

**The Economic and Fiscal Impacts
of West Virginia State Parks and Forests:
Fiscal Year 2023**

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TABLE OF CONTENTS

Acknowledgments	4
Citing this Report	4
Disclaimers	5
Executive Summary	6
Introduction	7
Research Methods	9
Direct Impact Measurement	9
Secondary Impact Measurement	11
Visitation Measurement	12
Findings	14
Economic Impacts: Total Park System	15
Economic Impacts: Mountain Lodge State Parks	17
Economic Impacts: Cabin/Camping/Day Use State Parks	22
Economic Impacts: State Trails	32
Economic Impacts: State Forests	34
Discussion	37
Investigator Bio	40
Corporate Profile	41
Related References and Sources	42
Appendices	46
Appendix A: Map of Park System	47
Appendix B: Glossary of Economic Terms	48

Source of cover image: Magnini, V.

LIST OF FIGURES AND TABLES

FIGURE 1: EXAMPLE OF MEDIA ANNOUNCEMENT

FIGURE 2: INTRODUCTORY SCREEN ON VISITOR SURVEY

FIGURE 3: ECONOMIC RIPPLE EFFECTS

FIGURE 4: COMPOSITION OF VISITATION WITH REGARD TO PRIMARY RESIDENCY

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

TABLE 2: TOTAL PARK SYSTEM: PATRON SPENDING AND ECONOMIC IMPACTS

TABLE 3: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: TOTAL PARK SYSTEM

TABLE 4: ECONOMIC OUTPUTS OF MOUNTAIN LODGE STATE PARKS

TABLE 5A-5J: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: MOUNTAIN LODGE STATE PARKS

TABLE 6: ECONOMIC OUTPUTS OF CABIN/CAMPING/DAY USE STATE PARKS

TABLE 7A-7Y: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: CABIN/CAMPING/DAY USE STATE PARKS

TABLE 8: ECONOMIC OUTPUTS OF STATE TRAILS

TABLE 9A-9C: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: STATE TRAILS

TABLE 10: ECONOMIC OUTPUTS OF STATE FORESTS

TABLE 11A-11G: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: STATE FORESTS

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This study could not have been conducted without the park visitors who completed surveys. The leadership team at West Virginia State Parks was also very helpful in providing the requested information. Thank you.

CITING THIS REPORT

Magnini, V. (2023). The Economic and Fiscal Impacts of West Virginia State Parks and Forests: Fiscal Year 2023. Institute for Service Research, Virginia Beach, VA.

DISCLAIMERS

Forward-Looking Statements / Risks and Uncertainties:

Some of the statements in this report that are not historical facts are “forward-looking statements.” Such forward-looking statements are associated with certain risks and uncertainties which could cause actual outcomes to differ substantially from those predicted in this report.

Neither the researchers nor any entities which they are affiliated with can be held responsible for any actions / decisions that might be influenced by the contents of this report.

Errors and Omissions:

While effort was made by the researchers in this project to present accurate and complete information, neither the researchers nor any entities which they are affiliated with can be held responsible for inaccurate or incomplete information.

EXECUTIVE SUMMARY

Visitors attracted annually to West Virginia's State Parks and Forests trigger a large amount of economic activity throughout the state. This Executive Summary highlights the key findings of the fiscal year 2023 (FY23) West Virginia State Parks and Forests economic impact analyses:

- In FY23, visitors to West Virginia State Parks and Forests spent an estimated \$482.97M in the state. Approximately 57.68 percent [\$278.57M] of this spending was by out-of-state visitors.
- The total economic activity stimulated by West Virginia State Parks and Forests during FY23 was approximately \$521.56M.
- The total *economic impact from travelers* to/from West Virginia State Parks and Forests during FY23 was an estimated \$421.95M. *Economic impact from travelers*, a component of total economic activity, is a measure of “fresh money” infused into the state’s economy that likely would not have been generated in the absence of the park system.
- In FY23, for every \$1 of general tax revenue provided to the park system, \$18.54, on average, was generated in fresh money that likely would not be there if not for the operation of West Virginia State Parks and Forests.
- Regarding employment, the economic activity stimulated by visitation to West Virginia State Parks and Forests supported approximately 5,256 jobs in the state during FY23.
- In terms of wages and income, the economic activity spawned by West Virginia State Parks and Forests was responsible for roughly \$187.85MM in wages and salary income in FY23.
- Economic activity stimulated by West Virginia State Parks and Forests generated approximately \$27.92M in state and local tax revenues during FY23. As such, roughly \$1.23 in state and local tax revenues were generated for every \$1 of tax money spent on the park system.
- Economic activity created by West Virginia State Parks and Forests was associated with approximately \$288.66M in value-added effects which is a measure of the park system’s contribution to the gross domestic product of the state. These effects are especially important at the park-by-park level where most of the impact is retained in the local area.

{End of executive summary}

INTRODUCTION

Since 2018, West Virginia has made an estimated \$81.33M in capital improvements to its state park assets.¹ As seen in the example contained in Figure 1, much of these capital improvements encompass upgrades to overnight accommodation

FIGURE 1: EXAMPLE OF MEDIA ANNOUNCEMENT*



offerings. An overarching goal of such investments is increased patronage at parks by residents and non-residents alike. Therefore, the purpose of this study is to gain a more detailed understanding of the economic contributions of West Virginia's State Parks and Forests to the economy of the state. Specific objectives of this study include, for fiscal year 2023 (FY23):

- Assess the direct and secondary economic activity and impacts of West Virginia State Parks and Forests on a state-wide level;
- Estimate the direct and secondary economic activity and impacts of each specific park or forest;
- Identify economic benefits derived from non-residents of West Virginia;
- Estimate spending derived from both day-user and overnight-user groups; and
- Provide a snapshot of the economic activity spawned by the five years of capital improvements prior to FY23.

Achieving the above objectives, this study details the distribution of travel and recreational impacts of West Virginia State Parks among mountain lodge parks, cabin/camping/day use parks, state trails, and state forests. The secondary economic impact items referred to above include indirect effects such as job creation and revenues brought into travel-related

¹ This data was provided to the Institute for Service Research (ISR) by West Virginia park leadership.

businesses. Secondary effects also include induced outcomes such as the increased spending power of those working in tourism, recreation, and supporting industries. In addition, a value-added effect is also calculated which models the park system's contribution to the gross domestic product of the state. Furthermore, the amounts of state and local tax revenues associated with the economic activity spawned by the park system are also estimated.

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

While every effort was taken to make this report clear and understandable to a non-economist audience, readers are advised that there is a glossary of economic terms contained in Appendix B.

IMAGE OF COOPERS ROCK STATE FOREST*



*This screenshots is adopted directly from:
<https://wvstateparks.com/park/coopers-rock-state-forest/>

{Research Methods section begins on next page}

RESEARCH METHODS

Direct Impact Measurement

Economic activity of the state park system is created primarily from three sources: park visitor spending, the parks' operational expenditures (to the degree that they are not derived from visitor revenues, i.e. the tax derived portion of the park budget), and capital investment (again, to the degree that it is not derived from visitor revenues).

In terms of spending estimates, customized spending profiles were developed by the Institute for Service Research (ISR), in collaboration with park leadership, by collecting spending data from 3,006 visiting parties during FY23. As seen in the introductory screen displayed in Figure 2, this spending data was collected via a visitor survey. The sample size for the survey exceeds the benchmarks recommended by Stynes et

al. (2000) for economic impact modeling. Armstrong and Overton's (1977) method of comparing early to late responses was used as an additional check to confirm that the collected responses are reflective of the sector (Johnson, Beaton, Murphy, and Pike, 2000; Sax, Gilmartin, and Bryant, 2003). Although all diagnostics confirmed sample adequacy, to error on the side of caution, all economic outputs in this study are presented in the form of a range to account for margin of error.

The spending profiles that resulted from the analysis of the survey data and removal of data outliers are listed in Table 1. These profiles represent visitors' spending both inside and outside of the park, but within the state. Other than visitors' spending, park operational and capital expenditure amounts were provided to ISR by the state park leadership team.

FIGURE 2: INTRODUCTORY SCREEN ON VISITOR SURVEY

12:29

WEST VIRGINIA
state parks

These economic impact questions take about 3-4 minutes to complete. You can choose to remain anonymous, or you can provide your contact information to be entered into a raffle for a **\$100 West Virginia State Parks gift card**.

Respondents must be 18 years or older:

☐ I am at least 18 years old

☐ I am younger than 18 years old

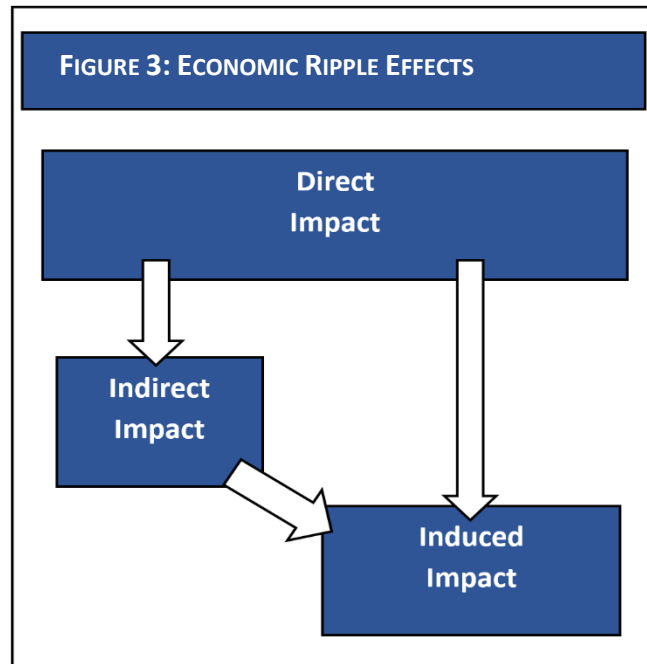
→

TABLE 1: AVERAGE VISITOR SPENDING: PROFILES BY SEGMENT (PER PARK DAY)									
DAY VISITORS				OVERNIGHT VISITORS					
SPENDING CATEGORY ^{1, 2}	Local Day Visitor	Non-Local Day Visitor	Non-Resident Day Visitor	Resident Lodge Guest	Resident Cabin Guest	Resident Camping Guest	Non-Resident Lodge Guest	Non-Resident Cabin Guest	Non-Resident Camping Guest
Lodging	\$1.69	\$4.21	\$7.03	\$71.64	\$49.77	\$3.16	\$76.35	\$60.37	\$3.31
Camping	\$1.16	\$7.85	\$12.12	\$3.95	\$3.58	\$11.95	\$10.88	\$2.08	\$10.06
Restaurants	\$2.92	\$4.56	\$5.44	\$20.56	\$10.21	\$12.31	\$11.04	\$6.69	\$12.27
Entertainment	\$3.64	\$10.61	\$13.06	\$18.38	\$15.92	\$11.45	\$12.16	\$9.00	\$8.41
Groceries/convenience items	\$4.26	\$14.16	\$15.25	\$5.82	\$19.55	\$7.72	\$11.91	\$14.33	\$5.59
Gas	\$2.39	\$6.48	\$7.83	\$9.02	\$7.28	\$4.16	\$7.42	\$8.27	\$5.47
Other transportation	\$0.34	\$0.69	\$6.24	\$1.42	\$1.06	\$0.69	\$1.81	\$2.70	\$1.48
Sporting goods/apparel	\$0.93	\$0.63	\$2.72	\$1.84	\$1.73	\$0.32	\$1.70	\$2.45	\$0.46
Souvenirs and other	\$3.90	\$6.71	\$11.03	\$9.91	\$4.49	\$7.16	\$7.15	\$12.82	\$7.31
TOTAL PER VISITOR:	\$21.23	\$55.90	\$80.72	\$142.54	\$113.59	\$58.92	\$140.42	\$118.71	\$54.34
1. In all economic models in this study, only 79.2 percent of non-local and non-resident spending is included. This deduction is made to account for visit primacy. 2. Spending profiles at locations that offer skiing were increased by 2 percent to account for the higher spending recorded by those participating in this activity.									

{Secondary Impact Measurement section begins on the next page}

Secondary Impact Measurement

In addition to assessing the direct impacts of the park system's economic activity, this study also models secondary or ripple effects which comprise economic activity from subsequent rounds of re-spending of money. As shown in Figure 3, there are two types of ripple effects: indirect and induced. Indirect effects entail the changes in sales, income, and jobs of suppliers to entities included in direct impacts (Stynes et al., 2000). Induced effects, on the other hand, encapsulate the changes in economic activity in the region stimulated by household spending of income earned through direct and indirect effects.



Indirect and induced effects are estimated using economic multipliers. Such multipliers reflect the extent of interdependency between sectors in a region's economy and can vary significantly between regions and sectors (Stynes et al., 2000). Here is a simple example of how a multiplier can be interpreted: if the multiplier for the restaurant sector in a given region is 1.37 then it can be estimated that every dollar spent at a restaurant results in 37 cents of secondary economic activity in the region.

The economic multipliers, as well as calculations of jobs supported, tax revenues generated, and value-added effects were facilitated through the use of IMPLAN software. Specifically, economic multipliers for West Virginia are commercially available in an economic impact estimation software titled IMPLAN, commercialized by MIG, Inc. Therefore, the most recent IMPLAN multipliers were employed in this study to guide the estimation of indirect and induced economic impacts. Because most of the park visitors' spending occurs either in the park itself, or in the local area surrounding the park, the secondary economic effects in the output models in the current study were adjusted based upon whether a given park's county(ies) is deemed by the Appalachian Regional Commission to be distressed, at risk, or transitional (https://en.wikipedia.org/wiki/List_of_Appalachian_Regional_Commission_counties#West_Virginia).

Visitation Measurement

Park attendance counts for FY23 were provided to ISR by the leadership team at West Virginia State Parks. The attendance counting practices used in West 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 many unstaffed park entry points by multiplying vehicle counts by standard occupancy multipliers, with adjustments made for service

vehicle traffic and park re-entry traffic. Overnight visitor calculations are made by multiplying site occupancies by standard multipliers, as well as employing information from the centralized reservations system.

One exception to the above attendance estimation procedures, however, is the estimation of visitor volumes to the three state trails in the park system. Due to the many trail access points, West Virginia does not currently have the capability of tallying trail visitation counts. Therefore, in an effort to remain conservative in this study's input-output modeling, the rail trail with the lowest visitation in neighboring Virginia's state park system was used as a proxy in the current study. More specifically, Virginia's High Bridge Trail recorded an estimated attendance of 138K visitors in the most recent year (Magnini, 2023). This proxy seems to be the best alternative for the current study's economic modeling because it is relatively consistent with the average visitation across West Virginia's day use parks: 127K visitors.

IMAGE OF NORTH BEND RAIL TRAIL*

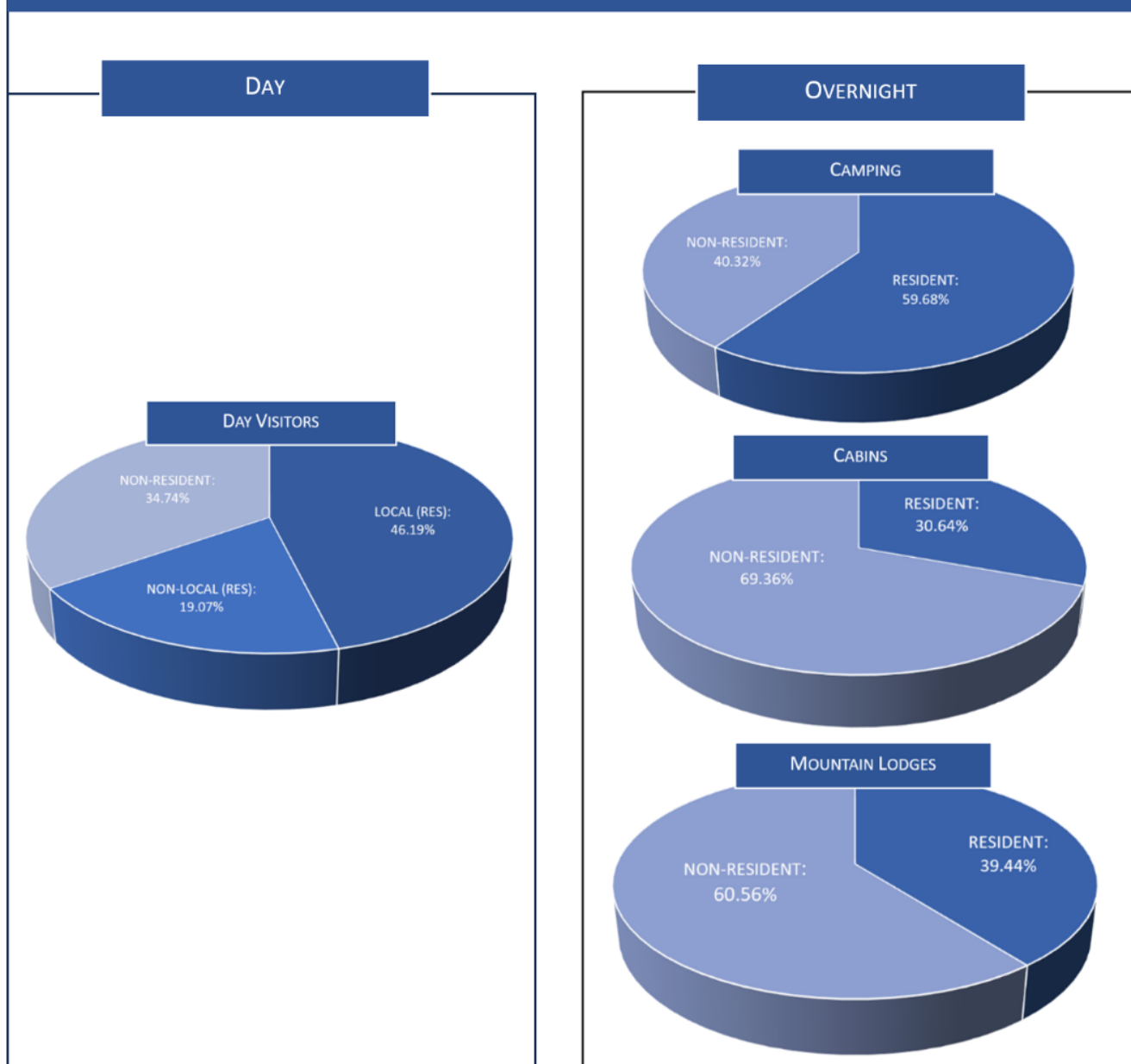


*This screenshots is adopted directly from:
<https://wvstateparks.com/park/north-bend-rail-trail/>

{Findings section begins on next page}

With regard to the economic modeling inputs, a component of visitation measurement entails partitioning visitors into the spending profile categories previously listed in Table 1. Hence, Figure 4 displays the results of this partitioning. Day visitors were categorized based upon survey data; overnight visitors were categorized based upon reservation system data. It is germane to note that Figure 4 presents park system-wide results whereas, in reality, such categories vary according to park type and location. As can be seen in Figure 4, the majority of cabin and mountain lodge guests are not residents of West Virginia. This factor helps drive the “fresh money” economic impacts that will be discussed later in this report.

FIGURE 4: COMPOSITION OF VISITATION WITH REGARD TO PRIMARY RESIDENCY



FINDINGS

Preview to Findings Section:

This section of the report contains the results of the economic modeling. First, statewide visitor spending findings are presented (see Table 2). This visitor spending is portioned according to day use versus overnight and by West Virginia resident versus non-resident. Second, statewide economic activity and economic impacts are reported. Third, statewide job-related results are detailed (see Table 3). In the jobs outputs, total jobs are estimated [combined full-time and part-time] along with the associated labor income.

Fourth, value-added effects are also reported in Table 3. Value-added is a commonly used measure of the contribution to the state economy because it avoids the double counting of intermediate sales and incorporates only the ‘value-added’ by the region to final products. Similarly, another key economic metric presented in the section (also Table 3) is state and local tax revenue generation by the park system.

Following the state-wide results described above, the Findings section turns to parsing out park-by-park economic impact results. To facilitate ease of reading this report, park-by-park results are presented in four sub-sections: mountain lodge results, cabin/camping/day use park results, state trail results, and state forest results. On a separate but related note, it is important to point out that the system-wide economic results (for example, those listed in the Executive Summary) are slightly different than the individual park results summed together because the overall system-wide IMPLAN modeling accounts for different indirect and induced effects than simply summing the individual park results. The glossary contained in Appendix B offers definitions of key terms used in this Findings section.

{Park system results presented on the next page}

Economic Impacts: Total Park System

As detailed in Table 2, this study finds that in FY23 visitors to West Virginia State Parks and Forests spent an estimated \$482.97M in the state. Approximately 57.68 percent [\$278.57M] of this spending was by out-of-state visitors. Driven largely by this visitor spending, the total economic activity stimulated by West Virginia State Parks and Forests during FY23 was approximately \$521.56M. A sub-category of this total, “economic impact from travelers” is estimated at \$421.95M. Economic impact from travelers, a component of total economic activity, is a measure of “fresh money” infused into the state’s economy that likely would not have been generated in the absence of the park system.

As listed in Table 3, regarding employment, the economic activity stimulated by visitation to West Virginia State Parks and Forests supported approximately 5,256 jobs in the state during FY23. These jobs were associated with significant earnings around the state. More specifically, in terms of wages and income, the economic activity spawned by West Virginia State Parks and Forests was responsible for roughly \$187.85MM in wages and salary income in FY23.

Also contained in Table 3, economic activity created by West Virginia State Parks and Forests was associated with approximately \$288.66M in value-added effects which is a measure of the park system’s contribution to the gross domestic product of the state. These effects are especially important at the park-by-park level where most of the impact is retained in the local area.

TABLE 2: TOTAL PARK SYSTEM: PATRON SPENDING AND ECONOMIC IMPACTS						
STATE-WIDE	Day Visitor Spending	Overnight Guest Spending		Resident Spending	Non-Resident Spending	Total Visitor Spending
	\$409.58M	\$73.38M		\$204.40M	\$278.57M	\$482.97M
	Economic Activity (Lower Bound)	Economic Activity (Upper Bound)	Economic Activity (Mean)	Economic Impact from Travelers (Lower Bound)	Economic Impact from Travelers (Upper Bound)	Economic Impact from Travelers (Mean)
	\$495.48M	\$547.64M	\$521.56M	\$400.86M	\$443.05M	\$421.95M

Lastly, in terms of tax revenue generation, the economic activity supported by the West Virginia state park system during FY23 generated an estimated \$27.92M in state and local tax revenues. According to IMPLAN modeling outputs, in West Virginia, for the type of tourism-related spending associated with state park visitation, the ratio between state to local tax proceeds is roughly 2 to 1. Stated differently, approximately 67 percent of the total represents state-level tax proceeds. Regarding the local tax proceeds, it is prudent to note here that these estimated local tax revenues are realized not only within a given park's municipality but in any municipality where visitors' direct spending occurred when traveling to/from the focal park.

TABLE 3: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: TOTAL PARK SYSTEM				
STATE-WIDE	IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
	Direct Effect	4,068	126.95M	184.89M
	Indirect Effect	578	30.46M	49.64M
	Induced Effect	610	30.43M	54.14M
	Total Effect	5,256	\$187.85M	\$288.66M
Estimated state and local tax revenue generation: \$27.92M				

{Economic Impacts of Mountain Lodge State Parks section begins on the next page}

Economic Impacts: Mountain Lodge State Parks

This report section parses-out economic impact results for the park system's mountain lodges. As a group, this collection of mountain lodges was associated with between \$235.98M → \$260.82M of economic activity during FY23. As seen in Table 4, approximately 84 percent of this economic activity came in the form of economic impacts from travelers: those crossing a state line or traveling 50 miles or more (one-way) to visit the mountain lodge (see Appendix B for a glossary of economic terms). As listed below, the mountain lodge that was associated with the most economic activity during FY23 was Pipestem with between \$36.14M → \$39.94M.

TABLE 4: ECONOMIC OUTPUTS OF MOUNTAIN LODGE STATE PARKS

NAME OF PARK	ECONOMIC ACTIVITY (LOWER BOUND)	ECONOMIC ACTIVITY (UPPER BOUND)	ECONOMIC ACTIVITY (MEAN)	ECONOMIC IMPACT FROM TRAVELERS (LOWER BOUND)	ECONOMIC IMPACT FROM TRAVELERS (UPPER BOUND)	ECONOMIC IMPACT FROM TRAVELERS (MEAN)
Blackwater Falls	\$26.91M	\$29.75M	\$28.33M	\$21.59M	\$23.87M	\$22.73M
Cacapon	\$28.34M	\$31.32M	\$29.83M	\$22.75M	\$25.15M	\$23.95M
Canaan Valley	\$28.78M	\$31.81M	\$30.30M	\$22.99M	\$25.41M	\$24.20M
Chief Logan	\$23.29M	\$25.74M	\$24.52M	\$17.52M	\$19.36M	\$18.44M
Hawks Nest	\$30.66M	\$33.88M	\$32.27M	\$32.62M	\$36.05M	\$34.33M
North Bend	\$7.74M	\$8.56M	\$8.15M	\$6.11M	\$6.75M	\$6.43M
Pipestem	\$36.14M	\$39.94M	\$38.04M	\$30.97M	\$34.23M	\$32.61M
Stonewall	\$23.78M	\$26.28M	\$25.03M	\$20.00M	\$22.11M	\$21.05M
Twin Falls	\$10.55M	\$11.66M	\$11.10M	\$8.30M	\$9.17M	\$8.73M
Tygart Lake	\$19.79M	\$21.88M	\$20.84M	\$14.75	\$16.30M	\$15.53M
TOTAL	\$235.98M	\$260.82M	\$248.40M	\$197.60M	\$218.40M	\$208.00M

Other important economic impact metrics for each mountain lodge are contained in Tables 5A-5J. Such metrics include jobs supported [and associated labor income], value-added effects, and state and local tax revenue generation.

TABLE 5A: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: BLACKWATER FALLS

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	218	\$6.79M	\$10.16M
Indirect Effect	32	\$1.66M	\$2.69M
Induced Effect	33	\$1.63M	\$2.90M
Total Effect	282	\$10.08M	\$15.76M
Estimated state and local tax revenue generation: \$1.59M			

TABLE 5B: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: CACAPON

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	229	\$7.22M	\$10.85M
Indirect Effect	33	\$1.73M	\$2.80M
Induced Effect	35	\$1.73M	\$3.07M
Total Effect	297	\$10.68M	\$16.73M
Estimated state and local tax revenue generation: \$1.69M			

TABLE 5C: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: CANAAN VALLEY

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	233	\$6.96M	\$10.63M
Indirect Effect	35	\$1.84M	\$2.97M
Induced Effect	34	\$1.70M	\$3.02M
Total Effect	303	\$10.50M	\$16.62M
Estimated state and local tax revenue generation: \$2.68M			

TABLE 5D: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: CHIEF LOGAN

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	196	\$5.84M	\$8.64M
Indirect Effect	28	\$1.46M	\$2.39M
Induced Effect	28	\$1.41M	\$2.51M
Total Effect	252	\$8.71M	\$13.53M
Estimated state and local tax revenue generation: \$1.36M			

TABLE 5E: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: HAWKS NEST

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	242	\$7.99M	\$11.06M
Indirect Effect	35	\$1.86M	\$3.05M
Induced Effect	38	\$1.91M	\$3.40M
Total Effect	315	\$11.76M	\$17.51M
Estimated state and local tax revenue generation: \$1.59M			

TABLE 5F: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: NORTH BEND

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	64	\$2.04M	\$3.02M
Indirect Effect	9	\$462K	\$750K
Induced Effect	10	\$482K	\$857K
Total Effect	82	\$2.98M	\$4.63M
Estimated state and local tax revenue generation: \$439K			

TABLE 5G: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: PIPESTEM

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	275	\$10.33M	\$14.64M
Indirect Effect	36	\$1.96M	\$3.18M
Induced Effect	48	\$2.37M	\$4.22M
Total Effect	359	\$14.66M	\$22.05M
Estimated state and local tax revenue generation: \$1.85M			

TABLE 5H: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: STONEWALL

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	186	\$5.65M	\$8.83M
Indirect Effect	29	\$1.52M	\$2.43M
Induced Effect	28	\$1.38M	\$2.46M
Total Effect	242	\$8.55M	\$13.73M
Estimated state and local tax revenue generation: \$1.57M			

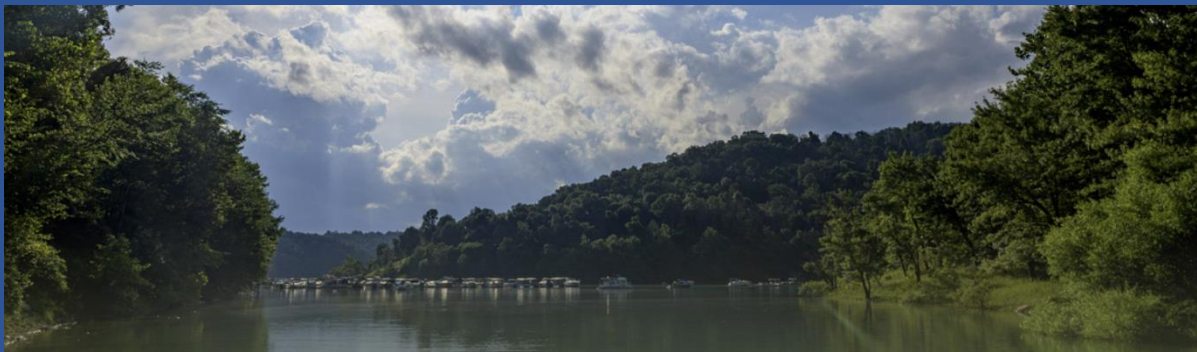
TABLE 5I: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: TWIN FALLS

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	86	\$3.62M	\$5.40M
Indirect Effect	12	\$833K	\$1.35M
Induced Effect	13	\$859K	\$1.53M
Total Effect	112	\$5.31M	\$8.28M
Estimated state and local tax revenue generation: \$607K			

TABLE 5J: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: TYGART LAKE

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	167	\$4,90M	\$7.24M
Indirect Effect	24	\$1.26M	\$2.06M
Induced Effect	24	\$1.19M	\$2.12M
Total Effect	215	\$7.35M	\$11.41M
Estimated state and local tax revenue generation: \$1.14M			

IMAGE OF TYGART LAKE STATE PARK*



*This screenshots is adopted directly from:
<https://wvstateparks.com/park/tygart-lake-state-park/>

{Economic Impacts of Cabin / Camping / Day Use State Parks section begins on the next page}

Economic Impacts: Cabin/Camping/Day Use State Parks

This section delineates this study's economic impact findings for each cabin, camping, or day use park. As a cohort, these 25 locations supported between \$182.27M → \$201.46M of economic activity during FY23. Due to their larger spending profiles, the majority of this total activity is recorded as economic impact from travelers (see Table 6). Tomlinson Run State Park, in the state's panhandle (Hancock County), supported the most economic activity among this group of parks: between \$22.66M → \$25.04M. The location that supported the second largest amount of economic activity during FY23 was Beech Fork (Cabell and Wayne Counties); economic activity range: \$16.47M → \$18.21M.

TABLE 6: ECONOMIC OUTPUTS OF CABIN/CAMPING/DAY USE STATE PARKS

NAME OF PARK	ECONOMIC ACTIVITY (LOWER BOUND)	ECONOMIC ACTIVITY (UPPER BOUND)	ECONOMIC ACTIVITY (MEAN)	ECONOMIC IMPACT FROM TRAVELERS (LOWER BOUND)	ECONOMIC IMPACT FROM TRAVELERS (UPPER BOUND)	ECONOMIC IMPACT FROM TRAVELERS (MEAN)
Audra	\$11.18M	\$12.36M	\$11.77M	\$9.29M	\$10.27M	\$9.78M
Babcock	\$7.63M	\$8.44M	\$8.04M	\$6.60M	\$7.30M	\$6.50M
Beartown	\$1.66M	\$1.84M	\$1.75M	\$1.38M	\$1.52M	\$1.45M
Beech Fork	\$16.47M	\$18.21M	\$17.34M	\$13.61M	\$15.05M	\$14.33M
Berkeley Springs	\$7.45M	\$8.24M	\$7.84M	\$6.24M	\$6.90M	\$6.57M
Blennerhassett	\$1.74M	\$1.93M	\$1.84M	\$1.50M	\$1.66M	\$1.58M
Bluestone	\$8.57M	\$9.47M	\$9.02M	\$7.15M	\$7.90M	\$7.52M
Camp Creek	\$7.79M	\$8.61M	\$8.20M	\$6.55M	\$7.24M	\$6.90M
Carnifex Ferry	\$2.89M	\$3.19M	\$3.04M	\$2.42M	\$2.68M	\$2.55M
Cass	\$13.84M	\$15.29M	\$14.57M	\$11.76M	\$13.00M	\$12.38M
Cathedral	\$4.03M	\$4.46M	\$4.24M	\$3.35M	\$3.70M	\$3.52M
Cedar Creek	\$6.80M	\$7.51M	\$7.16M	\$5.61M	\$6.20M	\$5.91M
Droop Mountain	\$5.50M	\$6.07M	\$5.78M	\$4.55M	\$5.03M	\$4.79M
Fairfax	\$241K	\$267K	\$254K	\$200K	\$221K	\$210K
Holly River	\$6.63M	\$7.33M	\$6.98M	\$5.57M	\$6.16M	\$5.87M
Little Beaver	\$9.27M	\$10.24M	\$9.76M	\$7.75M	\$8.56M	\$8.15M
Lost River	\$5.50M	\$6.08M	\$5.79M	\$4.97M	\$5.49M	\$5.2M
Moncove Lake	\$5.17M	\$5.71M	\$5.44M	\$4.29M	\$4.74M	\$4.51M

TABLE 6: ECONOMIC OUTPUTS OF CABIN/CAMPING/DAY USE STATE PARKS [CONTINUED]						
NAME OF PARK	ECONOMIC ACTIVITY (LOWER BOUND)	ECONOMIC ACTIVITY (UPPER BOUND)	ECONOMIC ACTIVITY (MEAN)	ECONOMIC IMPACT FROM TRAVELERS (LOWER BOUND)	ECONOMIC IMPACT FROM TRAVELERS (UPPER BOUND)	ECONOMIC IMPACT FROM TRAVELERS (MEAN)
Pinnacle Rock	\$2.45M	\$2.70M	\$2.58M	\$2.04M	\$2.25M	\$2.15M
Prickett's Fort	\$7.09M	\$7.84M	\$7.47M	\$5.92M	\$6.54M	\$6.23M
Tomlinson Run	\$22.66M	\$25.04M	\$23.85M	\$18.85M	\$20.84M	\$19.84M
Tu-Endie-Wei	\$1.31M	\$1.45M	\$1.38M	\$1.08M	\$1.20M	\$1.14M
Valley Falls	\$5.41M	\$5.98M	\$5.69M	\$4.49M	\$4.96M	\$4.73M
Watoga	\$12.49M	\$13.81M	\$13.15M	\$10.65M	\$11.77M	\$11.21M
Watters Smith	\$8.49M	\$9.38M	\$8.94M	\$7.28M	\$8.04M	\$7.66M
TOTAL	\$182.27M	\$201.46M	\$191.87M	\$153.11M	\$169.22M	\$161.17M

Like with the previous mountain lodge section, other key economic impact metrics for each cabin/camping/day use state park are contained in Tables 7_A-7_Y. Such metrics include jobs supported [and associated labor income], value-added effects, and state and local tax revenue generation.

TABLE 7A: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: AUDRA			
IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	97	\$2.79M	\$4.07M
Indirect Effect	14	\$713K	\$1.17M
Induced Effect	14	\$678K	\$1.21M
Total Effect	124	\$4.86M	\$6.44M
Estimated state and local tax revenue generation: \$633K			

TABLE 7B: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: BABCOCK

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	64	\$1.95M	\$2.88M
Indirect Effect	9	\$471K	\$767K
Induced Effect	9	\$468K	\$832K
Total Effect	83	\$2.89M	\$4.48M
Estimated state and local tax revenue generation: \$440K			

TABLE 7C: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: BEARTOWN

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	14	\$408K	\$595K
Indirect Effect	2	\$107K	\$176K
Induced Effect	2	\$100K	\$177K
Total Effect	18	\$615K	\$949K
Estimated state and local tax revenue generation: \$95K			

TABLE 7D: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: BEECH FORK

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	141	\$4.21M	\$6.13M
Indirect Effect	20	\$1.03M	\$1.67M
Induced Effect	20	\$1.01M	\$1.80M
Total Effect	181	\$6.25M	\$9.60M
Estimated state and local tax revenue generation: \$921K			

TABLE 7E: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: BERKELEY SPRINGS

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	64	\$1.92M	\$2.80M
Indirect Effect	9	\$460K	\$753K
Induced Effect	9	\$460K	\$819K
Total Effect	82	\$2.84M	\$4.37M
Estimated state and local tax revenue generation: \$414K			

TABLE 7F: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: BLENNERHASSETT

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	15	\$501K	\$726K
Indirect Effect	2	\$96K	\$157K
Induced Effect	2	\$115K	\$204K
Total Effect	19	\$711K	\$1.09M
Estimated state and local tax revenue generation: \$90K			

TABLE 7G: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: BLUESTONE

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	74	\$2.18M	\$3.17M
Indirect Effect	10	\$538K	\$879K
Induced Effect	11	\$524K	\$932K
Total Effect	95	\$3.24M	\$4.98M
Estimated state and local tax revenue generation: \$481K			

TABLE 7H: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: CAMP CREEK

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	67	\$1.97M	\$2.87M
Indirect Effect	9	\$491K	\$803K
Induced Effect	10	\$476K	\$846K
Total Effect	86	\$2.94M	\$4.52M
Estimated state and local tax revenue generation: \$437K			

TABLE 7I: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: CARNIFEX FERRY

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	25	\$747K	\$1.09M
Indirect Effect	3	\$178K	\$291K
Induced Effect	4	\$179K	\$318K
Total Effect	32	\$1.10M	\$1.70M
Estimated state and local tax revenue generation: \$160K			

TABLE 7J: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: CASS

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	117	\$3.54M	\$5.23M
Indirect Effect	16	\$854K	\$1.39M
Induced Effect	17	\$849K	\$1.51M
Total Effect	151	\$5.25M	\$8.13M
Estimated state and local tax revenue generation: \$792K			

TABLE 7K: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: CATHEDRAL

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	35	\$1.00M	\$1.46M
Indirect Effect	5	\$258K	\$422K
Induced Effect	5	\$244K	\$434K
Total Effect	45	\$1.50M	\$2.32M
Estimated state and local tax revenue generation: \$229K			

TABLE 7L: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: CEDAR CREEK

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	58	\$1.75M	\$2.53M
Indirect Effect	8	\$423K	\$690K
Induced Effect	8	\$419K	\$745K
Total Effect	75	\$2.59M	\$3.97M
Estimated state and local tax revenue generation: \$378K			

TABLE 7M: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: DROOP MOUNTAIN

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	48	\$1.35M	\$1.97M
Indirect Effect	7	\$356K	\$582K
Induced Effect	7	\$330K	\$586K
Total Effect	61	\$2.03M	\$3.14M
Estimated state and local tax revenue generation: \$315K			

TABLE 7N: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: FAIRFAX

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	2	\$59K	\$86K
Indirect Effect	0	\$16K	\$26K
Induced Effect	0	\$14K	\$26K
Total Effect	3	\$89K	\$138K
Estimated state and local tax revenue generation: \$14K			

TABLE 7O: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: HOLLY RIVER

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	56	\$1.71M	\$2.51M
Indirect Effect	8	\$408K	\$664K
Induced Effect	8	\$409K	\$727K
Total Effect	72	\$2.53M	\$3.90M
Estimated state and local tax revenue generation: \$375K			

TABLE 7P: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: LITTLE BEAVER

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	80	\$2.31M	\$3.36M
Indirect Effect	11	\$592K	\$968K
Induced Effect	11	\$561K	\$998K
Total Effect	103	\$3.46M	\$5.33M
Estimated state and local tax revenue generation: \$525K			

TABLE 7Q: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: LOST RIVER

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	44	\$1.41M	\$2.17M
Indirect Effect	6	\$330K	\$531K
Induced Effect	7	\$336K	\$598K
Total Effect	57	\$2.08M	\$3.30M
Estimated state and local tax revenue generation: \$341K			

TABLE 7R: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: MONCOVE LAKE

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	45	\$1.30M	\$1.89M
Indirect Effect	6	\$328K	\$536K
Induced Effect	6	\$314K	\$559K
Total Effect	57	\$1.94M	\$2.98M
Estimated state and local tax revenue generation: \$292K			

TABLE 7S: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: PINNACLE ROCK

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	21	\$619K	\$902K
Indirect Effect	3	\$154K	\$252K
Induced Effect	3	\$149K	\$266K
Total Effect	27	\$922K	\$1.42M
Estimated state and local tax revenue generation: \$138K			

TABLE 7T: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: PRICKETT'S FORT

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	61	\$1.80M	\$2.62M
Indirect Effect	9	\$446K	\$730K
Induced Effect	9	\$433K	\$772K
Total Effect	78	\$2.68M	\$4.12M
Estimated state and local tax revenue generation: \$399K			

TABLE 7U: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: TOMLINSON RUN

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	196	\$5.65M	\$8.24M
Indirect Effect	28	\$1.45M	\$2.36M
Induced Effect	28	\$1.37M	\$2.44M
Total Effect	251	\$8.47M	\$13.04M
Estimated state and local tax revenue generation: \$1.29M			

TABLE 7V: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: TU-ENDIE-WEI

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	11	\$322K	\$470K
Indirect Effect	2	\$85K	\$139K
Induced Effect	2	\$79K	\$140K
Total Effect	15	\$485K	\$748K
Estimated state and local tax revenue generation: \$75K			

TABLE 7W: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: VALLEY FALLS

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	47	\$1.34M	\$1.96M
Indirect Effect	7	\$346K	\$566K
Induced Effect	7	\$327K	\$581K
Total Effect	60	\$2.02M	\$3.11M
Estimated state and local tax revenue generation: \$308K			

TABLE 7X: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: WATOGA

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	105	\$3.23M	\$4.78M
Indirect Effect	15	\$762K	\$1.24M
Induced Effect	15	\$771K	\$1.37M
Total Effect	135	\$4.76M	\$7.39M
Estimated state and local tax revenue generation: \$717K			

TABLE 7Y: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: WATERS SMITH

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	69	\$2.22M	\$3.08M
Indirect Effect	10	\$518K	\$850K
Induced Effect	11	\$530K	\$943K
Total Effect	90	\$3.27M	\$4.87M
Estimated state and local tax revenue generation: \$436K			

Economic Impacts: State Trails

This section parses-out this study's economic impact findings for each of the three state trails included in the park system. As previously explained in the Research Methods section of this report, due to the many trail access points, West Virginia does not currently have the capability of tallying trail visitation counts. Therefore, in an effort to remain conservative in the modeling, the rail trail with the lowest visitation in neighboring Virginia's state park system was used as a proxy in the current study. More specifically, Virginia's High Bridge Trail recorded an estimated attendance of 138K visitors in the most recent year (Magnini, 2023). This proxy seems to be the best alternative for the current study's economic modeling because it is in concert with the average visitation across West Virginia's day use parks: 127K visitors.

As demonstrated in Table 8, the three state trails supported a combined economic activity in West Virginia between \$12.33M → \$13.63M. As with the other sections in this report, location-by-location findings are also detailed here for metrics such as jobs supported, value-added effects, and state and local tax revenue generation (see Tables 9a-9c).

TABLE 8: ECONOMIC OUTPUTS OF STATE TRAILS						
NAME OF TRAIL	ECONOMIC ACTIVITY (LOWER BOUND)	ECONOMIC ACTIVITY (UPPER BOUND)	ECONOMIC ACTIVITY (MEAN)	ECONOMIC IMPACT FROM TRAVELERS (LOWER BOUND)	ECONOMIC IMPACT FROM TRAVELERS (UPPER BOUND)	ECONOMIC IMPACT FROM TRAVELERS (MEAN)
Greenbrier River	\$3.90M	\$4.31M	\$4.10M	\$1.11M	\$1.23M	\$1.17M
North Bend Rail Trail	\$4.00M	\$4.42M	\$4.21M	\$1.21M	\$1.34M	\$1.29M
Elk River Trail	\$4.44M	\$4.90M	\$4.67M	\$1.65M	\$1.83M	\$1.74M
TOTALS	\$12.33M	\$13.63M	\$12.98M	\$3.98M	\$4.40M	\$4.19M

**TABLE 9A: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION:
GREENBRIER RIVER TRAIL**

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	32	\$917K	\$1.37M
Indirect Effect	5	\$256K	\$420K
Induced Effect	5	\$227K	\$404K
Total Effect	41	\$1.40M	\$2.20M
Estimated state and local tax revenue generation: \$233K			

**TABLE 9B: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION:
NORTH BEND RAIL TRAIL**

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	32	\$964K	\$1.44M
Indirect Effect	5	\$258K	\$422K
Induced Effect	5	\$236K	\$420K
Total Effect	42	\$1.46M	\$2.28M
Estimated state and local tax revenue generation: \$222K			

**TABLE 9C: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION:
ELK RIVER TRAIL**

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	35	\$1.14M	\$1.68M
Indirect Effect	5	\$270K	\$442K
Induced Effect	5	\$273K	\$485K
Total Effect	46	\$1.68M	\$2.60M
Estimated state and local tax revenue generation: \$234K			

{Economic Impacts of State Forests section begins on the next page}

Economic Impacts: State Forests

This section teases-out this study's economic impact findings for each state forest. Combined, these seven forests supported between \$49.29M → \$54.48M of economic activity during FY23. As listed in Table 10, the state forest supporting the largest amount of economic activity during FY23 was Coopers Rock: \$19.11M → \$21.13M. Among West Virginia's state forests, during the past fiscal year, Coopers Rock hosted the largest number of day visitors, as well as the largest number of camping guests. Further economic metrics for the state forests are contained in Tables 11A-11G.

TABLE 10: ECONOMIC OUTPUTS OF STATE FORESTS						
NAME OF STATE FOREST	ECONOMIC ACTIVITY (LOWER BOUND)	ECONOMIC ACTIVITY (UPPER BOUND)	ECONOMIC ACTIVITY (MEAN)	ECONOMIC IMPACT FROM TRAVELERS (LOWER BOUND)	ECONOMIC IMPACT FROM TRAVELERS (UPPER BOUND)	ECONOMIC IMPACT FROM TRAVELERS (MEAN)
Cabwaylingo	\$2.52M	\$2.78M	\$2.65M	\$2.15M	\$2.38M	\$2.26M
Coopers Rock	\$19.11M	\$21.13M	\$20.12M	\$15.37M	\$16.99M	\$16.18M
Greenbrier	\$9.42M	\$10.41M	\$9.91M	\$7.64M	\$8.45M	\$8.05M
Kanawha	\$11.63M	\$12.85M	\$12.24M	\$9.16M	\$10.13M	\$9.64M
Kumbrabow	\$1.35M	\$1.50M	\$1.42M	\$1.14M	\$1.26M	\$1.20M
Panther	\$3.22M	\$3.55M	\$3.39M	\$2.56M	\$2.83M	\$2.70M
Seneca	\$2.05M	\$2.26M	\$2.15M	\$1.75M	\$1.93M	\$1.84M
TOTAL	\$49.29M	\$54.48M	\$51.88M	\$39.77M	\$43.96M	\$41.87M

TABLE 11A: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: CABWAYLINGO			
IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	21	\$679K	\$1.0M
Indirect Effect	3	\$146K	\$237K
Induced Effect	3	\$159K	\$283K
Total Effect	27	\$984K	\$1.53M
Estimated state and local tax revenue generation: \$142K			

**TABLE 11B: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE
GENERATION: COOPERS ROCK**

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	163	\$4.76M	\$6.92M
Indirect Effect	23	\$1.22M	\$1.99M
Induced Effect	23	\$1.16M	\$2.06M
Total Effect	210	\$7.14M	\$10.97M
Estimated state and local tax revenue generation: \$1.08M			

**TABLE 11C: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE
GENERATION: GREENBRIER**

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	80	\$2.37M	\$3.48M
Indirect Effect	11	\$593K	\$968K
Induced Effect	11	\$572K	\$1.02M
Total Effect	103	\$3.53M	\$5.47M
Estimated state and local tax revenue generation: \$539K			

**TABLE 11D: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE
GENERATION: KANAWHA**

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	100	\$2.90M	\$4.24M
Indirect Effect	14	\$740K	\$1.21M
Induced Effect	14	\$704K	\$1.25M
Total Effect	128	\$4.45M	\$6.70M
Estimated state and local tax revenue generation: \$659K			

TABLE 11E: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: KUMBRABOW

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	11	\$362K	\$536K
Indirect Effect	2	\$79K	\$129K
Induced Effect	2	\$85K	\$152K
Total Effect	14	\$527K	\$817K
Estimated state and local tax revenue generation: \$76K			

TABLE 11F: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: PANTHER

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	28	\$794K	\$1.16M
Indirect Effect	4	\$207K	\$338K
Induced Effect	4	\$193K	\$344K
Total Effect	36	\$1.19M	\$1.84K
Estimated state and local tax revenue generation: \$184K			

TABLE 11G: JOBS SUPPORTED, VALUE-ADDED EFFECTS, AND TAX REVENUE GENERATION: SENECA

IMPACT TYPE	ESTIMATED JOBS SUPPORTED	ESTIMATED LABOR INCOME	ESTIMATED VALUE-ADDED
Direct Effect	17	\$539K	\$807K
Indirect Effect	2	\$121K	\$197K
Induced Effect	3	\$127K	\$227K
Total Effect	22	\$788K	\$1.23M
Estimated state and local tax revenue generation: \$118K			

{Discussion section begins on next page}

DISCUSSION

The findings of this FY23 economic impact study highlight many of the contributions of the park system to the economy of West Virginia. The economic activity spawned by West Virginia's State Parks and Forests contributed approximately \$521.56M to the state's economy. The largest component of this total was the economic impact from travelers which was estimated at \$421.95M during FY23. The difference between the economic activity amount (includes spending by local residents) and the economic impact amount (does not include spending by local residents) illustrates that West Virginia's State Parks and Forests not only attract fresh-money from outside of the area, but also serve to limit the economic leakage of money from within West Virginia. In other words, the parks help entice locals to spend their money inside the state as opposed to pursuing such recreational outings in other localities.

Return on Investment

Every \$1 of tax money spent on the park system in FY23 yielded approximately \$1.23 in state and local tax revenues in return.

Furthermore, in terms of employment, the economic activity surrounding visitation to West Virginia's State Parks supported an estimated 5,256 jobs in the state during FY23. The wages and salaries associated with these jobs is estimated at \$187.85M in income. Moreover, economic activity stimulated by West Virginia State Parks and Forests generated approximately \$27.92M in state and local taxes during FY23 and contributed roughly \$288.66M to the GDP of West Virginia through value-added effects. Using these modeling estimations, roughly \$1.23 in state and local taxes was generated for every dollar of tax money spent on the park system.

With regard to the composition of this study's economic models, it is worth reiterating that capital improvement expenditures in parks combine with visitor spending to produce economic outputs. Stated differently, investments in capital improvements are associated with economic impacts: temporary impacts from the construction project itself, and long-run impacts by enhancing a park's ability to attract and retain visitors. In the total FY23 economic output model, an estimated \$22.6M derived from the \$15.3M in capital improvement expenditures. The largest of these expenditures during FY23 was recorded at Coopers Rock (~\$6.0M) followed by ~\$4.2M each at both Hawks Nest and Pipestem. Moreover, while the current study examined solely FY23, economic impacts driven by capital improvements in the 5-year window

leading up to the current study are notable. That is, between 2018-2022, \$66.1M in capital improvements were made within West Virginia's state park system yielding an estimated \$99.1M in economic impacts across the state.

Like with all state park economic impact studies, the overarching limitation of this research is that the majority of modeling inputs are estimates. Furthermore, it is important to understand that all modeling inputs are dynamic. More specifically, according to Crompton (1993), the validity and reliability of an economic impact study depend on: 1) the accuracy of visitor spending estimates; 2) adherence to 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 3,006 visiting parties during FY23. Second, regarding the multiplier coefficients, the most recent IMPLAN multipliers were utilized. Third, in terms of attendance estimation, attendance figures were provided to ISR by park

administration. Break-downs such as local versus non-local day visitors were made using the collected survey data. In any state park system, these modeling 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.

As could be demonstrated with year-over-year longitudinal data, state parks help insulate West Virginia's tourism infrastructure from economic disruptions. When the economy flourishes, people visit state parks... when the economy contracts, people STILL visit state parks. Thus, many other businesses within West Virginia's tourism infrastructure (e.g. convenience stores, gas stations, etc...) often benefit from the steady, relatively recession-resistant flow of visitors to West Virginia's State Parks and Forests. Along these lines, many of West Virginia's State Parks and Forests help inject money into economically-strained areas of the state. In fact, nearly one-half of West Virginia's State Parks and Forests [21 sites] are either fully or partially

Capital Improvement Investments
from 2018-2022:

While the current study examined solely FY23, economic impacts driven by capital improvements in the 5-year window leading up to the current study are notable:

***Between 2018-2022,
\$66.1M in capital
improvements were made
within West Virginia's state
park system yielding an
estimated \$99.1M in
economic impacts across
the state.***

located in counties deemed either economically “distressed” or “at risk” by the Appalachian Regional Commission (https://en.wikipedia.org/wiki/List_of_Appalachian_Regional_Commission_counties#West_Virginia).

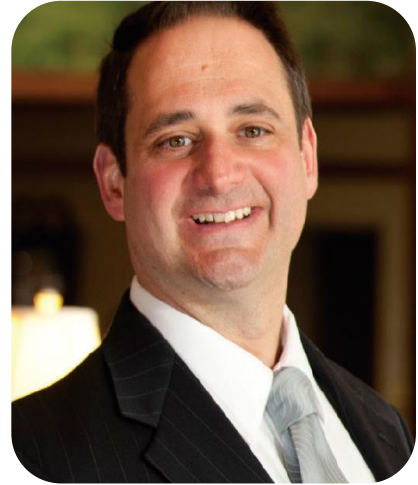
When addressing the various impacts of parks, it is also germane to note that even non-visitors value parks. That is, even people who do not visit parks, value their existence and want to see them preserved (Greenley, Walsh, and Young, 1981; Institute for Service Research, 2018). Therefore, parks have an *existence value* by which even those who do not visit are typically glad that they exist. In addition, parks have a *bequest value* in that both visitors and non-visitors want parks preserved for future generations. Evidence of such value associated with parks is seen in studies that find residential real estate values to be higher when a property abuts or fronts a passive use park (for a meta-analysis, see: Crompton 2005).

Lastly, while this study estimated many economic impacts of West Virginia’s State Parks and Forests such as jobs, labor income, value-added, and state and local taxes generated, it is prudent to note that a number of other benefits (both tangible and intangible) could not be included in the modeling. For example, visitation counts have increased at many nature-based venues during the COVID-19 pandemic, in part, because such activities are known to improve both physical and mental/cognitive health (for a review, see: Quendler, Magnini, and Driouech, 2020). While the physiological benefits associated with outdoor recreation have both economic and non-economic benefits, such outcomes are difficult to quantify using input-output economic modeling.

{End of narrative}

INVESTIGATOR BIO

Dr. Vincent Magnini is the Executive Director of the Institute for Service Research. He was ranked as one of the top 12 most prolific hospitality researchers worldwide in the most recently published global ranking study. Further, he is a U.S. Fulbright Scholar. He has (co)authored seven books and more than 250 articles and reports. Vince 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* and *Washington Post*.



Examples of recent economic impact studies conducted by Dr. Magnini include:

- The Economic and Fiscal Impacts of the 2023 North American Sand Soccer Championships in Virginia Beach, Virginia
- The Economic and Fiscal Impacts of the 2023 Bulls & Barrels Beach Rodeo in Virginia Beach, Virginia
- Virginia State Parks Economic Impact Report (conducted annually)
- Potential Economic and Fiscal Impacts Associated with Establishing a Trail Connection between Doe Mountain Recreation Area (Mountain City, Tennessee) and Damascus, Virginia
- Demand Estimation and Site Selection Criteria for Additional Conference Space in Pikeville, Kentucky (with Esra Calvert and Dr. Muzzo Uysal)
- The Economic Impacts of the Audacy Oceanfront Concert Series held in conjunction with the 60th Annual East Coast Surfing Championships
- The Economic Impacts of Virginia's Civil Rights in Education Heritage Trail (with Chuck Wyatt)
- The Economic Impacts of Michigan's Ports and Harbors (with Dr. John Crotts)
- The Economic and Fiscal Impacts of Doe Mountain Recreation Area (with Chuck Wyatt)
- The Economic Impacts of the Virginia Capital Trail (with Lauren Pilkington and Chuck Wyatt)
- The Economic Impacts of Agritourism in Loudoun County, VA
- Potential Economic Impacts of a Shooting and Archery Range Complex in the SRRA Area (with Chuck Wyatt)
- The Economic Impacts of the Southern Virginia Higher Education Center
- The Economic Impacts of Southside Virginia Community College
- Potential Economic Impacts and Factors Contributing to the Success of Rail-to-Trail Conversions (with Chuck Wyatt)
- The Economic Impacts of Spearhead Trails (with Chuck Wyatt)
- The Fiscal and Economic Impacts of Virginia's Agritourism Industry (with Esra Calvert and Dr. Martha Walker)

CORPORATE PROFILE

The Institute for Service Research (ISR) is a market research and economic modeling firm headquartered in Virginia Beach. The firm is incorporated in Virginia and trademarked with the U.S. patent office.



{Related references and sources begin on next page}

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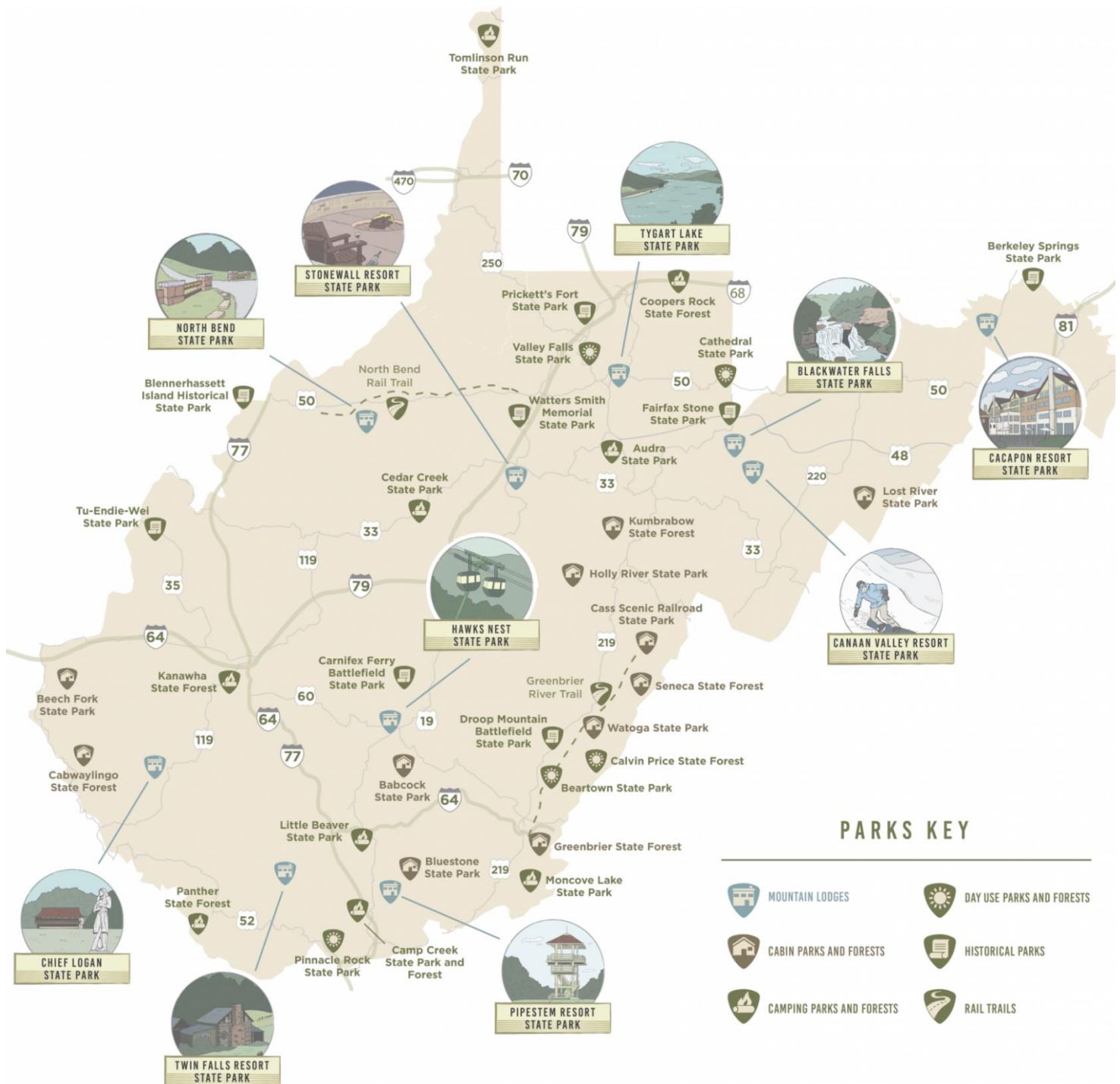
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Source of cover photo: Magnini, V. (2022).

Appendices

APPENDIX A: MAP OF PARK SYSTEM



The above image is a screenshot adapted directly from the following source:
<https://wvtourism.com/wp-content/uploads/2021/10/21-WVSP-0072-MapforWeb-01.png>

APPENDIX B: GLOSSARY OF ECONOMIC TERMS

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

Direct effects – the changes in sales, income, and jobs in an area as a result of first-round visitor spending, as well as any money spent by parks that was not supported by visitor spending.

Economic activity² – economic output modeling that includes all visitor spending and consequent multiplier effects by locals, non-locals, and non-residents, 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.

- **Lower bound economic activity** – All components of input-output models are estimates. Consequently, the lower bound economic activity figure employs conservative inputs.
- **Upper bound economic activity** – All components of input-output models are estimates. Consequently, the upper bound economic activity figure employs aggressive inputs.
- **Mean economic activity** – Lower bound economic activity and upper bound economic activity summed and divided by two.

Economic impact from travelers – economic output modeling that includes all visitor spending and consequent multiplier effects by 1) in-state residents traveling 50 miles or more (one-way) to visit the park; and 2) all out-of-state visitors. In addition, economic impact models include capital improvements and operational expenditures not supported by visitor spending. Thus, economic impact figures reflect all of the “fresh money” entering an area’s economy as a result of a given state park.

- **Lower bound economic impact from travelers** – All components of input-output models are estimates. Consequently, the lower bound economic impact figure employs conservative inputs.
- **Upper bound economic impact from travelers** – All components of input-output models are estimates. Consequently, the upper bound economic impact figure employs aggressive inputs.

² Some past studies termed this “economic significance” (Magnini and Uysal, 2015a; Mowen, Graefe, Trauntvein, and Stynes, 2012). It is thought by the current investigator that the term “economic activity” is more descriptive of the construct being measured.

- **Mean economic impact from travelers** – Lower bound economic impact and upper bound economic activity summed and divided by two.

IMPLAN – a computer-based input / output economic modeling system. With IMPLAN one can estimate more than 500 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.

Indirect effects – the changes in sales, income and jobs to businesses that supply goods and services to locations where park visitors record direct spending.

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

Jobs supported – The combination of both full-time and part-time jobs supported by the economic activity associated with a given park. Due to the fact that park visitors spend money at various locations in the state while traveling to/from the park; and due to the fact that secondary economic effects are not constrained geographically, the jobs supported by a given park are dispersed across the state.

Labor income – The estimated earnings associated with the supported jobs; see “jobs supported.”

Multipliers – these estimates 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.

Non-local – see “non-local visitor”

Non-local visitor – an individual traveling 50 miles or more (one-way) to visit a park.

Primacy – the extent to which non-locals’ or non-residents’ visit and associated spending is due to the park visit.

Ripple effects – see “secondary effects.”

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

Tax revenue generation – The estimated state and local taxes generated as a result of the economic activity associated with a given park. The estimated local tax revenues are realized not only within a given park’s municipality but in any municipality where visitors’ direct spending occurred when traveling to/from the focal park.

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 state/national economy because it avoids the double counting of intermediate sales and incorporates only the ‘value-added’ by the region to final products.

Visit primacy – see “primacy.”

{END OF REPORT}