Impacts of Visitor Spending on the Local Economy: Saint- Gaudens National Historic Site, 2004

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Executive Summary

Saint-Gaudens NHS hosted 30,725 recreation visits in 2004. Based on the visitor survey 19% of the visitors are local residents, 57% are visitors from outside the local area on day trips, and 24% are visitors staying overnight within a half hour drive of the park. Sixty percent of the overnight visitors are staying in motels, cabins or B&B's.

On a party trip basis, average spending was $36 for non-local day trips, $411 for visitors in motels and $93 for other overnight visitors. Visitors in motels spent $192 per party per night.

Total visitor spending in 2004 was $1.12 million including $114,000 spent in the park. Visitors in motels account for 62% of the spending, non-local day trips 21%, other overnight trips 9% and local residents 9%. Thirty-four percent of the spending was for lodging, 26% restaurant meals and bar expenses, and 12% for souvenirs.

Not all of this spending would be lost to the region in the absence of the historic site. Two-thirds of park visitors from outside the region came to the area primarily to visit Saint-Gaudens NHS, but a third were in the area to visit other attractions, to visit friends or relatives, or on business. Only a portion of their expenses can be attributed to the park visit.

Spending directly attributed to the park was estimated by counting all spending for visitors whose primary reason for coming to the area was to visit Saint-Gaudens NHS. Half of the spending outside the park was counted for day trips, if Saint-Gaudens NHS was not the primary reason for the trip. One night of spending was counted for overnight trips when the park was not the primary trip purpose. All spending inside the park was attributed to the park, while all spending by local residents outside the park was excluded. These procedures yield a total of $782,000 in spending attributed to the park, roughly 70% of the $1.12 million spent by park visitors in the area.

The economic impact of park visitor spending is estimated by applying this spending to a model of the local economy. The local region was defined to include Sullivan county in new Hampshire and Windsor county in Vermont.

Including direct and secondary effects, the $1.12 million spent by park visitors supports 16 jobs in the area, generates $349,000 in personal income (wages and salaries including payroll benefits) and $517,000 in value added. Value added includes wages and salaries as well as profits and rents to area businesses and sales taxes.

Recreation visits decreased by 12% in 2005 to 26,943 visits. The decrease in visits was partially offset by a 5% increase in per visitor spending. Total visitor spending decreased to $1.03 million in 2005. The park itself employed 16 people in FY 2005 with

a total payroll of $954,000. Including secondary effects, the local impact of park operations in 2005 was 25 jobs, $1.17 million in personal income and $1.32 million total value added. Including both visitor spending and park operations, the total impact of the park on the local economy in 2005 was 49 jobs and $2.08 million in value added. The park payroll accounts for half of the employment effects and 64% of value added.

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Introduction

The purpose of this study is to document the local economic impacts of visitors to Saint-Gaudens National Historic Site (SAGA) in 2004. Economic impacts are measured as the direct and secondary sales, income and jobs in the local area resulting from spending by park visitors. The economic estimates are produced using the Money Generation Model 2 (MGM2) (Stynes and Propst, 2000). Three major inputs to the model are:

1) Number of visits broken down by lodging-based segments,
2) Spending averages for each segment, and
3) Economic multipliers for the local region

Inputs are estimated from the Saint-Gaudens NHS Visitor Survey, National Park Service Public Use Statistics, and IMPLAN input-output modeling software. The MGM2 model provides a spreadsheet template for combining park use, spending and regional multipliers to compute changes in sales, personal income, jobs and value added in the region.

Saint-Gaudens National Historic Site and the Local Region

Saint-Gaudens NHS is located near the New Hampshire-Vermont border about eight miles south of Lebanon, NH. The site features the home, gardens, and studio of American sculptor Augustus Saint-Gaudens. The park hosted 30,725 recreation visitors in 2004 and 26,943 in 2005. About 90% of the visitation is between June and October (Table 1).

The two county region had a population of just over one hundred thousand in 2005. The two largest nearby cities are Claremont to the south and Lebanon to the north. Each city is about ten miles away and had a population of around 13,000 in 2000.

Table 1. Recreation Visits to Saint-Gaudens NHS, 2004-2005

Month	2004	2005
January	162	127
February	210	186
March	266	241
April	436	393
May	1,677	1,124
June	5,237	6,006
July	6,988	6,334
August	6,699	5,734
September	4,093	3,248
October	4,331	3,079
November	419	349
December	207	122
Total	30,725	26,943

Source: NPS Public Use Statistics

Saint-Gaudens NHS Visitor Survey, 2004

A park visitor study was conducted at Saint-Gaudens NHS from August 14-22, 2004 (Manni, Gramman, and Hollenhorst 2005). The study measured visitor demographics, activities, and travel expenditures. Questionnaires were distributed to a sample of 346 visitors at the park entrance. Visitors returned 285 questionnaires for a 82% response rate. Data generated through the visitor survey were used as the basis to develop the spending profiles, segment shares and trip characteristics for Saint-Gaudens NHS visitors.

Most visitors spent between two and four hours at the park. Two-thirds of non-local visitors came to the area primarily to visit Saint-Gaudens NHS. Three quarters of day trips were primarily to visit the park compared to 40% of overnight trips.

MGM2 Visitor Segments

MGM2 divides visitors into segments to help explain differences in spending across distinct user groups. Four segments were established for Saint-Gaudens NHS visitors:

Local day users: Day visitors who reside within the local region, defined as a 50 mile radius of the park.

Non-local day users: Visitors from outside the region, not staying overnight in the area. This includes day trips as well as pass-through travelers, who may be staying overnight on their trip outside the region.

Motel: Visitors staying in motels, hotels, cabins, or B&B's within 50 miles of the park

Other OVN: Other visitors staying overnight in the area with friends or relatives, in campgrounds or not reporting any lodging expenses

Nineteen percent of the visitors surveyed were local residents, while 57% of the trips were classified as non-local day trips, and 24% were overnight trips including an overnight stay in the local area. About sixty percent of the overnight visitors were staying in motels, cabins or B&B's (Table 2)[1]. The average spending party was 2.8 people.

Table 2. Selected Visit/Trip Characteristics by Segment, 2004

Characteristic	Local	Day trip	Motel	Other OVN	Total
Segment share	19%	57%	14%	10%	100%
Average Party size	3.1	2.7	2.5	3.0	2.8
Length of stay (days/nights)	1.0	1.0	2.1	2.9	1.3
Percent primary purpose trips	100%	77%	41%	50%	75%

Saint-Gaudens NHS hosted 30,725 recreation visitors in 2004. Recreation visits were allocated to the five segments using the segment shares in Table 2. These visits are converted to 11,183 party trips by dividing by the average party size for each segment (Table 3). Total visitor spending is estimated by multiplying the number of party trips of each segment by the average spending estimated in the survey.

Table 3. Recreation Visits and Party Trips by Segment, 2004

Measure	Local	Day trip	Motel	Other OVN	Total
Recreation visits	5,929	17,465	4,204	3,126	30,725
Party visits/trips	1,940	6,534	1,682	1,028	11,183

Visitor Spending

Spending averages were computed on a party trip basis for each segment. The survey covered expenditures of the travel party within a half hour drive of Saint-Gaudens NHS.

The average visitor group in 2004 spent $96 on the trip[2]. On a party trip basis, average spending was $36 for non-local day trips, $411 for visitors in motels, and $93

[1] These percentages vary slightly from the VSP report (Manni, Gramman and Hollenhorst. 2005) as some visitors listing motels or campgrounds as lodging types did not report any lodging expenses and are classified here in the other OVN category.

[2] The average of $96 is lower than the $162 spending average in the VSP report (Manni, Gramman and Hollenhorst 2005) due to the omission of some outliers and treatment of missing spending data.

for other overnight visitors (Table 4). On a per night basis, visitors in motels spent $192 in the local region compared to $33 for other overnight visitors. The average per night lodging cost was $104 per night for visitors in motels.

Table 4. Average Visitor Spending by Segment ($ per party per trip)

	Local	Day trip	Motel	Other OVN	All Visitors
In Park					
Admissions	6.23	7.13	5.19	3.71	6.34
Gift shop	3.66	3.56	1.66	1.63	3.12
Donations	0.91	0.83	0.63	0.08	0.74
In Community					
Motel, hotel cabin or B&B	0.00	0.00	222.50	0.00	30.45
Camping fees	0.00	0.00	0.00	12.38	1.26
Restaurants & bars	17.92	12.42	89.22	29.79	25.76
Groceries, take-out food/drinks	9.49	1.71	4.38	15.21	4.95
Gas & oil	4.42	3.72	19.56	11.25	6.79
Local transportation	0.00	0.10	20.63	10.00	3.89
Guide fees	2.13	2.53	10.63	1.96	3.50
Admissions & fees	5.87	3.60	36.22	6.92	8.84
Souvenirs and other expenses	0.00	0.53	0.25	0.08	0.34
Grand Total	**50.62**	**36.13**	**410.84**	**93.00**	**95.99**
Total In park	10.79	11.52	7.47	5.42	10.20
Total Outside park	39.83	24.61	403.38	87.58	85.79

Table 5. Average Spending per Night for Visitors on Overnight Trips ($ per party per night)

	Motel	Other OVN
Spending In Community		
Motel, hotel cabin or B&B	104.30	0.00
Camping fees	0.00	4.33
Restaurants & bars	41.82	10.43
Groceries, take-out food/drinks	2.05	5.32
Gas & oil	9.17	3.94
Local transportation	9.67	3.50
Admissions & fees	4.98	0.69
Souvenirs and other expenses	16.98	2.42
Total	**192.47**	**32.52**

The sampling error at a 95% confidence level for the overall spending average is 23%. A 95% confidence interval for the overall spending average is plus or minus $22 around the mean of $96. The sampling errors for day trip and motel segment are 22%, while sampling errors for local visitors and the other OVN segment are higher (See Table B-2 in the appendix).

Saint-Gaudens NHS visitors spent a total of $1.12 million in the local area in 2004 (Table 6). Total spending was estimated by multiplying the number of party trips for each segment by the average spending per trip and summing across segments. Overnight visitors staying in motels accounted for 62% of the total spending. Lodging accounted for 34% of the total spending, restaurants and bars 26% and souvenirs including the park gift shop 12%.

Table 6. Total Visitor Spending by Segment, 2004 ($000s)

	Local	Day trip	Motel	Other OVN	All Visitors
In Park					
Admissions	12.1	46.6	8.7	3.8	71.2
Gift shop	7.1	23.2	2.8	1.7	34.8
Donations	1.8	5.4	1.1	0.1	8.3
In Community					
Motel, hotel cabin or B&B	0.0	0.0	374.2	0.0	374.2
Camping fees	0.0	0.0	0.0	12.7	12.7
Restaurants & bars	34.8	81.2	150.0	30.6	296.6
Groceries, take-out food/drinks	18.4	11.1	7.4	15.6	52.5
Gas & oil	8.6	24.3	32.9	11.6	77.4
Local transportation	0.0	0.6	34.7	10.3	45.6
Admissions & fees	4.1	16.5	17.9	2.0	40.6
Souvenirs and other expenses	11.4	23.5	60.9	7.1	102.9
Donations	0.0	3.4	0.4	0.1	3.9
Grand Total	**98.2**	**236.0**	**691.0**	**95.6**	**1120.8**
Total In park	20.9	75.3	12.6	5.6	114.3
Total Outside park	77.3	160.8	678.4	90.0	1006.5
Segment Percent of Total	9%	21%	62%	9%	100%

Not all of this spending would be lost to the region in the absence of the park as some visitors did not make the trip primarily to visit the park. Spending directly attributed to the park visit was estimated by counting all spending for trips where the park was the primary reason for the trip. Half of the spending outside the park was counted for non-primary purpose day trips, while one night of spending was counted for non-primary purpose overnight trips. All spending inside the park was counted, but all spending by local visitors outside the park was excluded.

These attributions yield a total of $782,000 in visitor spending attributed to the park visit, representing 70% of the overall visitor spending total. Overnight trips account for almost 70% of spending attributed to park (Table 7).

Table 7. Total Spending Attributed to Park Visits, 2004 ($000s)

	Local	Day trip	Motel	Other OVN	All Visitors
In Park					
Admissions	12.1	46.6	8.7	3.8	71.2
Gift shop	7.1	23.2	2.8	1.7	34.8
Donations	1.8	5.4	1.1	0.1	8.3
In Community					
Motel, hotel cabin or B&B		0.0	256.2	0.0	256.2
Camping fees		0.0	0.0	8.6	8.6
Restaurants & bars		71.8	102.7	20.7	195.2
Groceries, take-out food/drinks		9.9	5.0	10.6	25.4
Gas & oil		21.5	22.5	7.8	51.9
Local transportation		0.6	23.7	6.9	31.2
Admissions & fees		14.6	12.2	1.4	28.2
Souvenirs and other expenses		20.8	41.7	4.8	67.3
Donations		3.0	0.3	0.1	3.4
Total Attributed to Park	**20.9**	**217.5**	**477.0**	**66.3**	**781.7**
Percent of spending attributed to the park	21%	92%	69%	69%	70%

Economic Impacts of Visitor Spending

The economic impacts of Saint-Gaudens NHS visitor spending on the local economy are estimated by applying the spending attributed to the park (Table 7) to a set of economic ratios and multipliers representing the local economy. Multipliers for the region were estimated with the IMPLAN system using 2001 data. The tourism sales multiplier for the region is 1.45. Every dollar of direct sales to visitors generates another $ .45 in secondary sales through indirect and induced effects[3].

Impacts are estimated based on the visitor spending attributed to the park in Table 7[4]. Including direct and secondary effects, the $782,000 spent by park visitors[5] supports 16 jobs in the area and generates $349,000 in personal income and $517,000 in value added (Table 8). Personal income covers wages and salaries, including payroll benefits. Value added is the preferred measure of the contribution to the local economy as it includes all sources of income to the area, payroll benefits to workers, profits and rents to businesses, and sales and other indirect business taxes. The largest direct effects are in lodging establishments and restaurants.

[3] Indirect effects result from tourism businesses buying goods and services from local firms, while induced effects stem from household spending of income earned from visitor spending.

[4] The local economic impact of all $1.12 million in visitor spending (Table 6) is reported in Appendix C.

[5] Revenues received by the park (park admissions and donations) are excluded in estimating visitor spending impacts as the impacts resulting from park revenues are covered as part of park operations.

Table 8. Economic Impacts of Visitor Spending Attributed to the Park, 2004.

Sector/Spending category	Sales $000's	Jobs	Personal Income $000's	Value Added $000's
Direct Effects				
Motel, hotel cabin or B&B	256	5	112	181
Camping fees	9	0	1	2
Restaurants & bars	195	5	81	91
Admissions & fees	28	0	11	18
Local transportation	31	1	17	19
Retail Trade	70	1	33	43
Wholesale Trade	9	0	3	6
Local Production of goods	3	0	0	0
Total Direct Effects	602	13	258	361
Secondary Effects	273	3	91	156
Total Effects	874	16	349	517

2005 Update

The spending and impact estimates may be updated to 2005 based on reported recreation visits in 2005. Recreation visits declined by 12% in 2005 to 26,943 visits. The visitor segment mix, party sizes and lengths of stay were assumed unchanged from 2004. Spending averages measured in the 2004 visitor survey were price adjusted to 2005 using Bureau of Labor Statistics price indices for each spending category. Spending averages increased by about five percent in 2005 compared to 2004.

The decrease in visits along with the five percent increase in per visitor spending decreased total visitor spending by eight percent to $1.03 million in 2005 (Table 9).

Table 9. Update of Spending Estimates to 2005

	Local	Day trip	Motel	Other OVN	Total
Average Spending ($ per party per trip)					
2004	50.62	36.13	410.84	93.00	89.43
2005	52.90	38.07	430.25	97.90	93.78
Total Spending ($000's)					
2004	98	236	691	96	1,121
2005	90	218	635	88	1,031
Spending Attributed to the Park ($000's)					
2004	21	217	477	66	782
2005	19	201	438	61	719

The park itself employed 16 people in FY 2005 with a total payroll of $954,000. Including secondary effects, the local impact of park operations in 2005 was 25 jobs, $1.17 million in personal income and $1.32 million total value added. Including both

visitor spending and park operations, the total impact of the park on the local economy in 2005 was 49 jobs and $2.08 million value added. Park operations account for half of the employment effects and 64% of value added.

Study Limitations and Error

The accuracy of the MGM2 estimates rests on the accuracy of the three inputs: visits, spending averages, and multipliers. Recreation visit estimates rely on counting procedures at the park, which may miss some visitors and count others more than once during their visit.

Spending averages are derived from the 2004 Saint-Gaudens NHS Visitor Survey. Estimates from the survey are subject to sampling errors, measurement errors and seasonal/sampling biases. The overall spending average is subject to sampling errors of 23%.

Spending averages are also sensitive to decisions about outliers and treatment of missing data. To estimate spending averages incomplete spending data had to be filled and decisions had to be made about the handling of missing spending data and zero spending reports. Spending averages were estimated under conservative assumptions.

First, cases reporting some expenses but leaving other categories blank were filled with zeros. Twenty-eight respondents that did not complete the spending question were assumed to spend no money on the trip. Omitting cases with missing spending data instead of treating them as zeros would increase the spending average from $96 to $107. This change would increase overall spending totals and impacts by about 12% (see Appendix B, Table B1).

Outliers have a larger impact on the spending results. Eight cases reporting expenses of more than $1,000 including one case reporting almost $7,000 were omitted from the spending analysis. Nine cases reporting party sizes of more than seven people and three cases staying more than seven nights in the area were also omitted[6]. The spending average including the outliers is $144 (See Table B2 in Appendix B).

As the sample only covers visitors during a single week, we must assume these visitors are representative of visitors during the rest of the year to extrapolate to annual totals.

Multipliers are derived from an input-output model of the local economy using IMPLAN. Input-output models rest on a number of assumptions, however, errors due to

[6] Reports of spending for long stays are deemed unreliable. Spending reported for large parties may not include everyone in the party. Since spending averages are applied to all visits, omitting these cases is equivalent to substituting the average spending of visitors in the corresponding visitor segment for these outliers.

the multipliers will be small compared to potential errors in visit counts and spending estimates. Visits are taken from NPS public use statistics.

More problematic than the errors in visits, spending or multipliers is sorting out how much of the spending to attribute to the park. As the park was not the primary motivation for the trip to the region for some visitors, some visitor spending would likely not be lost to the region in the absence of the park. The procedures for attributing spending to the park are somewhat subjective, but reasonable. Seventy percent of all visitor spending is attributed to park visits under the stated assumptions.

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Appendix A: Definitions of Economic Terms

Term	Definition
Sales	Sales of firms within the region to park visitors.
Jobs	The number of jobs in the region supported by the visitor spending. Job estimates are not full time equivalents, but include part time positions.
Personal income	Wage and salary income, sole proprietor's income and employee payroll benefits.
Value added	Personal income plus rents and profits and indirect business taxes. As the name implies, it is the net value added to the region's economy. For example, the value added by a hotel includes wages and salaries paid to employees, their payroll benefits, profits of the hotel, and sales and other indirect business taxes. The hotel's non-labor operating costs such as purchases of supplies and services from other firms are not included as value added by the hotel.
Direct effects	Direct effects are the changes in sales, income and jobs in those business or agencies that directly receive the visitor spending.
Secondary effects	These are the changes in the economic activity in the region that result from the re-circulation of the money spent by visitors. Secondary effects include indirect and induced effects.
Indirect effects	Changes in sales, income and jobs in industries that supply goods and services to the businesses that sell directly to the visitors. For example, linen suppliers benefit from visitor spending at lodging establishments.
Induced effects	Changes in economic activity in the region resulting from household spending of income earned through a direct or indirect effect of the visitor spending. For example, motel and linen supply employees live in the region and spend their incomes on housing, groceries, education, clothing and other goods and services.
Total effects	Sum of direct, indirect and induced effects. ▪ Direct effects accrue largely to tourism-related businesses in the area ▪ Indirect effects accrue to a broader set of businesses that serve these tourism firms. ▪ Induced effects are distributed widely across a variety of local businesses.

Appendix B: Handling of Missing Spending Data and Outliers

To compute spending averages and to sum spending across categories, spending categories with missing spending data had to be filled. If spending was reported in any category, the remaining categories were assumed to be zero. This yielded 248 cases with valid spending data, 9 cases reporting zero spending and 28 cases not completing the spending question. Cases with missing or no spending reported were local residents, day trips, or overnight trips without any local lodging expenses. It was assumed that these cases spent no money in the local area.

Table B-1. Cases with Valid, Zero and Missing Spending Data by Segment

	Local	Day trip	Motel	Other OVN	Total
Report some spending	45	141	39	23	248
Missing spending data	10	12	0	6	28
Zero spending	0	9	0	0	9
Total cases	55	162	39	29	285
Percent zero	0%	6%	0%	0%	3%
Percent missing	18%	7%	0%	21%	10%

One case reported almost $7,000 in spending and seven other cases reported more than $1,000. These outliers were dropped when computing spending averages. Another nine cases with large parties (>7) and three cases with long stays (>7 nights) were also omitted, yielding a final sample of 265 cases for the spending analysis. The overall spending average is $96 omitting outliers compared to $144 with outliers.

Table B-2. Spending Averages by Segment, with and without outliers

	With outliers			Without outliers			
Segment	Mean	N	Std. Deviation	Mean	N	Std. Deviation	Pct Error[a]
Local	49	55	123	51	53	125	66%
Day trip	44	162	120	36	156	47	20%
Motel	537	39	444	411	32	259	22%
Other OVN	358	29	1272	93	24	136	58%
Total	144	285	480	96	265	168	23%

a. Pct errors computed at a 95% confidence level

Appendix C. Impacts of all Visitor Spending, 2004

Table C1 gives the impacts of $1.12 million in visitor spending on the local economy. All visitor spending in the region except park admissions and donations is included in this analysis. Impacts attributed to the park in Table 8 are about 70% of the impacts when all visitor spending is included.

Table C-1. Impacts on Local Economy

Sector/Spending category	Sales $000's	Jobs	Personal Income $000's	Value Added $000's
Direct Effects				
Motel, hotel cabin or B&B	374	8	164	265
Camping fees	13	0	2	4
Restaurants & bars	297	8	123	139
Admissions & fees	41	1	15	25
Local transportation	46	1	24	27
Retail Trade	99	2	47	61
Wholesale Trade	14	0	5	9
Local Production of goods	4	0	0	0
Total Direct Effects	887	19	380	530
Secondary Effects	402	5	134	229
Total Effects	1289	24	514	760