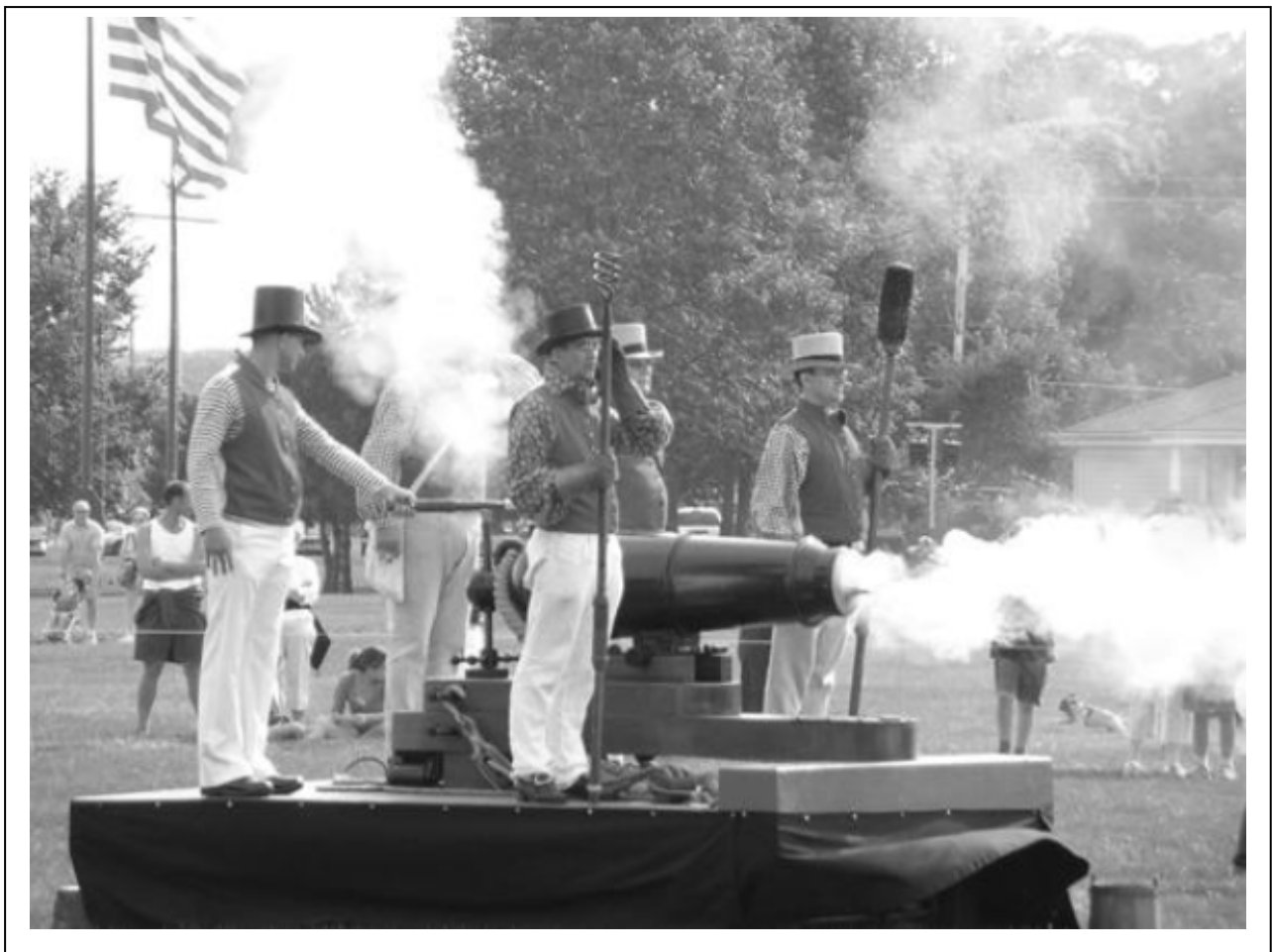




Impacts of Visitor Spending on the Local Economy: *Perry's Victory and International Peace Memorial, 2009*



ON THE COVER

Photo courtesy of Perry's Victory and International Peace Memorial

Impacts of Visitor Spending on the Local Economy: *Perry's Victory and International Peace Memorial, 2009*

Philip S. Cook

Visitor Services Project
Park Studies Unit
University of Idaho
Moscow, ID 83844-1139

February 2011

U.S. Department of the Interior
National Park Service
Natural Resource Stewardship and Science
Fort Collins, Colorado

The National Park Service, Natural Resource Stewardship and Science office in Fort Collins, Colorado publishes a range of reports that address natural resource topics of interest and applicability to a broad audience in the National Park Service and others in natural resource management, including scientists, conservation and environmental constituencies, and the public.

This manuscript received the appropriate level of peer review to ensure that the information is scientifically credible, technically accurate, appropriately written for the intended audience, and designed and published in a professional manner.

Data in this report were collected and analyzed using methods based on established, peer-reviewed protocols and were analyzed and interpreted within the guidelines of the protocols.

Views, statements, findings, conclusions, recommendations, and data in this report do not necessarily reflect views and policies of the National Park Service, U.S. Department of the Interior. Mention of trade names or commercial products does not constitute endorsement or recommendation for use by the U.S. Government.

This report is available from the Park Studies Unit, University of Idaho, Moscow (<http://www.psu.uidaho.edu/>).

Please cite this publication as:

Cook, P.S. 2011. Impacts of visitor spending on the local economy: Perry's Victory and International Peace Memorial, 2009. National Park Service, Fort Collins, Colorado.

Contents

	Page
Figures.....	iv
Tables.....	iv
Appendices.....	iv
Executive Summary.....	v
Acknowledgments.....	vi
Introduction.....	1
Methods.....	2
Results.....	3
Visits.....	3
Visitor Spending.....	4
Economic Impacts of Visitor Spending.....	7
Impacts of the NPS Park Payroll.....	9
Study Limitations and Errors.....	9
Literature Cited.....	10

Figures

	Page
Figure 1. Perry’s Victory and International Peace Memorial visitor spending by spending category.....	6

Tables

Table 1. Recreation visits, Perry’s Victory and International Peace Memorial, 2009.....	1
Table 2. Selected visit/trip characteristics by segment, 2009.....	3
Table 3. Recreation visits and visitor group trips by segment, 2009.....	4
Table 4. Average visitor spending by segment (\$ per visitor group per trip).....	4
Table 5. Average spending per night for visitor groups on overnight trips (\$ per visitor group per night).....	5
Table 6. Total visitor spending by segment, 2009 (\$000’s).....	5
Table 7. Total spending attributed to park visits, 2009 (\$000’s).....	6
Table 8. Impacts of all visitor spending on the local economy, 2009.....	8
Table 9. Economic impacts of visitor spending attributed to the park, 2009.....	8
Table B1. Economic ratios and multipliers for selected tourism-related sectors, Perry’s Victory and International Peace Memorial region, 2009.....	13
Table B2. MGM2 sector correspondense to IMPLAN and 2007 NAICS sectors.....	14

Appendices

Appendix A: Glossary.....	11
Appendix B: Economic Multipliers and IMPLAN Sectors.....	13

Executive Summary

Perry's Victory and International Peace Memorial hosted 154,457 recreation visits in 2009. After adjusting for visitor group size and re-entries into the park, there were 34,292 visitor group trips to the park in 2009. Based on a 2009 Visitor Services Project survey conducted June 24-30, 41% of these visitor group trips were day trips not including an overnight stay on South Bass Island or within 10 miles of Port Clinton.¹ Thirty-nine percent of the visitor group trips involved an overnight stay in motels, lodges or cabins outside the park, and 6% of visitor group trips were overnight stays in campgrounds outside the park.

Visitors reported expenditures of their group inside the park, on South Bass Island, and within 10 miles of Port Clinton. The average visitor group consisted of 4.2 people and spent \$338 in the park and the local region. On a visitor group trip basis, average spending in 2009 was \$167 for visitors on day trips, \$562 for visitors staying in motels or lodges outside the park, and \$445 for visitors camping outside the park. Overall 98% of spending took place outside the park.

Total visitor spending in 2009 in the local region was \$11.6 million including \$208,000 inside the park. The greatest proportions of expenditures were for lodging (31%) and restaurant meals and bar expenses (28%). Overnight visitors staying in motels or lodges outside the park accounted for 65% of the total spending, and day-trip visitors accounted for 20%.

Only 12% of visitor groups indicated the park visit was the primary reason for the trip to the area. Counting only a portion of visitor expenses if the park visit was not the primary trip purpose yields \$6.1 million 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 (IMPLAN) of the local economy. The local region was defined as a two-county region including Erie and Ottawa counties, Ohio. This region roughly coincides with South Bass Island and the 10 mile radius from Port Clinton for which spending was reported.

Including direct and secondary effects, the \$6.1 million in visitor spending attributed directly to the park supports 107 jobs in the area and generates \$7.7 million in output (sales revenues), \$2.3 million in labor income and \$4.0 million in value added.²

A separate study estimated impacts of the park employee payroll on the local economy.³ The park itself employed 20 people in FY 2009 with a total payroll including benefits of \$1.1 million. Including secondary effects, the local impact of the park payroll in FY 2009 was 25 jobs, \$1.3 million in labor income, and \$1.6 million total value added.

¹ Results in this study sometimes differ from those reported in the VSP survey report (Holmes and Hollenhorst 2010) because of the omission of cases considered to be outliers in the current analysis. See Study Limitations and Error 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).

Acknowledgments

The author thanks Dr. Dan Stynes, Professor Emeritus, Michigan State University, for his assistance with MGM2, and Margaret Littlejohn for her review of an early draft of this report.

Introduction

Perry's Victory and International Peace Memorial honors those who fought in the Battle of Lake Erie, during the War of 1812, and celebrates the long-lasting peace between Britain, Canada and the U.S. The Memorial, a Doric column, rises 352 feet over Lake Erie. The 25-acre site is located on South Bass Island in Lake Erie, near Port Clinton, Ohio, west of Cleveland. Perry's Victory and International Peace Memorial received 154,457 recreation visits in 2009 (Table 1).

Table 1. Recreation visits, Perry's Victory and International Peace Memorial, 2009

Month	Recreation Visits
January	147
February	122
March	316
April	1,512
May	13,601
June	22,964
July	50,485
August	41,193
September	21,176
October	2,393
November	343
<u>December</u>	<u>205</u>
Total	154,457

Source: NPS Public Use Statistics 2009.

The purpose of this study is to estimate the local economic impacts of visitors to Perry's Victory and International Peace Memorial in 2009. Economic impacts are 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.) The local economic region defined for this study includes Ottawa and Erie counties, Ohio.

This two-county region of Ohio has a population of 118,532 (USCB 2010), gross regional product of \$4.5 billion (MIG, Inc. 2008), median household income of \$48,777, and family poverty rate of 7.7% (USCB 2010). Food services and drinking places are the major employers in the region (MIG, Inc. 2008), and the region experienced a 12.2% unemployment rate in 2009 (BLS 2009).

Methods

The economic impact estimates are produced using the Money Generation Model 2 (MGM2) (Stynes et al. 2007). The three main 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 Perry's Victory and International Peace Memorial Visitor Services Project (VSP) survey (Holmes and Hollenhorst 2010), National Park Service Public Use Statistics (2009), 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 study was conducted at Perry's Victory and International Peace Memorial from June 24-30, 2009 (Holmes and Hollenhorst 2010).⁴ This study measured visitor demographics, activities, and travel expenditures. Questionnaires were distributed to a systematic, random sample of 503 visitor groups. Visitors returned 354 questionnaires resulting in a response rate of 70.4%.

Spending and economic impact estimates for Perry's Victory and International Peace Memorial are based on the 2009 VSP survey. Visitors were asked to report expenditures in two areas— (1) within the park and (2) on South Bass Island and within 10 miles of Port Clinton. The local region for determining economic impact was defined as a two-county area around the park including Erie and Ottawa counties in northern Ohio, which roughly coincides with the area for which visitor spending was reported.

The MGM2 model divides visitors into segments to help explain differences in spending across distinct user groups. Four segments were established for Perry's Victory and International Peace Memorial visitors based on reported trip characteristics and lodging expenditures:

Day trip: Day visitors from the local region and visitors from outside the local region not staying overnight within the local region.

Motel-out: Visitors reporting motel expenses outside the park within the local region.

Camp-out: Visitors reporting camping expenses outside the park within the local region.

Other overnight (Other OVN): Visitors staying overnight in the local region but not reporting any lodging expenses. This segment includes visitors staying in private homes, with friends or relatives, or in other unpaid lodging.⁵

⁴ Results in this study sometimes differ from those reported in the VSP survey report (Holmes and Hollenhorst 2010) because of the omission of cases considered to be outliers in the current analysis. See Study Limitations and Error section.

⁵ Visitors reporting multiple lodging types and expenditures were classified based on the greatest reported lodging expense. Some visitors listing motels or campgrounds as lodging types did not report any lodging expenses and were classified in the other overnight (Other OVN) category.

The VSP survey was 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.

Results

Visits

Based on the VSP survey, 43% of park entries were classified as day trip visits by either local residents or visitors from outside the region, and 57% were classified as overnight visits including an overnight stay in the local region (Table 2). The average visitor group size ranged from 3.5 to 4.9 people across the four segments with the average visitor group consisting of 4.2 people.⁶ The average length of stay in the local region on overnight trips was 2.4 nights.

Table 2. Selected visit/trip characteristics by segment, 2009

Characteristic	Day trip	Motel-out	Camp-out	Other OVN	All visitors
Visitor segment share (park entries)*	43%	33%	7%	16%	100%
Average visitor group size	4.5	3.5	4.3	4.9	4.2
Length of stay (days or nights)	1.0	2.1	3.5	2.5	2.4
Re-entry rate (park entries per trip)	1.1	1.1	1.2	1.1	1.1
Percent primary purpose trips	13%	10%	5%	18%	12%

*Percentages do not total 100% due to rounding.

Twelve percent of visitor groups indicated that visiting the park was the primary reason for the trip to the area. Other stated reasons were visiting friends and relatives in the area, vacationing in general, or visiting other area attractions.

The 154,457 recreation visits in 2009 were allocated to the four segments using the visit segment shares in Table 2. Since spending is reported for the stay in the area, park entries were converted to trips to the area by dividing by the average number of times each visitor entered the park during their stay. Park re-entry rates were estimated based on the number of entries into the park reported by survey respondents.

Recreation visits were converted to 6,451 visitor group trips by dividing recreation visits by the average visitor group size and park entry rate for each segment (Table 3). Total person trips in 2009 were 11,303.

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

Table 3. Recreation visits and visitor group trips by segment, 2009

Measure	Day trip	Motel-out	Camp-out	Other OVN	All visitors
Recreation visits	66,978	51,683	11,523	24,273	154,457
Visitor group trips	14,106	13,387	2,170	4,628	34,292
Percent of visitor group trips*	41%	39%	6%	13%	100%
Visitor group nights	14,106	28,097	7,486	11,383	61,072
Person trips	63,531	46,799	9,403	22,756	142,489

*Percentages do not total 100% due to rounding.

Visitor Spending

The visitor survey covered expenditures of the visitor group inside the park, and in the local region—South Bass Island and within 10 miles of Port Clinton. Spending averages were computed on a visitor group trip basis for each segment. The average visitor group in 2009 spent \$338 on the trip inside the park and in the local region (Table 4). On a visitor group trip basis, average spending was \$167 for day trips, \$562 for visitor groups staying in motels, cabins, lodges or B&B's outside the park, and \$445 for those camping outside the park. Visitor groups spent about 98% of their total spending outside the park.

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

	Day trip	Motel-out	Camp-out	Other OVN	All visitors*
<u>Inside Park</u>					
Admission & fees	3.13	3.59	2.91	.64	2.96
<u>Souvenirs & other expenses</u>	<u>3.90</u>	<u>3.01</u>	<u>3.49</u>	<u>.68</u>	<u>3.09</u>
Total Inside Park	7.03	6.60	6.40	1.32	6.05
<u>Outside Park</u>					
Motel, hotel, cabin or B&B	.00	243.15	.00	.00	94.92
Camping fees	.00	1.94	118.33	.00	8.24
Restaurants & bars	53.89	150.09	78.93	75.08	95.89
Groceries & takeout food	3.00	20.45	64.16	12.44	14.95
Gas & oil	6.40	20.16	48.10	13.09	15.32
Local transportation	3.24	4.89	4.09	2.64	3.86
Admission & fees	68.27	80.23	91.96	33.18	69.70
<u>Souvenirs & other expenses</u>	<u>25.04</u>	<u>34.83</u>	<u>33.11</u>	<u>25.89</u>	<u>29.49</u>
Total Outside Park	159.84	555.73	438.67	162.32	332.37
Total Inside & Outside Park	166.87	562.33	445.07	163.64	338.42

*Weighted by percent visitor group trips.

The relative standard error at a 95% confidence level for the overall spending average is 10%. A 95% confidence interval for the overall visitor group spending average is therefore \$338 plus or minus \$33 or between \$305 and \$371.

On a per night basis, visitor groups staying in motels or lodges outside the park spent \$268 in the local region, and campers spent \$129. The average reported per night lodging expense was \$116 for motels outside the park and \$34 for camping fees outside the park (Table 5).

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

	Motel-out	Camp-out	Other OVN
Motel, hotel, cabin or B&B	115.85	0.00	0.00
Camping fees	0.92	34.30	0.00
Restaurants & bars	71.51	22.88	30.53
Groceries & takeout food	9.74	18.60	5.06
Gas & oil	9.61	13.94	5.32
Local transportation	2.33	1.18	1.07
Admission & fees	39.94	27.50	13.75
<u>Souvenirs & other expenses</u>	<u>18.03</u>	<u>10.61</u>	<u>10.80</u>
Total per visitor group per night	267.93	129.01	66.53

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. Perry's Victory and International Peace Memorial visitors spent a total of \$11.6 million in the local region in 2009 (Table 6). Overnight visitors staying in motels outside the park account for 65% of the total spending, and day trips account for 20%. Lodging expenses represent 31% of the total spending, and restaurant and bar expenses represent 28% (Figure 1).

Table 6. Total visitor spending by segment, 2009 (\$000's).

	Day trip	Motel-out	Camp-out	Other OVN	All visitors
<u>Inside Park</u>					
Admission & fees	44	48	6	3	101
<u>Souvenirs & other expenses</u>	<u>55</u>	<u>40</u>	<u>8</u>	<u>3</u>	<u>106</u>
Total Inside Park	99	88	14	6	208
<u>Outside Park</u>					
Motel, hotel, cabin or B&B	0	3,255	0	0	3,255
Camping fees	0	26	257	0	283
Restaurants & bars	760	2,009	171	347	3,288
Groceries & takeout food	42	274	139	58	513
Gas & oil	90	270	104	61	525
Local transportation	46	65	9	12	132
Admission & fees	963	1,074	200	154	2,390
<u>Souvenirs & other expenses</u>	<u>353</u>	<u>466</u>	<u>72</u>	<u>120</u>	<u>1,011</u>
Total Outside Park	2,255	7,440	952	751	11,398
Total Inside & Outside Park	2,354	7,528	966	757	11,605
Segment Percent of Total	20%	65%	8%	7%	100%

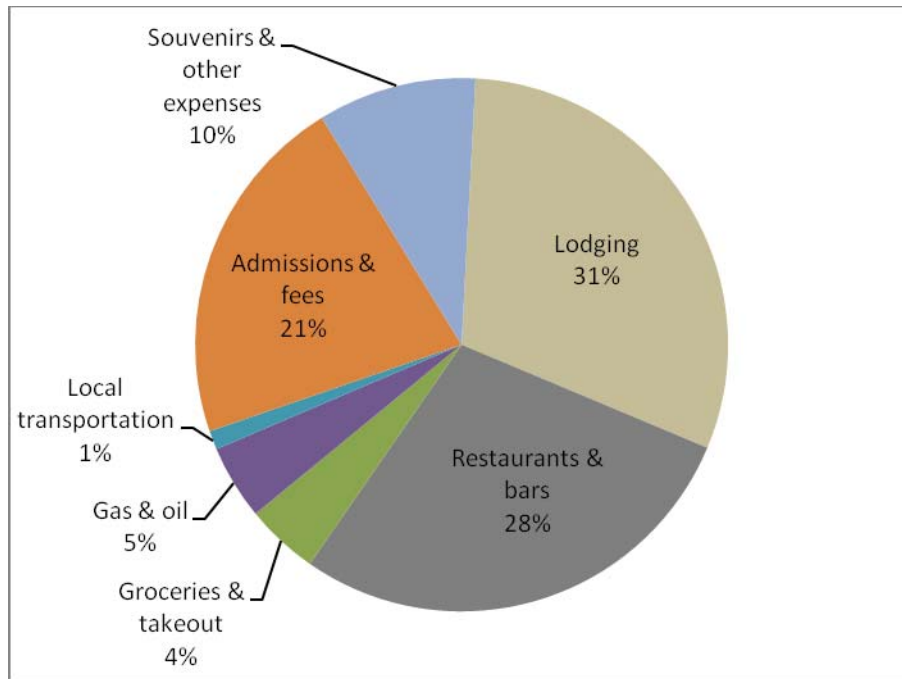


Figure 1. Perry's Victory and International Peace Memorial visitor spending by category.

Visitors would still come to the region even if the park did not exist, so not all visitor spending can be attributed to the park. Eighty-eight percent of visitor groups did not make the trip primarily to visit Perry's Victory and International Peace Memorial. Spending directly attributed to park visits was estimated by counting all spending for trips where 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 outside the park was counted for day trips. All spending inside the park was treated as park-related spending. With these assumptions, a total of \$6.1 million in visitor spending is attributed to the park visit (Table 7). This represents 53% of the overall visitor spending total.

Table 7. Total spending attributed to park visits, 2009 (\$000's).

	Day trip	Motel-out	Camp-out	Other OVN	All visitors
Motel, hotel, cabin or B&B	0	1,715	0	0	1,715
Camping fees	0	14	84	0	98
Restaurants & bars	428	1,059	56	179	1,722
Groceries & takeout food	24	144	46	30	243
Gas & oil	51	142	34	31	259
Local transportation	26	34	3	6	69
Admission & fees	586	614	72	82	1,354
<u>Souvenirs & other expenses</u>	<u>254</u>	<u>286</u>	<u>31</u>	<u>65</u>	<u>636</u>
Total Attributed to Park	1,369	4,009	325	394	6,096
Percent of Spending Attributed to the Park	58%	53%	34%	52%	53%
Percent of Attributed Spending*	22%	66%	5%	6%	100%

*Percentages do not total 100% due to rounding.

Economic Impacts of Visitor Spending

The economic impacts of Perry's Victory and International Peace Memorial visitor spending on the local economy are estimated by applying visitor spending to a set of economic ratios and multipliers in MGM2 representing the economy of the two county region.⁷ 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.⁸ Employment multipliers were adjusted to take into account price changes from 2008 to 2009 (see Study Limitations and Error section below).

Not all visitor spending is 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 are applied to visitor spending to account for mark-ups by retailers and wholesalers. The retail margins for the three sectors are 25.3%, 22.3%, and 50.0%, respectively, and the wholesale margins are 12.3%, 8.3%, and 11.4%. In addition, regional purchase coefficients from IMPLAN for all sectors are 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 is 1.41. Every dollar of direct sales to visitors generates another \$0.41 in secondary sales through indirect and induced effects.⁹ (See Appendix A: Glossary for further explanation of terms.)

Impacts are estimated based first on all visitor spending and then based on the visitor spending attributed to the park. Including all visitor spending estimates the overall contribution park visitors make to the local region. Including only visitor spending attributable to the park estimates the impact or contribution the park makes to the economy of the local region.

Using all visitor spending and including direct and secondary effects, the \$11.6 million spent by park visitors supports 203 jobs in the local region and generates \$14.6 million in sales, \$4.4 million in labor income and \$7.6 million in value added (Table 8).¹⁰

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 lodging establishments and restaurants.

⁷ 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.

⁸ See Appendix B: Economic Ratios and Multipliers for the region.

⁹ 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.

¹⁰ 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.

Using only visitor spending attributable to the park by including only some spending on trips where the primary trip purpose was not to visit Perry's Victory and International Peace Memorial reduces the overall impacts by about 47% (Table 9; see spending inclusion assumptions in previous section). Including direct and secondary effects, the \$6.1 million spent by park visitors and attributable to the park supports 107 jobs in the local region and generates \$7.7 million in sales, \$2.3 million in labor income and \$4.0 million in value added.

Table 8. Impacts of all visitor spending on the local economy, 2009.

Sector/Spending category	Sales (\$000's)	Jobs	Labor Income (\$000's)	Value Added (\$000's)
Direct Effects				
Motel, hotel, cabin or B&B	3,255	52	1,061	1,929
Camping fees	283	3	88	142
Restaurants & bars	3,288	62	1,077	1,612
Groceries & takeout food	130	2	54	83
Gas & oil	117	2	35	81
Local transportation	132	5	43	62
Admission & fees	2,492	21	502	885
Souvenirs & other expenses	559	11	239	356
Wholesale trade	130	2	39	90
<u>Local production of goods</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Direct Effects	10,386	160	3,139	5,240
<u>Secondary Effects</u>	<u>4,249</u>	<u>43</u>	<u>1,254</u>	<u>2,394</u>
Total Effects	14,636	203	4,392	7,635

Note: Impacts of \$11.6 million in visitor spending reported in Table 6.

Table 9. Economic impacts of visitor spending attributed to the park, 2009.

Sector/Spending category	Sales (\$000's)	Jobs	Labor Income (\$000's)	Value Added (\$000's)
Direct Effects				
Motel, hotel, cabin or B&B	1,715	28	559	1,017
Camping fees	98	1	30	49
Restaurants & bars	1,722	32	564	844
Groceries & takeout food	62	1	26	39
Gas & oil	58	1	17	40
Local transportation	69	3	23	33
Admission & fees	1,354	12	273	481
Souvenirs & other expenses	318	6	136	203
Wholesale trade	69	1	21	48
<u>Local production of goods</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Direct Effects	5,465	84	1,649	2,753
<u>Secondary Effects</u>	<u>2,236</u>	<u>22</u>	<u>659</u>	<u>1,260</u>
Total Effects	7,701	107	2,308	4,012

Note: Impacts of \$6.1 million in visitor spending attributed to park reported in Table 7.

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 impact of the park's National Park Service (NPS) payroll by applying economic multipliers to wage and salary data to capture the induced effects of NPS employee spending on the local economy. Perry's Victory and International Peace Memorial itself employed 20 people in FY 2009 with a total payroll including benefits of \$1.1 million. Including secondary effects, the local impact of the park payroll in FY 2009 was 25 jobs, \$1.3 million in labor income and \$1.6 million total value added (Stynes 2011).

Study Limitations and Errors

The accuracy of the MGM2 estimates rests on the accuracy of the three inputs: visits, spending averages, and multipliers. Visits are taken from NPS Public Use Statistics (2009). 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 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 times they entered the park.

Spending averages are derived from the 2009 Perry's Victory and International Peace Memorial VSP visitor survey (Holmes and Hollenhorst 2010). Estimates from the surveys are subject to sampling errors, measurement errors, and potential seasonal/sampling biases. The overall spending averages are subject to sampling errors of 10%.

Spending averages are also sensitive to decisions about outliers and treatment of missing data. In order to estimate spending averages, incomplete spending data was filled with zeros. Visitor groups of more than 8 people (8 cases), visiting the local region for more than 7 nights (5 cases), or spending greater than \$1,500 (the mean plus two times the standard deviation of the mean for spending, 15 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 June. To extrapolate to annual totals, it was assumed that this sample represented visitors throughout the year.

Multipliers are 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 datasets available for this analysis were 2008. It was therefore assumed that most multipliers have remained stable through 2009. Employment multipliers were adjusted to take into account price changes. Local job to sales ratios were adjusted from 2008 to 2009 based on the percentage changes in national job to sales ratios between 2008 and 2009 and then adjusted to 2009 based on consumer price indices.

Sorting out how much of the spending to attribute to the park when the park is not the primary motivation for the trip is somewhat subjective. Because 88% of visitors to Perry's Victory and International Peace Memorial 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). 2009. Local Area Unemployment Statistics. <http://www.bls.gov/lau/>. Data retrieved on January 11, 2011.

Holmes, N.C, and S.J. Hollenhorst. 2010. Perry's Victory and International Peace Memorial Visitor Study, Summer 2009. Visitor Services Project Report #212 Moscow, ID: National Park Service and University of Idaho, Cooperative Park Studies Unit.

MIG, Inc. 2008. IMPLAN Professional Version 3.0. Minnesota IMPLAN Group: Stillwater, MN.

National Park Service Public Use Statistics Office. 2009. Visitation Database. <http://www2.nature.nps.gov/stats/>. Data retrieved on July 21, 2010.

Stynes, D. J. 2011. Economic Benefits to Local Communities From National Park Visitation and Payroll, 2009. Natural Resource Report NPS/NRPC/SSD/NRR—2011/281. 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://web4.canr.msu.edu/mgm2/econ/MGM2Y07.xls> (with price indices updated thru 2009).

USCB (U.S. Census Bureau). 2010. 2005-2009 American Community Survey 5-Year Estimates. <http://www.factfinder.census.gov/>. Data retrieved on January 11, 2011.

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. I.e., 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 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 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 hotel includes wages and salaries paid to employees, their payroll benefits, profits of the hotel, and sales, property, 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.
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 survey.
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: Economic Multipliers and IMPLAN Sectors

Table B1. Economic ratios and multipliers for selected tourism-related sectors, Perry's Victory and International Peace Memorial region, 2009.

Sector	Direct effects			Total effects multipliers				
	Jobs/\$ MM sales	Income /sales	Value added/ sales	Sales I	Sales SAM	JobII/ MM sales	Income II/ sales	VA II/ sales
Motel, hotel, cabin or B&B	16.06	0.33	0.59	1.21	1.42	20.27	0.45	0.82
Camping fees	11.84	0.31	0.50	1.23	1.44	16.34	0.45	0.76
Restaurants & bars	18.83	0.33	0.49	1.19	1.39	22.70	0.44	0.71
Groceries & takeout food	17.02	0.42	0.64	1.17	1.42	21.22	0.54	0.88
Gas & oil	13.53	0.30	0.69	1.14	1.33	16.85	0.40	0.88
Local transportation	36.22	0.33	0.47	1.13	1.33	39.60	0.43	0.66
Admission & fees	8.51	0.20	0.36	1.28	1.43	13.14	0.32	0.60
Souvenirs & other expenses	19.58	0.43	0.64	1.17	1.42	23.87	0.55	0.88
Local production of goods	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wholesale trade	6.08	0.37	0.64	1.14	1.36	9.81	0.49	0.85

Source: IMPLAN (MIG, Inc. 2008).

Brief 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.

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

Using the hotel sector row to illustrate

Direct Effects: Every million dollars in hotel sales creates 16.1 jobs in hotels. Thirty-three percent of hotel sales goes to wages and salaries of hotel employees, and 59% of hotel sales is value added. That means 26% of hotel sales goes to purchase inputs by hotels. The wage and salary income creates the induced effects and the 26% spent on purchases by the hotel starts the rounds of indirect effects.

Multiplier effects: There is an additional 21 cents of indirect sales in the region for every dollar of direct hotel sales (type I sales multiplier = 1.21). Total secondary sales are 42 cents per dollar

of direct sales, which means 21 cents in indirect effects and 21 cents in induced effects. An additional 4.2 jobs are created from secondary effects of each million dollars in hotel sales (20.3 total jobs – 16.1 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 hotel sales are 12% (45%-33%), and the secondary effects on value added for each dollar of hotel sales are 23% (82%-59%). Including secondary effects, every million dollar of hotel sales in the region yields \$1.42 million in sales, \$450,000 in income, and \$820,000 in value added.

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

MGM sector	IMPLAN			2007 NAICS
	No.	Name		
Motel, hotel, cabin or B&B	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
Admission & 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).

The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

NPS 370/110073, February 2011

National Park Service
U.S. Department of the Interior



Natural Resource Stewardship and Science
1201 Oakridge Drive, Suite 150
Fort Collins, CO 80525

www.nature.nps.gov

EXPERIENCE YOUR AMERICA™