



Impacts of Visitor Spending on the Local Economy

Fort Monroe National Monument, 2014

Natural Resource Report NPS/NRSS/EQD/NRR—2015/XXX



ON THE COVER

Aerial view of Fort Monroe National Monument

Photograph courtesy of Fort Monroe National Monument

Impacts of Visitor Spending on the Local Economy

Fort Monroe National Monument, 2014

Natural Resource Report NPS/NRSS/EQD/NRR—2015/XXX

Philip S. Cook
Research Associate
Social and Economic Sciences Research Center
Wilson-Short Hall #133
Washington State University
Pullman, WA 99164

April 2015

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. These reports are 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.

The Natural Resource Report Series is used to disseminate high-priority, current natural resource management information with managerial application. The series targets a general, diverse audience, and may contain NPS policy considerations or address sensitive issues of management applicability.

All manuscripts in the series receive 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 Social Science Division (<http://www.nature.nps.gov/socialscience/index.cfm>) and the Natural Resource Publications Management website (<http://www.nature.nps.gov/publications/nrpm/>). To receive this report in a format optimized for screen readers, please email irma@nps.gov.

This report and other reports of survey conducted by the SESRC as well as archived surveys conducted by the Visitor Services Project (VSP) are available from the SESRC website (<http://psu.sesrc.wsu.edu/reports/>) or by contacting the SESRC main office at (509)-335-1511.

Please cite this publication as:

Cook, P. S. 2015. Impacts of visitor spending on the local economy: Fort Monroe National Monument, 2014. Natural Resource Report NPS/NRSS/EQD/NRR—2015/XXX. National Park Service, Fort Collins, Colorado.

Project Profile

Title: Fort Monroe National Monument – Economic Impacts of Visitor Spending

Objectives: Produce report of economic impacts of visitor spending on the local areas surrounding the park

Principal Investigator: Lena Le, Ph.D.

Study Manager: Matt Strawn.

Report preparer: Philip Cook

Methods: Mail back survey with onsite intercept

Timeframe: May 2014 –May 2015

NPS ATR: Bret Meldrum
Chief, Social Science Program
National Park Service
Bret_meldrum@nps.gov
970-267-7295

SESRC Acronym: FOMR14

SESRC Report Number: 15-011

Contents

Project Profile	iii
Contents	iv
Figures.....	v
Tables.....	v
Appendices.....	v
Executive Summary	vii
Introduction.....	1
Methods.....	3
Results.....	5
Visits	5
Visitor Spending	6
Economic Impacts of Visitor Spending	8
Impacts of All Visitor Spending	10
Impacts of Visitor Spending Attributed to the Park.....	10
Study Limitations and Errors	13
Literature Cited	15
Appendix A: Glossary.....	17
Appendix B: Expenditure Sector Assignments.....	19
Appendix C: Economic Ratios and Multipliers	21
Explanation of table.....	21
Using the Motels sector row to illustrate.....	21
Appendix D: Visitation Estimation.....	23

Figures

	Page
Figure 1. Fort Monroe NM visitor spending by category	7

Tables

	Page
Table 1. Recreation visits and overnight stays, Fort Monroe NM, 2014	1
Table 2. Selected visit/trip characteristics by segment, 2014	5
Table 3. Recreation visits and visitor group trips by segment, 2014	5
Table 4. Average spending by segment (dollars per visitor group per trip).....	6
Table 5. Total visitor spending by segment, 2014 (thousands of dollars)	7
Table 6. Total spending attributed to park visits, 2014 (thousands of dollars)	8
Table 7. Impacts of all visitor spending on the local economy, 2014.....	10
Table 8. Economic impacts of visitor spending attributed to the park, 2014.....	11

Appendices

	Page
Appendix A: Glossary.....	17
Appendix B: Expenditure Sector Assignments.....	19
Appendix C: Economic Ratios and Multipliers	21
Appendix D: Visitation Estimation.....	21

Executive Summary

Fort Monroe National Monument hosted 81,313 recreation visits in 2014. Adjustments for visitor group size and re-entries resulted in 23,937 visitor group trips to the park in 2014. Based on a 2014 visitor survey conducted June 6–September 30, 68% of these visitor group trips were made by local residents, and 18% were non-local visitor groups not staying overnight within 30 miles of the park.¹ Six percent of visitor group trips involved an overnight stay in a lodge, hotel, motel, cabin, B&B, etc. or in a campground in the local area. Eight percent of visitor group trips were overnight stays in non-paid lodging, such as private homes.

Visitors reported their group’s expenditures on the Old Point Comfort peninsula and within 30 miles of the park. Visitor groups spent an average of \$66 on their trips.

Total visitor spending in 2014 on the peninsula and within 30 miles of the park was \$1,575,000. The greatest proportion of expenditures was for restaurants & bars (35%). Overnight visitors staying in paid accommodations in the local area accounted for 40% of total spending.

Thirty-six percent of non-local visitor groups indicated the park visit was the primary reason for their trip to the area. Not counting local residents and counting only a portion of non-local visitor expenses if the park visit was not the primary reason for the trip yields \$607,000 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 the following cities and counties in Virginia: Hampton City, Newport News City, Virginia Beach City, York County, Norfolk City, and Portsmouth City. This region roughly coincides with the 30-mile radius around the park for which expenditures were reported.

Including direct and secondary effects, the \$607,000 in visitor spending attributed to the park generated \$691,000 in output in the region, which supported 8.9 jobs. These jobs paid \$252,000 in labor income, which was part of \$389,000 in value added to the region.²

Local Economic Impacts of Fort Monroe National Monument

	<u>Output</u>	<u>Jobs</u>	<u>Labor Income</u>	<u>Value Added</u>
Park Visitor Spending	\$691K	8.9	\$252K	\$389K

¹ Results in this study sometimes differ from those reported in the 2014 Fort Monroe visitor study report (Strawn et al. 2015) 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).

Introduction

Fort Monroe National Monument (NM) preserves the largest fully moated masonry and earthen fort in the United States and areas of Old Point Comfort peninsula around it. The fort served numerous important missions from the time its construction began in 1819 until it was decommissioned in 2011. The 325-acre park became a national monument in 2011, and is located in the City of Hampton, Virginia. Fort Monroe NM received 81,313 recreation visits in 2014 (Table 1).

Table 1. Recreation visits, Fort Monroe NM, 2014

Month	Recreation visits
January	2,738
February	3,396
March	5,386
April	7,173
May	10,994
June	13,281
July	10,075
August	8,040
September	8,794
October	4,088
November	5,663
<u>December</u>	<u>1,684</u>
Total	81,313

Source: Estimated by NPS staff at Fort Monroe NM. See Appendix D for details.

The purpose of this study is to estimate the annual, local economic impacts of visitors to Fort Monroe NM in 2014. Economic impacts were measured as the direct and secondary output, income, and jobs in the local region resulting from spending by park visitors. (See Appendix A: Glossary for definitions of terms.) Neither the economic impacts of the NPS park payroll or park operations and construction are estimated or reported herein.

The local economic region defined for this study included the following cities and counties in Virginia: Hampton City, Newport News City, Virginia Beach City, York County, Norfolk City, and Portsmouth City. This region had a population of 1.2 million (USCB 2014), gross regional product of \$68.0 billion (MIG, Inc. 2013), median household income of \$55,944, and family poverty rate of 19.6% (USCB 2014). The U.S. military was the major employer in the region (MIG, Inc. 2013), and the region experienced a 5.8% unemployment rate in 2014 (BLS 2014).

Methods

The economic impacts of Fort Monroe NM were estimated using three main inputs:

1. number of visits to the park broken down by lodging-based segments;
2. spending averages for each segment; and
3. economic multipliers for the local region.

Inputs were estimated from a Fort Monroe NM visitor survey (Strawn et al. 2015), visitation numbers estimated by NPS staff at the park (see Appendix D for details), and Impact Analysis for Planning (IMPLAN) input-output modeling software (MIG, Inc. 2013). Economic impact modelling combines park use, visitor spending, and regional multipliers to compute changes in output, labor income, jobs, and value added in the region.

The Fort Monroe NM visitor survey was conducted at the park from June 6–September 30, 2014.³ The survey measured visitor demographics, activities, and travel expenditures. Questionnaires were distributed to a systematic, random sample of 464 visitor groups. Visitors returned 206 questionnaires resulting in a response rate of 44.4%.

Spending and economic impact estimates for Fort Monroe NM are based in part on the 2014 visitor survey data. Visitors were asked to report expenditures on the Old Point Comfort peninsula and within 30 miles of the park. The local region for determining economic impact was defined as the following cities and counties in Virginia: Hampton City, Newport News City, Virginia Beach City, York County, Norfolk City, and Portsmouth City. This area roughly coincides with the 30-mile radius around the park for which visitors reported expenditures.

The economic impact model divides visitors into segments to help explain differences in spending across distinct user groups. Four segments were established for Fort Monroe NM visitors based on reported trip characteristics and lodging expenditures:

Local: Visitors who were residents of the local region, i.e., lived within 30 miles of the park.

Day trip: Visitors from outside the local region who did not stay overnight in the local region.

Paid overnight (Paid OVN): Visitors who reported camping fees or motel expenses in the local region.⁴

Non-paid overnight (Non-paid OVN): Non-local visitors who stayed overnight in the local region, but did not report any lodging expenses. This segment included visitors who stayed with friends or relatives or in other non-paid lodging.⁵

³ Results in this study sometimes differ from those reported in the visitor study report because of the omission of cases considered to be outliers in the current analysis. See Study Limitations and Errors section.

⁴ The visitor questionnaire asked about expenditures for “Lodge, hotel, motel, cabin, B&B, etc.” For convenience, these expenditures are referred to as “motel” in this report. Only 11 respondents reported motel expenditures and only 17 reported paying camping fees, neither of which was a large enough number of respondents to be a statistically valid segment. Therefore, they were combined into one “paid overnight” (Paid-OVN) segment.

⁵ Some visitors listing motels or campgrounds as lodging types did not report any lodging expenses and were classified in the non-paid overnight (Non-paid OVN) category.

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

Results

Visits

Based on the Fort Monroe NM visitor survey data, 58% of park entries were classified as day visits by local residents, 19% were day visits by people from outside the local region, 10% were overnight visits in paid lodging or campgrounds, and 13% were overnight visits in non-paid lodging (Table 2). Average visitor group size ranged from 2.7 to 4.8 people across the four segments of visitors.⁶ The average length of stay in the local region on overnight trips was 3.5 nights for visitor groups in paid overnight lodging and 4.2 nights for those in non-paid lodging. Thirty-six percent of non-local visitor groups indicated that visiting the park was the primary reason for their trip to the area.

Table 2. Selected visit/trip characteristics by segment, 2014

Characteristic	Segment			
	Local	Day trip	Paid OVN	Non-paid OVN
Visitor segment share (park entries)	58%	19%	10%	13%
Average visitor group size	2.7	3.3	3.4	4.8
Length of stay (days or nights)	1.0	1.0	3.5	4.2
Re-entry rate (park entries per trip)	1.1	1.1	1.5	1.1
Percent primary purpose trips	-	54%	40%	10%

The 81,313 recreation visits in 2014 were allocated to the four segments using the visitor segment shares in Table 2. Because spending was 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 81,313 recreation visits represented 23,937 visitor group trips (Table 3).

Table 3. Recreation visits and visitor group trips by segment, 2014

Measure	Segment				
	Local	Day trip	Paid OVN	Non-paid OVN	All visitors
Recreation visits	47,080	15,856	7,887	10,489	81,313
Visitor group trips	16,157	4,314	1,505	1,960	23,937
Percent of visitor group trips	67%	18%	6%	8%	100%

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

Visitor Spending

The Fort Monroe NM visitor survey collected data about expenditures of visitor groups on the Old Point Comfort peninsula and within 30 miles of the park.⁷ Spending averages were computed on a visitor group trip basis for each segment. The average visitor group spent \$66 on the trip (Table 4). On a visitor group trip basis, average spending was \$28 for locals and \$48 for visitors on day trips. Visitor groups staying in paid accommodations overnight spent an average of \$415 on their trips, while those in non-paid lodging spent an average of \$146 on their trips.

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

Expenditures	Segment				All visitors*
	Local	Day trip	Paid OVN	Non-paid OVN	
Motels	0.00	0.00	162.25	0.00	10.20
Camping fees	0.00	0.00	54.88	0.00	3.45
Restaurants & bars	14.33	18.90	78.02	60.42	22.93
Groceries & takeout food	3.59	11.18	31.49	35.56	9.33
Gas & oil	6.62	13.25	38.30	27.02	11.48
Admission & fees	2.47	1.69	29.13	9.27	4.56
Souvenirs & other expenses	1.21	3.08	20.91	13.98	3.83
Total	28.22	48.09	414.98	146.25	65.78

*Weighted by percent visitor group trips.

The relative standard error at a 95% confidence level for the overall spending average was 33%. A 95% confidence interval for the overall visitor group spending average was therefore \$66 plus or minus \$22 or between \$44 and \$88.

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 Monroe NM visitors spent a total of \$1.57 million in the local region in 2014 (Table 5). Visitors who stayed in paid overnight accommodations accounted for 40% of the total spending. Restaurant and bar expenses represented 35% of total spending (Figure 1).

⁷ Some expenditure categories in the visitor questionnaire were combined for reporting herein and economic impact analysis. See Appendix B.

Table 5. Total visitor spending by segment, 2014 (thousands of dollars)

Expenditures	Segment				All visitors
	Local	Day trip	Paid OVN	Non-paid OVN	
Motels	0	0	244	0	244
Camping fees	0	0	83	0	83
Restaurants & bars	232	82	117	118	549
Groceries & takeout food	58	48	47	70	223
Gas & oil	107	57	58	53	275
Admission & fees	40	7	44	18	109
<u>Souvenirs & other expenses</u>	<u>20</u>	<u>13</u>	<u>31</u>	<u>27</u>	<u>92</u>
Total	456	207	624	287	1,575
Segment Percent of Total	29%	13%	40%	18%	100%

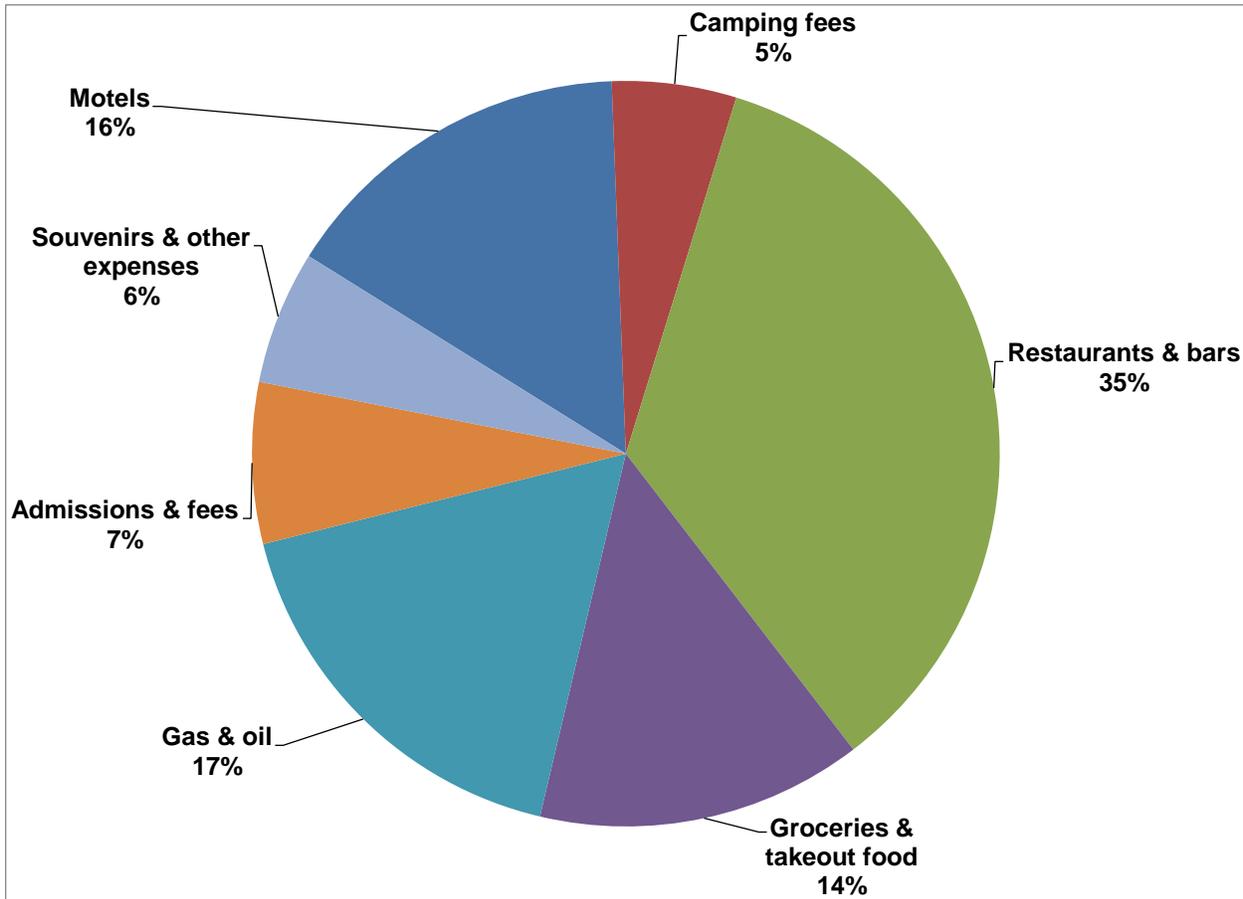


Figure 1. Fort Monroe NM visitor spending by category

Because visitors would have come to the region whether or not the park existed, not all visitor spending can be attributed to the park. Sixty-seven percent of trips were made by local residents; they would be in the region regardless of whether or not the park existed. In addition, sixty-four percent of non-local visitor groups did not make the trip to the region primarily to visit Fort Monroe NM; only a portion of these visitors' trip expenditures in the region can be attributed to the park.

Spending directly attributed to park visits was estimated by counting all spending on trips by non-locals 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 \$607,000 in visitor spending was attributed to the park visit (Table 6). This represented 39% of the overall visitor spending total.

Table 6. Total spending attributed to park visits, 2014 (thousands of dollars)

Expenditures	Segment			All visitors
	Day trip	Paid OVN	Non-paid OVN	
Motels	0	140	0	140
Camping fees	0	47	0	47
Restaurants & bars	63	67	37	167
Groceries & takeout food	37	27	22	86
Gas & oil	44	33	16	93
Admission & fees	6	25	6	36
<u>Souvenirs & other expenses</u>	<u>10</u>	<u>18</u>	<u>9</u>	<u>37</u>
Total Attributed to Park	159	358	89	607
Percent of Spending Attributed to the Park	77%	57%	31%	39%
Percent of Attributed Spending	26%	59%	15%	100%

Economic Impacts of Visitor Spending

The expenditures of visitors to Fort Monroe NM generate economic activity in the local economy. A local economy is a complex web of interacting consumers and producers in which goods produced by one sector of the economy become inputs to another sector, and goods produced by that sector can become inputs to yet other sectors (Thomas et al. 2014). A change in the final demand for a good or service can generate a ripple effect throughout an economy as businesses purchase inputs from one another.

Economic impacts are described by four metrics (Thomas et al. 2014):

- **Output** represents the value of industry production. It is the sum of all intermediate sales (business to business) and final demand (sales to consumers and exports).
- **Employment** represents the change in the number of jobs generated in a region resulting from a change in regional output. Employment is expressed on an annual basis including both full and part time jobs.

- **Labor income** includes employee wages and salaries, including the income of sole proprietors, and payroll benefits.
- **Value added** measures contribution to Gross Domestic Product (GDP). Value added is equal to the difference between the amount an industry sells a product for and the production cost of the product.

Economic impacts resulting from purchases of goods and services by park visitors directly from local businesses represent the *direct* effects on the economy. In order to provide goods and services to visitors, local businesses must purchase goods and services from suppliers, who also must purchase inputs from other industries. These purchases are the *indirect* effects of visitor spending. In addition, employees of businesses and input suppliers directly affected by visitor spending use their income to purchase goods and services in the local economy, generating *induced* effects. Together indirect and induced effects are called *secondary* effects. The total economic effect of visitor spending is equal to the sum of direct and secondary effects. Economic input-output models capture these complex interactions between producers and consumers in an economy and describe the secondary effects of visitor spending through regional economic multipliers.

The economic impacts of Fort Monroe NM visitor spending on the local economy were estimated by applying visitor spending to a set of economic ratios and multipliers representing the economy of the local region—Hampton City, Newport News City, Virginia Beach City, York County, Norfolk City, and Portsmouth City in Virginia.⁸ Economic ratios and multipliers for the region were estimated using IMPLAN (version 3.1, MIG, Inc. 2013) with 2013 data.⁹

Not all visitor spending counted as direct output 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. To account for mark-ups by retailers and wholesalers, retail and wholesale margins within IMPLAN were applied to visitor spending for the grocery & takeout food, gas & oil, and souvenirs & other expenses sectors. In addition, regional purchase coefficients within IMPLAN were used to account for the proportion of demand within the region satisfied by imports into the region.

The tourism output multiplier for the region was 1.62. Every dollar of direct output to visitors generated another \$0.62 in secondary output through indirect and induced effects.

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.

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.

Impacts of All Visitor Spending

Using all visitor spending and including direct and secondary effects, the \$1.57 million spent by park visitors generated \$1.76 million in output, which supported 23.9 jobs in the local region (Table 7). These jobs paid \$650,000 in labor income, which was part of \$977,000 in value added to the region.¹⁰

Table 7. Impacts of all visitor spending on the local economy, 2014

Sector/Expenditure category	Output (thousands of dollars)	Jobs	Labor Income (thousands of dollars)	Value Added (thousands of dollars)
Direct Effects				
Motels	244	2.8	75	141
Camping fees	80	1.1	36	51
Restaurants & bars	537	11.4	232	265
Groceries & takeout food	62	1.0	26	38
Gas & oil	29	0.4	13	18
Admission & fees	106	1.8	41	58
Souvenirs & other expenses	24	0.4	9	15
Total Direct Effects	1,083	19.0	432	586
Secondary Effects	675	4.9	218	391
Total Effects	1,758	23.9	650	977

Note: Impacts of \$1,575,000 in visitor spending reported in Table 5. 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 also are comparable to Gross Regional Product, the broadest measure of total economic activity in a region. The largest direct effects are in the restaurant & bars sector.

Impacts of Visitor Spending Attributed to the Park

Using only visitor spending attributable to the park by including only non-local visitors and only some spending on trips where the primary trip purpose was not to visit Fort Monroe NM reduced the overall impacts by about 61% (Table 8; see spending inclusion assumptions in previous section). Including direct and secondary effects, the \$607,000 spent by park visitors and attributable to the park generated \$691,000 in output, which supported 8.9 jobs in the local region. These jobs paid \$252,000 in labor income, which was part of \$389,000 in value added to the region.

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.

Table 8. Economic impacts of visitor spending attributed to the park, 2014

Sector/Expenditure category	Output (thousands of dollars)	Jobs	Labor Income (thousands of dollars)	Value Added (thousands of dollars)
Direct Effects				
Motels	140	1.6	43	81
Camping fees	35	0.6	14	19
Restaurants & bars	163	3.5	70	81
Groceries & takeout food	24	0.4	10	15
Gas & oil	10	0.2	4	6
Admission & fees	46	0.7	21	29
<u>Souvenirs & other expenses</u>	<u>10</u>	<u>0.1</u>	<u>4</u>	<u>6</u>
Total Direct Effects	428	7.0	166	237
<u>Secondary Effects</u>	<u>263</u>	<u>1.9</u>	<u>86</u>	<u>152</u>
Total Effects	691	8.9	252	389

Note: Impacts of \$607,000 in visitor spending attributed to park reported in Table 6. Totals may not equal sum of individual categories due to rounding.

Study Limitations and Errors

The accuracy of the economic impact estimates rests on the accuracy of three inputs: visits, spending averages, and multipliers. Visits to Fort Monroe NM were estimated by park staff (see Appendix D). Recreation visit estimates 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 visitor survey question about the number of times the visitor entered the park.

Spending averages were derived from the 2014 Fort Monroe NM visitor survey data (Strawn et al. 2015). Estimates from the survey are subject to sampling errors, measurement errors, and potential seasonal biases. The overall spending average is subject to a sampling error of 33%.

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 10 people (2 cases), spending more than 10 nights in the area (6 cases), or spending more than \$1,879 (the mean plus two times the standard deviation of the mean for spending, 3 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 from June through September. To extrapolate to annual totals, it was assumed that this sample represented visitors throughout the year.

Multipliers came from an input-output model of the local economy, IMPLAN (MIG, Inc. 2013). 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 536 sectors based on the NAICS system (see Appendix B, Table B2). The most recent local IMPLAN dataset available for this analysis was 2013.

Sorting out how much spending to attribute to the park when the park is not the primary reason for the trip to the region is somewhat subjective. Because 67% of visitors to Fort Monroe NM were from the local region and 64% of visitor groups did not make the trip primarily to visit the park, adjustments for trips by residents and non-primary purpose trips have a significant effect on the overall spending and impact estimates.

Literature Cited

BLS (U.S. Bureau of Labor Statistics). 2014. Local Area Unemployment Statistics. <http://www.bls.gov/lau/>. Data retrieved on March 17, 2015.

MIG, Inc. 2013. IMPLAN Professional Version 3.1. Minnesota IMPLAN Group: Stillwater, MN.

Strawn, M., C. Jette, and Y. Le, 2015. Fort Monroe National Monument Visitor Study: Summer 2014. Natural Resource Report NPS/NRSS/EQD/NRR—2015/XXX. National Park Service, Fort Collins, Colorado.

Thomas, C.C., C. Huber, and L. Koontz. 2014. 2012 National Park Visitor Spending Effects: Economic Contributions to Local Communities, States, and the Nation. Natural Resource Report NPS/NRSS/EQD/NRR—2014/765. National Park Service, Fort Collins, Colorado.

USCB (U.S. Census Bureau). 2014. 2009-2013 American Community Survey 5-Year Estimates. <http://www.factfinder2.census.gov/>. Data retrieved on March 17, 2015.

Appendix A: Glossary

Term	Definition
Direct effects	Changes in output, labor income, and jobs in businesses 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 output can be used to estimate direct effects on jobs, labor income, and value added by applying economic ratios. That is: <ul style="list-style-type: none">• Direct jobs = direct output * jobs to output ratio• Direct labor income = direct output * labor income to output ratio• Direct value added = direct output * value added to output ratio.
Indirect effects	Changes in output, labor 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 include induced effects resulting from local/state/federal government spending.
Intermediate inputs	Purchases of goods and services, such as energy, materials, and purchased services, that are used for the production of other goods and services rather than for final consumption.
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.

Term	Definition
Output	The value of industry production. Output is the sum of all intermediate sales (business to business) and final demand (sales to consumers and exports).
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.
Secondary effects	The sum of indirect and induced effects. Changes in economic activity in a region that result from the re-circulation of money spent by visitors.
Total effects	<ul style="list-style-type: none"> • Sum of direct, indirect and induced effects. • Direct effects accrue largely to tourism-related businesses in the area. • Indirect effects accrue to a broader set of businesses that serve these tourism businesses. • Induced effects are distributed widely across a variety of local businesses.
Value added	The difference between an industry's or an establishment's total output and the cost of its intermediate inputs. Value added is equal to the difference between the amount an industry sells a product for and the production cost of the product. Value added consists of compensation of employees, taxes on production and imports less subsidies, and gross operating surplus. Value added measures contribution to Gross Domestic Product (GDP).
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 Monroe NM visitor questionnaire. Some expenditure categories were combined and renamed for economic impact analysis.

Table B1. Expenditure categories in Fort Monroe NM questionnaire and economic impact model sector assignment

Questionnaire expenditure categories	On peninsula	Within 30 miles	Economic impact model sector
Lodge, hotel, motel, cabin, B&B, etc.		X	Motels
Camping fees and charges	X	X	Camping fees
Guide fees and charges	X	X	Admissions & fees
Restaurants and bars	X	X	Restaurants & bars
Groceries and takeout food	X	X	Groceries & takeout food
Gas and oil (auto, RV, boat, etc.)	X	X	Gas & oil
Other transportation expenses (rental cars, taxis, boat rental, auto repairs, but NOT airfare)	X	X	Local transportation*
Admission, recreation, entertainment fees	X	X	Admissions & fees
All other purchases (souvenirs, books, postcards, sporting goods, donations, etc.)	X	X	Souvenirs & other expenses

X = category included in questionnaire.

*No respondents to the Fort Monroe NM visitor survey identified "Local transportation" expenditures; therefore, this sector is not listed in tables throughout this report.

Economic sector names correspond to similar sector names and numbers in IMPLAN (Table B2). IMPLAN sectors also correspond to 2012 North American Industry Classification System (NAICS) sectors.

Table B2. Economic impact model sector correspondence to IMPLAN and 2012 NAICS sectors

Economic impact model sector	IMPLAN		
	No.	Name	2012 NAICS
Motels	499	Hotels and motels, including casino hotels	72111-2
Camping fees	500	Other accommodations	72119, 7212-3
Restaurants & bars	501	Full service restaurants	722511
Groceries & takeout food	400	Retail - Food and beverage stores	445
Gas & oil	402	Retail - Gasoline stores	447
Local transportation	412	Transit and ground passenger transportation	485
Admissions & fees	496	Other amusement and recreation industries	71391-3, 71399
Souvenirs & other expenses	405	Retail – General merchandise stores	453

Source: IMPLAN (MIG, Inc. 2013).

Appendix C: Economic Ratios and Multipliers

Table C1. Economic ratios and multipliers for selected tourism-related sectors, Fort Monroe NM region, 2014

Sector	Direct effects			Total effects				
	Jobs/ \$MM output	Income/ output	Value added/ output	Output I	Output SAM	Jobs/ \$MM output	Income/ output	Value added/ output
Motels	12.01	0.31	0.58	1.35	1.59	16.55	0.51	0.92
Camping fees	14.75	0.45	0.64	1.27	1.58	19.41	0.65	0.98
Restaurants & bars	21.78	0.43	0.50	1.34	1.64	26.41	0.64	0.87
Groceries & takeout food	16.46	0.41	0.62	1.32	1.61	20.91	0.60	0.98
Gas & oil	15.23	0.42	0.59	1.38	1.69	20.21	0.64	1.00
Admission & fees	17.04	0.39	0.55	1.36	1.63	21.78	0.59	0.93
Souvenirs & other expenses	29.35	0.53	0.59	1.38	1.75	34.82	0.76	1.04

Source: IMPLAN (MIG, Inc. 2013).

Explanation of table

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

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

Income/output is the proportion of output going to wages, salaries, and employee benefits.

Value added/output is the proportion of output that is value added.

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

Output I multiplier = (direct + indirect output) / direct output.

Output SAM multiplier = (direct + indirect + induced output) / direct output.

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

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

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

Using the Motels sector row to illustrate

Direct Effects: Every million dollars in Motels sector output (i.e., short-term lodging room rentals) creates 12.0 jobs in the Motels sector. Fifty-eight percent of Motels sector output is value added, including 31% that goes to wages and salaries of motel employees. That means 42% of Motels sector output goes to purchase inputs by motels (e.g., linens, cleaning supplies). The wage and salary income creates the induced effects, and the 42% of output spent on purchases by motels starts the rounds of indirect effects.

Multiplier effects: There is an additional 35 cents of indirect output in the region for every dollar of direct Motels sector output (type I output multiplier = 1.35). Total secondary output are 59

cents per dollar of direct output, which means 35 cents in indirect effects and 24 cents in induced effects. An additional 4.6 jobs are created from secondary effects of each million dollars in Motels sector output (16.6 total jobs – 12.0 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 Motels sector output are 20% (51%-31%), and the secondary effects on value added for each dollar of Motels sector output are 34% (92%-58%). Including secondary effects, every million dollars of Motels sector output in the region yields \$1.59 million in output, \$510,000 in income, and \$920,000 in value added.

Appendix D: Visitation Estimation

Because Fort Monroe NM is a new park, it had not adopted official visitor counting procedures that are recorded in NPS Visitor Use Statistics (<https://irma.nps.gov/Stats/>). Therefore, the park's and SESRC's staffs created a procedure for estimating visitation during 2014. The estimation process is as followed

- 1- The entire park area were divided into two sections for attendance tracking purpose (1) Casemate museum; and (2) beach-access area.
- 2- Casemate museum staff have been keeping records of museum attendance via direct observation. The number of attendance is tallied daily then entered into spreadsheet format to obtain the monthly and annually totals.
- 3- Beach-access area visitor is defined as anyone who use the beach front area from the marina to Paradise/Officer Club for recreation purpose (walking, running, exercising, beach going, swimming, bicycling, fishing, attending events, picnicking, etc.).
 - a. During the survey period (June 9th through the 15th, 2014) survey interviewers were asked to note number of visitors to a specific location along the beach front area as well as their visitation pattern in the park.
 - b. Based on the visitation pattern the beach-access area was then divided into two subsections with section (1) from the marina to Engineering Wharf/Outlook beach and section (2) encompasses the seawall to and Paradise/Officer Club area. Based on observational data for the month of July the Engineering Wharf/Outlook Beach area received on average 60 visitors on weekdays, 120 on Fridays, and 180 on Saturdays or Sunday. Paradise/Officer Club area received on average 80 visitors on weekdays, 170 on Fridays, and 300 on Saturdays or Sundays. The total estimate for July 2014 was 7,660 visitors for the beach-access area.
- 4- Seasonal multiplier: Using the month of July as a base, visitations of other month were then estimate as a proportion of July visitation. Casemate museum visitation statistics were first used to provide a baseline for the multiplier. Because there is no officially approved process of attendance tracking in place, we decided to follow a conservation approach and add in a seasonal modifier which reduce the visitation of cold weather month (October to March) by another 40%. For example October visitation to beach-access area was estimated as
$$\text{October visitation} = 7,660 \times (\text{Casemate museum \# October} / \text{casemate museum \# July}) \times 40\%$$
- 5- Total visitation: total visitation was then calculated as the sum of beach-access visits and Casemate museum visits as shown in Table 1.

SESRC Staff

All of the work conducted at the Social & Economic Sciences Research Center is the result of a cooperative effort made by a team of dedicated research professionals. The research in this report could not have been conducted without the efforts of interviewers and part-time personnel not listed.

Principal Investigators and Study Directors

Lena Le, Ph.D. Director
Rose Krebill-Prather, Ph. D..... Assistant Director
Don A. Dillman, Ph.D. Deputy Director for Research & Development
Danna L. Moore, Ph. D. Senior Research Fellow
Arina Gertseva, Ph.D..... Research Associate
Candiya Mann, M.A..... Research Associate, Vancouver
Kent Miller, M.A..... Study Director/Mail Survey Manager
Thom Allen, B.A. Study Director II/Special Programs Manager
Yi-Jen Wang, M.A. Study Director
Nancy Holmes Study Director

Administrative Support

Rita Koontz Department Administrative Manager
Jaime Colyar, B.A. Fiscal Specialist I
Lisa Brooks, B.A. Research Associate, Olympia

Data Collection and Interviewer Supervision

Tony Hernandez Research Survey Supervisor
Tim Lensing Research Survey Supervisor
Maria Carrillo Research Survey Supervisor
Alexandria Woods..... Survey Supervisor
Pat Slinkard Social Scientific Assistant

Data Management and Analysis

Dan Vakoch, M.S. Information Systems Coordinator
Matthew Strawn Information Systems Corrdinator
Nathan Palmer, M.S. Information Systems Coordinator/Data Analyst

Programming and Network Administration

Nikolay Ponomarev, Ph. D. Sr. Research Programmer/Database Architect

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.

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™