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AMERICA'S BYWAYS RESOURCE CENTER

ECONOMIC IMPACT TOOL: SENSITIVITY ANALYSIS

Blue Ridge Parkway

CASE STUDY

AUGUST 16, 2012

HDR | Decision Economics

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Since the inception of the National Scenic Byways Program in the early 1990s, local byway organizations have often found themselves asked to prove their worth to elected officials and taxpayers. Hence, the need to quantify their contribution to the local economy in terms of output growth, job creation and additions to the tax base in particular. However, conducting an economic impact analysis can be daunting for byway organizations, the majority of which have modest budgets, limited staff resources and little to no expertise in economic modeling.

As part of its congressionally designated function of providing technical assistance to local byway groups, America's Byways Resource Center commissioned the development of an Economic Impact Tool (Tool) for National Scenic Byways and All-American Roads. The Tool's main purpose is to assist byway organizations in showing the positive effect of scenic byways on the economy to elected officials, business leaders and the community at large. The Tool was officially released in February 2010 and has been made available to byway organizations since then.

HDR Decision Economics (HDR) has been commissioned by the Resource Center to perform a sensitivity analysis of the tool and to determine its effectiveness. As part of the study, HDR has been tasked with conducting a number of case studies with selected byways, including the Blue Ridge Parkway.

Through visitor spending and various capital projects, the Blue Ridge Parkway is generating multiple impacts on the 29-county byway region, including:

- $1.5 billion in total business sales;
- About 9,300 jobs; and
- An increase of $251.7 million in earnings.

A summary of economic impacts is provided in the table below.

Overall Economic Impacts by Type of Impact

	Direct Impacts	Indirect Impacts	Total Impacts
Employment (No. of Jobs)	6,475	2,827	9,302
Earnings ($000)	$152,194.9	$99,531.6	$251,726.6
Economic Output ($000)			
Visitor Spending	$879,867.5	$573,736.0	$1,453,603.5
Annual Operating Expenses	$18,018.3	$13,585.8	$31,604.1
Capital Investments to Date	$22,750.0	$17,153.5	$39,903.5

1 Introduction

As part of its congressionally designated function of providing technical assistance to local byway groups, America's Byways Resource Center commissioned the development of an Economic Impact Tool (Tool) for National Scenic Byways and All-American Roads. The Tool's main purpose is to assist byway organizations in showing the positive effect of scenic byways on the economy to elected officials, business leaders and the community at large. The Tool was officially released in February 2010 and has been made available to byway organizations since then.

HDR Decision Economics (HDR) has been commissioned by the Resource Center to perform a sensitivity analysis of the tool and to determine its effectiveness. As part of the study, HDR has been tasked with conducting a number of case studies with selected byways.

1.1 Case Study Objectives

The case studies have three key objectives:

- Ensure that the tool is both practical (ease of use) and reliable (sound methodology and valuable results);
- Ensure that the tool meets all the needs of the byway community (i.e., the outputs from the Tool can be readily used for a variety of purposes such as investor outreach and federal grant application); and
- Identify potential areas for improvement (interface, organization of the workbook, inputs, results, technical manual, etc.).

In collaboration with the Resource Center, HDR developed a list of candidate byways and sent a short solicitation form. Of those who responded favorably, the following five byways were selected:

- Woodward Avenue All-American Road;
- Journey Through Hallowed Ground National Scenic Byway;
- Blue Ridge Parkway All-American Road;
- Volcanic Legacy All-American Road; and
- Cherokee Hills National Scenic Byway.

HDR assisted each selected byway organization to conduct an economic impact analysis with the Tool and organized webinars that covered the following topics:

- Installation of the Economic Impact Tool;
- Overview of the Tool structure and logic;
- Utilization of the Tool (entering input data, producing the results, etc.);

- Examination and resolution of issues identified during the interviews, if necessary; and
- One-on-one hands-on training using up to three (3) examples customized to each byway.

1.2 Organization of the Report

This report presents the results of the case study that was conducted for the Blue Ridge Parkway. It consists of four chapters. Following this introduction, Chapter 2 provides background information on the case study. Chapter 3 discusses the data sources and the model inputs used to estimate the economic impacts of the byway. And Chapter 4 presents the results of the case study.

The report also includes a number of appendices. A table describing the different model input variables of the Tool is provided in Appendix A. Economic multipliers obtained from the US Bureau of Economic Analysis and used to estimate the total economic impacts are provided in Appendix B. Finally, a list of data sources and references used in the sources of the case study is available in Appendix C.

2 Background Information

This chapter provides general background information on the case study. Section 2.1 gives an overview of the Economic Impact Tool for National Scenic Byways and All-American Roads. Section 2.2 introduces the Blue Ridge Parkway.

2.1 Economic Impact Tool

Since the inception of the National Scenic Byways Program in the early 1990s, local byway organizations have often found themselves asked to prove their worth to elected officials and taxpayers. Hence, the need to quantify their contribution to the local economy in terms of output growth, job creation and additions to the tax base in particular. However, conducting an economic impact analysis can be daunting for byway organizations, the majority of which have modest budgets, limited staff resources and little to no expertise in economic modeling.

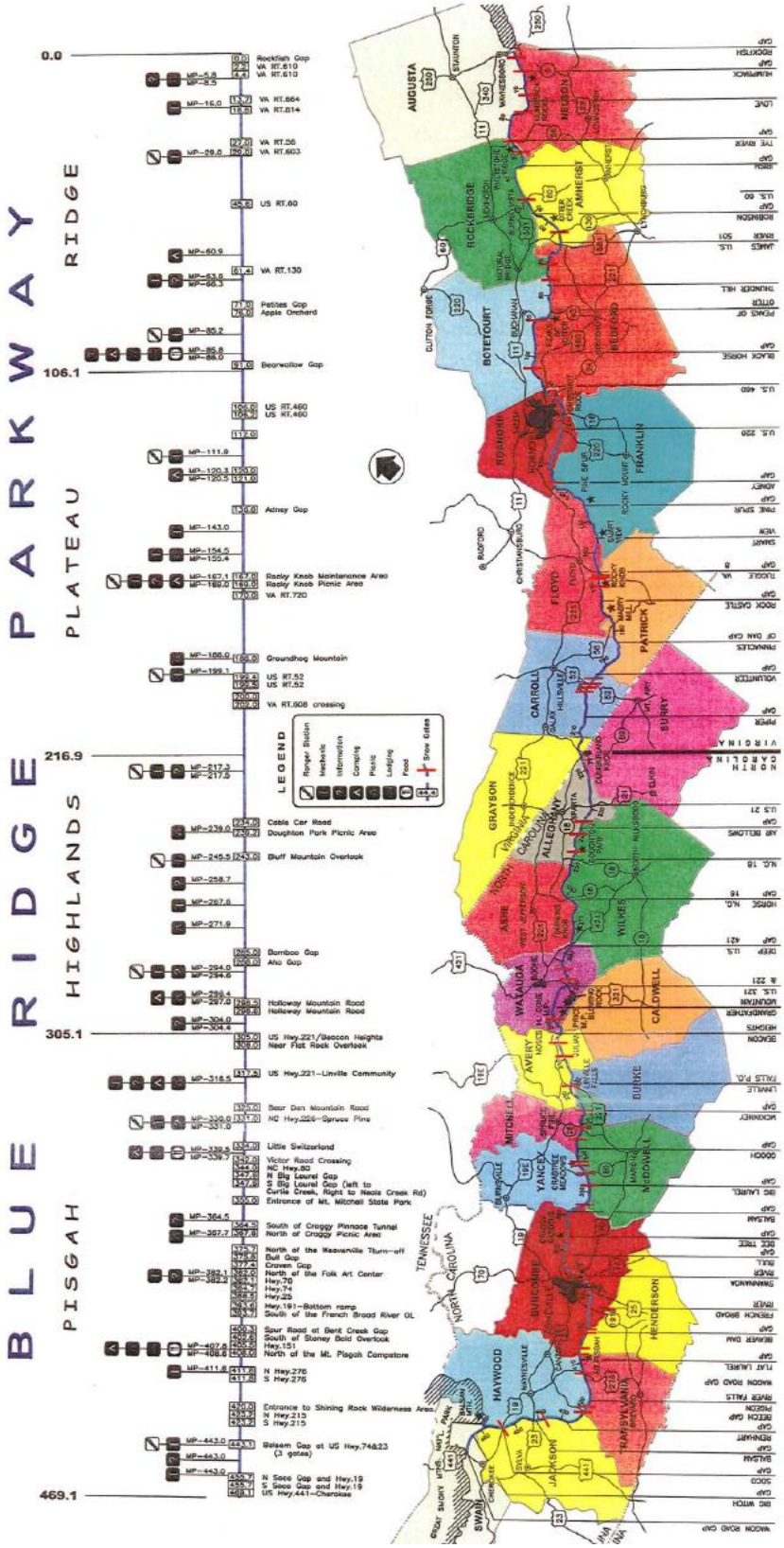
As part of its Congressionally-designated function of providing technical assistance to byway groups, America's Byways Resource Center commissioned the development of an Economic Impact Tool that would allow byway staff and/or volunteers to easily measure the impacts of byways and byway-related activities in their communities. The most recent version of the Tool (Version 2.0) was released in May 2010.

The Economic Impact Tool is a Microsoft Excel-based software program with a user-friendly interface that allows even those with little or no knowledge of either economic impact analysis or spreadsheet applications to make effective use of it. The Tool is highly scalable – not all model features need to be used to conduct an analysis. This allows the user to adjust the scope of the analysis based on available resources as well as experience in Excel and economic impact analysis. The model inputs can be entered by means of one of two forms: the short form and the long form. The short form allows the user to run the Tool with only a few key inputs and is therefore an attractive option for those looking to obtain results quickly. On the other hand, the long form requires more detailed inputs, thus the results are more comprehensive and reliable. The Tool is designed to be used to measure a broad range of activities, from the overall economic effects of byway-related (tourism) activities to the specific effects of a given investment. The model results can be used for different purposes, such as supporting federal grant applications, improving tourism marketing efforts and increasing policymakers' awareness of the byway.

2.2 Blue Ridge Parkway

The Blue Ridge Parkway runs for 469 miles in the Appalachian Mountains. It spans over 29 counties, from Augusta County in Virginia to Swain County in North Carolina. The Blue Ridge Parkway was built to connect the Shenandoah National Park to the Great Smoky Mountains National Park. Construction of the parkway took over 50 years to complete. The road is both a National Scenic Byway and All-American Road. A map of the byway region is shown on the following page.

Figure 1: Map of the Byway Region



3 Model Inputs

This chapter presents the model inputs used for this case study. Section 3.1 covers the different sources that were tapped to obtain the necessary data. The inputs used in the Tool, along with the assumptions made to derive these inputs, are discussed in Section 3.2.

3.1 Data Sources

Most byways have limited data about visitors because they do not survey them typically. However, a lot of information on travel impacts is available at the county level from state tourism agencies. Both the Virginia Tourism Corporation and the North Carolina Tourism Division at the Commerce Department of publish detailed travel data. Also, the Forest Service at the US administers Agriculture Visitor Use the National Monitoring (NVUM) program, which provides reliable information on recreation visitors to national forests. In the same way, national parks routinely survey visitors and publish the results.

Information on grants and other investments that are wholly or partially attributable to the byway was collected by the Blue Ridge Parkway. It includes data on federal grants (e.g., ARRA) and donations by local partners in particular. When a specific investment could not be entirely attributed to the byway, the Tool's "But For Test" was used to determine the portion of that investment the byway could be given credit for.

Finally, economic multipliers for the byway region were purchased from the US Bureau of Economic Analysis (BEA).

3.2 Case Study Inputs

A table describing the different model input variables of the Tool is provided in Appendix A. The table includes references to pages of the technical manual where the user can find additional information. Since the byway is located in a mostly rural area it is not expected to have any significant impact on property values. Thus, data on property value appreciation were not collected as part of this case study.

3.2.1 Visitor Profiles

Information on the number of overnight visitors, the place of residence of visitors, the type of accommodation preferred as well as information on the length of stay and the travel party size are essential to characterize visitor trips and thereby to estimate the impacts of the byway on the local economy.

Table 1 on the following page shows the visitor profile inputs used in the Tool. These inputs are based on 2007-2009 data obtained from the Virginia Tourism Corporation (southwest Virginia region and Roanoke region) and the Division of Tourism at the North Carolina Department of Commerce (Mountain region). Original estimates were averaged to obtain estimates for the byway region as a whole.

A majority of visitors to the byway region (55 percent) are overnight visitors, which can be explained by the fact that the byway spans 29 counties. Those overnight visitors tend to stay in paid accommodations (56.7 percent). The average length of stay for all visitors is 2.5 days and the average travel party size is estimated at 2.5 individuals.

Table 1: Visitor Profile Data

Variable	Estimate
% Daytrippers	45.0%
% Overnight Visitors	55.0%
% Living Within the Byway Region	36.3%
% Living Outside of the Byway Region	63.7%
% Staying in Paid Accommodations	56.7%
% Staying with Friends/Relatives	43.3%
Average Length of Stay in Region (Days) for All Visitors	2.5
Average Nights Stayed in Region for Overnight Visitors	2.5
Average Number of People in Travel Party	2.5

3.2.2 Visitor Spending

Recent visitor spending data at the county level were obtained from the Virginia Tourism Corporation and the Division of Tourism at the North Carolina Department of Commerce. This information was used to determine visitor spending attributed to the byway in 2010 for each of the ten expenditure categories available in the Spending Data sheet of the Tool.[1] The average spending per person and per trip was calculated by simply dividing visitor spending attributed to byway designation by the number of visitors to the byway region.

As shown in Table 2 below, nearly half of all visitor expenditures are for lodging and food services. The average spending per person and per trip (directly attributed to the byway) is estimated at $60.61.

Table 2: Visitor Spending Data (2010)

Variable	Estimate
Entertainment & Recreation	$4.24
Restaurant Food/Drink	$11.52
Groceries	$3.03
Gas Stations	$8.49
Private Hotels/Campgrounds	$6.06
Public Campgrounds/Lodges	$6.06
Rental Homes/Cottages	$6.06
Transportation	$3.64
Retail Purchases	$6.67
Services Purchases	$4.85
Average spending per person, per trip	**$60.61**

3.2.3 Visitor Counts

The total number of visitors (or person trips) to the byway region in 2010 is estimated at 14.5 million approximately. This estimate is based on data collected at the county level from the Virginia Tourism Corporation and the Division of Tourism at the North Carolina Department of Commerce.

3.2.4 Investments

Table 3 below shows the investment data provided by the Blue Ridge Parkway for 2010. These estimates account for both public and private funds that were received by the byway. They include the operating budget as well as federal funding for capital investment projects (e.g., ARRA) and donations made by local organizations. The total investment is estimated at $40.8 million for 2010.

Table 3: Investment Data (2010)

Investment Name	Total Amount	Amount Attributable to Byway Designation	Investment Type
Partner group donations	$248,000	$248,000	Capital Investment

[1] Based on anecdotal evidence, it was assumed that 25 percent of visitor spending in the 29-county byway region could be attributed to the Blue Ridge Parkway.

Partner group donations	$380,000	$380,000	Capital Investment
Partner group donations	$202,813	$202,813	Capital Investment
Other donations	$111,000	$111,000	Capital Investment
Operating budget	$18,018,302	$18,018,302	Operating Expenditure
Repair & rehabilitation	$960,284	$960,284	Capital Investment
Construction	$7,749,698	$7,749,698	Capital Investment
Concessions	$701,903	$701,903	Capital Investment
ARRA	$11,715,031	$11,715,031	Capital Investment
Other activities	$681,252	$681,252	Capital Investment

3.2.5 Economic Multipliers

Economic multipliers are used to estimate the overall impacts of visitor spending and investments on the economy. Type II multipliers (accounting for the direct and indirect effects) for the byway region were purchased on the BEA website.[2] The byway region consists of the following jurisdictions: Alleghany, NC; Ashe, NC; Avery, NC; Buncombe, NC; Burke, NC; Caldwell, NC; Haywood, NC; Henderson, NC; Jackson, NC; McDowell, NC; Mitchell, NC; Surry, NC; Swain, NC; Transylvania, NC; Watauga, NC; Wilkes, NC; Yancey, NC; Amherst, VA; Botetourt, VA; Floyd, VA; Franklin, VA; Grayson, VA; Nelson, VA; Patrick, VA; Augusta, Staunton and Waynesboro, VA; Bedford and Bedford City, VA; Carroll and Galax, VA; Roanoke and Salem, VA; Rockbridge, Buena Vista and Lexington, VA.

A table showing the output, earnings, employment, and value added[3] multipliers by industry aggregate for the byway region is provided in Appendix B.

[2] BEA's RIMS II multipliers can be purchased online at http://www.bea.gov/regional/rims/. You will need to order *benchmark series* multipliers for your byway *region* (as of July 1, 2012 the cost is $275). Orders are typically processed within 24 hours. You will be notified by email when the multipliers can be accessed online. Note that both Type I and *Type II* multipliers will be available for download. However, only Type II multipliers are actually used in the Tool. You will need to save the following two data files in the appropriate folder on your computer's hard drive (C:\BywaysImpactTool\Multipliers): *M406RG01.DAT* and *M_62RG01.DAT*. Though the multipliers are updated annually, they can be used for a number of years (3-5 years).

[3] Refer to the Technical Manual for the definitions of these terms.

4 Study Results

This chapter presents the final results of the case study. A summary of the overall economic impacts is provided in Section 4.1.1. Employment impacts and tax revenue impacts are presented in Section 4.1.2 and Section 4.1.3 respectively.

4.1 Scenario 1

Though the tool was originally designed to measure the net impacts generated by a byway over a period of several years, it can also be used to estimate the contribution of the byway to the economy at a given point in time. For this case study, the Tool was used to estimate the economic impacts associated with visitor spending and investments in the Blue Ridge Parkway region in 2010.

4.1.1 Economic Impact Summary

Through visitor spending and various investment projects, the Blue Ridge Parkway is generating multiple impacts on the 29-county byway region, including:

- $1.5 billion in total business sales;
- About 9,300 jobs; and
- An increase of $251.7 million in earnings.

A summary of economic impacts is provided in Table 4 below.

Table 4: Overall Economic Impacts by Type of Impact

	Direct Impacts	Indirect Impacts	Total Impacts
Employment (No. of Jobs)	6,475	2,827	9,302
Earnings ($000)	$152,194.9	$99,531.6	$251,726.6
Economic Output ($000)			
Visitor Spending	$879,867.5	$573,736.0	$1,453,603.5
Annual Operating Expenses	$18,018.3	$13,585.8	$31,604.1
Capital Investments to Date	$22,750.0	$17,153.5	$39,903.5

4.1.2 Employment and Earnings Impacts

Based on the inputs presented in Chapter 3, it is estimated that the Blue Ridge Parkway sustained a total of 9,302 jobs in the 29-county byway region in 2010. A majority of these jobs (70 percent) were the direct consequence of visitor spending and investments. The remaining jobs were the result of suppliers' spending and expenditures made by the employees of the suppliers and the directly affected businesses.

A summary of the employment impacts by type of expenditure and by type of impact is provided in Table 5 below. Please note that these estimates include both part-and full-time jobs and should not be interpreted as full-time equivalents (FTEs).

Table 5: Employment Impacts by Type of Impact

	Direct Impacts	Indirect Impacts	Total Impacts
Employment Change from Capital (One-Time) Investments			
Public Investments	218	242	460
Private Investments	10	7	17
Total from Capital Investments	**228**	**249**	**477**
Employment Change from Operating (Ongoing) Investments			
Operating Expenses	159	112	271
Visitor Spending	6,088	2,466	8,554
Total from Operating Investments	**6,247**	**2,578**	**8,825**
Total Byway Related Employment Change	**6,475**	**2,827**	**9,302**

These job impacts represent $251.7 million in earnings annually, or about $27,000 per employee. A summary of the earnings impacts by type of expenditure and by type of impact is provided in Table 6 below.

Table 6: Earnings Impacts by Type of Impact

	Direct Impacts	Indirect Impacts	Total Impacts
Earnings Change from Capital (One-Time) Investments ($000)			
Public Investments	$10,141.8	$8,416.1	$18,557.9
Private Investments	$367.8	$224.9	$592.6
Total from Capital Investments	**$10,509.5**	**$8,641.0**	**$19,150.5**
Earnings Change from Operating (Ongoing) Investments ($000)			
Operating Expenses	$5,329.8	$3,648.8	$8,978.5
Visitor Spending	$136,355.6	$87,241.9	$223,597.5
Total from Operating Investments	**$141,685.4**	**$90,890.6**	**$232,576.0**
Total Byway Related Earnings Change	**$152,194.9**	**$99,531.6**	**$251,726.6**

4.1.3 Tax Impacts

The diverse economic activities spurred by the Blue Ridge Parkway also generate tax revenues to municipal, county and state governments. Total tax revenues in the byway region are estimated to

range from $231 million to $242 million in 2010.[4] Sales/Use/Lodging taxes represent more than 93 percent of that total. A summary of the tax revenue impacts by type of tax is provided in Table 7 below.

Table 7: Tax Impacts by Type of Tax ($000)

	Property Taxes	Sales/Use/Lodging Taxes	Income Taxes
Value/Sales/Earnings Increase	$1,172.8	$791,880.8	$251,726.6
Minimum Tax Amount			
Jurisdiction	Alleghany, NC	North Carolina	Virginia
Primary Tax Rate	$0 per $1,000	4.5%	5.8%
Tax Revenue	-	$216,931.3	$14,474.3
Maximum Tax Amount			
Jurisdiction	Alleghany, NC	Virginia	North Carolina
Primary Tax Rate	$0 per $1,000	5.0%	7.0%
Tax Revenue	-	$223,948.3	$17,620.9

Note: Sales/Use/Lodging tax rates vary for different types of purchases. This table only displays General Sales & Use Tax rates.

[4] The Tool is not equipped to calculate local or county income taxes, as these taxes are typically paid based on a person's place of residence, and not the place of employment. Since the place of residence of those whose jobs are directly or indirectly influenced by the byway cannot be known, local or county income taxes cannot be accurately calculated.

APPENDIX A: ECONOMIC IMPACT TOOL INPUT VARIABLES

		TYPE OF DATA *(click on cell for a short description of the variable)*	UNIT	DEFAULT VALUE	WORKSHEET	COMMENTS	POTENTIAL DATA SOURCES	REFERENCE TO TECHNICAL MANUAL
Economic Activity	Visitor Profiles	% Daytrippers	%	Yes	InputVisitorProfiles	Sum of the two must be 100%	State or local agencies	pp. 17-18 & 29
		% Overnight Visitors	%	Yes	InputVisitorProfiles			
		% Living Within the Byway Region	%	Yes	InputVisitorProfiles	Sum of the two must be 100%		
		% Living Outside of the Byway Region	%	Yes	InputVisitorProfiles			
		% Staying in Paid Accommodations	%	Yes	InputVisitorProfiles	Sum of the two must be 100%		
		% Staying with Friends/Relatives	%	Yes	InputVisitorProfiles			
		Average Length of Stay in Region (Days) for All Visitors	Days	Yes	InputVisitorProfiles			
		Average Nights Stayed in Region for Overnight Visitors	Nights	Yes	InputVisitorProfiles			
		Average Number of People in Travel Party	People	Yes	InputVisitorProfiles			
	Visitor Spending	Entertainment & Recreation	Per person, per trip	Yes	InputVisitorSpending	Determine whether it is taxable	State Department of Revenue or Taxation	pp. 17-18 & 29-30
		Restaurant Food/Drink		Yes	InputVisitorSpending	Determine whether it is taxable		
		Groceries	**OR** Per person, per day/night	Yes	InputVisitorSpending	Determine whether it is taxable		
		Gas Stations		Yes	InputVisitorSpending	Determine whether it is taxable		
		Private Hotels/Campgrounds	**OR** Per party, per trip	Yes	InputVisitorSpending	Determine whether it is taxable		
		Public Campgrounds/Lodges		Yes	InputVisitorSpending	Determine whether it is taxable		
		Rental Homes/Cottages	**OR** Per party, per day/night	Yes	InputVisitorSpending	Determine whether it is taxable		
		Transportation		Yes	InputVisitorSpending	Determine whether it is taxable		
		Retail Purchases	**OR** Total annual spending	Yes	InputVisitorSpending	Determine whether it is taxable		
		Services Purchases		Yes	InputVisitorSpending	Determine whether it is taxable		
	Visitor Counts	Person Trips	Person-trips	No	InputVisitorCounts	Info needed for the base year and the current year. Enter up to 200 counts for individual segments of the Byway and specific sites, or enter the overall number of visitors to the Byway region.	Specific visitor locations (e.g., museums); state DOT (traffic data)	pp. 18 & 30
	Investments (Public & Private)	Investment amount	$	No	InputInvestments	Determine whether to measure the value of how investments affect intrinsic qualities (archeological, cultural, historical, etc.)	Byway	pp. 18-19 & 30-32
		Amount Attributable to Byway Designation	$ **OR** %	No	InputInvestments			
		Investment Type	N/A	No	InputInvestments			
		Investment Sources	%	No	InputInvestments			
	Property Value Appreciation	Jurisdiction's Total Valuation by Year	$	No	InputPropertyValue	For base year and current year	Tax Assessor's office	pp. 20 & 32
		% of Valuation of Jurisdiction Located in Byway Area	%	No	InputPropertyValue			
		Ratio of Value Change in Byway Area as % of Jurisdiction's Overall Growth Rate	%	Yes	InputPropertyValue	Default assumption is that the ratio is 1:1 (100%). If you feel that values in the Byway Area have grown faster or slower, you will need to adjust the ratio accordingly.		
Tax Rate	Property Tax Rates	Property Tax Rate	Amount per $1,000	No	InputPropertyTax	Enter inputs for non-primary jurisdictions if necessary	Tax Assessor's office	pp. 20 & 32-33
		% of Value Assessed	%	No	InputPropertyTax			
		Equalization Ratio	%	No	InputPropertyTax			
	Sales, Use, and Lodging Tax Rates	General Sales and Use	%	Yes	InputSalesTax	Enter inputs for non-primary jurisdictions if necessary; Cumulative tax rates (state and local)	State Department of Revenue or Taxation; Tax Assessor's office	pp. 20 & 33
		Groceries	%	Yes	InputSalesTax			
		Prepared Food	%	Yes	InputSalesTax			
		Amusements	%	Yes	InputSalesTax			
		Hotel/Lodging	%	Yes	InputSalesTax			
	Income Tax Rates	Median Adjusted Gross Income	$	Yes	InputIncomeTax	***ALL INPUTS ARE ALREADY LOADED IN THE TOOL***	State Department of Revenue or Taxation	pp. 20-21 & 33
		Income Tax Rate for Median Adjusted Gross Income Level	%	Yes	InputIncomeTax			
Total increase in visitor spending from base year to current year			$	No	InputEconActivity1	If you choose to Enter Data with Short Form, a window will pop up asking you to enter the required information		pp. 27-28
Total value of new public/nonprofit capital investments due to byway designation			$	No	InputEconActivity1			
Total value of new private capital investments due to byway designation			$	No	InputEconActivity1			
Total increase in public, private & nonprofit operating expenses from base year to current year due to byway designation			$	No	InputEconActivity1			
Total property appreciation in the byway area from base year to current year			$	No	InputEconActivity1			
Property tax rate in primary jurisdiction (per $1,000 of assessed value)			%	No	InputEconActivity1			
Sales/Use tax rate in primary jurisdiction			%	No	InputEconActivity1			
Income tax rate in primary state (for appropriate median bracket)			%	No	InputEconActivity1			

APPENDIX B: RIMS II MULTIPLIERS

Total Multipliers for Output, Earnings, Employment, and Value Added by Industry Aggregation (Type II)

INDUSTRY	Multiplier					
	Final Demand				Direct Effect	
	Output/1/ (dollars)	Earnings/2/ (dollars)	Employment/3/ (jobs)	Value-added/4/ (dollars)	Earnings/5/ (dollars)	Employment/6/ (jobs)
1. Crop and animal production	1.8981	0.3651	10.9759	0.7642	2.1788	2.0237
2. Forestry, fishing, and related activities	1.8366	0.4119	14.2284	0.8591	2.0201	1.7714
3. Oil and gas extraction	1.5209	0.3526	6.8073	0.8048	1.7276	2.3485
4. Mining, except oil and gas	1.6613	0.4260	8.1704	0.8970	1.7280	2.2557
5. Support activities for mining	1.6827	0.4415	9.8676	0.8200	1.7268	1.9413
6. Utilities*	1.3804	0.3167	5.3711	0.8175	1.4924	2.3632
7. Construction	1.9062	0.5998	16.6537	0.9959	1.6584	1.6901
8. Wood product manufacturing	2.1389	0.4617	13.3811	0.8549	2.4709	2.5436
9. Nonmetallic mineral product manufacturing	1.8224	0.4225	10.0318	0.8825	2.0338	2.2115
10. Primary metal manufacturing	1.6866	0.3122	6.9226	0.6526	2.2234	2.6976
11. Fabricated metal product manufacturing	1.6851	0.4046	9.7130	0.7936	1.7727	1.9473
12. Machinery manufacturing	1.7373	0.4183	9.0313	0.7816	1.8518	2.2094
13. Computer and electronic product manufacturing	1.6457	0.3725	6.6194	0.7121	1.8762	2.7708
14. Electrical equipment and appliance manufacturing	1.6229	0.3740	8.1912	0.7692	1.7750	2.0018
15. Motor vehicle, body, trailer, and parts manufacturing	1.8280	0.3879	8.7153	0.6694	2.1409	2.4513
16. Other transportation equipment manufacturing	1.7698	0.3875	7.9261	0.7712	2.0308	2.5506
17. Furniture and related product manufacturing	1.8808	0.4629	13.1150	0.8594	1.8821	1.8305
18. Miscellaneous manufacturing	1.7219	0.4560	11.7023	0.8878	1.6955	1.7674
19. Food, beverage, and tobacco product manufacturing	1.9665	0.3545	9.0543	0.7352	2.6963	2.7920
20. Textile and textile product mills	1.9582	0.3940	10.6824	0.7728	2.3016	2.1649
21. Apparel, leather, and allied product manufacturing	1.9888	0.4553	12.7967	0.8840	2.1252	2.0493
22. Paper manufacturing	1.8095	0.3517	7.8753	0.7801	2.2703	2.8802
23. Printing and related support activities	1.8187	0.4850	12.1861	0.9083	1.7456	1.8498
24. Petroleum and coal products manufacturing	1.5257	0.2894	5.8033	0.3909	1.9331	2.4932
25. Chemical manufacturing	1.5311	0.2783	5.1098	0.6266	2.0422	2.8198
26. Plastics and rubber products manufacturing	1.6759	0.3380	7.9188	0.7326	1.9649	2.1471
27. Wholesale trade	1.5691	0.4615	9.6050	1.0110	1.5338	1.9154
28. Retail trade	1.6201	0.4919	18.2513	1.0161	1.5105	1.3650
29. Air transportation	1.5594	0.4616	10.9300	0.7695	1.5084	1.8311
30. Rail transportation	1.5761	0.3385	6.8460	0.8079	1.9001	2.8093
31. Water transportation	1.5925	0.3223	6.1664	0.6441	2.1297	4.4526
32. Truck transportation	1.7817	0.5094	13.8038	0.9083	1.8316	1.9799
33. Transit and ground passenger transportation*	1.8437	0.5390	20.5957	0.7826	1.7263	1.4274
34. Pipeline transportation	1.7678	0.4208	8.6823	0.6899	2.0987	3.7030
35. Other transportation and support activities*	1.6935	0.6443	16.6534	1.0498	1.4329	1.5550
36. Warehousing and storage	1.7835	0.6295	18.4840	1.0792	1.5331	1.5535
37. Publishing industries, except Internet	1.6876	0.4380	9.2802	0.9519	1.7799	2.3342

(Continued)

INDUSTRY	Multiplier					
	Final Demand				Direct Effect	
	Output/1/ (dollars)	Earnings/2/ (dollars)	Employment/3/ (jobs)	Value-added/4/ (dollars)	Earnings/5/ (dollars)	Employment/6/ (jobs)
38. Motion picture and sound recording industries	1.5962	0.3715	14.8750	0.9390	1.7589	1.4896
39. Broadcasting, except Internet	1.5699	0.5161	9.1933	0.7734	1.4462	2.0269
40. Telecommunications	1.4843	0.2775	5.5773	0.8295	1.8086	2.5038
41. Internet and other information services	1.5635	0.4260	8.3385	0.9565	1.5779	2.2714
42. Federal Reserve banks, credit intermediation and related services	1.4483	0.3446	6.6661	0.9376	1.5639	2.1855
43. Securities, commodity contracts, investments	1.7079	0.6742	18.0560	0.9885	1.4035	1.4654
44. Insurance carriers and related activities	1.6218	0.4432	9.7496	0.9029	1.6334	1.9792
45. Funds, trusts, and other financial vehicles	1.4475	0.2736	6.1747	0.4529	1.9593	2.3796
46. Real estate	1.2770	0.1112	5.2731	0.9051	2.8645	1.6502
47. Rental and leasing services and lessors of intangible assets	1.6523	0.4335	11.5490	1.0801	1.7361	1.7473
48. Professional, scientific, and technical services	1.6746	0.6227	12.6149	1.0701	1.4221	1.8198
49. Management of companies and enterprises	1.6394	0.5681	9.3909	1.0005	1.4523	2.1987
50. Administrative and support services	1.6693	0.6126	27.5645	1.0680	1.4335	1.2625
51. Waste management and remediation services	1.6141	0.4232	11.2240	0.9109	1.6712	1.7964
52. Educational services	1.7244	0.5898	19.6285	0.9989	1.4602	1.4049
53. Ambulatory health care services	1.7741	0.7057	15.8613	1.0985	1.4267	1.6678
54. Hospitals	1.7389	0.5872	14.0090	0.9994	1.4970	1.6948
55. Nursing and residential care facilities	1.7103	0.6418	23.1498	1.0809	1.4133	1.3319
56. Social assistance	1.7002	0.5526	24.6069	0.9892	1.5016	1.3000
57. Performing arts, spectator sports, museums, zoos, and parks	1.6871	0.5893	23.7842	1.0145	1.4571	1.3124
58. Amusements, gambling, and recreation	1.6224	0.5078	26.8325	0.9970	1.4931	1.2271
59. Accommodation	1.6107	0.4516	16.9086	1.0007	1.6103	1.4265
60. Food services and drinking places	1.7074	0.4822	24.0678	0.9170	1.6149	1.2731
61. Other services*	1.7126	0.5053	14.5307	0.9217	1.6114	1.6273
62. Households	0.9350	0.2502	7.9344	0.5590	0.0000	0.0000

**Includes Government enterprises.*

Source: Bureau of Economic Analysis, Regional Product Division, Regional Input-Output Modeling System (RIMS II).

Notes: 1) Multipliers are based on the 2002 Benchmark Input-Output Table for the Nation and 2008 regional data.

2) Each entry in column 1 represents the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.

3) Each entry in column 2 represents the total dollar change in earnings of households employed by all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.

4) Each entry in column 3 represents the total change in number of jobs that occurs in all industries for each additional 1 million dollars of output delivered to final demand by the industry corresponding to the entry.

5) Each entry in column 4 represents the total dollar change in value added that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.

6) Each entry in column 5 represents the total dollar change in earnings of households employed by all industries for each additional dollar of earnings paid directly to households employed by the industry corresponding to the entry.

7) Each entry in column 6 represents the total change in number of jobs in all industries for each additional job in the industry corresponding to the entry.

APPENDIX B: DATA SOURCES AND REFERENCES

America's Byways Resource Center, *An Economic Impact Tool for National Scenic Byways and All-American Roads, Technical Manual*, January 2010.

Blue Ridge Parkway,

http://www.blueridgeparkway.org/

North Carolina Department of Commerce, Division of Tourism, *Visitor Profile Reports*,

http://www.nccommerce.com/tourism/research/visitation-research/visitor-profile-reports

US Department of Agriculture, Forest Service, *National Visitor Use Monitoring Program*,

http://apps.fs.usda.gov/nrm/nvum/results/

US Department of Commerce, Bureau of Economic Analysis, Regional Product Division, *Regional Input-Output Modeling System*,

http://www.bea.gov/regional/rims/

Virginia Tourism Corporation, *FY2007-2009 Profile of Leisure Travel in Virginia*,

http://www.vatc.org/research/visitation.asp