

Impacts of Visitor Spending on the Local Economy: Lincoln Home National Historical Site, 2005



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August 2007



National Park Service
Social Science Program

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Executive Summary

Lincoln Home National Historical Site (NHS) hosted 419,552 recreation visits in 2005. Based on the 2005 visitor survey 10% of the visitors are local residents, 37% are visitors from outside the local area not staying overnight within an hours drive of the park, and 53% are visitors staying overnight in the local area. About 80% of the overnight visitors are staying in motels, cabins or B&B's.

The average visitor party spent \$169 in the local area. Visitors reported expenditures of their group inside the park and in Springfield. On a party trip basis, average spending in 2005 was \$27 for local residents, \$55 for non-local day trips, \$327 for visitors in motels, and \$110 for other overnight visitors. On a per night basis, visitors staying in motels spent \$203 in the local region compared to \$53 for other overnight visitors. The average per night lodging cost was \$98 per night for visitors staying in motels.

Total visitor spending in 2005 in the Springfield area was \$19.7 million. Thirty-eight percent of the spending was for lodging, 26% restaurant meals and bar expenses, and 16% souvenirs including the park gift shop. Overnight visitors staying in motels, cabins or B&B's accounted for 79% of the spending.

Thirty-eight percent of the visitors indicated the park visit was the primary reason for coming to the area. Omitting spending by local visitors and reducing spending attributed to the park visit for visitors in the area for other reasons yields a total of \$14.4 million in spending attributed to the park, about two thirds of the \$19.7 million spent by park visitors on the trip.

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 encompass Sangamon county. The tourism spending sales multiplier for the region is 1.35.

Visitor spending in 2005 directly supported 331 jobs in the area outside the park, generating \$5.0 million in wages and salaries and \$6.4 million in value added. Value added includes wages and salaries as well as profits and rents to area businesses and sales taxes. An additional 52 jobs are supported through secondary effects. The total impact on the local economy including direct and secondary effects is 383 jobs, \$7.1 million in wages and salaries and \$10.5 million in value added. Visitor spending supports 128 jobs in hotels and 112 jobs in area restaurants.

The park itself employed 48 people in FY 2005 with a total payroll including benefits of \$2.24 million. Including secondary effects, the local impact of the park payroll in 2005 was 69 jobs, \$2.78 million in personal income and \$3.14 million total value added. Including both visitor spending and park operations, the total impact of the park

on the local economy in 2005 was 452 jobs and \$13.6 million value added. Park operations account for 15% of the employment effects and 23% of value added.

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May 2007

Introduction

The purpose of this study is to document the local economic impacts of visitors to Lincoln Home National Historical Site (NHS) in 2005. 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 Lincoln Home 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.

Lincoln Home NHS and the Local Region

Lincoln Home NHS is located in Springfield, Illinois. The home is part of a four block historic area containing Abraham Lincoln's home. The park hosted 419,552 recreation visitors in 2005 and 388,887 in 2006 (Table 1).

The local region was defined to include the city of Springfield and the rest of Sangamon county. The county had a population of 193,204 in 2006.

Table 1. Recreation Visits to Lincoln Home National Historic Site, 2005

Month	2005	2006
January	3,194	6,337
February	8,462	9,843
March	25,170	30,801
April	54,120	50,140
May	68,472	55,842
June	49,011	46,268
July	62,842	55,628
August	51,272	41,503
September	32,369	30,861
October	39,050	36,911
November	19,022	16,342
<u>December</u>	<u>6,568</u>	<u>8,411</u>
Total	419,552	388,887

Source: NPS Public Use Statistics

Lincoln Home NHS Visitor Survey, 2004

A park visitor study was conducted at Lincoln Home NHS from May 27- June 8, 2005 (Meldrum, Morgan and Hollenhorst, 2006). The study measured visitor demographics, activities, and travel expenditures. Questionnaires were distributed to a sample of 650 visitors. Visitors returned 462 questionnaires for a 71% response rate. Data generated through the visitor survey were used as the basis to develop the spending profiles, segment shares and trip characteristics for Lincoln Home visitors.

Most visitors (79%) spent about two hours visiting the park. Six percent visited the park on more than one day during their stay in the area. Thirty-eight percent of the visitors came to the area primarily to visit the Lincoln Home NHS. Twenty-three percent of visitors came to visit other attractions in the area; fifteen percent were visiting friends or relatives in the area or passing thru the area.

MGM2 Visitor Segments

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

Local day users: Day visitors who live in the local area.

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 in the Springfield area.

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

The 2005 visitor survey was used to estimate the percentage of visitors from each segment as well as spending averages, lengths of stay and party sizes for each segment. Only two percent of the survey sample indicated they were residents of the area, but a larger percentage gave a local zipcode as their residence. The local share was estimated as 10%. The largest segments were visitors staying overnight in motels (42%) and day visitors (37%). Eleven percent of visitors were classified as "other overnight" visitors. (Table 2). The average spending party was about three people.

Local residents were assumed to be making the trip primarily to visit the park. About 40% of non-local visitors stated that visiting Lincoln Home NHS was the primary reason for the trip.

Table 2. Selected Visit/Trip Characteristics by Segment, 2005

Characteristic	Local	Day trip	Motel	Other OVN	Total
Segment share	10%	37%	42%	11%	100%
Average Party size	3.00	3.33	2.87	2.94	3.06
Length of stay (days/nights)	1.00	1.00	1.61	2.08	
Re-entry rate	1.10	1.10	1.28	1.18	1.20
Percent primary purpose trips	100%	41%	36%	35%	38%

a. The re-entry rate is the number of times a visitor is counted as a park visitor during their stay in the area.

The Lincoln Home NHS hosted 419,552 recreation visitors in 2005. Recreation visits were allocated to the four segments using the segment shares in Table 1. These visits are converted to 116,435 party trips by dividing by the average party size and re-entry rate for each segment (Table 3).

Table 3. Recreation Visits and Party Trips by Segment, 2005

Measure	Local	Day trip	Motel	Other OVN	Total
Recreation visits	41,955	154,959	175,062	47,744	419,552
Party visits/trips	12,714	42,458	47,526	13,737	116,435
Person trips	38,141	141,185	136,548	40,335	356,209
Percent of party trips	11%	36%	41%	12%	100%
Party days/nights	12,714	42,458	76,584	28,620	160,375

Visitor spending

Spending averages were computed on a party trip basis for each segment. The survey covered expenditures of the travel party in the Springfield area.

The average visitor party spent \$169 in the local area¹. On a party trip basis, average spending in 2005 was \$27 for local residents², \$55 for non-local day trips, \$327 for visitors in motels, and \$110 for other overnight visitors (Table 4). The sampling error (95% confidence level) for the overall spending average is 10%. A 95% confidence interval for the spending average is therefore \$169 plus or minus \$17 or (\$152, \$186).

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

	Local	Day trip	Motel	Other OVN	All Visitors
In Park					
Souvenirs	3.82	7.65	10.25	3.08	7.75
Parking	0.81	1.62	1.50	1.71	1.49
In Community					
Motel, hotel cabin or B&B	0.00	0.00	158.59	0.00	64.73
Camping fees	0.00	0.00	0.58	17.90	2.35
Restaurants & bars	8.56	17.12	82.15	29.39	44.18
Groceries, take-out food/drinks	1.63	3.26	4.96	12.47	4.86
Gas & oil	5.41	10.83	28.90	24.08	19.18
Local transportation	0.12	0.24	1.57	5.92	1.44
Admissions & fees	2.16	4.33	8.07	4.02	5.58
Souvenirs and other expenses	4.76	9.51	30.73	11.47	17.89
Grand Total	27.27	54.55	327.30	110.04	169.45

¹ The average of \$169 is lower than the \$323 spending average in the VSP report (Meldrum, Manni and Hollenhorst 2005) due to the omission of outliers, adjustments of segment shares, and treatment of missing spending data.

² Due to a small sample of local residents, spending for locals was set at half of the day trip rate.

On a per night basis, visitors staying in motels spent \$203 in the local region compared to \$53 for other overnight visitors. The average per night lodging cost was \$98 per night for visitors staying in motels.

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

	Motel	Other OVN
Motel, hotel cabin or B&B	98.42	0.00
Camping fees	0.36	8.59
Restaurants & bars	50.98	14.11
Groceries, take-out food/drinks	3.08	5.99
Gas & oil	17.94	11.56
Local transportation	1.90	3.66
Admissions & fees	5.01	1.93
<u>Souvenirs and other expenses</u>	<u>25.43</u>	<u>6.98</u>
Grand Total	203.11	52.82

Lincoln Home NHS visitors spent a total of \$19.7 million in the local area in 2005 (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, cabins or B&B's accounted for 79% of the total spending. Thirty-nine percent of the spending was for lodging, 26% restaurant meals and bar expenses, and 16% souvenirs including the park gift shop.

Not all of this spending would be lost to the region in the absence of the park as some visitors are local residents and many non-residents came to the area for other reasons. 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 day trips if the trip was not made primarily to visit Lincoln Home NHS. The equivalent of one night of spending was attributed to the park visit for overnight trips made to visit other attractions, friends or relatives or on business.³ All spending inside the park was counted, but all spending by local visitors was excluded.

These attributions yield a total of \$14.4 million in visitor spending attributed to the park visit, representing 73% of the overall visitor spending total. Visitors in motels account for 81% of the spending under these attributions (Table 7).

³ This assumes that these visitors spent an extra night in the area to visit Lincoln Home NHS.

Table 6. Total Visitor Spending by Segment, 2005 (\$000s)

	Local	Day trip	Motel	Other OVN	All Visitors
In Park					
Souvenirs	48.62	324.75	487.03	42.33	902.73
Parking	10.29	68.74	71.29	23.55	173.87
In Community					
Motel, hotel cabin or B&B	0.00	0.00	7537.02	0.00	7537.02
Camping fees	0.00	0.00	27.60	245.87	273.48
Restaurants & bars	108.82	726.84	3904.37	403.71	5143.74
Groceries, take-out food/drinks	20.70	138.24	235.95	171.30	566.19
Gas & oil	68.83	459.71	1373.71	330.82	2233.06
Local transportation	1.51	10.11	74.41	81.30	167.34
Admissions & fees	27.51	183.73	383.33	55.23	649.80
<u>Souvenirs and other expenses</u>	<u>60.47</u>	<u>403.85</u>	<u>1460.60</u>	<u>157.56</u>	<u>2082.48</u>
Grand Total	347	2,316	15,555	1,512	19,730
Segment Percent of Total	2%	12%	79%	8%	100%

Table 7. Total Spending Attributed to Park Visits, 2005 (\$000s)

	Local	Day trip	Motel	Other OVN	All Visitors
In Park					
Souvenirs		324.75	487.03	42.33	854.11
Parking		68.74	71.29	23.55	163.58
In Community					
Motel, hotel cabin or B&B		0.00	5,699.78	0.00	5,699.78
Camping fees		0.00	20.87	162.49	183.36
Restaurants & bars		511.06	2,952.63	266.80	3,730.49
Groceries, take-out food/drinks		97.20	178.44	113.21	388.84
Gas & oil		323.23	1,038.85	218.63	1,580.71
Local transportation		7.11	84.69	61.10	152.91
Admissions & fees		129.19	289.89	36.50	455.58
<u>Souvenirs and other expenses</u>		<u>283.96</u>	<u>811.71</u>	<u>75.05</u>	<u>1,170.71</u>
Total Attributed to Park	0.00	1,745	11,635	1,000	14,380
Percent of spending attributed to the park		75%	75%	66%	73%
Percent of attributed spending	0%	12%	81%	7%	100%

Economic Impacts of Visitor Spending

The economic impacts of Lincoln Home 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 1.35. Every dollar of direct sales to visitors generates another \$.35 in secondary sales through indirect and induced effects⁴.

Impacts are estimated based on the visitor spending attributed to the park in Table 7⁵. Including direct and secondary effects, the \$14.4 million spent by park visitors supports 383 jobs in the area and generates \$16.6 million in sales, \$7.1 million in personal income and \$10.5 million 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. Spending associated with park visits supports 128 jobs in hotels, 112 jobs in restaurants and 42 jobs in retail trade.

Table 8. Economic Impacts of Visitor Spending Attributed to the Park, 2005.

Sector/Spending category	Sales \$000's	Jobs	Personal Income \$000's	Value Added \$000's
Motel, hotel cabin or B&B	5,700	128	2,485	4,037
Camping fees	183	2	19	45
Restaurants & bars	3,730	112	1,413	1,594
Admissions & fees	456	14	167	280
Local transportation	316	16	151	170
Grocery stores	98	2	41	4
Gas stations	352	8	132	4
Other retail	1,012	32	466	80
Wholesale Trade	357	18	170	192
<u>Local Production of goods</u>	<u>48</u>	<u>0</u>	<u>1</u>	<u>1</u>
Total Direct Effects	12,254	331	5,043	6,406
<u>Secondary Effects</u>	<u>4,342</u>	<u>52</u>	<u>2,015</u>	<u>4,093</u>
Total Effects	16,596	383	7,058	10,499
Multiplier	1.35	1.16	1.40	1.64

⁴ 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.

⁵ The local economic impact of all \$19.7 million in visitor spending (Table 6) is reported in Appendix C.

Impacts of the NPS Park Payroll

The park itself employed 48 people in FY 2005 with a total payroll including benefits of \$2.24 million. Including secondary effects, the local impact of the park payroll in 2005 was 69 jobs, \$2.78 million in personal income and \$3.14 million total value added. Including both visitor spending and park operations, the total impact of the park on the local economy in 2005 was 452 jobs and \$13.6 million value added. Park operations account for 15% of the employment effects and 23% 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. Recreation visits were adjusted for double counting based on the number of park entries that respondents reported during their stay in the area.

Spending averages are derived from the 2005 Lincoln Home 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 10%.

Spending averages are also sensitive to decisions about outliers and treatment of missing data. To carry out the analysis incomplete spending data had to be completed and decisions had to be made about the handling of missing spending data and zero spending reports. Conservative assumptions were adopted.

First, cases reporting some expenses but leaving other categories blank were completed with zeros. Respondents that did not complete the spending question were assumed to spend no money on the trip. Nine percent of the cases had missing spending data. Dropping these cases instead of treating them as zeros would increase the overall spending average from \$127 to \$140. This change would increase spending totals and impacts by 9%.

The small samples make the spending averages somewhat sensitive to outliers. One case reporting spending of more than \$5,000 and another ten cases reporting more than \$1,000 in spending were dropped in computing the spending averages. Another 26 cases involving large parties (more than seven people) and one case staying more than seven nights were also omitted, yielding a final sample of 329 cases for the spending analysis⁶. The overall spending average was \$169 omitting outliers compared to \$276 with outliers (See Appendix B for details).

⁶ Reports of spending for long stays and large parties are deemed unreliable. Spending reported for large parties may not include everyone in the party. Recall of spending for very long stays may also be unreliable and such stays frequently involve multiple stops and activities, so that much of the spending is unrelated to

Although sample sizes are small for most segments, the spending averages are consistent with those at other historical sites. Estimated nightly room and campsite rates are also reasonable for the area. 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 the multipliers will be small compared to potential errors in visit counts and spending estimates.

Somewhat 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 all visitors, some of the spending would likely not be lost in the absence of the park. The procedures for attributing spending to the park are somewhat subjective, but reasonable. They result in about three fourths of all visitor spending being attributed to park visits.

the park visit. Since spending averages are applied to all visits, the procedures are equivalent to substituting the average of visitors in the corresponding visitor segment for these outliers.

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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.
Labor 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. <ul style="list-style-type: none"> ▪ 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 402 cases with valid spending data, 6 cases reporting zero spending and 54 cases not completing the spending question. Cases with no spending data were on day trips or overnight trips reporting no lodging expenses. It was assumed that these cases spent no money in the local area. The overall spending average omitting cases with missing spending data is \$194.

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

	Local	Day trip	Motel	Other OVN	Total
Report some spending	0	159	209	34	402
Missing spending data	0	30	0	24	54
<u>Zero spending</u>	<u>0</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>6</u>
Total cases	0	195	209	58	462
Percent zero		3%	0%	0%	1%
Percent missing		15%	0%	41%	12%

Forty-seven cases were omitted from the spending analysis. Thirty of these were large parties of more than seven people. Two cases involved an extended stay of more than seven nights. Fifteen cases reported expenses of more than \$1,000. Six of these reported expenses for more than 50 people. The overall spending average is \$276 omitting outliers and compared to \$169 with outliers. Including outliers and omitting cases with missing spending data brings the spending average up to \$313 per party per trip.

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

Segment	With outliers			Without outliers			Pct Error ^a
	Mean	N	Std. Deviation	Mean	N	Std. Deviation	
Day trip	116	195	393	55	168	95	26%
Motel	475	209	1,068	327	198	200	9%
<u>Other OVN</u>	<u>94</u>	<u>58</u>	<u>143</u>	<u>110</u>	49	152	<u>39%</u>
Total	276	462	785	191	415	207	10%

a. Pct errors computed at a 95% confidence level

Appendix C. Impacts of all Visitor Spending, 2005

Table C1 gives the impacts of \$19.7 million in visitor spending on the local economy. All visitor spending in the region is included in this analysis. Impacts including all visitor spending are roughly 37% higher than those reported in Table 8, which count only spending directly attributable to the park visits.

Table C-1. Impacts of all Visitor Spending on the Local Economy, 2005

Sector/Spending category	Sales \$000's	Jobs	Personal Income \$000's	Value Added \$000's
Direct Effects				
Motel, hotel cabin or B&B	7,537	169	3,286	5,338
Camping fees	273	2	28	67
Restaurants & bars	5,144	154	1,949	2,198
Admissions & fees	650	20	238	399
Local transportation	341	17	162	183
Grocery stores	143	3	59	6
Gas stations	498	11	186	6
Other retail	1,493	48	686	117
Wholesale Trade	519	26	247	279
<u>Local Production of goods</u>	<u>68</u>	<u>0</u>	<u>1</u>	<u>1</u>
Total Direct Effects	16,666	450	6,843	8,594
<u>Secondary Effects</u>	<u>5,908</u>	<u>69</u>	<u>2,737</u>	<u>5,652</u>
Total Effects	22,574	519	9,580	14,246