



Impacts of Visitor Spending on the Local Economy

Fort Scott National Historic Site, 2011

Natural Resource Report NPS/NRSS/EQD/NRR—2012/606



ON THE COVER

Fort Scott National Historic Site

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Executive Summary

Fort Scott National Historic Site hosted 26,219 recreation visits in 2011. Adjustments for visitor group size and re-entries resulted in 9,326 visitor group trips to the park in 2011. Based on a 2011 Visitor Services Project survey conducted July 15 – August 23, 81% of these visitor group trips were made by local residents or non-locals on day trips not staying in the city of Fort Scott.¹ Nineteen percent of visitor group trips involved an overnight stay in the city of Fort Scott.

Visitors reported their group’s expenditures in the park and city of Fort Scott. The average visitor group size was 2.7 people and spent an average of \$46 in the park and city.

Total visitor spending in 2011 in the park and city of Fort Scott was \$426,000. The greatest proportions of expenditures were for souvenirs and other expenses (26%) and restaurants and bars (24%). Daytrip visitors accounted for 48% of total spending, and overnight visitors accounted for 52% of total spending.

Forty-three percent of visitor groups indicated the park visit was the primary reason for their trip to the area. Counting only a portion of visitor expenses if the park visit was not the primary reason for the trip yields \$353,000 in spending attributed directly to the park.

The economic impact of park visitor spending was estimated by applying the spending to an input-output model of the local economy. The local region was defined as Bourbon County, Kansas. This one-county region was the smallest region for which economic data were available that included the park and the city for which visitor spending was reported.

Including direct and secondary effects, the \$353,000 in visitor spending attributed to the park generated \$346,000 in direct sales in the region, which supported 5.8 jobs. These jobs paid \$123,000 in labor income, which was part of \$200,000 in value added to the region.²

A separate study estimated impacts of the park employee payroll on the local economy.³ The park itself employed 18 people in FY 2010 with a total payroll including benefits of \$1.1 million. Including secondary effects, the local impacts of the park payroll in FY 2010 were \$343,000 in sales, supporting 21.3 jobs, \$1.162 million in labor income, and \$1.267 million in value added.

Local Economic Impacts of Fort Scott National Historic Site

	<u>Sales</u>	<u>Jobs</u>	<u>Labor Income</u>	<u>Value Added</u>
Park Visitor Spending	\$346K	5.8	\$123K	\$200K
Park Payroll	+\$343K	+21.3	+\$1,162K	+\$1,267K
Park Visitor Spending + Payroll	\$689K	27.1	\$1,285K	\$1,467K

¹ Results in this study sometimes differ from those reported in the VSP study report (Manni et al. 2012) because of the omission of cases considered to be outliers in the current analysis. See Study Limitations and Errors section.

² Jobs include fulltime and part-time jobs. Labor income consists of wages and salaries, payroll benefits and income of sole proprietors. Value added includes labor income as well as property income (dividend, royalties, interest and rents) to area businesses and indirect business taxes (sales, property, and excise taxes).

³ Stynes (2011).

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Introduction

Fort Scott National Historic Site (NHS) preserves a mid-19th century army base in eastern Kansas and interprets the role of the military in westward expansion of United States. The 17-acre site is located in the city of Fort Scott, Kansas, in Bourbon County, and became a national historic site in 1978. Fort Scott NHS received 26,219 recreation visits in 2011 (Table 1).

Table 1. Recreation visits, Fort Scott NHS, 2011

Month	Recreation Visits
January	989
February	439
March	1,530
April	2,307
May	5,124
June	3,819
July	2,742
August	2,131
September	2,359
October	2,452
November	1,112
<u>December</u>	<u>1,215</u>
Total	26,219

Source: NPS Public Use Statistics 2011.

The purpose of this study was to estimate the annual, local economic impacts of visitors to Fort Scott NHS in 2011. Economic impacts were measured as the direct and secondary sales, income, and jobs in the local region resulting from spending by park visitors. (See Appendix A: Glossary for definitions of terms.) In addition, a separate study estimated the impacts of the NPS park payroll on the local region (Stynes 2011), and those results are reported herein. Neither study estimated the economic impacts of park operations or construction spending on the local region.

The local economic region defined for this study included Bourbon County, Kansas. This one-county region has a population of 15,173 (USCB 2012), gross regional product of \$456 million (MIG, Inc. 2008), median household income of \$38,249, and family poverty rate of 9.8% (USCB 2010). State and local governments, including education, are the major employers in the region (MIG, Inc. 2008), and the region experienced a 7.5% unemployment rate in 2011 (BLS 2012).

Methods

The economic impact estimates were produced using the Money Generation Model 2 (MGM2) (Stynes et al. 2007). The three main inputs to the model were:

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 were estimated from the Fort Scott NHS Visitor Services Project (VSP) survey data (Manni et al. 2012), National Park Service Public Use Statistics (2011), and IMPLAN input-output modeling software (MIG, Inc. 2008). The MGM2 model provides a spreadsheet template for combining park use, spending, and regional multipliers to compute changes in sales, labor income, jobs, and value added in the region.

The VSP visitor survey was conducted at Fort Scott NHS from July 15 – August 23, 2011.⁴ The VSP survey measured visitor demographics, activities, and travel expenditures. Questionnaires were distributed to a systematic, random sample of 341 visitor groups. Visitors returned 248 questionnaires resulting in a response rate of 72.7%.

Spending and economic impact estimates for Fort Scott NHS were based on the 2011 VSP survey data. Visitors were asked to report expenditures in the park and within the city of Fort Scott. The local region for determining economic impact was defined as a Bourbon County, Kansas, which includes the park and city of Fort Scott. This one-county region was the smallest region for which economic data were available that included the park and the city for which visitor spending was reported.

The MGM2 model divides visitors into segments to help explain differences in spending across distinct user groups. Two segments were established for Fort Scott NHS visitors based on reported trip characteristics and lodging expenditures:

Day trip: Visitors that were residents of the city of Fort Scott and visitors from outside the city of Fort Scott not staying overnight in the city of Fort Scott.

Overnight: Visitors from outside the city of Fort Scott that stayed overnight in the city of Fort Scott.⁵

The VSP survey data were used to estimate the percentage of visitors from each segment as well as spending averages, lengths of stay, and visitor group sizes for each segment.

⁴ Results in this study sometimes differ from those reported in the VSP study report (Manni et al. 2012) because of the omission of cases considered to be outliers in the current analysis. See Study Limitations and Errors section.

⁵ More refined visitor segments could not be identified due to small sample sizes.

Results

Visits

Based on the VSP survey data, 81% of park entries were classified as day visits by either residents or visitors from outside the region, and the remaining 19% were classified as overnight visits (Table 2). The average visitor group size was 2.7 people.⁶ The average length of stay in the local region on overnight trips was 1.3 nights.

Table 2. Selected visit/trip characteristics by segment, 2011

	Segment		
	Day trip	Overnight	All visitors
Visitor segment share (park entries)	81%	19%	100%
Average visitor group size	2.7	2.6	2.7
Length of stay (days or nights)	1.0	1.3	1.3
Re-entry rate (park entries per trip)	1.0	1.1	1.0
Percent primary purpose trips	46%	31%	43%

Forty-three percent of visitor groups indicated that visiting the park was the primary reason for their trip to the area. Other stated reasons included traveling through, visiting other attractions in the area, visiting friends and relatives, and business.

The 26,219 recreation visits in 2011 were allocated to the two segments using the visit segment shares in Table 2. Because spending is reported for the stay in the area, recreation visits were converted to visitor group trips to the area by dividing recreation visits by the average number of times each visitor entered the park during their stay and the average visitor group size. The 26,219 recreation visits represented 9,326 visitor group trips (Table 3).

Table 3. Recreation visits and visitor group trips by segment, 2011

	Segment		
	Day trip	Overnight	All visitors
Recreation visits	21,316	4,903	26,219
Visitor group trips	7,537	1,789	9,326
Percent of visitor group trips	81%	19%	100%

⁶ Visitor group size reported herein is based on the number of people covered by expenditures reported in the VSP survey.

Visitor Spending

The VSP survey collected data about expenditures of visitor groups in the park and within the city of Fort Scott.⁷ Spending averages were computed on a visitor group trip basis for each segment. The average visitor group spent \$46 on the trip in the park and within the city of Fort Scott (Table 4). On a visitor group trip basis, average spending was \$27 for day trips and \$123 on overnight trips. Visitor groups spent about 85% of their total spending outside the park.

Table 4. Average spending by segment (dollars per visitor group per trip)

Expenditures	Segment		
	Day trip	Overnight	All visitors*
<u>Inside Park</u>			
<u>Souvenirs & other expenses</u>	<u>6.49</u>	<u>8.17</u>	<u>6.81</u>
Total Inside Park	6.49	8.17	6.81
<u>Outside Park</u>			
Motels	0.00	50.29	9.65
Camping fees	0.00	3.64	0.70
Restaurants & bars	8.13	23.73	11.12
Groceries & takeout food	0.93	3.77	1.47
Gas & oil	6.39	25.65	10.09
Local transportation	0.00	0.00	0.00
Admission & fees	0.54	1.56	0.74
<u>Souvenirs & other expenses</u>	<u>4.86</u>	<u>6.29</u>	<u>5.14</u>
Total Outside Park	20.86	114.91	38.90
Total Inside & Outside Park	27.34	123.08	45.71

*Weighted by percent visitor group trips.

The relative standard error at a 95% confidence level for the overall spending average was 19%. A 95% confidence interval for the overall visitor group spending average was therefore \$46 plus or minus \$9 or between \$37 and \$55.

⁷ Some expenditure categories in the VSP questionnaire were combined for reporting herein and MGM2 analysis. See Appendix B.

On a per night basis, visitor groups staying overnight spent \$96 in the local region (Table 5). The average reported per-night lodging expense for motels was \$39.

Table 5. Average spending per night for visitor groups on overnight trips (dollars per visitor group per night)

Expenditures	Overnight
Motels	39.41
Camping fees	2.85
Restaurants & bars	18.60
Groceries & takeout food	2.95
Gas & oil	20.10
Local transportation	0.00
Admission & fees	1.22
<u>Souvenirs & other expenses</u>	<u>11.33</u>
Total per visitor group per night	96.47

Total spending was estimated by multiplying the number of visitor group trips for each segment by the average spending per trip and summing across segments. Fort Scott NHS visitors spent a total of \$426,000 in the local region in 2011 (Table 6). Overnight visitors accounted for 52% of the total spending. Souvenirs and other expenses represented 26% of total spending and restaurant and bar expenses represented 24% (Figure 1).

Table 6. Total visitor spending by segment, 2011 (thousands of dollars)

Expenditures	Segment		
	Day trip	Overnight	All visitors
<u>Inside Park</u>			
<u>Souvenirs & other expenses</u>	<u>49</u>	<u>15</u>	<u>64</u>
Total Inside Park	49	15	64
<u>Outside Park</u>			
Motels	0	90	90
Camping fees	0	7	7
Restaurants & bars	61	42	104
Groceries & takeout food	7	7	14
Gas & oil	48	46	94
Local transportation	0	0	0
Admission & fees	4	3	7
<u>Souvenirs & other expenses</u>	<u>37</u>	<u>11</u>	<u>48</u>
Total Outside Park	157	206	363
Total Inside & Outside Park	206	220	426
Segment Percent of Total	48%	52%	100%

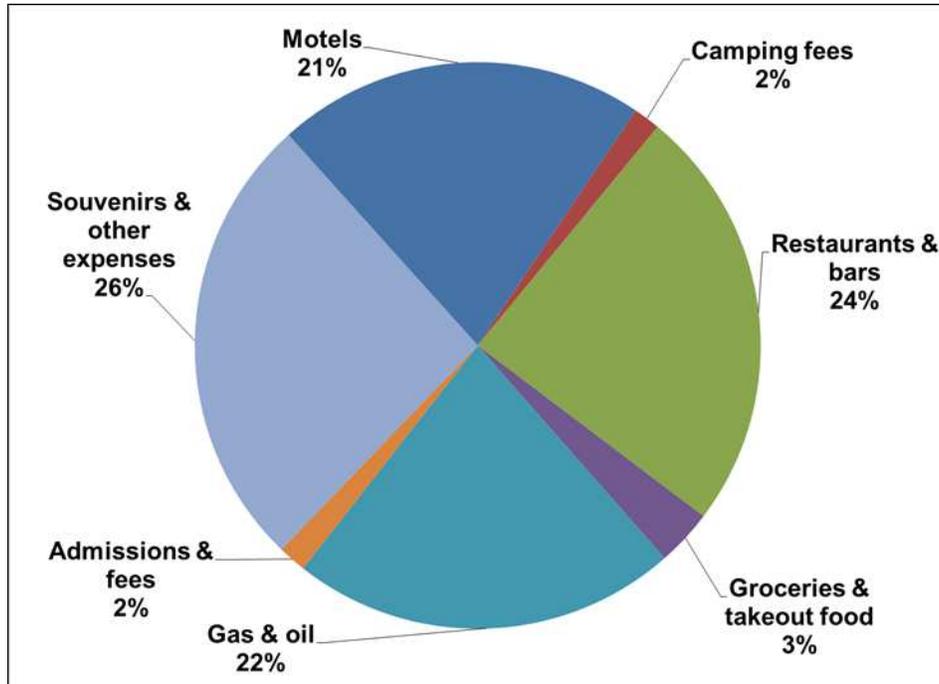


Figure 1. Fort Scott NHS visitor spending by category

Because visitors would come to the region whether or not the park existed, not all visitor spending could be attributed to the park. Fifty-seven percent of visitor groups did not make the trip primarily to visit Fort Scott NHS. Spending directly attributed to park visits was estimated by counting all spending on trips for which the park was the primary reason for the trip. If the park was not the primary trip purpose, one night of spending was counted for overnight trips and half of the spending in the region was counted for day trips. With these assumptions, a total of \$353,000 in visitor spending was attributed to park visits (Table 7). This represented 83% of the overall visitor spending total.

Table 7. Total spending attributed to park visits, 2011 (thousands of dollars)

Expenditures	Segment		All visitors
	Day trip	Overnight	
Motels	0	77	77
Camping fees	0	6	6
Restaurants & bars	45	36	81
Groceries & takeout food	5	6	11
Gas & oil	35	39	74
Local transportation	0	0	0
Admission & fees	3	2	5
<u>Souvenirs & other expenses</u>	<u>76</u>	<u>24</u>	<u>100</u>
Total Attributed to Park	163	190	353
Percent of Spending Attributed to the Park	74%	86%	83%
Percent of Attributed Spending	46%	54%	100%

Economic Impacts of Visitor Spending

The economic impacts of Fort Scott NHS visitor spending on the local economy were estimated by applying visitor spending to a set of economic ratios and multipliers in MGM2 representing the economy of the one-county region—Bourbon County, Kansas.⁸ Economic ratios and multipliers for the region were estimated using the *Impact Analysis for Planning (IMPLAN) Professional software* (version 3, MIG, Inc. 2008) with 2008 data.⁹ Multipliers were adjusted to 2011 based on structural changes in the national IMPLAN models between 2008 and 2009 and price changes between 2009 and 2011 (see Study Limitations and Errors section below).

Not all visitor spending was counted as direct sales to the region. The amount a visitor spends for a retail good is made up of the cost of the good from the producer, a markup by a wholesaler, and a markup by a retailer. In MGM2, retail and wholesale margins for grocery & takeout food, gas & oil, and souvenirs & other expenses were applied to visitor spending to account for mark-ups by retailers and wholesalers. The retail margins for the three sectors were 25.3%, 22.3%, and 50.0%, respectively, and the wholesale margins were 12.3%, 8.3%, and 11.4%. In addition, regional purchase coefficients from IMPLAN for all sectors were used to account for the proportion of demand within the region satisfied by imports into the region.

The tourism output sales multiplier for the region was 1.38. Every dollar of direct sales to visitors generated another \$0.38 in secondary sales through indirect and induced effects.¹⁰ (See Appendix A: Glossary for further explanation of terms.)

The economic impacts to the local region are presented in two ways: (1) based on all visitor spending and (2) based only on visitor spending attributable to the park. The first estimate—including all visitor spending—shows the overall contribution park visitors make to the local region. The second estimate—including only visitor spending attributable to the park—shows the impact or contribution the park makes to the economy of the local region.

Impacts of All Visitor Spending

Using all visitor spending and including direct and secondary effects, the \$426,000 spent by park visitors generated \$417,000 in sales, which supported 6.9 jobs in the local region (Table 8). These jobs paid \$148,000 in labor income, which was part of \$240,000 in value added to the region.¹¹

⁸ Economic ratios convert between various economic measures, e.g., direct spending to the directly associated jobs, labor income, and value added in each sector. Economic multipliers capture the secondary effects of economic measures.

⁹ See Appendix C: Economic Ratios and Multipliers for the region.

¹⁰ 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.

¹¹ Jobs include full and part time jobs. Labor income consists of wages and salaries, payroll benefits and income of sole proprietors. Value added includes labor income as well as profits and rents to area businesses and sales and excise taxes.

Table 8. Impacts of all visitor spending on the local economy, 2011

Sector/Expenditure category	Sales (thousands of dollars)	Jobs	Labor Income (thousands of dollars)	Value Added (thousands of dollars)
Direct Effects				
Motels	90	1.7	26	45
Camping fees	7	0.1	3	3
Restaurants & bars	104	2.0	35	51
Groceries & takeout food	3	0.1	2	3
Gas & oil	21	0.5	10	17
Local transportation	0	0.0	0	0
Admission & fees	7	0.2	2	3
Souvenirs & other expenses	56	1.2	28	46
Wholesale trade	16	0.2	6	10
<u>Local production of goods</u>	<u>0</u>	<u>0.0</u>	<u>0</u>	<u>0</u>
Total Direct Effects	303	5.8	113	179
<u>Secondary Effects</u>	<u>114</u>	<u>1.1</u>	<u>36</u>	<u>61</u>
Total Effects	417	6.9	148	240

Note: Impacts of \$426,000 in visitor spending reported in Table 6. Totals may not equal sum of individual categories due to rounding.

Value added is the preferred measure of the contribution of visitors 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 that accrue to government units. Value added impacts are also comparable to Gross Regional Product, the broadest measure of total economic activity in a region. The largest direct effects are in restaurants & bars and motels.

Impacts of Visitor Spending Attributed to the Park

Using only visitor spending attributable to the park by including only some spending on trips where the primary trip purpose was not to visit Fort Scott NHS reduced the overall impacts by about 17% (Table 9; see spending inclusion assumptions in previous section). Including direct and secondary effects, the \$353,000 spent by park visitors and attributable to the park generated \$346,000 in sales, which supported 5.8 jobs in the local region. These jobs paid \$123,000 in labor income, which was part of \$200,000 in value added to the region.

Table 9. Economic impacts of visitor spending attributed to the park, 2011

Sector/Expenditure category	Sales (thousands of dollars)	Jobs	Labor Income (thousands of dollars)	Value Added (thousands of dollars)
Direct Effects				
Motels	77	1.4	22	39
Camping fees	6	0.1	2	3
Restaurants & bars	81	1.6	28	39
Groceries & takeout food	3	0.1	1	2
Gas & oil	17	0.4	8	14
Local transportation	0	0.0	0	0
Admission & fees	5	0.1	1	2
Souvenirs & other expenses	50	1.1	25	41
Wholesale trade	14	0.1	5	9
<u>Local production of goods</u>	<u>0</u>	<u>0.0</u>	<u>0</u>	<u>0</u>
Total Direct Effects	251	4.8	94	149
<u>Secondary Effects</u>	<u>95</u>	<u>0.9</u>	<u>29</u>	<u>51</u>
Total Effects	346	5.8	123	200

Note: Impacts of \$353,000 in visitor spending attributed to park reported in Table 7. Totals may not equal sum of individual categories due to rounding.

Economic Impacts of the NPS Park Payroll

In addition to visitor spending, spending by park employees also impacts the local region. A separate study (Stynes 2011) estimated the impacts of park payroll by applying economic multipliers to wage and salary data to capture the induced effects of NPS employee spending on local economies. Fort Scott NHS itself employed 18 people in FY 2010 with a total payroll including benefits of \$1.1 million. Including secondary effects, the local impacts of the park payroll in FY 2010 were \$343,000 in sales, 21.3 jobs, \$1.162 million in labor income, and \$1.267 million value added (Stynes 2011).

Combined Economic Impacts

The combined impacts to the region of visitor spending attributable to the park and NPS payroll were \$689,000 in sales, which supported 27.1 jobs with labor income of \$1.285 million, which was part of a total value added of \$1.467 million.

Study Limitations and Errors

The accuracy of the MGM2 estimates rests on the accuracy of three inputs: visits, spending averages, and multipliers. Visits were taken from NPS Public Use Statistics (2011). Recreation visit estimates rely on counting procedures at the park, which may miss some visitors and count others more than once during their visit. Re-entry rates are important to adjust the park visit counts to reflect the number of visitor group trips to the region rather than park entries. Re-entry rates were estimated based on visitor responses to a VSP survey question about the number of days they visited the park. Visitors were assumed to make one park entry per day.

Spending averages were derived from the 2011 Fort Scott NHS VSP survey data (Manni et al. 2012). Estimates from the survey were subject to sampling errors, measurement errors, and potential seasonal biases. The overall spending average was subject to sampling error of 19%.

Spending averages are also sensitive to decisions about outliers and treatment of missing data. In order to estimate spending averages, incomplete spending data were filled with zeros. Visitor groups of more than 8 people (4 cases) or spending more than \$382 (the mean plus two times the standard deviation of the mean for spending, 10 cases) were omitted from the analysis. These are conservative assumptions about outliers and likely result in conservative estimates of economic impacts.

The sample only covers visitors during the end of July and beginning of August. To extrapolate to annual totals, it was assumed that this sample represented visitors throughout the year.

Multipliers were derived from an input-output model of the local economy using IMPLAN (MIG, Inc. 2008). The basic assumptions of input-output models are that sectors have homogeneous, fixed and linear production functions, that prices are constant, and that there are no supply constraints. The IMPLAN system uses national average production functions for each of 440 sectors based on the NAICS system (see Appendix B, Table B2). The most recent local IMPLAN dataset available for this analysis was 2008. National IMPLAN multiplier data were available for 2009, so local employment, labor income, and value added multipliers were updated to 2009 using 2008/2009 national ratios. In addition, local employment multipliers were updated to 2011 based on changes in consumer price indices.

Sorting out how much spending to attribute to the park when the park is not the primary reason for the trip is somewhat subjective. Because 57% of visitors to Fort Scott NHS did not make the trip primarily to visit the park and most spending occurs outside the park, adjustments for non-primary purpose trips have a significant effect on the overall spending and impact estimates.

Literature Cited

- BLS (U.S. Bureau of Labor Statistics). 2012. Local Area Unemployment Statistics. <http://www.bls.gov/lau/>. Data retrieved on July 13, 2012.
- Manni, M.F., S. Illum, L. Le, and S.J. Hollenhorst. 2012. Fort Scott National Historic Site Visitor Study: Summer 2011. Natural Resource Report NPS/NRSS/EQD/NRR—2012/540. National Park Service, Fort Collins, Colorado.
- MIG, Inc. 2008. IMPLAN Professional Version 3.0. Minnesota IMPLAN Group: Stillwater, MN.
- National Park Service Public Use Statistics Office. 2011. Visitation Database. <http://www2.nature.nps.gov/stats/>. Data retrieved on May 21, 2012.
- Stynes, D. J. 2011. Economic Benefits to Local Communities From National Park Visitation and Payroll, 2010. Natural Resource Report NPS/NRPC/SSD/NRR—2011/481. National Park Service, Fort Collins, Colorado.
- Stynes, D. J., D.B. Propst, W. Chang, and Y. Sun. 2007. NPS Money Generation Model – Version 2 (MGM2). <http://mgm2impact.com>. (with price indices updated thru 2011).
- USCB (U.S. Census Bureau). 2012. 2010 Decennial Census. <http://www.factfinder2.census.gov/>. Data retrieved on July 13, 2012.
- USCB (U.S. Census Bureau). 2010. 2005-2009 American Community Survey 5-Year Estimates. <http://www.factfinder2.census.gov/>. Data retrieved on July 13, 2012.

Appendix A: Glossary

Term	Definition
Direct effects	Changes in sales, income and jobs in those business or agencies that directly receive visitor spending.
Economic multiplier	Captures the size of secondary effects and are usually expressed as a ratio of total effects to direct effects.
Economic ratio	Converts various economic measures from one to another. For example, direct sales can be used to estimate direct effects on jobs, personal income, and value added by applying economic ratios. That is: <ul style="list-style-type: none"> • Direct jobs = direct sales * jobs to sales ratio • Direct personal income = direct sales * personal income to sales ratio • Direct value added = direct sales * value added to sales ratio.
Indirect effects	Changes in sales, income and jobs in industries that supply goods and services to the businesses that sell directly to visitors, i.e., businesses in the supply chain. For example, linen suppliers benefit from visitor spending at motels.
Induced effects	Changes in economic activity in the region resulting from household spending of income earned through a direct or indirect effect of 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. IMPLAN's Social Accounting Matrix (SAM) multipliers also include induced effects resulting from local/state/federal government spending.
Jobs	The number of jobs in the region supported by visitor spending. Job estimates are not full time equivalents, but include both fulltime and part-time positions.
Labor income	Wage and salary income, sole proprietor (business owner) income and employee payroll benefits.
Regional purchase coefficient (RPC)	The proportion of demand within a region supplied by producers within that region.
Retail margin	The markup to the price of a product when a product is sold through a retail trade activity. Retail margin is calculated as sales receipts minus the cost of goods sold.
Sales	Direct sales (retail goods and services) of firms within the region to park visitors.

Term	Definition
Secondary effects	Changes in the economic activity in the region that result from the re-circulation of money spent by visitors. Secondary effects include indirect and induced effects.
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.
Value added	Labor income plus property income (rents, dividends, royalties, interest) 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 motel includes wages and salaries paid to employees, their payroll benefits, profits of the motel, and sales, property, and other indirect business taxes. The motel's non-labor operating costs such as purchases of supplies and services from other firms are not included as value added by the motel.
Visitor group	A group of people traveling together to visit the park. Visitor group is the basic sampling unit for VSP surveys; each visitor group receives only one questionnaire.
Wholesale margin	The markup to the price of a product when a product is sold through wholesale trade. Wholesale margin is calculated as wholesale sales minus the cost of the goods sold.

Appendix B: Expenditure Sector Assignments

Table B1 shows expenditure categories visitors were asked to estimate in the Fort Scott NHS VSP questionnaire. Some expenditure categories were combined and renamed for MGM2 analysis.

Table B1. Expenditure categories in Fort Scott NHS questionnaire and MGM2 sector assignment

Questionnaire expenditure categories	Inside park	Outside park	MGM2 sector
Lodges, hotels, motels, cabins, B&Bs, etc.		X	Motels
Camping fees and charges		X	Camping fees
Guide fees and charges		X	Admissions & fees
Restaurants and bars		X	Restaurants & bars
Groceries and takeout food		X	Groceries & takeout food
Gas and oil (auto, RV, boat, etc.)		X	Gas & oil
Other transportation expenses (rental cars, taxis, auto repairs, but NOT airfare)		X	Local transportation
Admission, recreation, entertainment fees		X	Admissions & fees
All other purchases (souvenirs, film, books, sporting goods, clothing, etc.)	X	X	Souvenirs & other expenses
Donations	X	X	Souvenirs & other expenses

X = category included in questionnaire.

MGM2 sectors names correspond to similar sector names and numbers in IMPLAN (Table B2). IMPLAN sectors also correspond to 2007 North American Industry Classification System (NAICS) sectors.

Table B2. MGM2 sector correspondence to IMPLAN and 2007 NAICS sectors

MGM2 sector	IMPLAN		2007 NAICS
	No.	Name	
Motels	411	Hotels and motels, including casino hotels	72111-2
Camping fees	412	Other accommodations	72119, 7212-3
Restaurants & bars	413	Food services and drinking places	722
Groceries & takeout food	324	Retail - Food and beverage	445
Gas & oil	326	Retail - Gasoline stations	447
Local transportation	336	Transit and ground passenger transportation	485
Admissions & fees	410	Other amusement and recreation industries	71391-3, 71399
Souvenirs & other expenses	329	Retail - General merchandise	452
Local production of goods	317	All other miscellaneous manufacturing	339993, 339995, 339999
Wholesale trade	319	Wholesale trade	42

Source: IMPLAN (MIG, Inc. 2008).

Appendix C: Economic Ratios and Multipliers

Table C1. Economic ratios and multipliers for selected tourism-related sectors, Fort Scott NHS region, 2011

Sector	Direct effects			Total effects multipliers				
	Jobs/ \$MM sales	Income/ sales	Value added/ sales	Sales I	Sales SAM	Job II/ MM sales	Income II/ sales	Value added II/ sales
Motel, hotel, cabin or B&B	18.89	0.29	0.50	1.26	1.43	22.99	0.42	0.73
Camping fees	12.39	0.44	0.52	1.21	1.39	16.31	0.57	0.74
Restaurants & bars	19.22	0.34	0.49	1.19	1.36	22.71	0.45	0.68
Groceries & takeout food	23.13	0.51	0.82	1.17	1.37	26.74	0.62	1.02
Gas & oil	23.01	0.50	0.83	1.14	1.28	25.70	0.58	0.98
Local transportation	29.07	0.45	0.56	1.11	1.27	31.81	0.53	0.70
Admission & fees	22.35	0.26	0.40	1.30	1.40	25.89	0.38	0.61
Souvenirs & other expenses	21.67	0.51	0.83	1.16	1.36	25.18	0.62	1.02
Local production of goods	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wholesale trade	9.38	0.36	0.62	1.18	1.34	12.74	0.47	0.81

Source: IMPLAN (MIG, Inc. 2008), updated to 2011.

Explanation of table

Direct effects are economic ratios to convert sales in each sector to jobs, income and value added.

Jobs/\$MM sales is jobs per million dollars in sales.

Income/sales is the percentage of sales going to wages, salaries, and employee benefits.

Value added/sales is the percentage of sales that is value added (Value added covers all income, rents and profits and indirect business taxes).

Total effects are multipliers that capture the total effect relative to direct sales.

Sales I captures only direct and indirect sales.

Sales SAM is the SAM sales multiplier = (direct + indirect + induced sales) / direct sales.

Job II/ MM sales = total jobs (direct + indirect + induced) per \$ million in direct sales.

Income II /sales = total income (direct + indirect + induced) per \$ of direct sales.

Value added II/sales = total value added (direct + indirect + induced) per \$ of direct sales.

Using the motels sector row to illustrate

Direct Effects: Every million dollars in motel sales creates 18.9 jobs in motels. Fifty percent of motel sales are value added, including 29% that goes to wages and salaries of motel employees. That means 50% of motel sales go to purchase inputs by motels (e.g., linens, cleaning supplies). The wage and salary income creates the induced effects and the 50% spent on purchases by the motel starts the rounds of indirect effects.

Multiplier effects: There is an additional 26 cents of indirect sales in the region for every dollar of direct motel sales (type I sales multiplier = 1.26). Total secondary sales are 43 cents per dollar of direct sales, which means 26 cents in indirect effects and 17 cents in induced effects. An additional 4.1 jobs are created from secondary effects of each million dollars in motel sales (23.0

total jobs – 18.9 direct jobs per \$million). These jobs are distributed across other sectors of the local economy. Similarly, the secondary effects on income for each dollar of motel sales are 13% (42%-29%), and the secondary effects on value added for each dollar of motel sales are 23% (73%-50%). Including secondary effects, every million dollars of motel sales in the region yields \$1.43 million in sales, \$420,000 in income, and \$730,000 in value added.

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