
Estimated Economic Impact of Proposed Trail Enhancements to Pocahontas State Park

March 2014



Mangum Economic Consulting, LLC is a Richmond, Virginia based firm that specializes in producing objective economic, quantitative, and qualitative analysis in support of strategic decision making. Examples of typical studies include:

Policy Analysis – Identify the intended and, more importantly, unintended consequences of proposed legislation and other policy initiatives.

Economic Impact Assessments and Return on Investment Analyses – Measure the economic contribution that business, education, government, or other enterprises make to their localities.

Workforce Information – Project the demand for, and supply of, qualified workers.

Cluster Analysis – Use occupation and industry clusters to illuminate regional workforce and industry strengths and identify connections between the two.

Environmental Scanning – Assess the economic, demographic, and other factors likely to affect your enterprise in the future.

Forecasting – Identify future trends likely to affect your business.

Dr. Mangum earned his Ph.D. in economics from George Mason University in 1995, where he received his training under Nobel Laureate James Buchanan and the team of esteemed colleagues, such as Dr. Mark Crain and Dr. Robert Tollison, that Dr. Buchanan had recruited to the Center for Study of Public Choice. He has nearly two decades of experience in quantitative analysis and policy development at both the federal and state level.



MANGUM
ECONOMIC CONSULTING, LLC

www.mangum-consulting.com

50 Pear Street, Richmond, VA 23223

804-771-5338

The Proposed Project

The proposed project would significantly enhance the trail system at Pocahontas State Park with the aim of securing recognition for Pocahontas State Park and the James River Park System as a designated International Mountain Bicycling Association (IMBA) Ride Center.

Background

1. Tourism is an important part of the regional economy:

- In 2012, employment in *Accommodation and Food Services* and *Arts, Entertainment, and Recreation*, the two largest components of the tourism sector, accounted for 11.0 percent of total employment in Chesterfield County and 8.8 percent of total employment in the City of Richmond.¹
- According to the Virginia Tourism Corporation, in 2012 (the most recent year for which data are available), tourism was responsible for generating \$418.5 million in expenditures in Chesterfield County, which supported 4,347 jobs in the county with a payroll of \$77.1 million, and generated \$16.3 million in state tax revenue and \$9.1 million in local tax revenue.² In the City of Richmond, tourism was responsible for generating \$617.1 million in expenditures, which supported 6,365 jobs in with a payroll of \$137.3 million, and generated \$22.4 million in state tax revenue and \$20.6 million in local tax revenue.³

2. Pocahontas State Park already makes a significant contribution to Chesterfield County's tourism sector:

- According to the Virginia Department of Conservation and Recreation, in 2012 Pocahontas State Park attracted a total of 427,126 visitors (5th highest of any state park in Virginia), and those visitors generated \$13.3 million in economic impact.⁴
- Moreover, it is important to note that 110,080 of those visitors stayed overnight (2nd highest of any state park in Virginia and only surpassed by First Landing State Park in Virginia Beach), indicating that

¹ *Data Source:* Virginia Employment Commission.

² *Data Source:* Virginia Tourism Corporation.

³ *Data Source:* Virginia Tourism Corporation.

⁴ *Data Source:* Virginia Department of Conservation and Recreation.

Pocahontas State Park already attracts a large number of visitors from outside of the local area who inject money into the local economy.⁵

3. The proposed project would position Pocahontas State Park and the James River Park System to capitalize on a heightened interest in biking in the U.S. in general and in the Greater Richmond area in particular:

- According to data from the U.S. Department of Transportation, nationwide the number of trips made by bike rose from 3.3 billion in 2001 to 4.1 billion in 2009, an increase of 24 percent.⁶ In addition, a recent study found that between 2000 and 2010 the number of individuals commuting to work by bike increased by 63 percent in the 70 largest cities in the U.S.⁷
- In 2015, the Union Cycliste Internationale (UCI) World Road Cycling Championship will be held in Richmond. This annual weeklong event is one of cycling's largest competitions and will focus significant media attention on Richmond as a bike-friendly city. When last held in North America in Hamilton, Ontario in 2003, this event attracted an estimated 200,000 spectators.⁸
- The Virginia Capital Trail is a 55 mile long bike trail along the scenic and historic Route 5 between Williamsburg and Richmond. Three of the seven segments of this trail have been completed and full completion of the trail is expected in advance of the 2015 UCI World Road Cycling Championship. This trail will promote bike tourism by connecting one of the most significant tourist destinations in Virginia, Williamsburg, with the city of Richmond.
- Local business leaders such as Anthem, Dominion Power, and Mead Westvaco have taken an increasingly active interest in supporting and promoting bicycling projects and events in the Greater Richmond area.

⁵ *Data Source:* Virginia Department of Conservation and Recreation.

⁶ *Data Source:* John Pucher, Ralph Buehler, and Mark Seinen, "Bicycling renaissance in North America? An update and re-appraisal of cycling trends and policies," *Transportation Research*, vol. 45, 2011.

⁷ *Data Source:* John Pucher and Ralph Buehler, "Analysis of Bicycling Trends and Policies in Large North American Cities," March 2011.

⁸ *Data Source:* Paradigm Consulting Group, "UCI 2003 Road World Cycling Championships, Hamilton, Ontario, Economic Impact Assessment," Canadian Sport Tourism Alliance, February, 2004.

4. Bike tourism has been shown to have a significant and demonstrative positive economic impact on host communities:
- Reports produced by the U.S. Forest Service and the University of Georgia for the Virginia Department of Conservation showed that in 2003 bike tourism was responsible for generating: 1) \$1.6 million in annual economic impact in the communities surrounding the Virginia Creeper Trail in Southwest Virginia, and 2) \$1.8 million in annual economic impact in the communities surrounding the Washington and Old Dominion Trail in Northern Virginia.⁹
 - A study by the University of Wyoming found the overall economic impact of the Teton County trail system in the Jackson Hole area to be \$18.1 million in 2010.¹⁰
 - A study by Dean Runyan Associates for Travel Oregon found the economic impact of bike-related travel on the state to be \$399.6 million in 2012.¹¹

Potential Economic and Fiscal Impact

1. Method:

- To empirically evaluate the likely local and statewide economic impact associated with the proposed trail enhancements to Pocahontas State Park, we employ a commonly used regional economic impact model called IMPLAN.¹² The IMPLAN model uses regional and national data on production and trade flows to construct region-specific economic multipliers and uses these multipliers to quantify economic impact.
- Economic multipliers measure the ripple effects that an expenditure has as it makes its way through the economy. For example, as when the restaurants and hotels serving the needs of non-local bike tourists

⁹ *Data Source:* J.M. Bowker, John C. Bergstrom, and Joshua K. Gill, “The Virginia Creeper Trail: An Assessment of Demographics, Preferences, and Economics,” Virginia Department of Conservation, December 8, 2004; and J.M. Bowker, John C. Bergstrom, Joshua K. Gill, and Ursula Lemanski, “The Washington and Old Dominion Trail: An Assessment of Demographics, Preferences, and Economics,” Virginia department of Conservation, December 9, 2004.

¹⁰ Nadia Kaliszewski, “Jackson Hole Trails Project Economic Impact Study,” University of Wyoming, August 2011.

¹¹ Dean Runyan and Associates, “The Economic Significance of Bicycle-Related Travel in Oregon,” Travel Oregon, April 2013.

¹² IMPLAN v.3 is produced by Minnesota IMPLAN Group, Inc. The datasets used in the analysis presented in this report are for 2010, the most recent year for which data were available at the time this report was published.

purchase goods and services themselves, thereby generating income for someone else, which is in turn spent, thereby becoming income for yet someone else, and so on, and so on. Through this process, one dollar in expenditures generates multiple dollars of income. The mathematical relationship between the initial expenditure and the total income generated is the economic multiplier.

2. Impact of increased ridership at Pocahontas State Park:

- *Assumptions:*
 - To assess the likely economic impact of the proposed trail enhancements to Pocahontas State Park we require two metrics – anticipated visits to the newly created trails by primarily non-local users, and the amount of money that those users are likely to spend in the local and state economy. To approximate those two metrics, we draw heavily on the previously mentioned analysis of the usage rates, visitor spending, and economic impact associated with biking on the Virginia Creeper Trail in Southwest Virginia.¹³
 - Based on actual traffic counts, that study estimated that 112,366 individuals used the Virginia Creeper Trail in 2003, and of that number, 50,863 were non-locals. Adjusting that later figure to reflect the overall 32.9 increase in visitation to Virginia State Parks between 2003 and 2012 indicates that a more current estimate would likely be in the neighborhood of 67,597 non-local trail users per year.
 - Based on structured interviews with trail users, non-local users whose primary purpose for being in the area was to visit the trail were determined to have spent on average \$17.16 per trip locally and \$30.90 overall if they were “day trippers,” and \$82.10 per trip locally and \$119.85 overall if they were “over-nighters.” Adjusting these figures to reflect inflationary increases between 2003 and 2012 yields: 1) \$21.61 in per trip local spending and \$38.91 in overall spending for “day trippers,” and 2) \$103.37 in per trip local spending and \$150.91 in overall spending for “over-nighters.”¹⁴

¹³ J.M. Bowker, John C. Bergstrom, and Joshua K. Gill, “The Virginia Creeper Trail: An Assessment of Demographics, Preferences, and Economics,” Virginia Department of Conservation, December 8, 2004.

¹⁴ Adjusted using Bureau of Labor Statistics of annual CPI, all urban consumers, south urban.

- Based on structured interviews with trail users, non-local users whose primary purpose for being in the area was something other than visiting the trail were determined to have spent on average \$12.31 per trip locally and \$30.05 overall in trail-related expenditures if they were “day trippers,” and \$7.02 per trip locally and \$11.15 overall in trail-related expenditures if they were “over-nighters.” Adjusting these figures to reflect inflationary increases between 2003 and 2012 yields: 1) \$15.50 in per trip trail-related local spending and \$37.84 in overall trail-related spending for “day trippers,” and 2) \$8.84 in per trip trail-related local spending and \$14.04 in overall trail-related spending for “over-nighters.”
- We use the above estimates of non-local trail users and their spending as an approximation of the likely increase in tourist spending in Chesterfield County and the state of Virginia as a whole that would be associated with the proposed trail enhancements to Pocahontas State Park. These totals are then disaggregated prior to inputting them into the IMPLAN model to reflect the distribution of consumption expenditures determined in the Virginia Creeper Trail study (*e.g.*, proportion spent on hotels, food, etc.)
- Results:
 - Local: As shown in Table 1, we find that the ongoing annual impact of the proposed trail enhancements to Pocahontas State Park on Chesterfield County and the City of Richmond would likely be \$3.2 million in additional overall local economic activity, \$1.1 million in additional labor income, 34 additional full-time-equivalent jobs, and \$180,689 in additional state and local tax revenue.
 - Statewide: As shown in Table 2, we find that the ongoing annual impact of the proposed trail enhancements to Pocahontas State Park on the state of Virginia as a whole would likely be \$5.6 million in additional overall statewide economic activity, \$1.9 million in additional labor income, 57 additional full-time-equivalent jobs, and \$357,698 in additional state and local tax revenue.

Table 1: Estimated Economic Impact of Proposed Trail Enhancements to Pocahontas State Park on Local Economy (in 2014 dollars)

First Round Direct Economic Activity			
	Full Time Equivalent Employment	Labor Income	Output
Accommodations	4	\$116,293	\$438,586
Food	14	\$276,043	\$813,623
Gas	1	\$22,389	\$52,868
Other	4	\$164,864	\$566,072
<i>Direct Sub-Total</i>	23	\$579,589	\$1,871,149
Second Round Indirect and Induced Economic Activity			
	Full Time Equivalent Employment	Labor Income	Output
Accommodations	2	\$111,903	\$302,074
Food	4	\$180,073	\$507,334
Gas	0	\$12,889	\$36,222
Other	4	\$195,184	\$521,564
<i>Indirect Sub-Total</i>	10	\$500,049	\$1,367,194
TOTAL ECONOMIC AND FISCAL IMPACT			
	Full Time Equivalent Employment	Labor Income	Output
Economic	34	\$1,079,638	\$3,238,342
State and Local Tax Revenue			
Fiscal			\$180,689

Table 2: Estimated Economic Impact of Proposed Trail Enhancements to Pocahontas State Park on the Statewide Economy (in 2014 dollars)

First Round Direct Economic Activity			
	Full Time Equivalent Employment	Labor Income	Output
Accommodations	10	\$283,761	\$1,035,211
Food	23	\$468,386	\$1,349,923
Gas	1	\$38,093	\$88,309
Other	5	\$191,770	\$645,863
<i>Direct Sub-Total</i>	39	\$982,010	\$3,119,306
Second Round Indirect Economic Activity			
	Full Time Equivalent Employment	Labor Income	Output
Accommodations	6	\$285,556	\$792,653
Food	7	\$332,407	\$984,737
Gas	1	\$23,054	\$67,180
Other	5	\$237,007	\$650,001
<i>Indirect Sub-Total</i>	18	\$878,024	\$2,494,571
TOTAL ECONOMIC AND FISCAL IMPACT			
	Full Time Equivalent Employment	Labor Income	Output
Economic	57	\$1,860,034	\$5,613,879
State and Local Tax Revenue			
Fiscal			\$357,698

3. Impact of current ridership at the James River Park System:

- *Assumptions:*
 - To estimate the economic impact of current ridership at the James River Park System we again require two metrics –visits to the park’s trails by primarily non-local users, and the amount of money that those users are likely to spend in the local and state economy.
 - Based on actual traffic counts, an analysis by Dr. Victoria A. Shivy estimated that 526,280 individuals used the James River Park System in 2012, and of that number, approximately 88,941 were non-locals.¹⁵
 - Our assumptions regarding non-local trail user spending are again derived from the earlier analysis of the usage rates, visitor spending, and economic impact associated with biking on the Virginia Creeper Trail in Southwest Virginia and are identical to those used in the impact assessment of increased ridership at Pocahontas Park presented above.¹⁶
- *Results:*
 - Local: As shown in Table 3, we find that the ongoing annual impact of the proposed trail enhancements to Pocahontas State Park on Chesterfield County and the City of Richmond would likely be \$8.9 million in additional overall local economic activity, \$2.9 million in additional labor income, 92 additional full-time-equivalent jobs, and \$518,169 in additional state and local tax revenue.
 - Statewide: As shown in Table 4, we find that the ongoing annual impact of the proposed trail enhancements to Pocahontas State Park on the state of Virginia as a whole would likely be \$13.9 million in additional overall statewide economic activity, \$4.6 million in additional labor income, 141 additional full-time-equivalent jobs, and \$909,147 in additional state and local tax revenue.

¹⁵ Dr. Victoria A. Shivy, “JRPS Visitor Data – Observations and Estimates,” 2012, and Dr. Victoria A. Shivy, “Visitor Homes gathered Via Self-Reported Zipcodes,” 2012. The 526,280 annual visitor number is taken from Dr. Shivy’s lowest range, or most conservative, estimate.

¹⁶ J.M. Bowker, John C. Bergstrom, and Joshua K. Gill, “The Virginia Creeper Trail: An Assessment of Demographics, Preferences, and Economics,” Virginia Department of Conservation, December 8, 2004.

Table 3: Estimated Economic Impact of Trail Ridership in James River Park System on Local Economy (in 2014 dollars)

First Round Direct Economic Activity			
	Full Time Equivalent Employment	Labor Income	Output
Accommodations	20	\$524,373	\$1,977,612
Food	35	\$698,574	\$2,059,012
Gas	2	\$43,650	\$103,073
Other	8	\$311,878	\$1,070,855
<i>Direct Sub-Total</i>	<i>65</i>	<i>\$1,578,475</i>	<i>\$5,210,552</i>
Second Round Indirect Economic Activity			
	Full Time Equivalent Employment	Labor Income	Output
Accommodations	10	\$504,578	\$1,362,073
Food	9	\$455,704	\$1,283,896
Gas	1	\$25,131	\$70,619
Other	8	\$369,236	\$986,658
<i>Indirect Sub-Total</i>	<i>28</i>	<i>\$1,354,649</i>	<i>\$3,703,246</i>
TOTAL ECONOMIC AND FISCAL IMPACT			
	Full Time Equivalent Employment	Labor Income	Output
Economic	92	\$2,933,125	\$8,913,798
State and Local Tax Revenue			
Fiscal			\$518,169

Table 4: Estimated Economic Impact of Trail Ridership in James River Park System on Local Economy (in 2014 dollars)

First Round Direct Economic Activity			
	Full Time Equivalent Employment	Labor Income	Output
Accommodations	34	\$939,341	\$3,426,887
Food	52	\$1,056,338	\$3,044,445
Gas	3	\$73,841	\$171,182
Other	8	\$342,266	\$1,152,719
<i>Direct Sub-Total</i>	97	\$2,411,786	\$7,795,233
Second Round Indirect Economic Activity			
	Full Time Equivalent Employment	Labor Income	Output
Accommodations	19	\$945,283	\$2,623,940
Food	15	\$749,668	\$2,220,852
Gas	1	\$44,688	\$130,226
Other	9	\$423,004	\$1,160,104
<i>Indirect Sub-Total</i>	44	\$2,162,643	\$6,135,122
TOTAL ECONOMIC AND FISCAL IMPACT			
	Full Time Equivalent Employment	Labor Income	Output
Economic	141	\$4,574,430	\$13,930,357
State and Local Tax Revenue			
Fiscal			\$909,147

4. Total Impact:

- Local: As shown in Table 5, we find that the total ongoing annual impact on Chesterfield County the City of Richmond (Tables 1 and 3) would likely be \$12.2 million in additional overall economic activity, \$4.0 million in additional labor income, 126 additional full-time-equivalent jobs, and \$698,858 in additional state and local tax revenue.
- Statewide: As shown in Table 6, we find that the ongoing annual impact on the state of Virginia as a whole (Tables 2 and 4) would likely be \$19.5 million in additional overall economic activity, \$6.4 million in additional labor income, 198 additional full-time-equivalent jobs, and \$1.3 million in additional state and local tax revenue.

Table 5: Estimated total Economic Impact on Local Economy (in 2014 dollars)

First Round Direct Economic Activity			
	Full Time Equivalent Employment	Labor Income	Output
Accommodations	24	\$640,666	\$2,416,198
Food	49	\$974,617	\$2,872,635
Gas	3	\$66,039	\$155,941
Other	12	\$476,742	\$1,636,927
<i>Direct Sub-Total</i>	<i>88</i>	<i>\$2,158,064</i>	<i>\$7,081,701</i>
Second Round Indirect Economic Activity			
	Full Time Equivalent Employment	Labor Income	Output
Accommodations	12	\$616,481	\$1,664,147
Food	13	\$635,777	\$1,791,230
Gas	1	\$38,020	\$106,841
Other	12	\$564,420	\$1,508,222
<i>Indirect Sub-Total</i>	<i>38</i>	<i>\$1,854,698</i>	<i>\$5,070,440</i>
TOTAL ECONOMIC AND FISCAL IMPACT			
	Full Time Equivalent Employment	Labor Income	Output
Economic	126	\$4,012,763	\$12,152,140
State and Local Tax Revenue			
Fiscal			\$698,858

Table 6: Estimated Total Economic Impact on Local Economy (in 2014 dollars)

First Round Direct Economic Activity			
	Full Time Equivalent Employment	Labor Income	Output
Accommodations	44	\$1,223,102	\$4,462,098
Food	75	\$1,524,724	\$4,394,368
Gas	4	\$111,934	\$259,491
Other	13	\$534,036	\$1,798,582
<i>Direct Sub-Total</i>	136	\$3,393,796	\$10,914,539
Second Round Indirect Economic Activity			
	Full Time Equivalent Employment	Labor Income	Output
Accommodations	25	\$1,230,839	\$3,416,593
Food	22	\$1,082,075	\$3,205,589
Gas	2	\$67,742	\$197,406
Other	14	\$660,011	\$1,810,105
<i>Indirect Sub-Total</i>	62	\$3,040,667	\$8,629,693
TOTAL ECONOMIC AND FISCAL IMPACT			
	Full Time Equivalent Employment	Labor Income	Output
Economic	198	\$6,434,464	\$19,544,236
State and Local Tax Revenue			
Fiscal			\$1,266,845

The analysis provided in this report is based on the best information available and all reasonable care has been taken in assessing that information. However, because this analysis attempts to foresee circumstances that have not yet occurred, it is not possible to provide any assurance that it will be representative of actual events. This analysis is intended to provide a general indication of likely future outcomes and should not be construed to represent a precise measure of those outcomes.