two-day guests, (those within a 100-mile radius) who spent two days and no nights, or weekend guests, who would arrive on Friday afternoon and leave Sunday afternoon.

**Table 4. Spending Patterns for Each Travel Scenario, Averaged per Person**

	<i>Day Guests</i>	<i>2-Day-Only Guests</i>	<i>Overnight Guests</i>	<i>Weekend Guests</i>
Lodging expenses	\$0.00	\$0.00	\$80.00	\$160.00
Dining/drinking out	\$20.00	\$40.00	\$40.00	\$60.00
Retail purchases	\$12.00	\$24.00	\$24.00	\$36.00
Gas stations	\$6.00	\$12.00	\$12.00	\$18.00
Arts/entertainment	\$5.50	\$11.00	\$11.00	\$16.50
Other spending	\$1.50	\$3.00	\$3.00	\$4.50
<b>Total spending</b>	<b>\$45.00</b>	<b>\$90.00</b>	<b>\$170.00</b>	<b>\$295.00</b>

*SOURCE: HAHA*

<sup>8</sup> A detailed table with a full list of tournaments and game attendance can be found in Appendix C, Detailed Inputs.

A different spending pattern was developed for each travel scenario in the table. Spending patterns were estimated using data from similar research studies done within the study area and reviewed by members of HAHA for accuracy.

Of the four travel scenarios, weekend guests spent the most money during their stay, nearly \$300 per visit. The largest expense for weekend and overnight guests is lodging, which represents roughly half of their total spending. The dining and drinking out category represents the largest portion of day and two-day visitors' spending. Keep in mind that actual spending by individual visitors can vary significantly from this estimate due to choices in lodging, restaurants, retail stores, etc. and that the estimates in the table represent the average of all visitors.

By combining tournament and game and attendance estimates with the four travel scenarios, the research team was able to estimate the total amount of money spent by Hermantown hockey visitors during the 2018-19 season.

Table 5 shows, for each event category, the estimated number of visitors, spending per visitor, and the total spent. Youth games bring the largest numbers of visitors from outside the study area, while visitors for youth tournaments have the highest total spending of any of the event categories. Hermantown hockey is estimated to have generated almost \$2.2 million in revenue for the study area economy through hosted tournaments and games during the 2018-19 season.

**Table 5. Current Total Amount Spent per Tournament/Game**

<i>Event Category</i>	<i>Travel Scenario</i>	<i>Total Visitors per Travel Scenario</i>	<i>Spending per Visitor</i>	<i>Total Spending (in thousands)</i>
Youth games	Overnight	3,188	\$170	\$542.0
	One day	3,374	\$45	\$152.8
High school games	Overnight	845	\$170	\$143.7
	One day	1,300	\$45	\$58.5
Summer league games	Overnight	1,638	\$170	\$278.5
Youth tournaments	Weekend	2,633	\$295	\$776.7
	Two days	778	\$90	\$70.0
Youth district playoff games	One day	246	\$45	\$11.1
Summer league tournament	Weekend	504	\$295	\$148.7
Total		14,506		\$2,181.0

*SOURCE: HAHA*

With the addition of a second sheet of ice, HAHA representatives predict an increase in the number of teams that would attend Hermantown hockey events each year. This increase would come from more youth games (20%) and summer league games (50%) as well as an increase in the size of HAHA's existing scheduled tournaments (from eight-team to twelve-team tournaments).<sup>9</sup> The number of high school games is not projected to increase.

<sup>9</sup> The exception is youth district playoff tournaments, which are expected to increase by 20%.

The increase in the number of games and teams participating in tournaments would lead to a proportional increase in the total number of visitors (e.g. players, coaches, and spectators). Table 6 shows the projected tournament and game attendance as broken out by event category. In total, the annual number of visitors to the Hermantown area for hockey-related events could increase by nearly 30%.

**Table 6. Projected Hermantown Hockey Tournament and Game Attendance**

<i>Event Category</i>	<i>Projected Increase</i>	<i>Teams</i>	<i>Players</i>	<i>Coaches</i>	<i>Spectators</i>	<i>Visitors</i>
Youth games	20%	133	2,443	545	4,886	7,874
High school games	0%	33	660	165	1,320	2,145
Summer league games	50%	39	780	117	1,560	2,457
Youth tournaments	50%	89	1,596	329	3,192	5,117
Youth district playoff tournaments	20%	5	91	22	182	295
Summer league tournaments	50%	11	179	42	536	756
<b>Total</b>	<b>29%</b>	<b>309</b>	<b>5,749</b>	<b>1,219</b>	<b>11,676</b>	<b>18,644</b>

\*Totals may not sum due to rounding.

*SOURCE: HAHA*

Using the same four travel scenarios developed for the current tournament and game attendance, the research team estimated the potential increase in visitor spending that would result from the added games and larger tournaments. Table 7 shows, for each event category and travel scenario, the predicted number of visitors and total spending. With the addition of the second ice rink, it is estimated that Hermantown hockey could bring more than 18,000 visitors to the study area each year, and those individuals would spend nearly \$3.0 million on lodging, dining out, retail purchases, and entertainment.

**Table 7. Projected Amount Spent per Tournament/Game**

<i>Event Category</i>	<i>Travel Scenario</i>	<i>Total Visitors per Travel Scenario</i>	<i>Spending per Visitor</i>	<i>Total Spending (in thousands)</i>
Youth games	Overnight	3,826	\$170	\$650.4
	One day	4,049	\$45	\$182.2
High school games	Overnight	845	\$170	\$143.7
	One day	1,300	\$45	\$58.5
Summer league game	Overnight	2,457	\$170	\$417.7
Youth tournaments	Weekend	3,950	\$295	\$1,165.1
	Two days	1,167	\$90	\$105.0
Youth district playoff games	One day	295	\$45	\$13.3
Summer league tournament	Weekend	756	\$295	\$223.0
<b>Total</b>		<b>18,644</b>		<b>\$2,958.8</b>

\*Totals may not sum due to rounding.

*SOURCE: HAHA*

## Findings

This section provides the total economic impacts from Hermantown hockey games and tournaments for the 2018-19 season as well as the projected impacts from games and tournaments with the addition of the second ice rink<sup>10</sup>. The results reflect impacts for the tri-city study area and are measured in employment, output, labor income, and value added. All results are shown in 2019 dollars.

Table 8 shows the current and projected economic impacts of visitors to the study area for Hermantown hockey related events. The column labeled employment in Table 8 shows the number of jobs<sup>11</sup> that Hermantown hockey visitor spending supports directly and through indirect and induced effects. In 2018-19, the revenue generated from Hermantown hockey supported 43 jobs in the tri-city study area, either directly or as a result of its spending at other local businesses. If the arena were to expand to add another ice rink, that number could increase to 57 jobs.

**Table 8. Total Tournaments and Games Impact - Current & Projected, in Millions of Dollars**

<i>Impact Type</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Current total effect	43	\$1.1	\$1.9	\$3.5
Projected total effect	57	\$1.6	\$2.8	\$5.0

*SOURCE: IMPLAN*

The column labeled labor income is the total of all employee compensation. This includes wages, benefits, and payroll taxes. In 2018-19, the visitor spending from tournaments and games added over \$1 million in wages and benefits to individuals in the study area, either directly or indirectly. The column labeled value added refers to the contribution to gross regional product (GRP) made by an individual producer, industry, or sector. Value added includes employee compensation, proprietor income, and other property income and taxes. In total, Hermantown hockey visitor spending contributed nearly \$2 million to the study area's GRP in 2018-19. Output, the last column in the table, is the total value of all local production required to sustain activities. In 2018-19, visitor spending contributed roughly \$3.5 million in output. If the city were to build a second rink, the research team estimates that the economic impacts from Hermantown hockey's tournaments and games could increase output to roughly \$5 million.

<sup>10</sup> Detailed tables with complete economic impacts (direct, indirect, and induced effects) for tournaments and games, operations, and construction can be found in Appendix D, Detailed Economic Impacts.

<sup>11</sup> IMPLAN reports jobs in terms of workers, both full- and part-time, not in terms of FTE.

### III. Hermantown Ice Arena

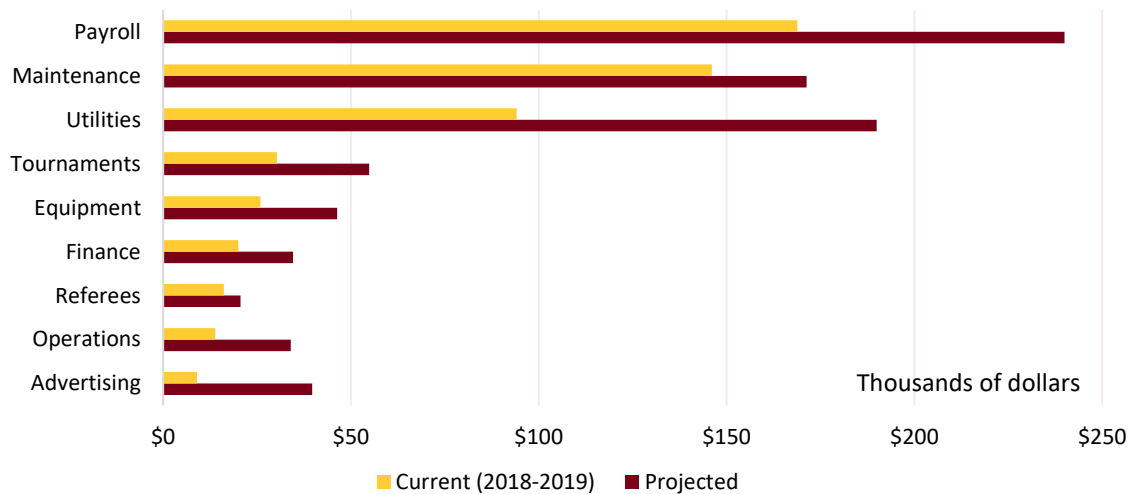
While a significant portion of the economic impacts from Hermantown hockey is the result of spending by visiting teams and spectators, the operation of the Hermantown Ice Arena has an impact on the community as well. The arena’s annual expenditures represent the organization’s economic contribution to the study area, through wages, equipment, utilities, and other local spending. In 2018-19, the Hermantown Ice Arena had an operating budget of \$566.5 thousand, employed 14 people, and paid \$168.8 thousand in wages to its employees.

As part of the analysis, the research team estimated the economic impacts of the Hermantown Ice Arena’s operations using the arena’s 2018-19 fiscal year data as inputs. In addition, the chapter includes the increased operational impacts that could occur from the construction of the second rink and the economic impacts of the construction project itself.

#### Inputs

Inputs required for modeling include operational expenditures, employment numbers, and payroll estimates. For the purpose of the economic impact analysis, staff at the arena provided the BBER with the arena’s expenditures for fiscal year 2018-19, as well as projected expenditures if it were to expand. The organization also provided construction spending estimates and operational spending projections for the arena with the addition of the second rink. The BBER research team worked under the assumption that HAAA provided estimates in good faith. In instances where data were not provided by HAAA, the research team relied on IMPLAN estimates as inputs.

**Figure 4. Current and Projected Expenditures for Hermantown Ice Arena**



SOURCE: HAAA

Figure 4 shows 2018-19 spending in gold and projected spending in maroon, each broken out into nine major categories. In 2018-19, payroll represented the largest share of spending, followed by maintenance costs, utilities, tournament expenses, and equipment. Arena staff predict that, if the second ice rink was built, all

operating expenses would increase, but the amount of increase would vary depending on the type of expense. For example, utility costs would nearly double with the additional rink, while maintenance expenses would increase by only a small percentage. Advertising expenses, currently a small portion of the overall budget, would increase significantly with the addition of the second rink, likely due to a greater push to increase awareness of the second rink.

IMPLAN classifies HAHA as a fitness and recreational sports center in sector 497. This sector includes facilities such as athletic clubs, dance centers, health clubs, swimming pools, tennis courts, and ice skating rinks. However, HAHA’s expenditures are likely very different from other businesses and industries within this sector. Rather than use IMPLAN’s default spending pattern for this industry (which is developed using an aggregate of all facilities included in sector 497), the BBER modeled the HAHA operations using a technique called analysis by parts. This technique allows the user to specify the amount of commodity inputs, the proportion of local labor income, and the proportion of local purchases, and it yields more accurate results.

To model HAHA’s impacts using the analysis by parts method, all expenditures provided by HAHA were re-categorized as IMPLAN commodities to create a customized industry based on an existing budgetary spending pattern. Table 9 highlights the top 20 commodities used to create the customized industry.

**Table 9. Top 20 IMPLAN Commodities - Used in Modeling HAHA Current Operations**

<i>Description</i>
Personal and household goods repair and maintenance
Electricity transmission and distribution
Maintained and repaired nonresidential structures
Commercial sports except racing
Natural gas distribution
Water, sewage and other systems
Retail services - Miscellaneous store retailers
Automotive repair and maintenance, except car washes
Other insurance
Men’s and boy’s cut and sew apparel
Accounting, tax preparation, bookkeeping, and payroll services
Wholesale services - Professional and commercial equipment and supplies
Signs
Outpatient care centers
Funds, trusts, and other financial services
Waste management and remediation services
Commercial and industrial machinery and equipment rental and leasing services
Other real estate services
Wholesale services - Other nondurable goods merchant wholesalers
Advertising, public relations, and related services
And 11 other IMPLAN commodities

*SOURCE: IMPLAN*

Construction of the new ice arena is anticipated to begin in 2021 with the project completion expected in 2022. Construction is expected to take between 13 and 17 months, employ between 200 and 300 workers, and cost roughly \$17.2 million. The construction of the facility will generate a temporary increase in



economic activity during the course of the construction project. Throughout the project, increased demand for equipment, labor, and transportation will lead to increased economic activity. After the completion of the project, this additional activity will cease, and the economic impacts will no longer be felt in the study area.

Inputs required for modeling the construction of the ice arena are shown in Table 10. The BBER assumed a 15-month construction period and an employee headcount of 250, based on the average of the estimates provided. Construction spending was divided between the two years based on the assumption that there would be eight months of construction activity in the first year and seven months in the second year.<sup>12</sup>

**Table 10. Inputs Required for Modeling Ice Arena Construction, in Millions of Dollars**

<i>Construction Year</i>	<i>Number of Months</i>	<i>Construction Spending</i>	<i>Number of Employees<sup>13</sup></i>
Year 1 (2021)	8	\$9.2	250
Year 2 (2022)	7	\$8.1	250
Project Total	15	\$17.2	–

\*Totals may not sum due to rounding.

SOURCE: HAHA

## Findings

This section provides the total economic impacts from the operations of the Hermantown Ice Arena for the 2018-19 fiscal year as well as the projected impacts from the arena’s operations with the addition of the second ice rink. In addition, impacts of the two-year construction project are shown. Results reflect impacts for the tri-city study area and are measured in employment, output, labor income, and value added. All results are shown in 2019 dollars.

**Table 11. HAHA’s Current and Projected Total Operations, in Millions of Dollars**

	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Current Impacts	20	\$0.5	\$0.7	\$1.3
Projected Impacts	28	\$0.7	\$1.0	\$2.0

SOURCE: IMPLAN

Table 11 shows the current and projected economic impacts from the operation of the Hermantown Ice Arena. The column labeled employment shows the number of jobs<sup>14</sup> that the arena supports directly and through indirect and induced effects. In 2018-19, the ice arena supported 20 jobs in the tri-city study area. If the arena were to expand to add another ice rink, that number could increase to 28.

In 2018-19, the ice arena added nearly \$500 thousand in wages and benefits to individuals in the study area, \$700 thousand to the study area’s GRP, and nearly \$1.3 million in output. If the city were to build a second

<sup>12</sup> The distribution of spending does not significantly change the overall impacts.

<sup>13</sup> Employment figures for multi-year construction projects are not summed, as the jobs from one year to the next are assumed to be filled by the same workers.

<sup>14</sup> IMPLAN reports jobs in terms of workers, both full- and part-time, not in terms of FTE.

rink, the research team estimates that the economic impacts of the ice arena’s operations could increase to more than \$2.0 million in output.

During construction of the added rink, there will also be a one-time impact on the study area. Table 12 shows the estimated total impacts (sum of direct, indirect, and induced) from the construction of the added rink. Construction impacts are shown by year (2021 and 2022) along with the total impacts for the project. All results are shown in 2019 dollars.

**Table 12. HAHA Construction Totals, in Millions of Dollars**

<i>Construction Year</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Year 1 (2021)	281	\$5.6	\$7.2	\$13.5
Year 2 (2022)	276	\$4.8	\$6.2	\$11.6
Project Total	–	\$10.3	\$13.3	\$25.1

\*Totals may not sum due to rounding.

*SOURCE: IMPLAN*

Construction is expected to have an average employment effect of roughly 280 people per year for the two-year period. Total employment for the two-year project reflects the maximum employment number, not the sum, because the construction of the new rink is continuous and is expected to have the same workers throughout the building process. Over the two years, construction of the added rink is expected to contribute \$13.3 million to the local GDP and \$25.1 million in output.

The total economic impact from the construction of the new rink may have a net positive effect on the study area. However, it is important to note that much of the funding for the construction of the arena is expected to come from the city’s sales tax, which is paid in large part by local residents. Therefore, the impacts shown in Table 12 are not new dollars entering the economy but rather a recycling of money within the study area. Therefore, the true impacts from the construction project are likely much smaller than the estimates shown.

## V. Conclusions

During the 2018-19 season, the Hermantown Amateur Hockey Association (HAHA), the governing organization for youth hockey in the city of Hermantown, hosted 10 tournaments, more than 150 games, and a summer league, which, combined, brought a total of 200 visiting teams to the study area, which includes the cities of Hermantown, Duluth, and Proctor<sup>15</sup>. In addition, the Hermantown High School (HHS) hockey team brought 33 visiting teams to the area for their hosted games. In total, Hermantown hockey (HAHA and HHS) games and tournaments brought 240 teams to Hermantown from around the state, which equaled more than 14.5 thousand players, visitors, and coaches. These visitors spent money at local hotels, restaurants, and stores. Their spending ripples throughout the local economy, providing the study area with a significant economic impact as detailed below.

This study estimated the economic impacts of the Hermantown hockey games and tournaments on the study area as well as the economic impacts of the Hermantown Ice Arena itself, which employs 14 staff and had an annual operating budget of \$566.5 thousand during the 2019 fiscal year. In addition, the study estimated the potential economic impacts of adding another rink, which would add capacity for additional games and tournaments throughout the season.

Table 13 shows the total current economic impacts resulting from Hermantown hockey’s tournaments and games and from the operations of the ice arena. The totals include direct, indirect, and induced effects. According to the study’s findings, Hermantown hockey supports 63 jobs, \$1.6 million in wages and benefits, \$2.6 million in value added spending, and more than \$4.7 million in output to the study area’s local economy. The majority of the impacts come from visiting teams and spectators spending money.

**Table 13. Total Current – Operations and Tournaments and Games, in Millions of Dollars**

<i>Impact Type</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Tournaments and games	43	\$1.1	\$1.9	\$3.5
Operations	20	\$4.5	\$6.6	\$1.3
Total	63	\$1.6	\$2.6	\$4.7

\*Totals may not sum due to rounding.

*SOURCE: IMPLAN*

Table 14 on the following page estimates the potential economic impacts from HAHA, assuming a second ice rink and growth from expanding tournaments and games. Together, the total employment impacts could reach 85 jobs and nearly \$2.3 million in wages and benefits. Value added spending resulting from HAHA could exceed \$3.8 million, while total output could potentially reach \$7.0 million per year, assuming an increase in the number of games and tournaments and an increase in operational spending required to operate the ice arena.

<sup>15</sup> The study area used in modeling included all zip codes within the cities of Hermantown, Duluth, and Proctor.

**Table 14. Total Projected - Operations and Tournaments and Games, in Millions of Dollars**

<i>Impact Type</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Operations	28	\$0.7	\$1.0	\$2.0
Tournaments and games	57	\$1.6	\$2.8	\$5.0
Total	85	\$2.3	\$3.8	\$7.0

*SOURCE: IMPLAN*

In addition to the ongoing annual effects of the ice arena's operations and Hermantown hockey tournaments and games, the study area would likely experience an increase in economic activity during the 15-month construction of the second ice rink. The two-year project is estimated to employ between 200 and 300 people each year and provide over \$10.3 million of wages and benefits, \$13.3 million in value added, and \$25.1 million in output to the study area.

**Table 15. Economic Impacts from Construction, in Millions of Dollars**

<i>Construction Year</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
2021	281	\$5.6	\$7.2	\$13.5
2022	276	\$4.8	\$6.2	\$11.6
Project Total	–	\$10.3	\$13.3	\$25.1

\*Totals may not sum due to rounding.

*SOURCE: IMPLAN*

According to a PowerPoint presentation provided by Haha, funding for the construction project would come from three sources: city sales tax (\$13.9 million), the school district (\$731.2 thousand), and private donations (\$2.7 million). Because the funding would come primarily from sources within the local study area, the impacts would not likely be as large as those shown in the table, as construction spending would simply be shifting existing funds from one local source to another and would not reflect new money entering the economy.

## Appendix A. Definitions Used in this Report

**Analysis by parts:** The process of splitting or parsing an impact analysis issue into smaller and more specific parts. This technique allows the user to specify the amount of commodity inputs, the proportion of local labor income, and the proportion of local purchases.

**Backward linkages:** The interconnection of an industry to other industries from which it purchases its inputs in order to produce its output. It is measured as the proportion of intermediate consumption to the total output of the sector (direct backward linkage) or to the total output multiplier (total backward linkage). An industry has significant backward linkages when its production of output requires substantial intermediate inputs from many other industries.

**Direct effect:** Initial new spending in the study area resulting from the project.

**Economic impact:** The effect of an event on the economy in a specified area, ranging from a single neighborhood to the entire globe. It usually measures changes in business revenue, business profits, personal wages, and/or jobs.

**Employment:** Estimates (from U.S. Department of Commerce secondary data) are in terms of jobs, not in terms of full-time equivalent employees. Therefore, these jobs may be temporary, part-time, or short-term.

**Expenditure:** The amount of money spent.

**Gross Regional Product (GRP):** The market value of all goods and services produced in a region in a certain time frame (typically a year)

**Hermantown Amateur Hockey Association (HAHA):** The governing organization for youth hockey in the city of Hermantown.

**IMPLAN:** A software system that uses a backward-linkage model which allows a user to develop models that can estimate the economic impact of different varieties such as when a new firm enters a study area, recreation and tourism, development, and more.

**IMPLAN Sector:** Sectors are a way of describing a specific industry. All versions of the sectors are based on NAICS codes.

**Indirect effect:** The additional inter-industry spending from the direct impact. For example, increased sales in linen supply firms resulting from more motel sales would be an indirect effect of visitor spending.

**Induced effect:** The impact of additional household expenditures resulting from the direct and indirect impact. For example, motel employees spend the income they earn from increased tourism on housing, utilities, groceries and other consumer goods.

**Industry:** A group of businesses based on their related primary business activities.

**Input:** Information or data that can be operated on by any process or system.

**Labor income:** All forms of employment income, including employee compensation (wages and benefits) and proprietor income.

**Output:** The value of local production required to sustain activities.

**Spending pattern:** A set of data describing a particular set of goods and services an individual is likely to buy.

**Value added:** A measure of the impacting industry's contribution to the local community; it includes wages, rents, interest, and profits.

## Appendix B. Input-Output Modeling

### *Data Sources*

This study uses the IMPLAN Group's input-output modeling data and software (IMPLAN version 3.1). The IMPLAN database contains county, state, zip code, and federal economic statistics, which are specialized by region, not estimated from national averages. Using classic input-output analysis in combination with region-specific Social Accounting Matrices and Multiplier Models, IMPLAN provides a highly accurate and adaptable model for its users. IMPLAN data files use the following federal government data sources:

- U.S. Bureau of Economic Analysis Benchmark Input-Output Accounts of the U.S.
- U.S. Bureau of Economic Analysis Output Estimates
- U.S. Bureau of Economic Analysis Regional Economic Information Systems (REIS) Program
- U.S. Bureau of Labor Statistics Covered Employment and Wages (CEW) Program
- U.S. Bureau of Labor Statistics Consumer Expenditure Survey
- U.S. Census Bureau County Business Patterns
- U.S. Census Bureau Decennial Census and Population Surveys
- U.S. Census Bureau Economic Censuses and Surveys
- U.S. Department of Agriculture Census

IMPLAN data files consist of the following components: employment, industry output, value added, institutional demands, national structural matrices, and inter-institutional transfers. Economic impacts are made up of direct, indirect, and induced impacts. The data used was the most recent IMPLAN data available, which is for the year 2018. All data are reported in 2019 dollars.

Economic impacts are made up of direct, indirect, and induced impacts. The following are suggested assumptions for accepting the impact model: IMPLAN input/output is a production-based model, and employment numbers (from U.S. Department of Commerce secondary data) treat both full- and part-time individuals as being employed.

Regional data for the impact models for value added, employment, and output are supplied by IMPLAN for this impact. Employment assumptions were provided to the model to enable construction of the impact model. From these data, social accounts, production, absorption, and byproducts information were generated from the national level data and was incorporated into the model. All region study definitions and impact model assumptions were agreed on before work with the models began.

## ***Modeling Assumptions***

The following are suggested assumptions for accepting the impact model:<sup>16</sup>

**Backward-Linkages:** IMPLAN is a backward-linkage model, meaning that it measures the increased demand on industries that produce intermediate inputs as a result of increases in production. However, if an industry increases production, there will also be an increased supply of output for other industries to use in their production. Models that measure this type of relationship are called forward-linkage models. To highlight this concept, consider the example of a new sawmill beginning its operations in a state. The increased production as a result of the sawmill's operations will increase the demand for lumber, creating an increase in activity in the logging industry, as well as other supporting industries such as electric transmission and distribution. IMPLAN's results will include those impacts but will exclude effects on any wood product manufacturers located nearby that might be impacted by the newly available supply of lumber.

**Employment:** IMPLAN input-output is a production-based model, and employment numbers (from U.S. Department of Commerce secondary data) treat both full- and part-time individuals as being employed.

**Fixed prices and no supply constraints:** IMPLAN is a fixed-price model. This means that the modeling software assumes no price adjustment in response to supply constraints or other factors. In other words, the model assumes that firms can increase their production as needed and are not limited by availability of labor or inputs and that firms in the local economy are not operating at full capacity.

**Fixed production patterns:** Input-output (I-O) models assume inputs are used in fixed proportion, without any substitution of inputs, across a wide range of production levels. This assumption assumes that an industry must double its inputs (including both purchases and employment) to double its output. In many instances, an industry will increase output by offering overtime, improving productivity, or improvements in technology.

**Industry homogeneity:** I-O models typically assume that all firms within an industry have similar production processes. Any industries that fall outside the typical spending pattern for an industry should be adjusted using IMPLAN's Analysis-by-Parts technique.

**Leakages:** A small area can have a high level of leakage. Leakages are any payments made to imports or value added sectors, which do not in turn re-spend the dollars within the region. What's more, a study area that is actually part of a larger functional economic region will likely miss some important linkages. For example, workers who live and spend outside the study area may actually hold local jobs.

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<sup>16</sup> Bureau of Economic Analysis <https://www.bea.gov/system/files/papers/WP2012-3.pdf>



## Appendix C. Detailed Inputs

Tables 16 and 17 show, for each category of game or tournament, the number of teams, players, coaches, and spectators that traveled to the study area for the event. Visitors are broken out by level (e.g. bantam, peewee, etc.) and by travel scenario (e.g. overnight, day, etc.).

**Table 16. Number of Teams and Visitors for Hermantown Hockey Games, 2018-19 Season**

<i>Event Category</i>	<i>Level</i>	<i>Travel Scenario</i>	<i>Teams</i>	<i>Avg Players per Team</i>	<i>Avg Coaches per Team</i>	<i>Avg Spectators per Player</i>	<i>Total Visitors*</i>
Youth games	Bantam AA	Overnight Guest	16	20	5	2	1,040
		Day Guest	3	20	5	2	195
	Bantam A	Overnight Guest	4	20	5	2	260
		Day Guest	7	20	5	2	455
	Bantam B	Overnight Guest	3	20	5	2	195
		Day Guest	8	20	5	2	520
	Peewee AA	Overnight Guest	10	18	4	2	580
		Day Guest	5	18	4	2	290
	Peewee A	Overnight Guest	1	18	4	2	58
		Day Guest	3	18	4	2	174
	Peewee B	Overnight Guest	5	18	4	2	290
		Day Guest	12	18	4	2	696
	Squirt A	Overnight Guest	4	16	3	2	204
		Day Guest	3	16	3	2	153
	Squirt B	Overnight Guest	4	16	3	2	204
		Day Guest	6	16	3	2	306
	U-15	Overnight Guest	3	20	4	2	192
	U-12	Overnight Guest	2	18	3	2	114
		Day Guest	4	18	3	2	228
	U-10	Overnight Guest	1	16	3	2	51
Day Guest		7	16	3	2	357	
High school games	Varsity	Overnight Guest	6	20	5	2	390
		Day Guest	8	20	5	2	520
	JV	Overnight Guest	6	20	5	2	390
		Day Guest	8	20	5	2	520
	Mirage	Overnight Guest	1	20	5	2	65
		Day Guest	4	20	5	2	260
Summer league games		Overnight Guest	26	20	3	2	1,638
Total			170	-	-	-	10,345

\* The total visitors column was calculated by summing the players per team, coaches per team, and spectators per player and then multiplying that sum by the number of teams (players per team + coaches per team + (players per team x spectators per player)) x the number of teams.

**Table 17. Number of Teams and Visitors for Hermantown Hockey Tournaments, 2018-19 Season**

<i>Event Category</i>	<i>Level</i>	<i>Travel Scenario</i>	<i>Teams</i>	<i>Avg Players per Team</i>	<i>Avg Coaches Per Team</i>	<i>Avg Spectators per Player</i>	<i>Total Visitors*</i>	
Youth Tournaments	Bantam A	Weekend Guest	6	20	5	2	390	
	Bantam B	Weekend Guest	6	20	5	2	390	
	Peewee A	Weekend Guest	5	18	4	2	290	
		2-day-Only Guests	1	18	4	2	58	
	Peewee B	Weekend Guest	5	18	4	2	290	
		2-day-Only Guests	1	18	4	2	58	
	Squirt A	Weekend Guest	4	16	3	2	204	
		2-day-Only Guests	2	16	3	2	102	
	Squirt B	Weekend Guest	4	16	3	2	204	
		2-day-Only Guests	2	16	3	2	102	
	U-15	Weekend Guest	4	20	4	2	256	
		2-day-Only Guests	2	20	4	2	128	
	U-12A	Weekend Guest	4	18	3	2	228	
		2-day-Only Guests	2	18	3	2	114	
	U-12B	Weekend Guest	4	18	3	2	228	
		2-day-Only Guests	2	18	3	2	114	
	U-10	Weekend Guest	3	16	3	2	153	
		2-day-Only Guests	2	16	3	2	102	
	Youth District Playoff	Bantam A	Day Guest	3	20	5	2	195
		Squirt A	Day Guest	1	16	3	2	51
Summer League Tournament		Weekend Guest	7	17	4	3	504	
<b>Total</b>			<b>70</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>4,161</b>	

\*The total visitors column was calculated by summing the players per team, coaches per team, and spectators per player and then multiplying that sum by the number of teams (players per team + coaches per team + (players per team x spectators per player)) x the number of teams.

SOURCE: HAHA

## Appendix D. Detailed Economic Impacts

The tables below provide the specific totals for direct, indirect, and induced effects for the current and projected tournaments and games, operation impacts, and the construction of the second ice arena. The monetary values in the following tables represent thousands of dollars and may not sum due to rounding.

Direct effects represent the initial new spending in the study area resulting from the project or from the company itself. For example, the direct impacts for Hermantown hockey's tournaments and games include the direct visitor spending at local hotels, restaurants, and retail establishments. Indirect effects are the additional inter-industry spending resulting from the direct impact. For example, the building and operating of an additional ice rink would cause an increase in spending related to maintenance and upkeep, which would benefit the local firms that provide maintenance services. Induced effects measure the impact of additional household expenditures resulting from the direct and indirect impact. For example, the ice arena may have to hire additional employees from the second rink, which would lead to added spending on groceries, childcare, and car payments for those employees.

**Table 18. Current Tournaments and Games Impact, in Thousands of Dollars**

<i>Impact Type</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Direct Effect	33	\$732.7	\$1,300.2	\$2,294.2
Indirect Effect	5	\$194.1	\$318.1	\$632.9
Induced Effect	5	\$180.9	\$319.8	\$563.7
Total Effect	43	\$1,107.7	\$1,938.0	\$3,490.8

*\*TOTALS MAY NOT SUM DUE TO ROUNDING.*

*SOURCE: IMPLAN*

**Table 19. Projected Tournaments and Games Impact, in Thousands of Dollars**

<i>Impact Type</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Direct Effect	43	\$1,063.1	\$1,848.7	\$3,270.3
Indirect Effect	7	\$275.2	\$453.6	\$901.4
Induced Effect	6	\$261.4	\$462.0	\$814.4
Total Effect	57	\$1,599.7	\$2,764.3	\$4,986.2

*\*TOTALS MAY NOT SUM DUE TO ROUNDING.*

*SOURCE: IMPLAN*

**Table 20. Current Operation Impacts, in Thousands of Dollars**

<i>Impact Type</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Direct Effect	14	\$171.8	\$317.5	\$556.5
Indirect Effect	5	\$202.3	\$209.8	\$456.7
Induced Effect	2	\$77.4	\$134.2	\$239.0
Total Effect	20	\$451.4	\$661.5	\$1,252.2

*\*TOTALS MAY NOT SUM DUE TO ROUNDING.*

*SOURCE: IMPLAN*

**Table 21. Projected Operation Impacts, in Thousands of Dollars**

<i>Impact Type</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Direct Effect	18	\$273.4	\$505.4	\$885.7
Indirect Effect	7	\$295.3	\$340.7	\$769.9
Induced Effect	3	\$111.5	\$193.5	\$344.6
Total Effect	28	\$680.2	\$1,039.6	\$2,000.3

*\*TOTALS MAY NOT SUM DUE TO ROUNDING.*

*SOURCE: IMPLAN*

**Table 22. Construction of the Second Rink, in Thousands of Dollars**

<i>Impact Type</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Direct Effect	250	\$7,713.4	\$8,943.6	\$16,769.6
Indirect Effect	9	\$858.8	\$1,342.1	\$2,893.6
Induced Effect	21	\$1,753.5	\$3,044	\$5,444.2
Total Effect	281	\$5,557.1	\$13,329.8	\$25,107.6

*\*TOTALS MAY NOT SUM DUE TO ROUNDING.*

*SOURCE: IMPLAN*