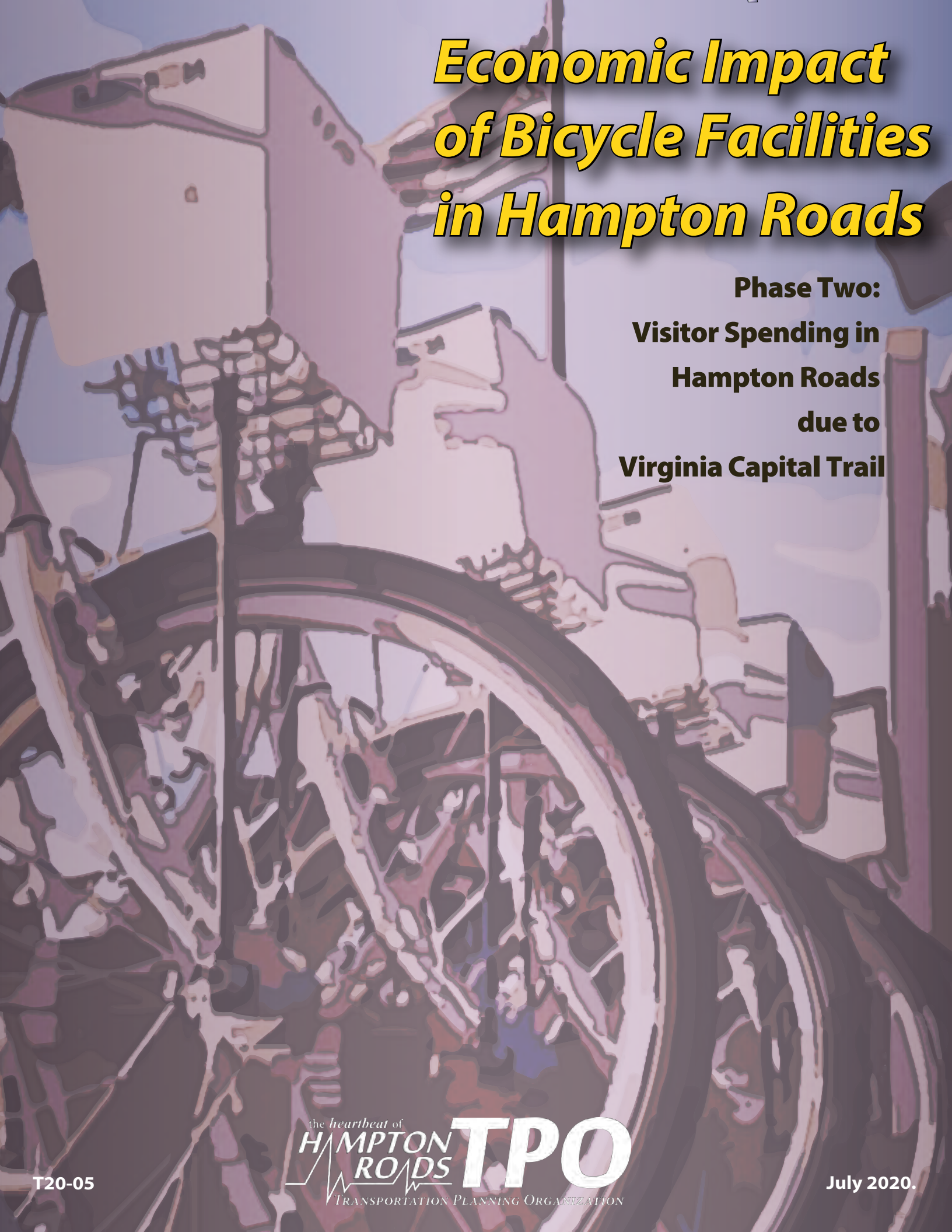

# Economic Impact of Bicycle Facilities in Hampton Roads

## Phase Two: Visitor Spending in Hampton Roads due to Virginia Capital Trail

the heartbeat of HAMPTON ROADS TPO
TRANSPORTATION PLANNING ORGANIZATION

T20-05

July 2020.

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**REPORT DOCUMENTATION**

**TITLE**
Economic Impact of Bicycle Facilities in Hampton Roads Phase Two: Visitor Spending in Hampton Roads due to Virginia Capital Trail

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**REPORT DATE** **July 2020**

**ABSTRACT**
The impetus of this report is to estimate the annual amount of money spent locally by visitors drawn to Hampton Roads by the Virginia Capital Trail (VCT). A survey was done to determine the annual visitor spending. The location of the survey is near Greensprings Rd in James City County. For this purpose, only tourists were asked to provide an estimate of the amount of money spent.

An estimate of annual visitor spending was calculated by multiplying average factored spending, the number of annual trail users, and the percentage of eligible respondents. The number of annual trail users was obtained from the counter near Greensprings Rd (maintained by VDOT). At the same time, the average group size was calculated by dividing persons ineligible groups with eligible groups. The percentage of eligible respondents was obtained by dividing the number of eligible respondents with a total number of respondents.

Based on the number of surveys taken and the calculation, the staff's best estimate is that the annual visitor spending in Hampton Roads due to the Virginia Capital Trail is $3 million.

**ACKNOWLEDGMENT & DISCLAIMERS**

Prepared in cooperation with the U.S. Department of Transportation (USDOT), Federal Highway Administration (FHWA), and Virginia Department of Transportation (VDOT). The contents of this report reflect the views of the Hampton Roads Transportation Planning Organization (HRTPO). The HRTPO is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the FHWA, VDOT or Hampton Roads Planning District Commission. This report does not constitute a standard, specification, or regulation. FHWA or VDOT acceptance of this report as evidence of fulfillment of the objectives of this planning study does not constitute endorsement/approval of the need for any recommended improvements, nor does it constitute approval of their location and design or a commitment to fund any such improvements. Additional project-level environmental impact assessments and/or studies of alternatives may be necessary.

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## Background

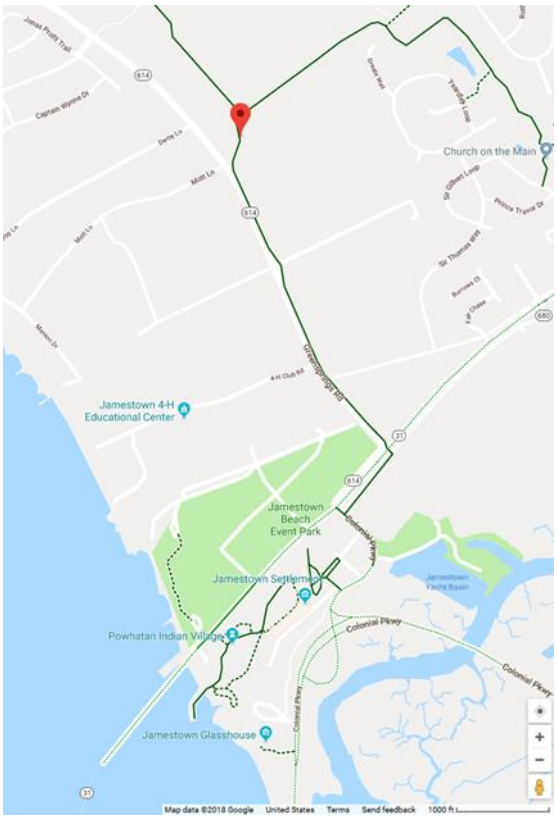
The HRTPO Staff previously completed Phase One of this study, whose purpose was to measure the impact of bicycle facilities on the local economy. Phase One involved literature review, benchmarking, and analysis of existing data, including path length, the number of bike shops, bicycle event spending, as well as the calculation of the income of local people who bike to work. The literature review served as a guide for this study. The staff prepared benchmarking criteria and chose competitor cities (with the help of the project steering team).

Surveys were used in most of the studies reviewed in phase one to estimate the economic impact of trails. Therefore, staff proposed to conduct a survey with which to assess the annual amount of money spent locally by visitors drawn to Hampton Roads by bike trails. Initially, staff considered surveying one essential trail in each of the tourism areas:

- The Virginia Capital Trail
- The Boardwalk Bike Trail

Expecting that only a small percentage of Virginia Beach tourists have chosen that destination primarily because of the existence of the Boardwalk Trail, the staff decided to focus its surveys on the Virginia Capital Trail.

The purpose of Phase Two is to estimate the annual amount of money spent locally by visitors drawn to Hampton Roads by the Virginia Capital Trail (VCT). To determine annual visitor spending, a survey was done. The location of the survey was the gazebo at the eastern end of VCT near Jamestown Settlement. Only people who are from outside of the region (tourists) were asked the approximate amount of money spent.




**Map 1** Location of counter near Greensprings Road
*Source: Google maps*

## Literature Review

To find out the target of bike-trail surveys, HRTPO staff reviewed existing literature and composed **Table 1**.

| Title | Author | Year | Treatment | Location | Survey Target |
|---|---|---|---|---|---|
| 2012 Trail Town Business Survey Report for The Progress Fund | Center for Regional Progress, College of Business, Frostburg State University | 2012 | The Great Allegheny Passage | PA and MD | Surveyed businesses (lodging, retail, bike, etc.) |
| Building Connectivity Through Recreation Trails; A Closer Look… | Economic Development Studio Virginia Tech | 2011 | The Virginia Creeper trail and the New River Trail State Park. | Southwest Virginia | 1) Surveyed trail users<br>2) Surveyed businesses |
| Catskill Mountain Rail Trail: Economic & Fiscal Impact Analysis | Camoin Associates, Economic Development | 2013 | Trail to be built. | Kingston, NY | Surveyed users on the trail. |
| Cutting Edge Research in Trails and Greenways | Dr. Vogt, Dr. Nelson, Kristen Steger; Michigan State | N/A | Network of trails, 131 established 'rail-trails' covering 1398 miles | Michigan | 1) Surveyed trail users<br>2) Surveyed adjacent residents<br>3) Surveyed nearby businesses |
| D&L Trail 2012 User Survey and Economic Impact Analysis | Rails-To-Trails Conservancy | 2012 | Single trail length of 26 miles. | Eastern Pennsylvania | Surveyed trail users |
| Economic Impact Analysis of Orange County Trails | East Central Florida Regional Planning Council | 2011 | Cady Way Trail, Little Econ Greenway, West Orange Trail | Florida | 1) Surveyed trail users<br>2) Surveyed businesses |
| Economic Impact Analysis of the WOW Trail | Belknap County Economic Development Council | 2012 | Proposed pathway. | Laconia, NH | No survey was done for this study. |
| Economic Impact of Bicycling and Walking in Vermont | Resource Systems Group, Inc., Economic and Policy Resources, Inc., and Local Motion | 2012 | Statewide | Vermont | Surveyed bike-ped-oriented businesses |
| Economic Impact of Bicycling in the Central Shenandoah Valley | Central Shenandoah Planning District Commission | 2016 | Bicycle facilities within a four-county, five-city region. | Central Shenandoah Valley, WV | Surveyed bicyclists in the region via online survey. |
| Economic Impact of Cycling in the Pikes Peak Region | Steer Davies Gleave | 2015 | Network of trails in Pikes Peak region. | Colorado | Surveyed local bicycle tour companies. |
| Economic Impact of Trails | David Lindahl, John Morton; Presentation to the 1st Annual Massachusetts Trails Conference | 2011 | Numerous locations (from trails to real estate). | Massachusetts | No survey was done for this study. |

**Table 1** Survey targets of economic studies of bicycle facilities (Continued)
*Source: HRTPO analysis*

| Title | Author | Year | Treatment | Location | Survey Target |
|---|---|---|---|---|---|
| Ecusta Rail Trail Planning Study & Economic Impact Analysis- Chp. 5: Economic Impact Analysis | Econsult Corp. | 2012 | Proposed rail trail between the cities of Hendersonville and Brevard, North Carolina. | Ecusta Rail Trail North Carolina | No survey was done for this study. |
| Estimating Tourism Expenditures for the Burlington Waterfront Path and the Island Line Trail | University of Vermont; Chen Zhang, Lance Jennings, Lisa Aultman-Hall | 2010 | The Island Line Trail is a 12.5 mile trail. | Burlington, Vermont | Surveyed trail users |
| Every Mile Counts; An Analysis of the 2008 Trail User Surveys | New York State Office of Parks, Recreation & Historic Preservation | 2010 | State has over 16000 miles of trails | New York (State) | Surveyed users of 8 trails. |
| Federal Investment in Bicycling: 10 Success stories | Bikes Belong | N/A | 10 trails, bridges, streets, etc. | Boulder, Colorado | No survey was done for this study. |
| Greenville Hospital System Swamp Rabbit Trail: Year 1 Findings | Julian A. Reed, Associate Professor Health Sciences, Furman University, Greenville, SC | 2010 | The Greenville Hospital System Swamp Rabbit trail. | South Carolina | 1) Surveyed trail users<br>2) Surveyed county residents (via RDD) |
| Hardy Pond Trail: Economic Impact Analysis | MSU Center for Economic Analysis | 2014 | 30 mile trail proposed by Newaygo and Mecosta counties. | Newaygo County, Michigan | No survey was done for this study. |
| Heritage Rail Trail County Park 2012 User Survey and Economic Impact Study | York County Community Foundation, Rails-to-Rails Conservancy: Northeast Regional Office, York County Rail Trail Authority | 2012 | A single rail-trail with total length of 21.20 miles, built next to rails | South Central Pennsylvania's County of York | Surveyed trail users |
| Impact of the Little Miami Scenic Trail on Single Family Residential Property Values | Duygu Karadeniz, thesis, Izmir Institute of Technology | 2008 | Multi-purpose trail in Ohio. | Ohio | No survey was done for this study. |
| Jackson Hole Trails Project Economic Impact Study | Nadia Kaliszewski, University of Wyoming, Laramie, Wyoming | 2011 | The Jackson Hole Community Pathway System. | Wyoming | 1) Surveyed trail users<br>2) Surveyed bike shops |
| Junction and Breakwater Trail; 2011 Trail Use Study & Economic Analysis | Delaware Greenways | 2011 | Junction and Breakwater trail. | Delaware | Surveyed trail users |
| Katy Trail Economic Impact Report; Visitors and MGM2 Economic Impact Analysis | Synergy Group, Pragmatic Research, Inc., James Pona Associates | 2012 | The Katy Trail is 240 miles long and 12 ft. wide. | Missouri | Surveyed trail users |

**Table 1** Survey targets of economic impact of bicycle facilities (Continued)
*Source: HRTPO analysis*

| Title | Author | Year | Treatment | Location | Survey Target |
|---|---|---|---|---|---|
| Lackawanna River Heritage Trail; 2009 Trail User Survey and Economic Impact Analysis | The Lackawanna Heritage Valley National and State Heritage Area Staff | 2009 | Lackawanna River Heritage Trail and Delaware and Hudson Rail-Trail. | PA | Surveyed trail users |
| Making Trails Count in Illinois | Trails for Illinois and Rails-to-Trails Conservancy | 2012 | Six non-motorized Illinois trails | Illinois | Surveyed trail users |
| Miami Valley Trail User Survey Report | MVRPC Regional Bikeways Committee | 2013 | Network of over 240 miles of connected multi-use trails | Miami Valley, Ohio | Surveyed trail users |
| Omaha Recreational Trails: Their Effect on Property Values and Public Safety | University of Nebraska at Omaha, Recreation and Leisure Studies Program, School of Health, Physical Education and Recreation | 2000 | A system of trails. | Omaha, Nebraska | Surveyed residents living near trails |
| Pathway to Prosperity; The Economic Impact of Investments in Bicycle Facilities | NCDOT, Divison of Bicycle and Pedestrian Transportation | 2003 | Trail network | Northern Outer Banks of North Carolina | 1) Surveyed users of facilities<br>2) Surveyed tourists at visitors centers |
| Perkionem Trail; 2008 User Survey and Economic Impact Analysis | Rails-To-Trails Conservancy | 2008 | Perkiomen trail located in Montgomery County, PA. | PA | Surveyed trail users |
| Schuylkill River Trail; 2009 User Survey and Economic Impact Analysis | Rails-To-Trails Conservancy | 2009 | The trail runs adjacent to Schuylkill River. | Philadelphia, PA | Surveyed trail users |
| Trails and their Gateway Communities; A Case Study... | Bob Kazmierski, Mike Kornmann, Dave Marcouiller, Jeff Prey | 2008 | State trail network in Wisconsin. | Wisconsin | Surveyed trail users |
| Tweetsie Trail: Economic Impact Study | Olya Batsula, Nic Chernikow, Scott French, Chris Hobbs, Bevin Kilbourn, and Kristin Lee | 2011 | A rail-trail proposal | Tennessee | Surveyed bicycle shops in the Southeast |
| Washington & Old Dominion Trail: An Assessment... | Va. Dept. of Conservation | 2004 | 45-mile trail | Virginia | Surveyed trail users |
| Why Build Multi-Use Trails in Connecticut | Farmington Valley Trails Council | 2012 | 41.7 miles of the multi-use Farmington Canal Heritage Trail | Tariffville, CT | No survey was done for this study. |

**Table 1** Survey targets of economic impact of bicycle facilities (Continued)
*Source: HRTPO analysis*

Based on the existing literature (**Table 1**), the staff decided to survey the *users* of the Virginia Capital Trail (VCT) for spending data to estimate annual spending in Hampton Roads by visitors attracted to our region by the Virginia Capital Trail.

## Summary of Survey Results

This chapter summarizes results obtained from the survey on the Virginia Capital Trail near Greensprings Road conducted by the *Wason Center for Public Policy at Christopher Newport University*.

The first question identified whether respondents are from the Hampton Roads region or not. If the respondent was from the area, the survey for that respondent was ended.

The second question indicated the zip code of the respondent's primary residence. Staff used the zip code to verify visitor status.

The third question asked respondents to respond to the following statement: "The Virginia Capital Trail is the **PRIMARY** reason for visiting the region" with:

- Strongly Agree
- Somewhat Agree
- Neither Agree nor Disagree
- Somewhat Disagree
- Strongly Disagree

If the respondent answered with "Strongly Disagree," the survey for that respondent was ended.

A total of 1,055 records were obtained from the survey. After data cleaning (omitting incomplete or inconsistent data records, records with Hampton Roads ZIP codes, and those that strongly disagree with VCT as the primary reason for visiting the region), the staff ended up with 372 records of eligible visitors.

**Figure 1** breaks down the 1,055 respondents.

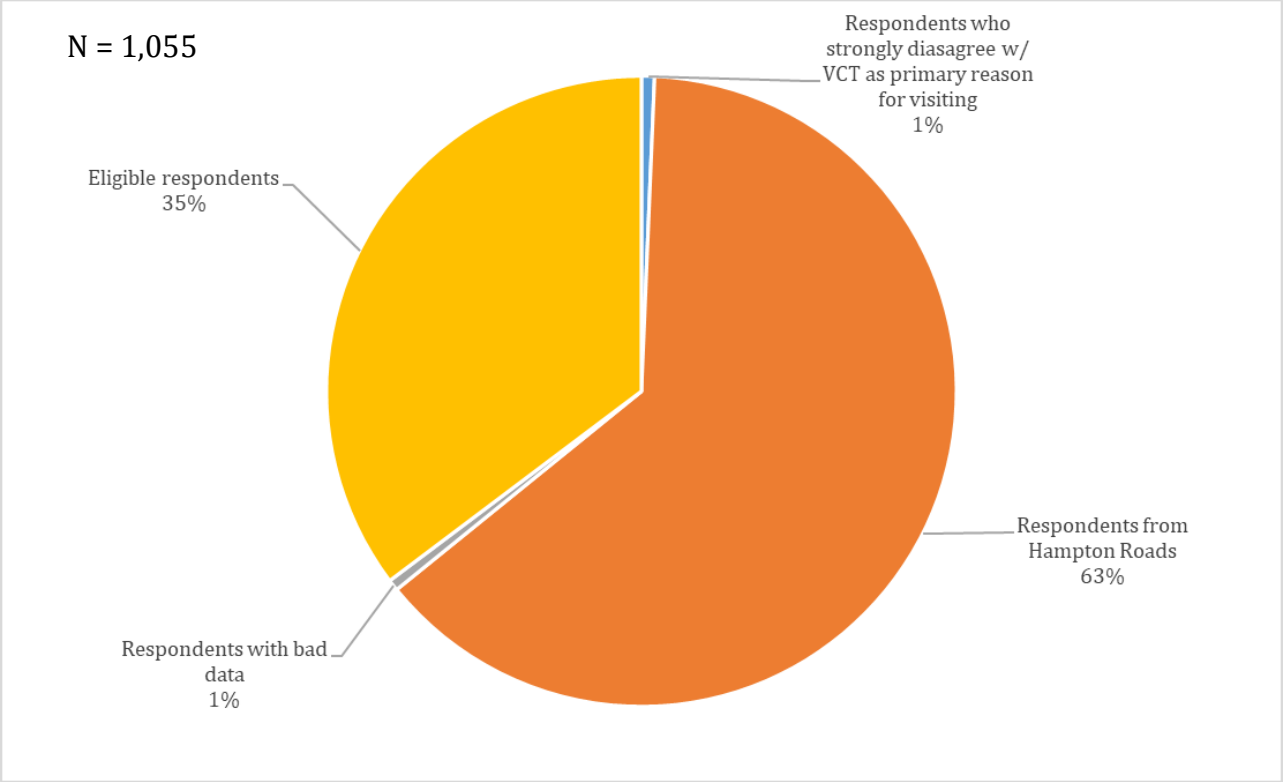



**Figure 1** Types of Respondents
*Source: HRTPO analysis of CNU data*

**Figure 1** conveys that respondents from Hampton Roads are in the majority, while 35% of the 1,055 respondents are eligible visitors. This percentage was used to estimate annual visitor spending, as explained in the "Calculating the Annual Visitor Spending in the region due to Virginia Capital Trail" section of this document.

The fourth question assessed the number of people in the respondent's group. This data was used to estimate annual visitor spending, as explained in the "Calculating the Annual Visitor Spending in the region due to Virginia Capital Trail" section of this document.

The fifth question asked the length of the respondent's visit, to prime the respondent for answering the sixth question: the approximate amount of money the respondent (and its group) spent in the region.


Jamestown Settlement gazebo
*Source: Google*

HRTPO Staff calculated the descriptive statistics of the following variables for the eligible surveys in **Table 2**.

- PRIMARY – denotes the primary reason for visiting the region
- FROM – reveals if the respondent is from Hampton Roads or not
- SIZE – indicates groups size
- HOURS – represents the number of hours spent in the region
- DAYS – shows the number of days spent in the region
- FOOD – displays the amount of money spent on food
- RETAIL – reveals the amount of money spent on retail
- BIKING – symbolizes the amount of money spent on biking expenses
- LODGING – designates the amount of money spent on lodging expenses
- AUTO – shows the amount of money spent on auto expenses
- OTHER EXP – represents the amount of money spent on other expenses

| PRIMARY | | FROM | | SIZE | | HOURS | |
|---|---|---|---|---|---|---|---|
| Mean | 1.9 | Mean | 2 | Mean | 2 | Mean | 2.6 |
| Standard Error | 0.1 | Standard Error | 0 | Standard Error | 0.1 | Standard Error | 0.2 |
| Median | 1 | Median | 2 | Median | 2 | Median | 1 |
| Mode | 1 | Mode | 2 | Mode | 1 | Mode | 0 |
| Standard Deviation | 1.1 | Standard Deviation | 0 | Standard Deviation | 1.6 | Standard Deviation | 4.1 |
| Sample Variance | 1.2 | Sample Variance | 0 | Sample Variance | 2.5 | Sample Variance | 17.2 |
| Range | 3 | Range | 0 | Range | 9 | Range | 40 |
| Minimum | 1 | Minimum | 2 | Minimum | 1 | Minimum | 0 |
| Maximum | 4 | Maximum | 2 | Maximum | 10 | Maximum | 40 |
| Sum | 697 | Sum | 744 | Sum | 746 | Sum | 953.3 |
| Count | 372 | Count | 372 | Count | 372 | Count | 372 |
| DAYS | | FOOD | | RETAIL | | BIKING | |
| Mean | 1.6 | Mean | $103 | Mean | $20 | Mean | $8 |
| Standard Error | 0.2 | Standard Error | $10 | Standard Error | $4 | Standard Error | $2 |
| Median | 0 | Median | $50 | Median | $0 | Median | $0 |
| Mode | 0 | Mode | $0 | Mode | $0 | Mode | $0 |
| Standard Deviation | 3.7 | Standard Deviation | $201 | Standard Deviation | $73 | Standard Deviation | $37 |
| Sample Variance | 13.6 | Sample Variance | $40,443 | Sample Variance | $5,338 | Sample Variance | $1,391 |
| Range | 35 | Range | $2,400 | Range | $1,000 | Range | $500 |
| Minimum | 0 | Minimum | $0 | Minimum | $0 | Minimum | $0 |
| Maximum | 35 | Maximum | $2,400 | Maximum | $1,000 | Maximum | $500 |
| Sum | 598 | Sum | $38,245 | Sum | $7,606 | Sum | $3,080 |
| Count | 372 | Count | $372 | Count | $372 | Count | $372 |

| LODGING | | AUTO | | OTHEREXP | |
|---|---|---|---|---|---|
| Mean | $149 | Mean | $29 | Mean | $16 |
| Standard Error | $28 | Standard Error | $3 | Standard Error | $3 |
| Median | $0 | Median | $10 | Median | $0 |
| Mode | $0 | Mode | $0 | Mode | $0 |
| Standard Deviation | $548 | Standard Deviation | $49 | Standard Deviation | $63 |
| Sample Variance | $300,306 | Sample Variance | $2,393 | Sample Variance | $3,961 |
| Range | $8,400 | Range | $400 | Range | $500 |
| Minimum | $0 | Minimum | $0 | Minimum | $0 |
| Maximum | $8,400 | Maximum | $400 | Maximum | $500 |
| Sum | $55,574 | Sum | $10,667 | Sum | $5,967 |
| Count | $372 | Count | $372 | Count | $372 |

**Table 2** Descriptive statistics obtained from survey variables
*Source: HRTPO analysis of CNU survey data*

**Figure 2** displays group size (number of people in a group):

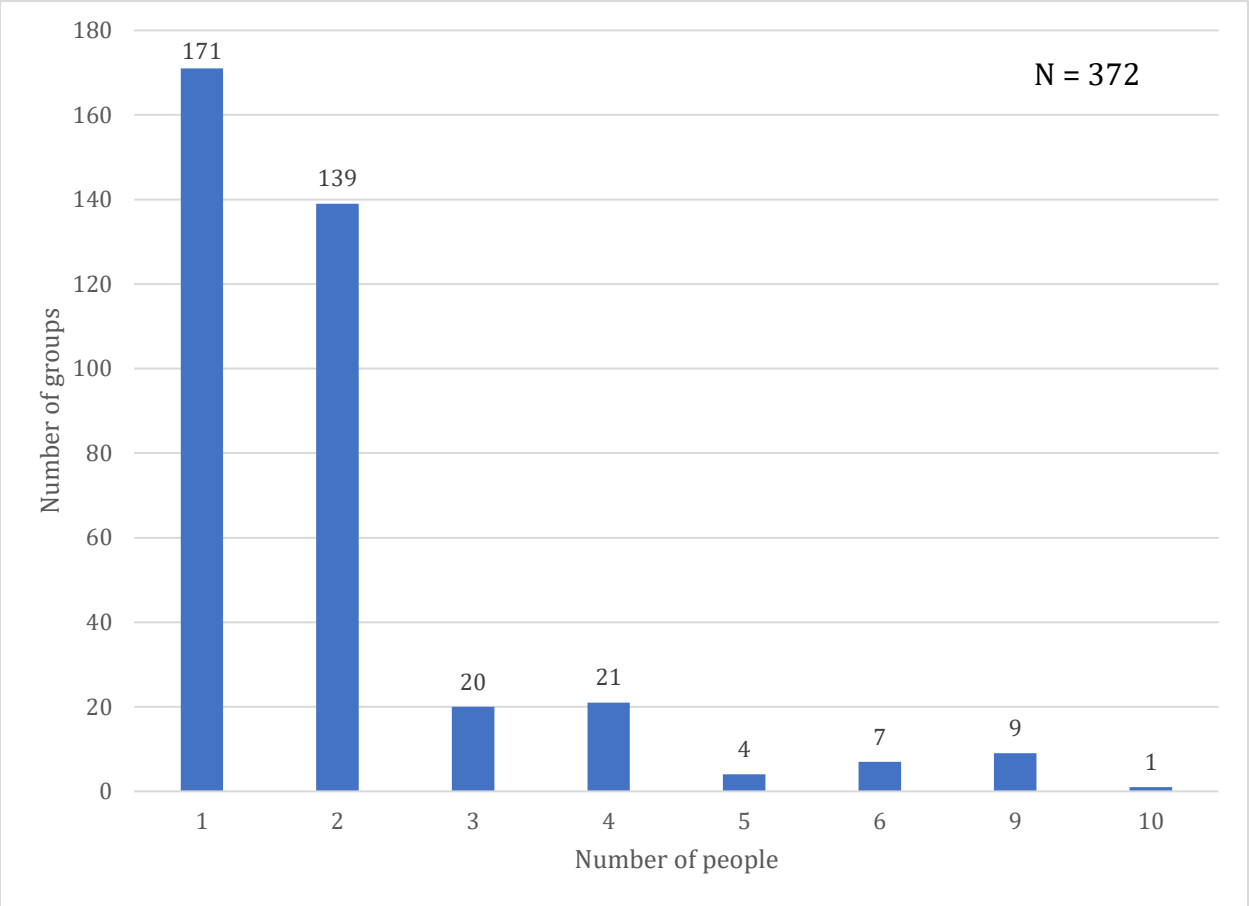



**Figure 2** Group size vs. number of records
*Source: HRTPO analysis of CNU survey data*

The highest number of records is concerned with a single person (171 records), followed by a group of two persons (139 records).

**Figure 3** shows ZIP codes of the respondent's primary residence:

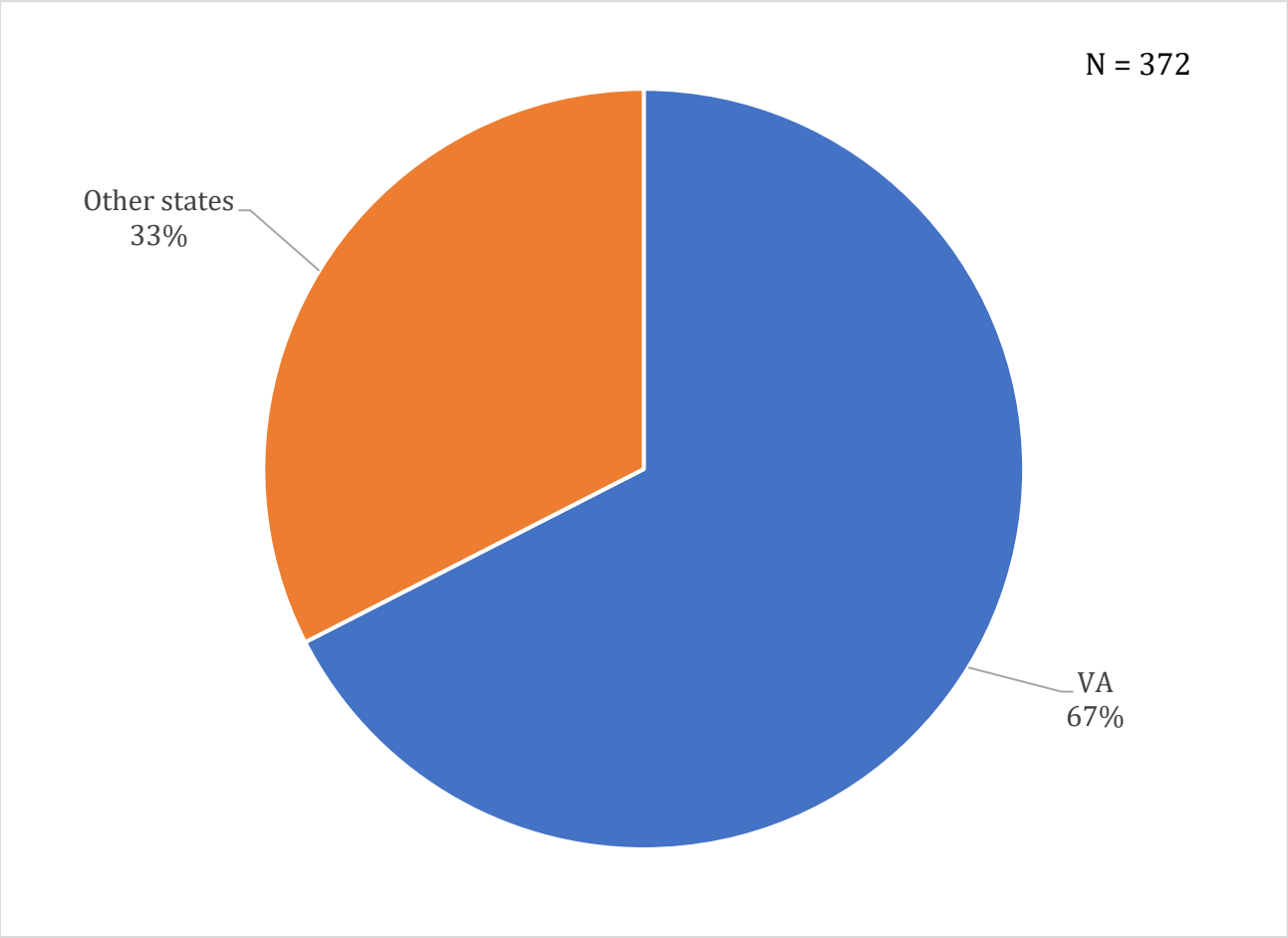



**Figure 3** ZIP codes of the respondent's primary residence
*Source: HRTPO analysis of CNU survey data*

From **Figure 3,** we can see that 67% of visitors were coming from other parts of Virginia, while 33% of all survey respondents were coming from other U.S. states.

**Figure 4** exhibits ZIP codes of the respondent's primary residences from other U.S. states. Additionally, there are four more respondents not shown on charts that are outside the U.S., correctly:

- One respondent from Italy and Spain
- Two respondents from France

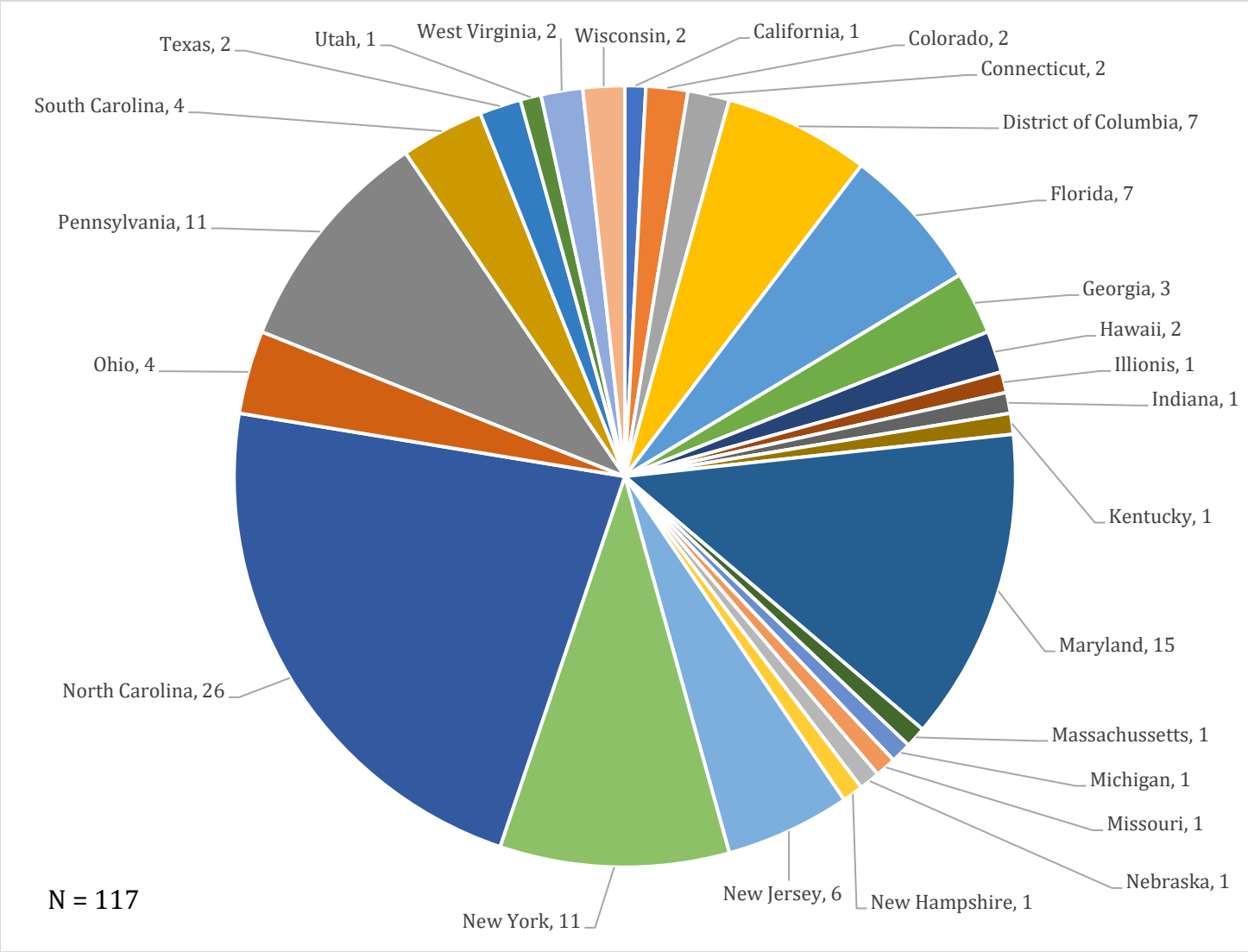



**Figure 4** ZIP codes of the respondent's primary residences from the other U.S. States
*Source: HRTPO analysis of CNU survey data*

From **Figure 4**, we can infer that the highest number of out-of-state respondents came from North Carolina (26 responses), followed by Maryland (15 responses), Pennsylvania, and New York (11 responses). Respondents that traveled farthest (from the U.S.) to come are from Hawaii, Colorado, Nebraska (two responses each), California, Utah, Texas (one response each).

**Map 2** shows the visitors from Virginia. We can infer that a majority of respondents came from the Richmond area and northern Virginia. Moreover, some respondents came from counties bordering West Virginia, North Carolina, and Maryland. The number of survey respondents (N) is 272, which is the number of respondents from Virginia. The difference between 372 and 272 is the respondents who are not from Virginia but are from other U.S. states.

**Map 2** – ZIP codes of respondent's primary residence from Virginia

1 Dot = 1 response to survey

N = 272

*Source: HRTPO analysis of CNU survey data*

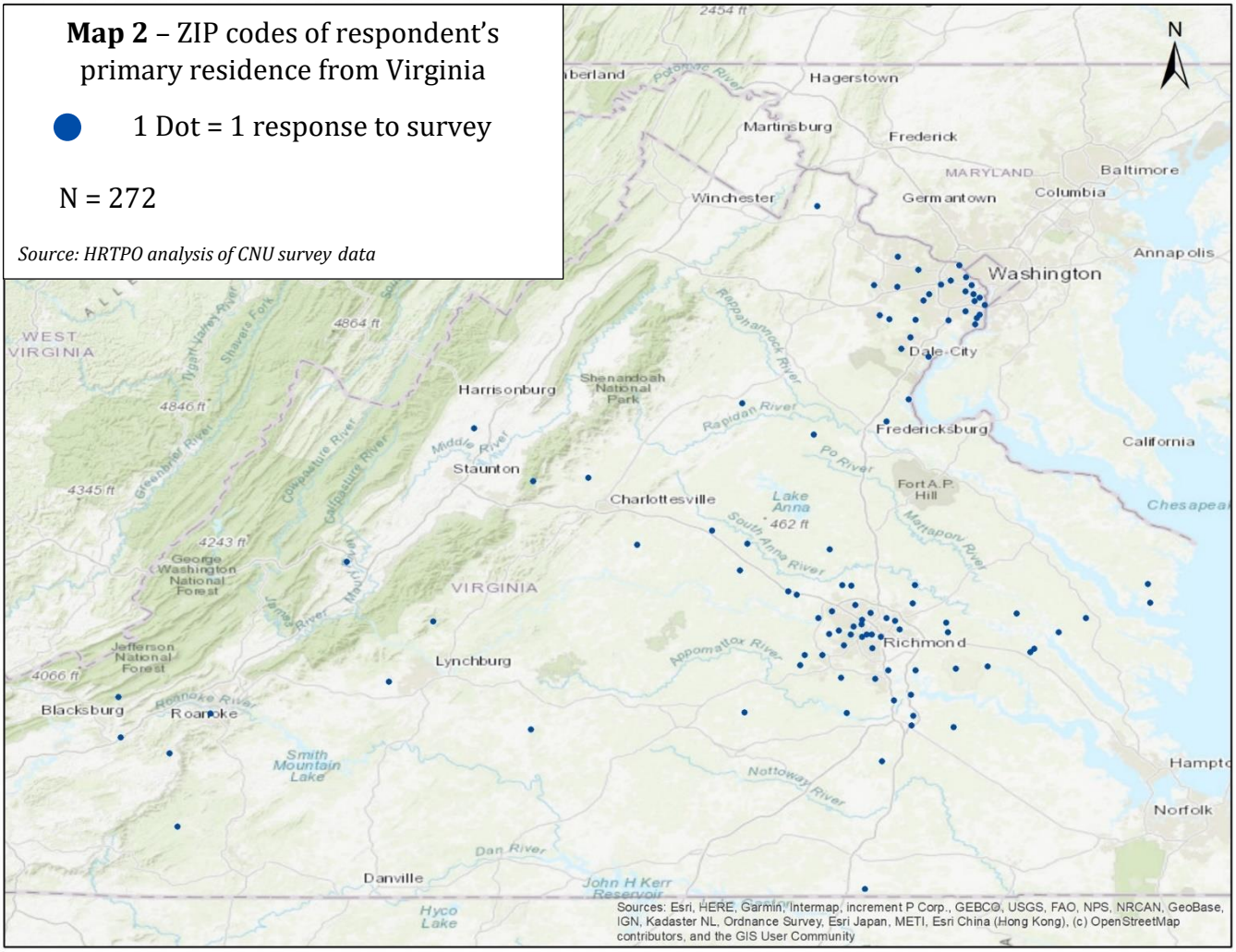


**Figure 5** shows the responses to the statement, "The Virginia Capital Trail is the PRIMARY purpose for visiting the region."

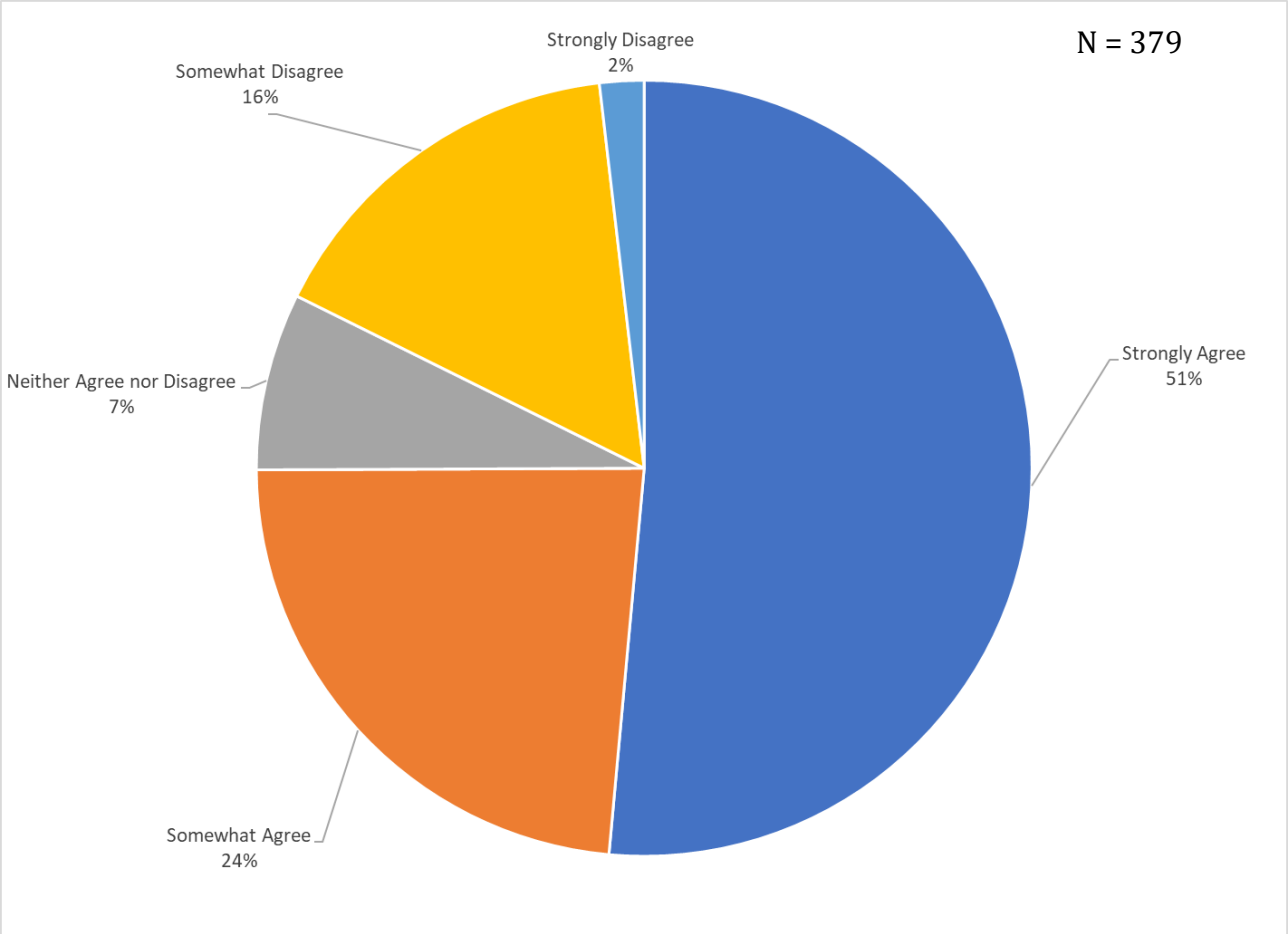



**Figure 5** Responses to "The Virginia Capital Trail is the PRIMARY purpose for visiting the region."
*Source: HRTPO analysis of CNU survey data*

The value of N is the number of survey respondents. The difference between 372 (eligible visitors) and the 379 respondents (above) is the seven respondents who strongly disagree that "The Virginia Capital Trail is the PRIMARY purpose for visiting the region."

From **Figure 5,** we can infer that more than half of respondents (51%) "strongly agree" that their primary purpose for visiting the region is the VCT.

## Calculating Annual Visitor Spending in the Region due to Virginia Capital Trail

The purpose of this chapter is to present the calculation of the annual visitor spending in the region due to the Virginia Capital Trail. There are three components of annual visitor spending calculation:

- Spending per person – based on spending per group
- Annual trail users – based on counts (from the counter located near Greensprings road)
- Portion eligible visitors – based on a comparison of eligible and ineligible

Staff factored group spending according to respondents answer to question whether "The Virginia Capital Trail is the PRIMARY reason for visiting region" (answers "Strongly disagree" were omitted):

| PRIMARY REASON | FACTOR |
|---|---|
| Strongly agree | 1.00 |
| Somewhat agree | 0.75 |
| Neither agree nor disagree | 0.50 |
| Somewhat disagree | 0.25 |

Respondents to the survey provided the amount of money they spent on food, retail, biking, lodging, auto, and other expenses, and these expenses were summed and multiplied with the appropriate factor. For example, respondent number (RESPNUM) 920 spent $80 in total ($50 for food and $30 for auto) and somewhat agreed with the statement that "The Virginia Capital Trail is the PRIMARY reason for visiting region). The total factored amount of dollars spent by this respondent = $80*0.75 = $60.

| *factored $* | |
|---|---|
| Mean | $227 |
| Standard Error | $24 |
| Median | $73 |
| Mode | $0 |
| Standard Deviation | $465 |
| Sample Variance | $216,433 |
| Kurtosis | $28 |
| Skewness | $5 |
| Range | $3,863 |
| Minimum | $0 |
| Maximum | $3,863 |
| Sum | $84,324 |
| Count | 372 |
| Confidence Level (95.0%) | $47 |

**Table 3** Descriptive statistics of factored group spending
*Source: HRTPO analysis of CNU data*

Factored group spending ranges vs. number of respondents are shown in **Figure 6**.

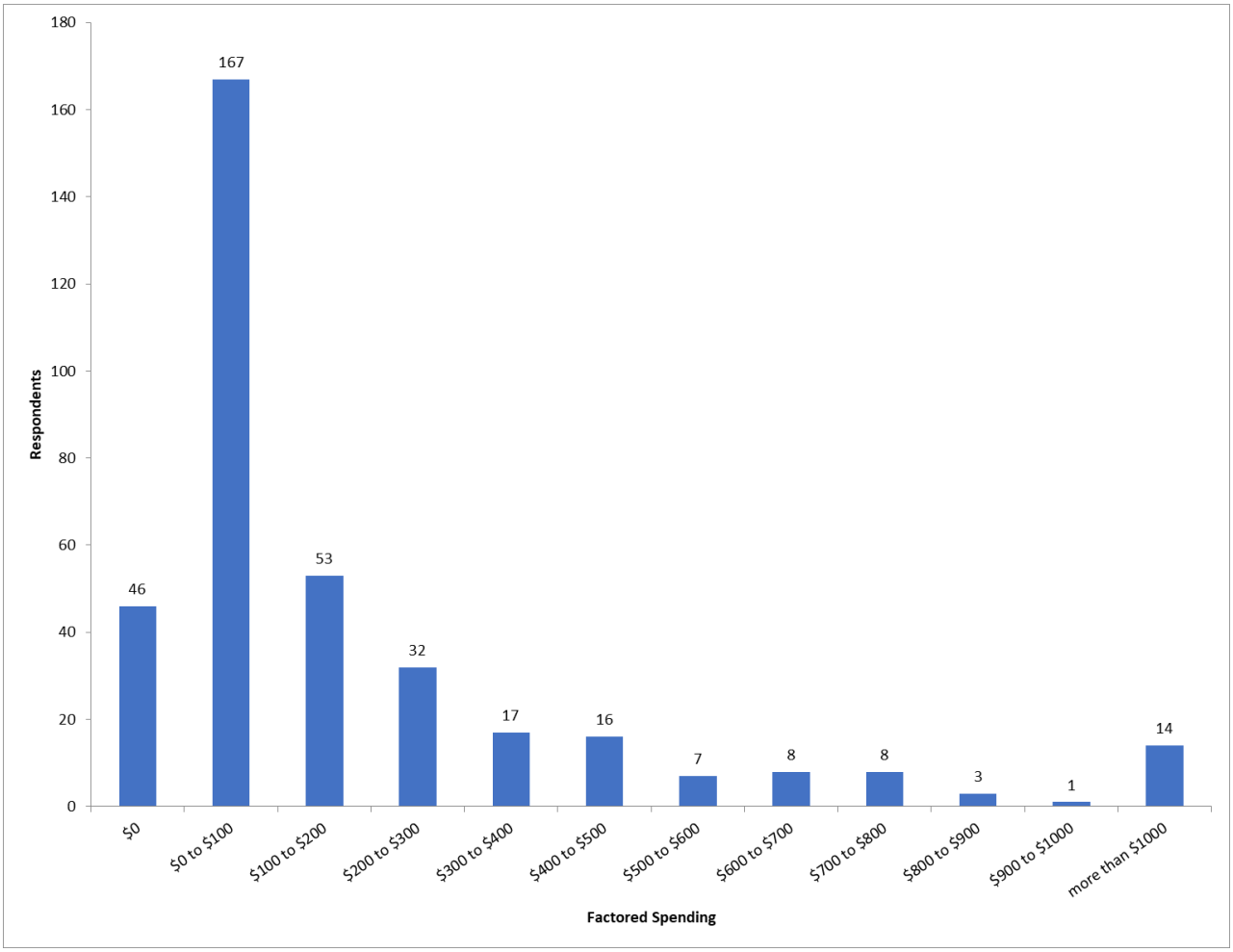



**Figure 6** Factored group spending ranges
*Source: HRTPO analysis of CNU data*

The highest number of respondent groups spent up to $100 during their visit (167 respondents). Only one respondent group spent between $800 and $900 during the tour. Interestingly, 14 respondents spent more than $1000 during their visit to Capital Trail.

The number of annual trail users is **120,000** obtained from the counter maintained by VDOT. Dividing this number by 365 (number of days in a year), staff calculated 327 trail users per day, on average.

Average factored spending per group was calculated as follows:

| Variable | Value (calculation) | Source |
|---|---|---|
| Factored spending by eligible groups | $84,324 | Table 3 |
| Eligible groups | 372 | Table 3 |
| Average factored spending (per group) | $\frac{\$84,324}{372} = \$227$ | |

The next step was to calculate the lower limit of 95% confidence interval per group (subtracting 95% confidence interval from average factored spending per group), and the upper limit of 95% confidence interval, per group (adding 95% confidence interval and average factored spending per group):

| Variable | Value (calculation) | Source |
|---|---|---|
| The lower limit of 95% confidence interval, per group | $227-$47=$179 | Above numbers and Table 3 (for 95% confidence interval) |
| The upper limit of 95% confidence interval, per group | $227+$47=$274 | |

Calculating the average group size (persons) was done by dividing the number of persons ineligible groups by eligible groups:

| Variable | Value (calculation) | Source |
|---|---|---|
| Persons in eligible groups | 746 | Table 1 (Variable: "SIZE," rows: "Count" and "Sum") |
| Eligible groups | 372 | |
| Average group size, persons | $\frac{746}{372} = \mathbf{2.01}$ | |

Average factored spending (per person) was obtained by dividing average factored spending ($ per group) with average group size (persons per group):

| Variable | Value (calculation) |
|---|---|
| Average factored spending (per person) | $\frac{\$227}{2.01} = \$\mathbf{113}$ |
| The lower limit of 95% confidence interval (per person) | $\frac{\$179}{2.01} = \$\mathbf{89}$ |
| The upper limit of 95% confidence interval (per person) | $\frac{\$274}{2.01} = \$\mathbf{137}$ |

The portion of eligible visitors was calculated, as shown below:

| Variable | Value (calculation) | Percentage |
|---|---|---|
| Eligible respondents | 372 | **35%** |
| Ineligible respondents | 683 | 65% |
| Total respondents | 372 + 683 = 1055 | 100% |

Because some users round-trip (going past counter/survey station twice) and some do not (either getting a ride for other direction or making a loop using another route), we assumed that half of users round-trip. Moreover, we assumed that visitors who round-trip only respond to surveyors once, i.e., the first time they pass the survey station. The survey indicated that 35% of survey respondents were visitors; to calculate this adjustment, assume one-third are visitors:

| Eastbound | Westbound | | Respon-dents | Respon-dents who are visitors | Portion of respon-dents who are visitors | Number of counts | Number of counts who are unique visitors | Portion of counts who are unique visitors |
|---|---|---|---|---|---|---|---|---|
| Mr. VB | Mr. VB | round-trip | | | | | | |
| Ms. Nor | Ms. Poq | one-way | | | | | | |
| Mr. Wlm | Mr. Wlm | round-trip | | | | | | |
| Mr. Cville | Mr. Cville | round-trip | | | | | | |
| Ms. Ric | | one-way | | | | | | |
| | | | 6 | 2 | 33% | 9 | 2 | 22% |

Therefore, for calculating total spending, it is necessary to reduce surveyed visitor percentage by one-third to calculate the portion of counts who are unique visitors:

| Variable | Value (calculation) |
|---|---|
| Visitor percentage re: survey | 35% |
| One-third reduction | 12% |
| The portion of counts who are unique visitors | **23%** |

The calculation of annual visitor spending due to Virginia Capital Trail in the region is shown below. The estimate of annual visitor spending was obtained by multiplying average factored spending (per person) with the number of annual trail users and the portion of counts who are unique visitors.

| Variable | Value (calculation) | Rounded up value |
|---|---|---|
| Lower limit of annual visitor spending | $\$89 * 120{,}000 * 23\% = \$2{,}456{,}400$ | \$2,500,000 |
| Estimate of annual visitor spending | $\$113 * 120{,}000 * 23\% = \$3{,}118{,}800$ | **\$3,000,000** |
| Upper limit of annual visitor spending | $\$137 * 120{,}000 * 35\% = \$3{,}781{,}200$ | \$4,000,000 |

Based on the content and number of surveys taken, the staff is 95% confident that annual visitor spending in Hampton Roads due to the Virginia Capital Trail is between \$2.5 million and \$4 million, while the **staff's best estimate is \$3 million**.

The cost of building the Virginia Capital Trail was approximately \$72 million. When we compare this to the staff's best estimate of annual visitor spending in the Hampton Roads region due to Virginia Capital Trail, we see that yearly visitor spending in the area alone (\$3 million) would match the total cost in approximately 24 years.

## Other Studies

University of Richmond and Institute for Service Research completed an economic impact analysis ("Economic and Fiscal Impacts of the Virginia Capital Trail, FY2018-19", Oct. 2019) which showed that the Virginia Capital Trail contributed economically during FY 2018-19:

- Estimated $8.9 million generated to the Commonwealth's economy
- Estimated $6.1 million in increased revenue
- Estimated $3.6 million in associated labor income
- Approximately 3.7% increase in property values that bordered the trail between 2014-2016 over similar properties not adjacent to the trail

In the first phase of the study, the literature review included seven studies reporting total annual trail user expenditures as an economic impact (**Figure 7**). These seven trail studies did not differentiate between visitor trail users and local trail users.

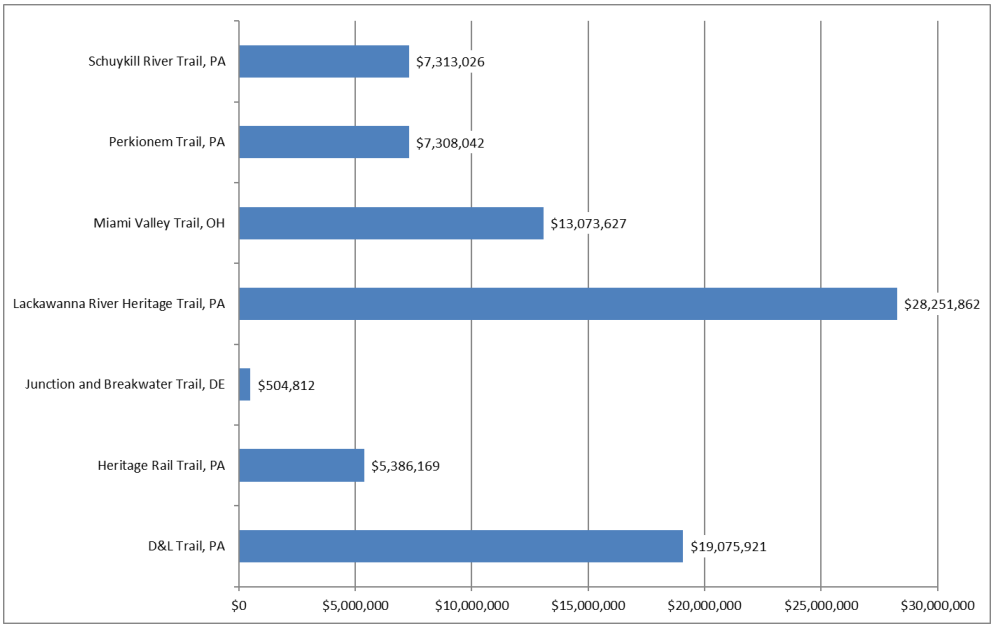



**Figure 7** Total trail users' expenditures, annual
*Source: HRTPO analysis of literature*

The highest annual trail users' expenditures were reported on the Lackawanna River Heritage Trail ($28.2 million), followed by D&L Trail ($19 million), which are both in Pennsylvania, and Miami Valley Trail ($13 million) in Ohio, while the TPO study reported an estimate of $3 million. Note that, given that the expenditures from the studies from **Figure 7** reflect all users, we can assume visitor spending on these trails is lower than the reported numbers.

## Conclusion

Phase One of the Economic Impact of Bicycle Facilities study examined bike usage, infrastructure, and events in Hampton Roads, comparing our region to other regions.

In Phase Two of the study, staff surveyed visitors on the Virginia Capital Trail (VCT) to estimate the annual amount of money spent locally by visitors drawn to Hampton Roads by the VCT. Persons who were asked to complete the surveys are the ones who:

- Live outside of Hampton Roads
- Are visiting, at least in part, to use the trail

Staff summarized survey results with charts, tables, and a map.

Calculating the annual visitor spending in the region due to Virginia Capital Trail was done using:

- Spending per person (based on spending per group)
- Annual trail users (based on counts)
- The portion of counts who are unique visitors (based on assumptions that half of the users round-trip and that the visitors who round-trip only responds to surveyors once)

The estimate of annual visitor spending in the region due to Virginia Capital Trail was obtained by multiplying average factored spending per person with annual trail users and a portion of counts who are unique visitors. This calculation ultimately yielded an annual visitor spending in the region due to Virginia Capital Trail of approximately $3 million.

# Appendix: Public Comment

## Virginia Capital Trail Foundation

**From:** Cat Anthony <cat@virginiacapitaltrail.org>
**Sent:** Monday, June 15, 2020 3:49 PM
**To:** Rob Case <rcase@hrtpo.org>
**Cc:** Shelley Case <shelley.case@c12group.com>
**Subject:** Re: link to VCT study

Rob,

I read through the draft report, great job! I am so happy to see the report out and we are excited to share this report. We are going to share the draft in our newsletter on Wednesday so you may get a few responses from that. The stats of the users and where they are from is awesome to see! Super helpful information for us at the Virginia Capital Trail Foundation and we are excited to use the data.

My only question about the report is the Greensprings Trail Counts. As you probably know, trail counts do not count unique trail users as a cyclist can bike back and forth and be counted twice. In our report, we used trail counts, but we divided the trail counts by 1.95 due to many people riding back and forth and others doing a shuttle. Did you think it skews the data by counting every single count at the Greensprings trail counter? That is my only feedback on this report.

Again great job and we are excited to support you disseminating this report.

Cat

In response to Ms. Anthony's comments, the staff calculated a "portion of counts who are unique visitors" and then used that portion to calculate total spending.