



ONE COMPANY | *Many Solutions*®

AMERICA'S BYWAYS RESOURCE CENTER

**ECONOMIC IMPACT TOOL:
SENSITIVITY ANALYSIS**
Cherokee Hills National Scenic Byway
CASE STUDY

AUGUST 16, 2012

CONTENTS

Executive Summary4

1 Introduction5

1.1 Case Study Objectives..... 5

1.2 Organization of the Report..... 6

2 Background Information7

2.1 Economic Impact Tool 7

2.2 Cherokee Hills Scenic Byway 7

3 Model Inputs9

3.1 Data Sources 9

3.2 Case Study Inputs 9

3.2.1 Visitor Profiles9

3.2.2 Visitor Spending10

3.2.3 Visitor Counts.....11

3.2.4 Investments.....11

3.2.5 Economic Multipliers.....11

4 Study Results12

4.1 Scenario 1 12

4.1.1 Economic Impact Summary12

4.1.2 Employment and Earnings Impacts12

4.1.3 Tax Impacts.....13

TABLES

Table 1: Visitor Profile Data	10
Table 2: Visitor Spending Data (2010)	10
Table 3: Investment Data (2010)	11
Table 4: Overall Economic Impacts by Type of Impact	12
Table 5: Employment Impacts by Type of Impact	13
Table 6: Earnings Impacts by Type of Impact	13
Table 7: Tax Impacts by Type of Tax (\$000).....	14

FIGURES

Figure 1: Map of the Byway Region	8
---	---

Executive Summary

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 Cherokee Hills Scenic Byway.

Through visitor spending and various capital projects, the Cherokee Hills Scenic Byway is generating multiple impacts on the four-county byway region, including:

- \$85.3 million in total business sales;
- About 924 jobs; and
- An increase of \$30.2 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)	660	265	924
Earnings (\$000)	\$22,036.7	\$8,172.4	\$30,209.1
Economic Output (\$000)			
Visitor Spending	\$25,870.0	\$9,283.4	\$35,153.4
Annual Operating Expenses	-	-	-
Capital Investments to Date	35,147.0	14,972.6	50,119.6

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 Cherokee Hills Scenic Byway. 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 Cherokee Hills Scenic Byway.

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 Cherokee Hills Scenic Byway

The Cherokee Hills Scenic Byway is 88 miles long and spans over four counties in Oklahoma (Adair, Cherokee, Delaware and Sequoyah). Beginning at West Siloam Springs, it follows for the most part the Illinois River down to the Tenkiller Ferry Lake and ends at the confluence with the Arkansas River. The Cherokee Hills Byway features a variety of attractions ranging from recreational and cultural to historical and natural with a range of locations along the route. The road received the National Scenic Byway designation from the Federal Highway Administration in April 2009. 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 the Oklahoma Tourism and Recreation Department. Also, the Forest Service at the US Department of Agriculture administers the National Visitor Use 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 Cherokee Hills Scenic Byway. It includes data on private and tribal investments 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 very rural area it is not expected to have any significant impact on property values. Therefore, 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 recent data obtained from the Oklahoma Tourism and Recreation Department for the four counties located within the byway region.

A majority of visitors to the byway region are overnight visitors who live outside of the region. More than 62 percent of those overnight visitors stay in paid accommodations. The average length of stay for all visitors is 1.8 days while the average number of nights stayed in the region for overnight visitors is 2. The average travel party size is estimated at 3 individuals.

Table 1: Visitor Profile Data

Variable	Estimate
% Daytrippers	25%
% Overnight Visitors	75%
% Living Within the Byway Region	6%
% Living Outside of the Byway Region	94%
% Staying in Paid Accommodations	62.1%
% Staying with Friends/Relatives	37.9%
Average Length of Stay in Region (Days) for All Visitors	1.8
Average Nights Stayed in Region for Overnight Visitors	2.0
Average Number of People in Travel Party	3.0

3.2.2 Visitor Spending

Recent data on visitor spending at the county level were obtained from the Oklahoma Tourism and Recreation Department. 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 total number of visitors to the byway region.

As shown in Table 2 below, more than half of all visitor expenditures are for transportation and food services. The average spending per person and per trip (directly attributed to the byway) is estimated at \$48.04.

Table 2: Visitor Spending Data (2010)

Variable	Estimate
Entertainment & Recreation	\$5.09
Restaurant Food/Drink	\$11.41
Groceries	\$1.27
Gas Stations	\$6.57
Private Hotels/Campgrounds	\$3.78
Public Campgrounds/Lodges	\$1.57
Rental Homes/Cottages	\$0.94
Transportation	\$13.13
Retail Purchases	\$4.27
Services Purchases	\$0.00
Average spending per person, per trip	\$48.04

¹ Based on anecdotal evidence, it was assumed that 20 percent of visitor spending in Adair County, Cherokee County, Delaware County and Sequoyah County could be attributed to the byway.

3.2.3 Visitor Counts

The total number of visitors (or person trips) to the byway region in 2010 is estimated at 0.5 million approximately. This estimate is based on visitor counts for various touristic attractions located in the byway region, including the Cherokee Landing State Park, the Tenkiller State Park and the Natural Falls State Park. It is adjusted to account for visitors who visited more than one attraction in the byway region, to avoid double counting.

3.2.4 Investments

Table 3 below shows the investment data provided by the Cherokee Hills Scenic Byway for 2010. Please note that these estimates represent the funds allocated to the byway for that year (and used as a proxy for the funds actually spent in that year). Based on the “But For Test”, it is estimated that about a third of the private and tribal investments in the byway region could be actually attributed to the byway designation. Investments attributed to the byway designation totaled \$35.1 million in 2010.

Table 3: Investment Data (2010)

Investment Name	Total Amount	Amount Attributable to Byway Designation	Investment Type
Byway Grant	\$35,000	\$35,000	Capital Investment
Private/Tribal (Historical & Cultural)	\$100,000,000	\$35,000,000	Capital Investment
Private/Tribal (Retail)	\$335,000	\$112,000	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 counties: Adair, OK; Cherokee, OK; Delaware, OK; and Sequoyah, OK.

A table showing the output, earnings, employment, and value added³ 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 public investments in the Cherokee Hills Scenic Byway region in 2010.

4.1.1 Economic Impact Summary

Through visitor spending and various investment projects, the Cherokee Hills Scenic Byway is generating multiple impacts on the six-county byway region, including:

- \$85.3 million in total business sales;
- About 924 jobs; and
- An increase of \$30.2 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)	660	265	924
Earnings (\$000)	\$22,036.7	\$8,172.4	\$30,209.1
Economic Output (\$000)			
Visitor Spending	\$25,870.0	\$9,283.4	\$35,153.4
Annual Operating Expenses	-	-	-
Capital Investments to Date	35,147.0	14,972.6	50,119.6

4.1.2 Employment and Earnings Impacts

Based on the inputs presented in Chapter 3, it is estimated that the Cherokee Hills Scenic Byway sustained a total of 924 jobs in the four-county byway region in 2010. A majority of these jobs (71 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	315	173	488
Private Investments	178	59	237
Total from Capital Investments	493	232	725
Employment Change from Operating (Ongoing) Investments			
Operating Expenses	-	-	-
Visitor Spending	167	33	199
Total from Operating Investments	167	33	199
Total Byway Related Employment Change	660	265	924

These job impacts represent \$30.2 million in earnings annually, or about \$33,000 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	\$12,608.8	\$5,343.6	\$17,952.4
Private Investments	\$5,520.7	\$1,763.3	\$7,284.0
Total from Capital Investments	\$18,129.5	\$7,106.9	\$25,236.4
Earnings Change from Operating (Ongoing) Investments (\$000)			
Operating Expenses	-	-	-
Visitor Spending	\$3,907.2	\$1,065.5	\$4,972.7
Total from Operating Investments	\$3,907.2	\$1,065.5	\$4,972.7
Total Byway Related Earnings Change	\$22,036.7	\$8,172.4	\$30,209.1

4.1.3 Tax Impacts

The diverse economic activities spurred by the Cherokee Hills Scenic Byway also generate tax revenues to municipal, county and state governments. Total tax revenues in the byway region are estimated at

\$2.8 million in 2010.⁴ Income taxes represent nearly 60 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	\$17,556.0	\$25,022.7	\$30,209.1
Minimum Tax Amount			
Jurisdiction	Adair, Oklahoma	Oklahoma	Oklahoma
Primary Tax Rate	\$0 per \$1,000	4.5%	5.5%
Tax Revenue	-	\$1,126.0	\$1,661.5
Maximum Tax Amount			
Jurisdiction	Adair, Oklahoma	Oklahoma	Oklahoma
Primary Tax Rate	\$0 per \$1,000	4.5%	5.5%
Tax Revenue	-	\$1,126.0	\$1,661.5

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 <i>(click on cell for a short description of the variable)</i>	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
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 <u>and</u> the current year. Enter up to 200 counts for individual segments of the Byway and specific sites, <u>or</u> 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;	pp. 20 & 33
		Groceries	%	Yes	InputSalesTax		Tax Assessor's office	
		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	1.7302	0.3158	10.3786	0.6487	1.9078	1.8489
2. Forestry, fishing, and related activities	1.4050	0.5625	25.4822	0.6578	1.2186	1.1577
3. Oil and gas extraction	1.2517	0.2725	4.5430	0.6555	1.3350	1.8658
4. Mining, except oil and gas	1.3939	0.2992	8.2148	0.7440	1.4980	1.5251
5. Support activities for mining	1.3749	0.2852	5.6826	0.6493	1.5523	2.0319
6. Utilities*	1.2004	0.2581	4.1934	0.7189	1.2608	1.8091
7. Construction	1.4422	0.4800	14.8322	0.7534	1.3206	1.3541
8. Wood product manufacturing	1.3522	0.3154	9.3541	0.4816	1.4057	1.4386
9. Nonmetallic mineral product manufacturing	1.3609	0.3044	7.5659	0.6373	1.4544	1.6124
10. Primary metal manufacturing	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11. Fabricated metal product manufacturing	1.3241	0.3726	8.8282	0.6152	1.2975	1.4458
12. Machinery manufacturing	1.2883	0.3218	7.1067	0.5511	1.3106	1.4959
13. Computer and electronic product manufacturing	1.3235	0.3800	8.2118	0.5425	1.2928	1.4617
14. Electrical equipment and appliance manufacturing	1.2498	0.2971	7.9298	0.5706	1.2807	1.3436
15. Motor vehicle, body, trailer, and parts manufacturing	1.3429	0.2800	7.2562	0.4303	1.4537	1.5488
16. Other transportation equipment manufacturing	1.3638	0.4033	8.7188	0.5799	1.3253	1.5246
17. Furniture and related product manufacturing	1.2688	0.2828	8.8294	0.5653	1.3338	1.3554
18. Miscellaneous manufacturing	1.2220	0.2492	7.8131	0.6226	1.2934	1.2933
19. Food, beverage, and tobacco product manufacturing	1.6730	0.3005	8.8939	0.5675	1.8985	1.9976
20. Textile and textile product mills	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21. Apparel, leather, and allied product manufacturing	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22. Paper manufacturing	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23. Printing and related support activities	1.2910	0.3826	11.9484	0.6441	1.2543	1.2786
24. Petroleum and coal products manufacturing	1.2675	0.2732	4.7562	0.2536	1.3318	1.7422
25. Chemical manufacturing	1.2542	0.2027	3.5063	0.4714	1.4396	1.9505
26. Plastics and rubber products manufacturing	1.3002	0.2957	6.8490	0.5490	1.3360	1.4913
27. Wholesale trade	1.2819	0.3842	8.3550	0.8472	1.2485	1.4454
28. Retail trade	1.3242	0.4046	16.1842	0.8490	1.2603	1.2113
29. Air transportation	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30. Rail transportation	1.2720	0.2738	5.2582	0.6462	1.3735	1.8385
31. Water transportation	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32. Truck transportation	1.4353	0.4417	11.9631	0.7102	1.4085	1.5154
33. Transit and ground passenger transportation*	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34. Pipeline transportation	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35. Other transportation and support activities*	1.3933	0.5835	15.3404	0.8784	1.2158	1.3105
36. Warehousing and storage	1.4283	0.5525	18.7353	0.8746	1.2618	1.2608
37. Publishing industries, except Internet	1.2887	0.3644	10.2647	0.7358	1.2780	1.3427
38. Motion picture and sound recording industries	1.1996	0.2795	16.0051	0.7167	1.2273	1.1282
39. Broadcasting, except Internet	1.2988	0.3604	7.2487	0.6233	1.3300	2.0670

(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)
40. Telecommunications	1.2063	0.1806	4.2107	0.6729	1.3836	1.6144
41. Internet and other information services	1.2878	0.3869	10.8643	0.8003	1.2435	1.3289
42. Federal Reserve banks, credit intermediation and related services	1.2837	0.3034	8.0482	0.8448	1.3228	1.4618
43. Securities, commodity contracts, investments	1.3865	0.5648	28.2857	0.8030	1.2148	1.1428
44. Insurance carriers and related activities	1.3885	0.4093	10.6278	0.7727	1.3510	1.4871
45. Funds, trusts, and other financial vehicles	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000
46. Real estate	1.1396	0.0555	3.6417	0.8283	2.7866	1.4301
47. Rental and leasing services and lessors of intangible assets	1.3093	0.3444	8.8365	0.8804	1.3138	1.4294
48. Professional, scientific, and technical services	1.3648	0.5512	14.3003	0.8949	1.2092	1.3192
49. Management of companies and enterprises	1.3415	0.5017	9.2905	0.8307	1.2147	1.5033
50. Administrative and support services	1.3489	0.5143	21.6890	0.8858	1.2179	1.1821
51. Waste management and remediation services	1.2993	0.3336	9.7211	0.7352	1.3173	1.3903
52. Educational services	1.4017	0.5150	21.9164	0.8135	1.2358	1.1847
53. Ambulatory health care services	1.3749	0.5855	13.6566	0.8758	1.2019	1.3455
54. Hospitals	1.3406	0.4562	11.3241	0.7737	1.2348	1.3575
55. Nursing and residential care facilities	1.3939	0.5753	23.5423	0.9027	1.2077	1.1764
56. Social assistance	1.3522	0.4365	23.9175	0.7918	1.2556	1.1535
57. Performing arts, spectator sports, museums, zoos, and parks	1.4284	0.5839	30.6106	0.8658	1.2685	1.1925
58. Amusements, gambling, and recreation	1.2433	0.3057	15.4010	0.7781	1.2631	1.1651
59. Accommodation	1.3158	0.3502	17.1944	0.8343	1.3245	1.2039
60. Food services and drinking places	1.3473	0.3925	23.0065	0.7221	1.2902	1.1449
61. Other services*	1.3813	0.4149	13.5111	0.7389	1.3194	1.3335
62. Households	0.5728	0.1443	5.3538	0.3568	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.

America's Byways Resource Center, *Cherokee Hills Byway*,

<http://byways.org/explore/byways/2346/>

Cherokee Nation,

<http://www.cherokee.org/>

Oklahoma Tourism and Recreation Department, *A Study of Oklahoma in-State and out-of-State Visitors, 2010*, prepared by Oklahoma State University, September 2010.

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/>

US Travel Association, *The Economic Impact of Travelers on Oklahoma Counties 2009-2010*, October 2011.