Virginia State Parks

Economic Impact Report

2016

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

Visitors attracted annually to Virginia State Parks trigger a large amount of economic activity throughout the state. A summary of key findings of this study are as follows:

- In 2016 visitors to Virginia's State Parks spent an estimated $224.7M throughout the state. Approximately 44% [$98.2M] of this spending was by out-of-state visitors.

- The total economic activity stimulated by Virginia State Parks during 2016 was between $292.2M and $301.2M.

- The total economic impact of Virginia State Parks during 2016 was between $219.8M and $259.1M. Economic impact is a measure of "fresh money" infused into the state's economy that likely would have not been generated in the absence of the park system.

- In 2016, for every $1 of general tax revenue provided to state parks, $13.61 on average was generated in fresh money that wouldn't be there if not for the operation of Virginia State Parks.

- Regarding employment, the economic activity stimulated by visitation to Virginia State Parks supported approximately 3,548 jobs in the state in 2016.

- In terms of wages and income, the economic activity spawned by Virginia State Parks was responsible for roughly $116.5M in wage and salary income in 2016.

- Economic activity created by Virginia State Parks was associated with approximately $176M in value-added effects which is a measure of the park system's contribution to the gross domestic product of the Commonwealth.

- Economic activity stimulated by Virginia State Parks generated approximately $19.6M in tax revenue for the State of Virginia during 2016. As such, $0.99 in taxes were generated for every dollar of tax money spent in the park system.

INTRODUCTION

This study estimates the economic activity and impacts that Virginia State Parks create in the Virginia State economy. Specific objectives include:

- Assessing the direct and secondary economic activity and impacts of Virginia State Parks on a state-wide level;
- Estimating the direct and secondary economic activity and impacts of each specific park;
- Identifying economic benefits derived from non-residents of Virginia;
- Estimating spending derived from both day-user and overnight-user groups; and
- Model the economic benefits derived from park operational spending and capital improvement projects.

Achieving the above objectives, the study details the distribution of travel and recreational impacts of Virginia State Parks among the six park districts. The secondary economic impact items referred to above include indirect effects such as job creation and revenues brought into travel-related businesses. Secondary effects also include induced outcomes such as the increased spending power of those working in tourism, recreation, and supporting industries. Measuring the combined direct and secondary impacts yields a 'value-added' estimate of Virginia State Parks to the State's economy.

To fulfill the above objectives, the next section of this report describes the research procedures employed in this study. Subsequently, the study results are presented. Like any research, this research is subject to limitations which are also included herein. The report ends with a brief conclusion section that summarizes key findings and also addresses some societal benefits provided by Virginia State Parks that cannot be included in econometric input-output modeling, but are worthy of discussion.

This report represents the second year's work of an ongoing agreement between Virginia Tech and the Virginia Department of Conservation and Recreation in which Virginia Tech will produce annual economic activity reports for Virginia State Parks. As will be explained later in this report, this agreement calls for the continuous refinement of each economic modeling

variable: reviewing and offering suggestions for refining park attendance counting practices; administering a visitor spending survey to better understand spending patterns by visitor segment; and, incorporation of most recent IMPLAN multipliers to model how money produces secondary economic effects in Virginia.

Lastly, it is prudent to note in this introduction section that a glossary of economic impact terminology is included in Appendix B of this report.

METHODS

DIRECT IMPACT MEASUREMENT

Economic activity of the state park system is created primarily from three sources: park visitor spending, the park's operational spending (to the degree that it is not derived from visitor spending, i.e. the tax derived portion of the park budget), and capital investment (again, to the degree that it is not derived from visitor spending). In terms of visitor spending profiles, customized spending profiles were developed for Virginia State Parks by collecting 3,802 completed spending surveys from park visitors during 2016. The spending profile survey was added as a supplemental section on the typical visitor satisfaction survey. The spending profiles that resulted from the analysis of the survey data and removal of data outliers are listed in Table 1. These spending profiles represent spending both inside and outside of the park, but within the state.[1] Park operational and capital spending amounts were provided by the DCR.

TABLE 1: AVERAGE VISITOR SPENDING: PROFILES BY SEGMENT (PER PARK DAY)

	DAY USER			OVERNIGHT USER			
Spending Category	**Local Day User**	**Non-Local Day User**	**Non-Resident Day User**	**Cabin Resident**	**Camping Resident**	**Cabin Non–Resident**	**Camping Non–Resident**
Hotels, motels, cabins and B&B	$3.62	$37.06	$78.12	$117.08	$5.89	$130.73	$10.98
Camping fees and Charges	$1.04	$7.04	$6.15	$3.28	$26.78	$18.08	$34.70
Restaurants and bars	$13.61	$48.80	$48.29	$22.92	$12.40	$39.48	$32.24
Groceries and convenience items	$14.64	$30.69	$20.14	$31.40	$26.01	$28.69	$19.35
Gas and Oil (auto, RV, boat, etc…)	$9.43	$31.13	$31.05	$16.12	$15.79	$13.13	$19.46
Other Transportation expenses	$1.27	$2.78	$9.35	$4.08	$2.74	$20.63	$7.34
Clothing	$2.55	$4.45	$6.38	$3.12	$2.01	$2.34	$2.53
Sporting goods	$3.98	$3.68	$6.82	$6.64	$28.40	$3.87	$7.54
Souvenirs and other expenditures	$15.70	$32.21	$52.06	$19.55	$11.34	$21.41	$15.97
OVERALL PER PARTY:	**$62.22**	**$197.84**	**$258.36**	**$224.19**	**$131.36**	**$278.36**	**$150.11**
OVERALL PER VISITOR:	**$15.75**	**$50.09**	**$65.40**	**$56.76**	**$33.26**	**$70.47**	**$38.00**

[1] Table 1 represents visitor spending and does not include park operational or capital improvement spending.

SECONDARY IMPACT MEASUREMENT

As well as measuring the direct effects of visitor spending, this study also calculated secondary effects which comprise economic activity from subsequent rounds of re-spending of visitor dollars. There are two types of secondary effects: indirect and induced. Indirect effects describe the changes in sales, income and jobs to businesses that supply goods and services to the park location (Stynes et al., 2000). Induced effects entail the changes in economic activity in the region stimulated by household spending of income earned through direct and indirect effects of visitor spending.

Secondary spending is calculated through the use of multipliers. Multipliers reflect the degree of interdependency between sectors in a region's economy and can vary substantially across regions and sectors (Stynes et al., 2000). As an illustration: if the multiplier for the hotel sector in a given region is 1.67 then it can be estimated that every dollar spent at a hotel results in 67 cents of secondary economic activity in the region. Economic multipliers for the State of Virginia are commercially available in an economic impact estimation software titled IMPLAN commercialized by MIG, Inc. Therefore, the most recent IMPLAN multipliers were purchased and used in this study to calculate secondary economic impacts. Used by more than 1,000 entities, IMPLAN is said to be the most widely adopted regional economic analysis software in the industry for calculating indirect and induced economic effects (Dougherty, 2011).

VISITATION MEASUREMENT

Park attendance counts for 2016 were provided to the researchers by the Virginia Department of Conservation and Recreation. The attendance counting practices used in Virginia are in concert with accepted guidelines in the U.S. recreational park industry (see for example: *America's Byways Resource Center 2010;* Bezies, et al., 2011). For instance, automated vehicle counting technology is utilized at most park entry points by multiplying vehicle counts times standard occupancy multipliers, with adjustments made for service vehicle traffic and park re-entry traffic. Overnight calculations are made by multiplying site occupancies by standard multipliers. The DCR and researchers for this project agreed that the long-used agency multipliers of 4.0 per day use vehicle, 4.5 per campsite-night, and 4.1 per cabin-night were likely high. Therefore, adjustments were made to the agency-provided attendance figures on the basis of reviewing a Stynes (2012) study and through consultation of the research team and the DCR: 3.4 per day use vehicle, 3.4 per campsite-night, and 3.62 per cabin-night. Further, in an effort to remain conservative, only 33% of non-paying day visitors were included in this study's input-output modeling. While the current approach might appear overly conservative, attendance estimation

will be continually refined in future years by direct observation and sampling of group size. In calendar year 2017, the research team and DCR officials will put a series of measures in place to refine attendance counting practices.

MEASURING ECONOMIC ACTIVITY VS. ECONOMIC IMPACT

True economic impact can only be calculated using the "fresh money" flowing into an area as opposed to including spending by the local residents of the area. Therefore, this current study offers results compartmentalized according to the following categories:

Economic activity – economic output modeling that includes all visitor spending and consequent multiplier effects by both locals and non-locals as well as any money spent by parks that was not supported by visitor spending. Consequently, economic activity figures represent all of the economic activity stimulated by a park location within the state.

- Unadjusted economic activity: economic activity output figures computed using statewide IMPLAN multipliers.

- Adjusted economic activity: calibrated economic activity output figures based upon whether a given park's county(ies) has economic activity above or below the state average.

Economic impact – economic output modeling that includes all visitor spending and consequent multiplier effects by 1) in-state residents traveling more than 50 miles one-way to visit the park; and 2) all out-of-state visitors. Economic impact modeling also includes any money spent by parks (operational and capital improvements) that was not supported by visitor spending. Although operational and capital improvement spending derive (in part) from tax monies, they demonstrate economic impact when infused into local areas where parks exist.

Thus, economic impact figures reflect all of the "fresh money" entering an economy as a result of a given state park.

- Unadjusted economic impact: economic impact output figures computed using statewide IMPLAN multipliers. Also, unadjusted figures do not deduct spending by visitors who report that the park was not their primary destination.

- Adjusted economic impact: calibrated economic impact output figures based upon whether a given park's county(ies) has economic activity above or below the state average. Adjusted economic impact figures are also reduced by 12% (Magnini and Uysal, 2015a) to account for spending by park visitors who would have traveled and spent money in the state regardless of whether the park existed.

RESULTS

This section of the report contains the results of the economic modeling. First, visitor spending findings are presented (see Table 2). Second, economic activity and economic impact are reported (see Table 3). Third, job-related results are detailed (see Table 4). Fourth, detailed park-by-park findings are listed (see Tables 5-10). Next, outcomes of capital investments are displayed (see Table 11). Lastly, the effects of park operational spending are reported (see Table 12). The glossary contained in Appendix B offers definitions of key terms used in this results section.

{TABLE 2 begins on next page}

TABLE 2: VISITOR SPENDING

PARK	DAY USER SPENDING	OVERNIGHT USER SPENDING	RESIDENT SPENDING	NON-RESIDENT SPENDING	TOTAL VISITOR SPENDING
DISTRICT 1					
Belle Isle	$647,046	$469,655	$646,345	$470,356	$1,116,701
Chippokes Plantation	$1,587,640	$810,862	$1,377,151	$1,021,351	$2,398,501
False Cape	$844,325	$156,229	$562,932	$437,623	$1,000,555
First Landing	$20,441,328	$3,962,884	$13,743,519	$10,660,692	$24,404,212
Kiptopeke	$5,342,744	$2,068,782	$4,223,456	$3,188,069	$7,411,525
York River	$2,643,906	$3,498	$1,464,502	$1,182,902	$2,647,404
TOTAL D1	**$31,506,989**	**$7,471,910**	**$22,017,905**	**$16,960,993**	**$38,978,898**
DISTRICT 2					
Caledon	$1,080,847	$11,592	$605,028	$487,411	$1,092,439
Lake Anna	$11,528,034	$1,220,389	$7,119,105	$5,629,319	$12,748,423
Leesylvania	$12,732,576	$0	$7,042,720	$5,689,856	$12,732,576
Mason Neck	$2,771,434	$0	$1,532,952	$1,238,482	$2,771,434
Westmoreland	$3,540,713	$2,495,063	$3,474,449	$2,561,326	$6,035,776
TOTAL D2	**$31,653,604**	**$3,727,044**	**$19,774,254**	**$15,606,394**	**$35,380,648**
DISTRICT 3					
Douthat	$2,365,929	$3,127,517	$3,211,612	$2,281,834	$5,493,446
James River	$1,594,872	$1,580,114	$1,848,117	$1,326,869	$3,174,986
Natural Bridge	$1,540,810	$0	$852,262	$688,548	$1,540,810
Shenandoah River	$4,456,963	$1,673,045	$3,489,273	$2,640,735	$6,130,007
Sky Meadows	$4,513,831	$188,572	$2,613,416	$2,088,986	$4,702,403
TOTAL D3	**$14,472,405**	**$6,569,248**	**$12,014,680**	**$9,026,972**	**$21,041,652**
DISTRICT 4					
Bear Creek Lake	$1,115,861	$2,279,013	$2,003,317	$1,391,557	$3,394,874
High Bridge Trail	$8,049,208	$0	$4,452,227	$3,596,981	$8,049,208
Holliday Lake	$1,010,622	$401,736	$807,380	$604,977	$1,412,357
Pocahontas	$20,572,808	$4,625,637	$14,191,936	$11,006,508	$25,198,444
Powhatan	$1,653,558	$56,181	$949,411	$760,327	$1,709,739
Sailor's Creek Battlefield	$511,377	$0	$282,856	$228,521	$511,377
Twin Lakes	$1,608,783	$636,516	$1,277,625	$967,674	$2,245,299
TOTAL D4	**$34,522,217**	**$7,999,083**	**$23,964,752**	**$18,556,545**	**$42,521,298**
DISTRICT 5					
Claytor Lake	$5,159,019	$2,470,403	$4,360,555	$3,268,867	$7,629,422
Fairy Stone	$2,973,969	$1,307,506	$2,436,637	$1,844,839	$4,281,476
Occoneechee	$3,083,991	$1,184,478	$2,426,753	$1,841,716	$4,268,469
Smith Mountain Lake	$8,069,995	$1,566,571	$5,418,262	$4,218,304	$9,636,566
Staunton River	$2,184,220	$921,054	$1,771,895	$1,333,379	$3,105,274
Staunton River Battlefield	$1,018,209	$0	$563,198	$455,011	$1,018,209
TOTAL D5	**$22,489,403**	**$7,450,012**	**$16,977,300**	**$12,962,116**	**$29,939,416**
DISTRICT 6					
Grayson Highlands	$4,319,990	$1,139,204	$3,094,752	$2,364,442	$5,459,194
Hungry Mother	$4,567,814	$2,480,182	$4,033,409	$3,014,586	$7,047,995
Natural Tunnel	$3,948,431	$722,874	$2,625,120	$2,046,185	$4,671,305
New River Trail	$32,884,229	$211,773	$18,320,218	$14,775,784	$33,096,002
Southwest VA Museum	$2,346,446	$14,150	$1,306,392	$1,054,203	$2,360,595
Wilderness Road	$4,195,425	$0	$2,320,599	$1,874,826	$4,195,425
TOTAL D6	**$52,262,335**	**$4,568,183**	**$31,700,490**	**$25,130,026**	**$56,830,516**
GRAND TOTAL:	**$186,906,953**	**$37,785,480**	**$126,449,381**	**$98,243,046**	**$224,692,428**

TABLE 3: ECONOMIC ACTIVITY AND IMPACT OF VIRGINIA STATE PARKS

PARK	ECONOMIC ACTIVITY ($) (UNADJUSTED) [a]	ECONOMIC ACTIVITY ($) (ADJUSTED) [b]	ECONOMIC IMPACT ($) (UNADJUSTED) [c]	ECONOMIC IMPACT ($) (ADJUSTED) [d]
DISTRICT 1				
Belle Isle	2.2M	2.1M	2.0M	1.7M
Chippokes Plantation	3.9M	3.7M	3.5M	3.3M
False Cape	2.2M	2.2M	2.0M	1.8M
First Landing	28.6M	28.6M	24.0M	21.1M
Kiptopeke	11.3M	10.2M	9.9M	7.8M
York River	4.1M	3.9M	3.6M	3.0M
TOTAL D1	**52.3M**	**50.7M**	**45.0M**	**38.7M**
DISTRICT 2				
Caledon	2.0M	2.0M	1.8M	1.6M
Lake Anna	16.0M	16.7M	13.6M	12.6M
Leesylvania	15.6M	16.4M	13.3M	12.3M
Mason Neck	4.3M	4.6M	3.8M	3.6M
Westmoreland	8.3M	7.9M	7.2M	6.0M
TOTAL D2	**46.2M**	**47.6M**	**39.7M**	**36.1M**
DISTRICT 3				
Douthat	7.4M	7.0M	6.4M	5.3M
James River	4.6M	4.4M	4.0M	3.3M
Seven Bends	60K	60K	60K	60K
Shenandoah River	8.1M	8.1M	6.9M	6.1M
Sky Meadows	6.4M	6.7M	5.5M	5.1M
TOTAL D3	**26.6M**	**26.3M**	**22.9M**	**19.9M**
DISTRICT 4				
Bear Creek Lake	4.7M	4.4M	4.0M	3.3M
High Bridge Trail	11.7M	11.1M	9.9M	8.3M
Holliday Lake	2.2M	2.1M	2.0M	1.6M
Pocahontas	30.3M	30.3M	25.6M	22.5M
Powhatan	7.1M	7.1M	6.8M	6.0M
Sailor's Creek Battlefield	1.2M	1.1M	1.1M	925K
Twin Lakes	3.9M	3.6M	3.5M	2.8M
TOTAL D4	**61.1M**	**59.7M**	**52.9M**	**45.4M**
DISTRICT 5				
Claytor Lake	9.4M	8.9M	7.9M	6.6M
Fairy Stone	5.5M	4.9M	4.7M	3.7M
Occoneechee	5.5M	4.9M	4.7M	3.7M
Smith Mountain Lake	11.4M	11.4M	9.7M	8.5M
Staunton River	4.4M	4.4M	3.8M	3.0M
Staunton River Battlefield	2.1M	1.8M	1.9M	1.5M
TOTAL D5	**38.3M**	**36.3M**	**32.7M**	**27M**
DISTRICT 6				
Grayson Highlands	6.8M	6.1M	5.7M	4.5M
Hungry Mother	9.8M	8.8M	8.4M	6.7M
Natural Tunnel	8.1M	7.3M	7.2M	5.7M
New River Trail	41.1M	40.0M	35.0M	27.8M
Southwest VA Museum	3.8M	3.6M	3.3M	2.8M
Widewater	794K	794K	794K	794K
Wilderness Road	6.3M	5.7M	5.5M	4.4M
TOTAL D6	**76.7M**	**72.3M**	**65.9M**	**52.7M**
GRAND TOTAL:	**301.2M**	**292.9M**	**259.1M**	**219.8M**

a. Effect of all activity attributed to parks.
b. Effects calibrated to the locality's economic activity compared to state average.
c. Does not include local resident effects.
d. Impacts calibrated to local economy and reduced by % not visiting as primary activity.

TABLE 4: JOBS ATTRIBUTED TO VIRGINIA STATE PARKS

PARK	DIRECT JOBS	INDIRECT JOBS	INDUCED JOBS	TOTAL JOBS	FTE JOBS[a]
DISTRICT 1					
Belle Isle	17.9	2.9	3.7	24.5	22.3
Chippokes Plantation	33.7	5.0	6.7	45.4	41.3
False Cape	17.4	3.0	3.7	24.1	21.9
First Landing	272.6	33.3	48.3	354.2	322.3
Kiptopeke	94.6	12.8	18.8	126.1	114.8
York River	35.3	5.2	6.9	47.3	43.0
TOTAL D1	**471.5**	**62.2**	**88.1**	**621.6**	**565.7**
DISTRICT 2					
Caledon	16.7	2.7	3.4	22.7	20.7
Lake Anna	145.5	18.3	26.6	190.4	173.3
Leesylvania	145.6	18.4	26.2	190.1	173.0
Mason Neck	37.6	5.5	7.3	50.5	46.0
Westmoreland	71.8	10.1	13.7	95.6	87.0
TOTAL D2	**417.2**	**55**	**77.2**	**549.3**	**499.9**
DISTRICT 3					
Douthat	64.7	9.0	12.3	86.1	78.4
James River	40.4	5.8	7.8	53.9	49.0
Seven Bends	0.3	0.0	0.1	0.4	0.4
Shenandoah River	73.6	9.8	13.7	97.1	88.4
Sky Meadows	57.9	7.8	10.8	76.4	69.5
TOTAL D3	**236.9**	**32.4**	**44.7**	**313.9**	**285.6**
DISTRICT 4					
Bear Creek Lake	40.2	5.7	7.7	53.6	48.8
High Bridge Trail	99.5	13.9	19.2	132.7	120.8
Holliday Lake	19.7	2.9	3.8	26.4	24.0
Pocahontas	280.6	35.4	50.5	366.6	333.6
Powhatan	43.7	7.0	11.6	62.3	56.7
Sailor's Creek Battlefield	9.4	1.7	2.0	13.1	11.9
Twin Lakes	32.0	4.8	6.6	43.3	39.4
TOTAL D4	**525.1**	**71.4**	**101.4**	**698**	**635.2**
DISTRICT 5					
Claytor Lake	85.8	10.9	15.6	112.4	102.3
Fairy Stone	48.7	6.5	9.0	64.3	58.5
Occoneechee	49.5	6.5	9.2	65.2	59.3
Smith Mountain Lake	107.0	13.3	19.1	139.5	126.9
Staunton River	38.9	5.4	7.3	51.6	47.0
Staunton River Battlefield	15.8	2.7	3.4	21.8	19.8
TOTAL D5	**345.7**	**45.3**	**63.6**	**454.8**	**413.9**
DISTRICT 6					
Grayson Highlands	64.2	8.0	11.6	83.8	76.3
Hungry Mother	86.3	12.0	16.4	114.7	104.4
Natural Tunnel	66.5	9.9	13.5	89.9	81.8
New River Trail	382	48.7	69.0	499.7	454.7
Southwest VA Museum	32.4	4.8	6.3	43.6	39.7
Widewater	3.6	0.6	1.3	5.5	5.0
Wilderness Road	55.1	7.9	10.6	73.6	67.0
TOTAL D6	**690.1**	**91.9**	**128.7**	**910.8**	**828.8**
GRAND TOTAL:	**2,686.5**	**358.2**	**503.7**	**3,548.4**	**3,229.0**

[a] Full-time equivalent (FTE) jobs are defined as total hours worked divided by average annual hours worked in full-time jobs.

EMPLOYMENT, LABOR INCOME, VALUE-ADDED, AND TAX REVENUES

Tables 5-10 add further detail to previously presented results by partitioning the direct, indirect, and induced effects of labor income and value-added figures for each park, as well as tax revenues generated.

TABLE 5: EMPLOYMENT, LABOR INCOME, VALUE-ADDED, TAX REVENUES: DISTRICT 1					
PARK	Impact Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
DISTRICT 1					
Belle Isle	Direct Effect	17.9	523K	631K	1.6M
	Indirect Effect	2.9	165K	309K	509K
	Induced Effect	3.7	170K	313K	532K
	Total Effect	24.5	859K	1.3M	2.2M
Total state and local taxes	$122K				
Chippokes Plantation	Direct Effect	33.7	946K	1.2M	2.1M
	Indirect Effect	5.0	289K	529K	877K
	Induced Effect	6.7	306K	562K	955K
	Total Effect	45.4	1.5M	2.3M	3.9M
Total state and local taxes	$234K				
False Cape	Direct Effect	17.4	515K	607K	1.1M
	Indirect Effect	3.0	167K	318K	521K
	Induced Effect	3.7	169K	311K	528K
	Total Effect	24.1	851K	1.2M	2.2M
Total state and local taxes	$115K				
First Landing	Direct Effect	272.6	7.0M	9.4M	15.9M
	Indirect Effect	33.3	2.0M	3.4M	5.8M
	Induced Effect	48.3	2.2M	4.1M	6.9M
	Total Effect	354.2	11.2M	16.9M	28.6M
Total state and local taxes	$2.0M				
Kiptopeke	Direct Effect	94.6	2.7M	3.6M	6.4M
	Indirect Effect	12.8	769K	1.3M	2.2M
	Induced Effect	18.8	860K	1.6M	2.7M
	Total Effect	126.1	4.3M	6.5M	11.3M
Total state and local taxes	$695K				
York River	Direct Effect	35.3	972K	1.2M	2.2M
	Indirect Effect	5.2	298K	544K	904K
	Induced Effect	6.9	314K	578K	982K
	Total Effect	47.3	1.6M	2.4M	4.1M
Total state and local taxes	$246K				

TABLE 6: EMPLOYMENT, LABOR INCOME, VALUE-ADDED, TAX REVENUES: DISTRICT 2					
PARK	Impact Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
DISTRICT 2					
Caledon	Direct Effect	16.7	476K	577K	1.1M
	Indirect Effect	2.7	150K	283K	466K
	Induced Effect	3.4	155K	285K	484K
	Total Effect	22.7	781K	1.1M	2.0M
Total state and local taxes	$112K				
Lake Anna	Direct Effect	145.5	3.8M	5.2M	8.9M
	Indirect Effect	18.3	1.1M	1.9M	3.2M
	Induced Effect	26.6	1.2M	2.2M	3.8M
	Total Effect	190.4	6.2M	9.4M	16.0M
Total state and local taxes	$1.1M				
Leesylvania	Direct Effect	145.6	3.8M	5.0M	8.6M
	Indirect Effect	18.4	1.1M	1.9M	3.2M
	Induced Effect	26.2	1.2M	2.2M	3.8M
	Total Effect	190.1	6.1M	9.2M	15.6M
Total state and local taxes	$1.0M				
Mason Neck	Direct Effect	37.6	1.0M	1.3M	2.3M
	Indirect Effect	5.5	319K	586K	971K
	Induced Effect	7.3	335K	616K	1.0M
	Total Effect	50.5	1.7M	2.5M	4.3M
Total state and local taxes	$260K				
Westmoreland	Direct Effect	71.8	2.0M	2.7M	4.6M
	Indirect Effect	10.1	594K	1.0M	1.7M
	Induced Effect	13.7	630K	1.2M	2.0M
	Total Effect	95.6	3.2M	4.9M	8.3M
Total state and local taxes	$550K				

TABLE 7: EMPLOYMENT, LABOR INCOME, VALUE-ADDED, TAX REVENUES: DISTRICT 3					
PARK	Impact Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
DISTRICT 3					
Douthat	Direct Effect	64.7	1.8M	2.4M	4.1M
	Indirect Effect	9.0	532K	921K	1.6M
	Induced Effect	12.3	567K	1.0M	1.8M
	Total Effect	86.1	2.9M	4.4M	7.4M
Total state and local taxes	$503K				
James River	Direct Effect	40.4	1.1M	1.4M	2.5M
	Indirect Effect	5.8	334K	597K	996K
	Induced Effect	7.8	356K	655K	1.1M
	Total Effect	53.9	1.8M	2.7M	4.6M
Total state and local taxes	$296K				
Seven Bends	Direct Effect	.3	14K	19K	37K
	Indirect Effect	0	3K	5K	10K
	Induced Effect	.1	4K	8K	14K
	Total Effect	.4	22K	32K	60K
Total state and local taxes	$2K				
Shenandoah River	Direct Effect	73.6	2.0M	2.6M	4.4M
	Indirect Effect	9.8	578K	1.0M	1.7M
	Induced Effect	13.7	626K	1.2M	2.0M
	Total Effect	97.1	3.2M	4.7M	8.1M
Total state and local taxes	$535K				
Sky Meadows	Direct Effect	57.9	1.5M	2.0M	3.5M
	Indirect Effect	7.8	458K	820K	1.4M
	Induced Effect	10.8	493K	907K	1.5M
	Total Effect	76.4	2.5M	3.7M	6.4M
Total state and local taxes	$408K				

TABLE 8: EMPLOYMENT, LABOR INCOME, VALUE-ADDED, TAX REVENUES: DISTRICT 4					
PARK	Impact Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
DISTRICT 4					
Bear Creek Lake	Direct Effect	40.2	1.1M	1.5M	2.6M
	Indirect Effect	5.7	335K	581K	978K
	Induced Effect	7.7	354K	651K	1.1M
	Total Effect	53.6	1.8M	2.7M	4.7M
Total state and local taxes	$317K				
High Bridge Trail	Direct Effect	99.5	2.7M	3.6M	6.5M
	Indirect Effect	13.9	841K	1.5M	2.5M
	Induced Effect	19.2	882K	1.6M	2.8M
	Total Effect	132.7	4.4M	6.7M	11.7M
Total state and local taxes	$718K				
Holliday Lake	Direct Effect	19.7	546K	670K	1.2M
	Indirect Effect	2.9	304K	304K	502K
	Induced Effect	3.8	323K	323K	549K
	Total Effect	26.4	1.3M	1.3M	2.2M
Total state and local taxes	$134K				
Pocahontas	Direct Effect	280.6	7.2M	9.9M	16.9M
	Indirect Effect	35.4	2.1M	3.7M	6.2M
	Induced Effect	50.5	2.3M	4.3M	7.2M
	Total Effect	366.6	11.7M	17.9M	30.3M
Total state and local taxes	$2.1M				
Powhatan	Direct Effect	43.7	1.7M	2.2M	4.2M
	Indirect Effect	7.0	440K	748K	1.3M
	Induced Effect	11.6	530K	974K	1.7M
	Total Effect	62.3	2.7M	3.9M	7.1M
Total state and local taxes	$309K				
Sailor's Creek Battlefield	Direct Effect	9.4	281K	326K	620K
	Indirect Effect	1.7	92K	178K	291K
	Induced Effect	2.0	93K	170K	289K
	Total Effect	13.1	466K	674K	1.2M
Total state and local taxes	$110K				
Twin Lakes	Direct Effect	32.0	937K	1.2M	2.2M
	Indirect Effect	4.8	280K	502K	842K
	Induced Effect	6.6	301K	553K	941K
	Total Effect	43.3	1.5M	2.3M	3.9M
Total state and local taxes	$230K				

TABLE 9: EMPLOYMENT, LABOR INCOME, VALUE-ADDED, TAX REVENUES: DISTRICT 5					
PARK	Impact Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
DISTRICT 5					
Claytor Lake	Direct Effect	85.8	2.2M	3.0M	5.2M
	Indirect Effect	10.9	652K	1.1M	1.9M
	Induced Effect	15.6	717K	1.3M	2.2M
	Total Effect	112.4	3.6M	5.5M	9.4M
Total state and local taxes	$647K				
Fairy Stone	Direct Effect	48.7	1.3M	1.8M	3.0M
	Indirect Effect	6.5	387K	670K	1.1M
	Induced Effect	9.0	415K	762K	1.3M
	Total Effect	64.3	2.1M	3.2M	5.5M
Total state and local taxes	$374K				
Occoneechee	Direct Effect	49.5	1.3M	1.8M	3.0M
	Indirect Effect	6.5	387K	674K	1.1M
	Induced Effect	9.2	420K	772K	1.3M
	Total Effect	65.2	2.1M	3.2M	5.5M
Total state and local taxes	$370K				
Smith Mountain Lake	Direct Effect	107.0	2.8M	3.8M	6.4M
	Indirect Effect	13.3	799K	1.4M	2.3M
	Induced Effect	19.1	878K	1.6M	2.7M
	Total Effect	139.5	4.4M	6.8M	11.4M
Total state and local taxes	$794K				
Staunton River	Direct Effect	38.9	1.0M	1.4M	2.4M
	Indirect Effect	5.4	314K	561K	937K
	Induced Effect	7.3	337K	619K	1.1M
	Total Effect	51.6	1.7M	2.5M	4.4M
Total state and local taxes	$280K				
Staunton River Battlefield	Direct Effect	15.8	472K	595K	1.1M
	Indirect Effect	2.7	151K	275K	459K
	Induced Effect	3.4	154K	283K	482K
	Total Effect	21.8	777K	1.2M	2.1M
Total state and local taxes	$110K				

TABLE 10: EMPLOYMENT, LABOR INCOME, VALUE-ADDED, TAX REVENUES: DISTRICT 6					
PARK	Impact Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
DISTRICT 6					
Grayson Highlands	Direct Effect	64.2	1.7M	2.2M	3.7M
	Indirect Effect	8.0	476K	837K	1.4M
	Induced Effect	11.6	531K	976K	1.7M
	Total Effect	83.8	2.7M	4.0M	6.8M
Total state and local taxes	$455K				
Hungry Mother	Direct Effect	86.3	2.3M	3.1M	5.4M
	Indirect Effect	12.0	704K	1.2M	2.1M
	Induced Effect	16.4	751K	1.4M	2.3M
	Total Effect	114.7	3.8M	5.7M	9.8M
Total state and local taxes	$639K				
Natural Tunnel	Direct Effect	66.5	1.9M	2.5M	4.4M
	Indirect Effect	9.9	576K	1.0M	1.7M
	Induced Effect	13.5	621K	1.1M	1.9M
	Total Effect	89.9	3.1M	4.7M	8.1M
Total state and local taxes	$470K				
New River Trail	Direct Effect	382.0	9.9M	13.2M	22.7M
	Indirect Effect	48.7	2.9M	5.1M	8.5M
	Induced Effect	69.0	3.2M	5.8M	9.9M
	Total Effect	499.7	15.9M	24.1M	41.1M
Total state and local taxes	$2.7M				
Southwest VA Museum	Direct Effect	32.4	896K	1.1M	2.0M
	Indirect Effect	4.8	277K	510K	845K
	Induced Effect	6.3	290K	534K	908K
	Total Effect	43.6	1.5M	2.2M	3.8M
Total state and local taxes	$224K				
Widewater	Direct Effect	3.6	189K	255K	488K
	Indirect Effect	.6	43K	69K	127K
	Induced Effect	1.3	58K	106K	180K
	Total Effect	5.5	290K	429K	794K
Total state and local taxes	$27K				
Wilderness Road	Direct Effect	55.1	1.5M	1.9M	3.4M
	Indirect Effect	7.9	458K	835K	1.4M
	Induced Effect	10.6	485K	891K	1.5M
	Total Effect	73.6	2.4M	3.6M	6.2M
Total state and local taxes	$384K				

ECONOMIC IMPACTS OF CAPITAL IMPROVEMENT SPENDING

This section details the effects of capital improvement spending during 2016. These capital improvement expenditures were already included in the economic activity and economic impact models reported earlier in this report, but are broken-out separately in this section to demonstrate how such expenditures infuse money into the economies of parks' host communities.

TABLE 11A: CAPITAL CONSTRUCTION: BELLE ISLE [SPENT: $43K]

Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	.3	14K	20K	43K
Indirect Effect	.1	5K	9K	15K
Induced Effect	.1	5K	9K	15K
Total Effect	.5	24K	38K	73K

Total state and local taxes: $2K

TABLE 11B: CAPITAL CONSTRUCTION: CHIPPOKES PLANTATION [SPENT: $66K]

Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	.4	22K	31K	66K
Indirect Effect	.2	8K	13K	24K
Induced Effect	.2	7K	14K	23K
Total Effect	.8	37K	58K	113K

Total state and local taxes: $4K

TABLE 11C: CAPITAL CONSTRUCTION: CLAYTOR [SPENT: $109K]

Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	.8	42K	57K	109K
Indirect Effect	.1	10K	15K	28K
Induced Effect	.3	13K	24K	40K
Total Effect	1.2	65K	96K	177K

Total state and local taxes: $6K

TABLE 11D: CAPITAL CONSTRUCTION: DOUTHAT [SPENT: $42K]

Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	.3	14K	19K	42K
Indirect Effect	.1	5K	8K	15K
Induced Effect	.1	5K	9K	15K
Total Effect	.5	24K	36K	72K

Total state and local taxes: $2K

TABLE 11E: CAPITAL CONSTRUCTION: FALSE CAPE [SPENT: $11K]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	.1	4K	5K	11K
Indirect Effect	0	1K	2K	4K
Induced Effect	0	1K	2K	4K
Total Effect	.1	6K	9K	19K

Total state and local taxes: $605

TABLE 11F: CAPITAL CONSTRUCTION: GRAYSON HIGHLANDS [SPENT:45K]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	.3	17K	23K	45K
Indirect Effect	.1	4K	6K	12K
Induced Effect	.1	5K	10K	16K
Total Effect	.5	26K	39K	73K

Total state and local taxes: $2K

TABLE 11G: CAPITAL CONSTRUCTION: HIGH BRIDGE [SPENT: $833K]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	4.7	251K	344K	834K
Indirect Effect	1.6	111K	179K	322K
Induced Effect	1.9	89K	164K	279K
Total Effect	8.2	451K	687K	1.4M

Total state and local taxes: $41K

TABLE 11H: CAPITAL CONSTRUCTION: KIPTOPEKE [SPENT: $1.3M]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	9.6	500K	677K	1.3M
Indirect Effect	2.0	129K	205K	375K
Induced Effect	3.4	155K	285K	485K
Total Effect	15.0	784K	1.2M	2.2M

Total state and local taxes: $72K

TABLE 11I: CAPITAL CONSTRUCTION: LAKE ANNA [SPENT: $541K]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	4.0	208K	281K	541K
Indirect Effect	.7	49K	78K	144K
Induced Effect	1.4	64K	117K	199K
Total Effect	6.1	321K	476K	884K

Total state and local taxes: $29K

TABLE 11J: CAPITAL CONSTRUCTION: LEESYLVANIA [SPENT: $43K]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	.3	14K	20K	$43K
Indirect Effect	.1	5K	9K	$15K
Induced Effect	.1	5K	9K	$15K
Total Effect	.5	24K	38K	$73K

Total state and local taxes: $2K

TABLE 11K: CAPITAL CONSTRUCTION: NATURAL TUNNEL [SPENT: $556K]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	4.2	216K	290K	556K
Indirect Effect	.7	49K	78K	145K
Induced Effect	1.4	66K	121K	205K
Total Effect	6.3	331K	489K	906K

Total state and local taxes: $30K

TABLE 11L: CAPITAL CONSTRUCTION: NEW RIVER TRAIL[SPENT: $13K]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	.1	4K	6K	13K
Indirect Effect	0	2K	3K	5K
Induced Effect	0	2K	3K	5K
Total Effect	.1	8K	12K	23K

Total state and local taxes: $725

TABLE 11M: CAPITAL CONSTRUCTION: OCCONEECHEE [SPENT: $46K]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	.3	18K	24K	46K
Indirect Effect	.1	4K	6K	12K
Induced Effect	.1	5K	10K	17K
Total Effect	.5	27K	40K	75K

Total state and local taxes: $2K

TABLE 11N: CAPITAL CONSTRUCTION: POCAHONTAS [SPENT: $75K]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	.2	9K	13K	27K
Indirect Effect	.1	3K	5K	10K
Induced Effect	.1	3K	6K	9K
Total Effect	.4	15K	24K	46K

Total state and local taxes: $1K

TABLE 11O: CAPITAL CONSTRUCTION: POWHATAN [SPENT: $2.7M]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	20.3	1.1M	1.4M	2.7M
Indirect Effect	3.5	241K	382K	706K
Induced Effect	7.0	320K	589K	1.0M
Total Effect	30.8	1.6M	2.4M	4.4M

Total state and local taxes: $148K

TABLE 11P: CAPITAL CONSTRUCTION: SEVEN BENDS [SPENT: $37K]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	.3	14K	19K	37K
Indirect Effect	0	3K	5K	10K
Induced Effect	.1	4K	8K	14K
Total Effect	.4	22K	32K	60K

Total state and local taxes: $2K

TABLE 11Q: CAPITAL CONSTRUCTION: STAUNTON RIVER BATTLEFIELD [SPENT: $204K]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	1.3	67K	94K	204K
Indirect Effect	.5	25K	41K	72K
Induced Effect	.5	23K	42K	71K
Total Effect	2.3	115K	177K	347K

Total state and local taxes: $11K

TABLE 11R: CAPITAL CONSTRUCTION: TWIN LAKES [SPENT: $289K]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	2.2	112K	151K	289K
Indirect Effect	.4	26K	41K	76K
Induced Effect	.7	34K	63K	106K
Total Effect	3.3	172K	255K	471K

Total state and local taxes: $16K

TABLE 11S: CAPITAL CONSTRUCTION: WESTMORELAND [SPENT: $172K]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	1.1	57K	79K	172K
Indirect Effect	.4	21K	34K	61K
Induced Effect	.4	19K	35K	60K
Total Effect	1.9	97K	148K	293K

Total state and local taxes: $9K

TABLE 11S: CAPITAL CONSTRUCTION: WIDEWATER [SPENT: $488K]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	3.6	189K	255K	488K
Indirect Effect	.6	43K	69K	127K
Induced Effect	1.3	58K	106K	180K
Total Effect	5.5	290K	429K	794K

Total state and local taxes: $27K

TABLE 11S: CAPITAL CONSTRUCTION: YORK RIVER [SPENT: $57K]				
Effect Type	Employment	Labor Income ($)	Total Value-Added ($)	Output ($)
Direct Effect	.4	19K	26K	57K
Indirect Effect	.1	7K	11K	20K
Induced Effect	.1	6K	12K	20K
Total Effect	.6	32K	49K	97K

Total state and local taxes: $3K

{Operational Spending Section Begins on Next Page}

ECONOMIC IMPACTS OF OPERATIONAL SPENDING

This section details the effects of operational spending not supported by visitor revenue during 2016. This operational spending was already included in the economic activity and economic impact models reported earlier in this report, but is also reported separately in this section to demonstrate how such operational spending infuses money into the economies of parks' host communities.

TABLE 12: ECONOMIC IMPACT OF NON-VISITOR PARK OPERATIONAL SPENDING

(PORTION OF PARK BUDGET DERIVED FROM VISITOR REVENUE REMOVED TO AVOID DOUBLE COUNTING)

Park	Total Visitor Revenue ($)	Total Park Expend ($)	Net Expenditure from Non-Visitor Sources ($)	Economic Impact from Operational Spending ($)
DISTRICT 1				
Belle Isle	218K	602K	384K	804K
Chippokes Plantation	499K	979K	480K	1.0M
False Cape	68K	542K	474K	992K
First Landing	2.2M	1.5M	0	N/A
Kiptopeke	841K	997K	155K	325K
York River	119K	552K	432K	905K
TOTAL D1	**3.9M**	**5.2M**	**1.9M**	**4.0M**
DISTRICT 2				
Caledon	30K	380K	350K	734K
Lake Anna	950K	957K	7K	15K
Leesylvania	603K	922K	319K	669K
Mason Neck	119K	650K	531K	1.1M
Westmoreland	1.0M	1.3M	292K	612K
TOTAL D2	**2.7M**	**4.2M**	**1.5M**	**3.1M**
DISTRICT 3				
Douthat	1.5M	1.8M	259K	543K
James River	627K	996K	369K	772K
Shenandoah River	771K	1.2M	392K	820K
Sky Meadows	184K	614K	430K	901K
TOTAL D3	**3.1M**	**4.6M**	**1.5M**	**3.0M**
DISTRICT 4				
Bear Creek Lake	552K	750K	199K	397K
High Bridge Trail	47K	476K	429K	899K

Park	Total Visitor Revenue ($)	Total Park Expend ($)	Net Expenditure from Non-Visitor Sources ($)	Economic Impact from Operational Spending ($)
Holliday Lake	228K	517K	289K	605K
Pocahontas	1.5M	1.6M	75K	157K
Powhatan	37K	379K	342K	716K
Sailor's Creek Battlefield	13K	301K	288K	517K
Twin Lakes	368K	740K	372K	779K
TOTAL D4	**2.7M**	**4.8M**	**2.0M**	**4.1M**
DISTRICT 5				
Claytor Lake	1.4M	1.3M	0	N/A
Fairy Stone	879K	989K	110K	231K
Occoneechee	715K	849K	134K	281K
Smith Mountain Lake	1.0M	1.0M	0	N/A
Staunton River	396K	713K	318K	666K
Staunton River Battlefield	2K	249K	247K	517K
TOTAL D5	**4.4M**	**5.1M**	**809K**	**1.7M**
DISTRICT 6				
Grayson Highlands	607K	791K	184K	385K
Hungry Mother	1.6M	2.2M	606K	1.3M
Natural Tunnel	603K	1.4M	801K	1.7M
New River Trail	255K	1.4M	1.1M	2.4M
Southwest VA Museum	49K	531K	482K	1.0M
Wilderness Road	50K	715K	664K	1.4M
TOTAL D6	**3.2M**	**7.0M**	**3.8M**	**8.2M**
GRAND TOTAL:	**20.0M**	**30.9M**	**11.5M**	**24.1M**

CONCLUSIONS

The findings of this economic activity and impact study illuminate the importance of the State Park system to the economy of Virginia. The economic activity ranged between $292.2M and $301.2M; whereas, the economic impact was between $219.8M and $259.1M in 2016. Visitation accounted for approximately 3,548 jobs, $116.5M in wage and salary income, and $176M in value-added effects. Moreover, economic activity stimulated by Virginia State Parks generated approximately $19.6M in tax revenue for the State of Virginia during 2016. As such, $0.99 in taxes were generated for every dollar of tax money spent in the park system.

According to Crompton (1993), the validity and reliability of an economic impact study depends on: 1) the accuracy of visitor spending estimates; 2) adherence of statistical rules applied in the study in particular pertaining to the use of the multiplier coefficients; and 3) reasonable attendance estimates. First, in terms of spending estimates, customized spending profiles were developed by the research team by collecting spending data from 3,802 park visitors during 2016. Second, regarding the multiplier coefficients, the most recent IMPLAN multipliers were utilized. Third, in terms of attendance estimates, the research team employed a modeling attendance figure that was extremely conservative and will continue to do so until precise counting metrics can be established in Virginia during 2017. That is, in any state park system, these inputs should be continually evaluated and refined through time because all three (spending, multipliers, and attendance) are dynamic and change according to economic and other external conditions. To state differently, this study is part of an overall effort that encompasses future refinement of all modeling inputs including visitation counting techniques in Virginia's state parks.

Not only do Virginia State Parks produce economic-related results, but they also help foster a host of other societal benefits that cannot be incorporated in econometric modeling. They each serve as settings for rest, relaxation, recreation, and rejuvenation that increase visitors' quality of life. The parks serve as medicine for the mind, body and soul and help reduce the manifestation of many of society's ailments due to the reduction of stress experienced by visitors. In fact, even residents who do not visit parks value their existence.

In addition, state parks help insulate Virginia's tourism infrastructure from economic cycles. When the economy flourishes, people visit state parks… when the economy contracts, people STILL visit state parks. Thus, many other businesses within Virginia's tourism infrastructure (e.g. restaurants, gas stations, etc…) often benefit from the steady, relatively recession-resistant flow of visitors to Virginia's state parks.

Another benefit of the state park system is an increase in values of those real estate properties adjacent to a park. A well-known [highly cited] researcher, Dr. John Crompton, published a study in 2005 in which he analyzed the findings of a collection of studies that have attempted to estimate the influence of park proximity has on real estate values in the United States. In doing so, he concluded that (Crompton, 2005; p. 203):

> "…a positive impact of 20% on property values abutting or fronting a passive park is a reasonable starting point guideline for estimating such a park's impact."

Based upon Dr. Crompton's research it is not unreasonable to extrapolate that, ***on average***, across the State of Virginia, abutting or fronting a state park location increases property value by approximately 20%. This statement regarding real estate values should not be taken out of context of the following parameters: The phrase 'on average' is purposefully included because a number of factors influence real estate prices. For example, in rural areas, variables such as road frontage, easements, soil, and timber availability can influence property-specific pricing. In oceanfront areas (e.g. First Landing State Park), variables such as proximity to weekly rentals, ocean views, proximity to a traffic light, and availability of parking can influence property-specific pricing.

In summary, Virginia's State Parks are gems that yield both tangible economic outcomes as well as a number of intangible benefits.

INVESTIGATOR BIOS

Dr. Vincent Magnini holds a Ph.D. in International Business / Marketing from Old Dominion University, an MBA from Wichita State University, and a Bachelor's of Science in Hospitality and Tourism Management from Virginia Tech. He was recently ranked as one of the top 12 most prolific hospitality researchers worldwide and holds editorial board appointments on nearly all of the top-ranked research journals in the field. Further, he is a U.S. Fulbright Scholar. He has published six books and more than 150 articles and reports. Dr. Magnini has also been featured on National Public Radio's (NPR) *All Things Considered, With Good Reason, Pulse on the Planet* and cited in the *New York Times.*

Dr. Magnini regularly consults for a number of constituencies in the hospitality and tourism sectors. The consulting activities include projects such as strategic marketing plans, economic impact analyses, feasibility studies, and executive education seminars.

Dr. Muzzo Uysal holds a Ph.D. in tourism and recreation from Texas A&M University, an MBA from the University of New Haven, and a Bachelor's of Science in accounting and business administration from the Ankara Academy of Economics and Commercial Sciences. He has extensive experience in the travel and tourism field; has worked on several funded tourism management and marketing projects and conducted tourism workshops and seminars in more than 30 countries. He is a member of International Academy for the Study of Tourism, the Academy of Leisure Sciences, and serves as co-editor of *Tourism Analysis: An Interdisciplinary Journal*. He has also authored and co-authored a significant number of articles, five monographs, and eight books related to tourism research methods, tourist service satisfaction, tourism and quality-of-life, creating experience value in tourism, consumer psychology in tourism and hospitality settings.

Dr. Uysal has also received a number of awards for Research, Excellence in International Education, Teaching Excellence, and best paper awards. His current research interests center on tourism demand/supply interaction, tourism development and QOL research in tourism.

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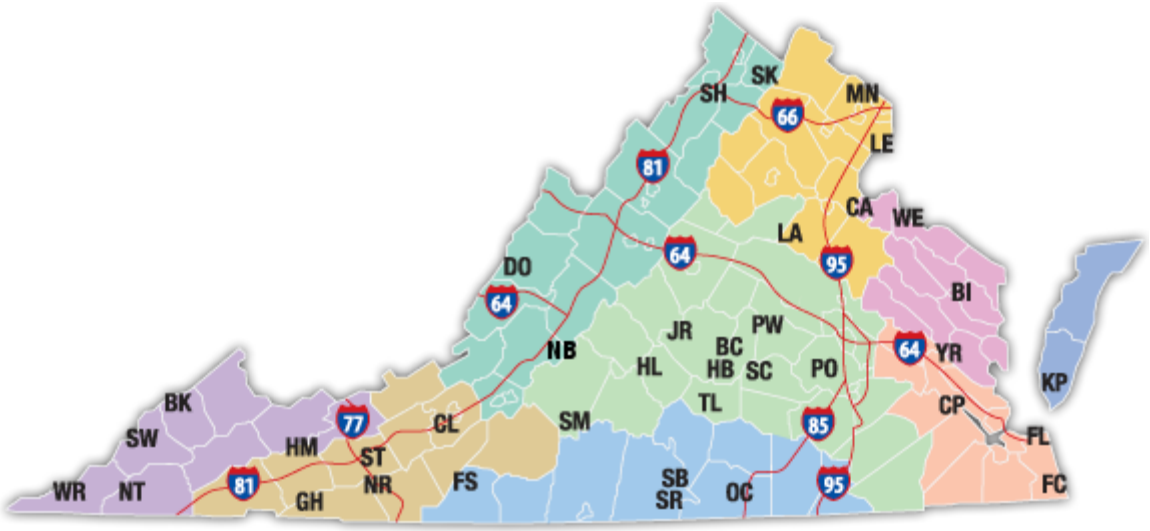
APPENDICES

APPENDIX A: MAP OF VIRGINIA STATE PARKS



Source of map: www.dcr.virginia.gov/state-parks/find-a-park

APPENDIX B: GLOSSARY OF TERMS

{Many of the definitions in this glossary are paraphrased directly from Stynes et al. (2000) MGM2 user's manual}

Direct effects – the changes in sales, income and jobs in an area as a result of first-round visitor spending.

Economic impact – economic output modeling that includes all visitor spending and consequent multiplier effects by 1) in-state residents traveling more than 50 miles one-way to visit the park; and 2) all out-of-state visitors. In addition, economic impact models include capital construction and operation expenditures not derived from visitor spending. Thus, economic impact figures reflect all of the "fresh money" entering an economy as a result of a given state park.

- **Unadjusted economic impact** - economic impact output figures computed using statewide IMPLAN multipliers. Also, unadjusted figures do not deduct spending by visitors who report that the park was not their primary destination.

- **Adjusted economic impact –** calibrated economic impact output figures based upon whether a given park's county(ies) has economic activity above or below the state average. Adjusted economic impact figures are also reduced by 12% (Magnini and Uysal, 2015a) to account for spending by park visitors who would have traveled and spent money in the state regardless of whether the park existed.

Economic activity – economic output modeling that includes all visitor spending and consequent multiplier effects by both locals and non-locals as well as any money spent by parks that was not supported by visitor spending. Consequently, economic activity figures represent all of the economic activity stimulated by a park location within the state.

- **Unadjusted economic activity** - economic activity output figures computed using statewide IMPLAN multipliers.

- **Adjusted economic activity –** calibrated economic activity output figures based upon whether a given park's county(ies) has economic activity above or below the state average.

Indirect effects – the changes in sales, income and jobs to businesses that supply goods and services to the park location.

Induced effects – the changes in economic activity in the region stimulated by household spending of income earned through direct and indirect effects of visitor spending.

IMPLAN – a computer-based input / output economic modeling system. With IMPLAN one can estimate 528 sector input / output models for any region consisting of one or more counties. IMPLAN includes procedures for generating multipliers and estimating impacts by applying final demand changes to the model.

Multipliers – express the magnitude of the secondary effects in a given geographic area and are often in the form of a ratio of the total change in economic activity relative to the direct change. Multipliers reflect the degree of interdependency between sectors in a region's economy and can vary substantially across regions and sectors.

Secondary effects – the changes in economic activity from subsequent rounds of re-spending of tourism dollars. There are two types of secondary effects: indirect and induced (see above).

Value-added (also termed 'gross regional product') – the sum of total income and indirect business taxes. Value-added is a commonly used measure of the contribution of a region to the national economy because it avoids the double counting of intermediate sales and incorporates only the 'value-added' by the region to final products.

{END OF REPORT}