

Colorado Department of Transportation

# Colorado Byways Economic Data Analysis

*Final Report*

November 11, 2016



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# Key Findings

- The cumulated impact of visitor spending on Colorado byways to the state economy over the period 2009 – 2014 is estimated at almost \$4.8 billion, or nearly \$800 million annually.
- In 2014 alone, over 4,000 jobs were created due to visitor spending along the byways, less than half of them as direct effects and the rest as ripple-effects of employment in the general state economy
- Based on its relative share of byway traffic, Mount Evans accounts for about a quarter of all impacts over the 5-year study period, by far the largest contribution to the state economy of any of the 25 byways included in this study
- Even though Colorado's Scenic and Historic Byways have lost their funding from the National Scenic Byways Program in 2012, they continue to be a very popular tourist draw and contribute to regional and state economic development
- This analysis is the first step in estimating the economic impacts of Colorado's Scenic and Historic Byways. More granular byway-specific survey data needs to be collected to refine these estimates.

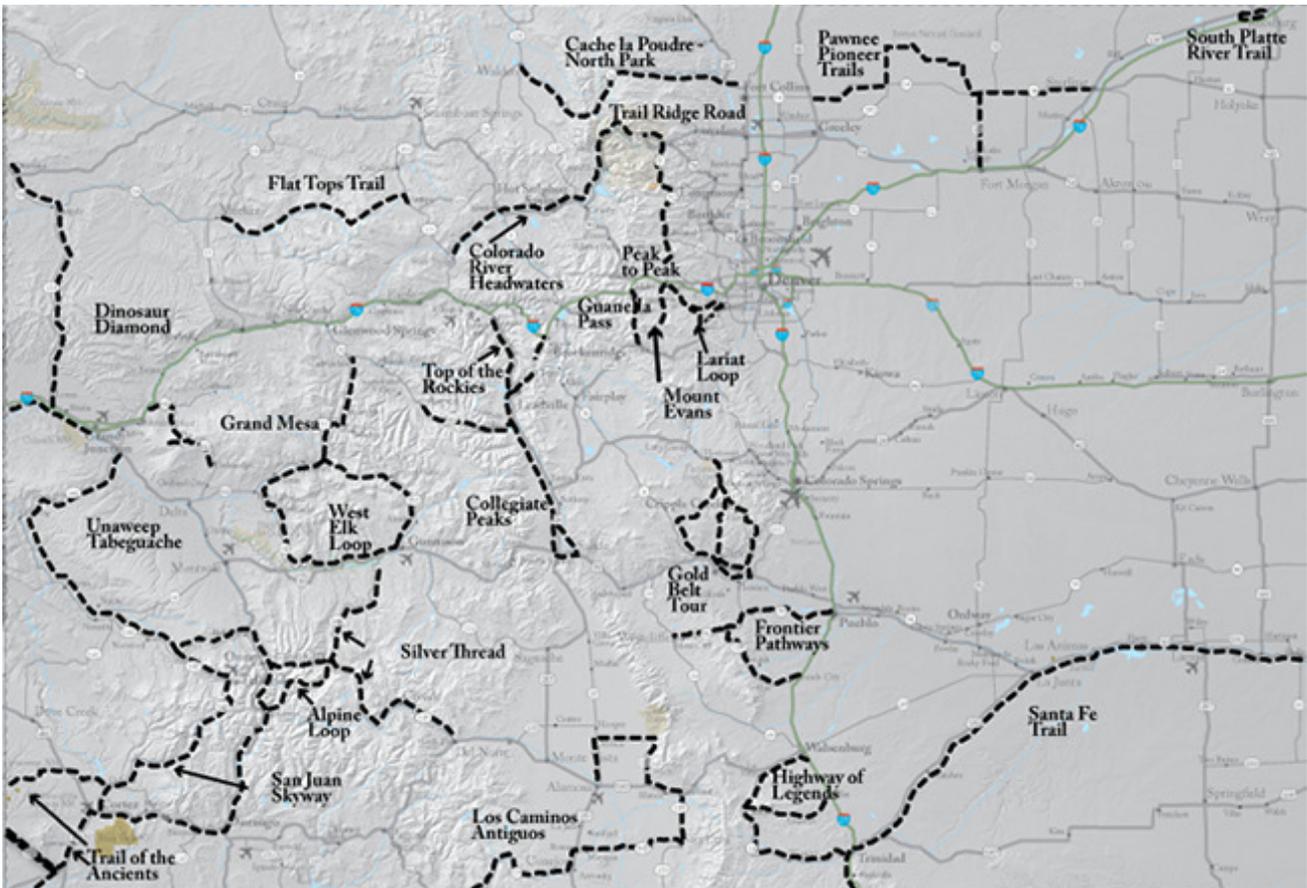
# Introduction

Following the study on The Benefits of Colorado's Scenic and Historical Byways (Clarion Associates, 2013), the Colorado Department of Transportation (CDOT) partnered with HDR Inc. (HDR) to conduct an economic impact analysis of the Colorado Scenic and Historic Byways using the Byways Economic Impact Tool.

## Colorado Scenic and Historic Byways

The State of Colorado established its scenic byways program in 1989, prior to the establishment of the National Scenic Byways Program in 1991. The Colorado Scenic and Historic Byways Commission designated 21 scenic and historic byways between 1991 and 1995, selecting routes based on nominations from local organizations around the state. Today, the Colorado Byways include 26 designated byways (11 of which were designated by the U.S. Secretary of Transportation as America's Byways), 2,617 roadway miles (2,131 miles of which are part of CDOT's system and 486 of which are off-system county/local roads), and span across 47 of Colorado's 64 counties. At the time of this study, only 25 byways were designated and are included in the results ("Tracks Across Borders" in Southwest Colorado is currently in the process of being designated a byway). The byways are shown in Figure 1 below (dashed lines).

Figure 1: Map of Colorado Scenic and Historic Byways



Source: Colorado Department of Transportation

## Byway 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, there is a need to quantify the byways' 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 and limited staff resources.

As part of its Congressionally-designated function of providing technical assistance to byway groups, America's Byways Resource Center commissioned an Economic Impact Tool to measure the impacts of byways and byway-related activities in their communities. The first version of the Tool was released to the public in 2010. A revised version was released in August 2012, based on the findings of a sensitivity analysis conducted by HDR.<sup>1</sup> After America's Byways Resource Center closed in the summer of 2012, the National Association of Development Organizations (NADO) took ownership of the Tool.

The Economic Impact Tool is a Microsoft Excel-based software program with a user-friendly interface that requires no experience in economic modeling. 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 quick results turnaround. On the other hand, the long form requires more detailed inputs, thus the results are more comprehensive and reliable. The Tool is designed to measure a broad range of activities, from the overall economic effects of byway-related (tourism) activities to the specific effects of a private 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.

## Study Objectives

The main objective of this study is to quantify the contribution of Colorado byways – individually and collectively – to the state economy over the period extending from 2009 to 2014, using the Byways Economic Impact Tool. The impacts are measured in terms of jobs, economic output, earnings, and tax revenue. The assessment relies on an extensive data collection and a thorough customization of the Tool.

The study also includes the development of a data collection template – to be used by byway organizations and other stakeholders – that will facilitate the update of the economic impact analysis in the future.

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<sup>1</sup> HDR, Inc., *Economic Impact Tool: Sensitivity Analysis, Task 3: Sensitivity Analysis*, prepared for America's Byways Resource Center, June 2012.

# Model Inputs

The economic impact analysis relies on various data that measure the contribution of byways to the Colorado economy. The data include visitor profiles, visitor spending, visitor counts, and investments, in particular. Note that the Tool is already loaded with annual data on employment and wages as well as state tax rates that users do not need to collect.

Quantifying the economic impacts of byways is a difficult exercise due to the absence of tourism data at the byway level in Colorado. In particular, distinguishing the impact of tourists motivated by the byway designation from other tourists who happen to travel on the byway is critical to obtain accurate and reliable results. As a result, several assumptions documented below are applied to general Colorado tourism data to estimate the impacts at the state level. Then, each byway is attributed a share of those impacts based on recorded annual average daily traffic.

## Data Collection Template

To assist with the collection of data<sup>2</sup> and facilitate future updates of the economic impact analysis, a data collection template was developed in Microsoft Excel. The template consists of a table identifying the different model input variables by type of economic activity (visitor profiles, visitor spending, etc.). The table includes references to pages of the Economic Impact Tool Technical Manual (the Technical Manual) where users can find additional information (see Table 1 the next page). Brief instructions are also provided in the template to help users of the Tool collect data in the future.

## User Inputs

Data on economic activity (i.e., visitor spending, visitor profiles, visitor counts, and investments) were collected from various sources. In particular, Visitor Profile data were obtained from Longwoods International (2015) and Visitor Spending data were obtained from Dean Runyan Associates (2013 and 2015).

The Visitor Counts obtained from Longwoods International and used in this study only include the day and overnight touring trips, as the category of tourists most likely to have visited the byways.

The state-level average spending per person per trip was used to derive the spending attributed to the existence of the Byways, as more granular Byways-specific spending data was unavailable for this study. The average spending per person and per trip was calculated by simply dividing visitor spending by the visitor counts described above.

Visitor spending was derived based on interviews with staff from several byway programs documenting that an estimated 5-15 percent of visitors to a byway region can be (wholly or partly) attributed to the existence of the byway.<sup>3</sup> The current study assumes that 5 percent of average spending per person can be attributed to the existence of the Byways (Table 8). Lacking specific Byway spending and visitor counts, the low end of the spending range attributed to the Byways (5 percent) was used to derive a conservative estimate of economic impact.

Visitor profiles are assumed to be relatively stable across the years and the 2014 Longwoods profiles documented in Table 7 are used throughout this study.

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<sup>2</sup> Note that the data collection template applies to the long form only.

<sup>3</sup> Sensitivity analysis of Economic Impact Tool conducted by HDR, Inc. for America's Byways Resource Center in 2011-2012.

Data on National Scenic Byway grants (2009 – 2012)<sup>4</sup> and other funds (2013 – 2014) allocated to Colorado byways were provided by CDOT.

Finally, the tool has the ability to incorporate impacts from property value appreciation due to proximity to the byways. However, in order to keep final impact estimates conservative, we assume this not to be a significant factor. Therefore, data on property value appreciation were not collected.

All Economic Activity inputs entered in the Tool are shown in Appendix A. Complete data sources and references used to derive those inputs are listed in Appendix E.

## Other Inputs

In addition, employment and wage data (Quarterly Census of Employment and Wages) by aggregate industry and by jurisdictional level (county, metropolitan statistical area, and state) for the period 2009 – 2014 were obtained from the Colorado Labor Market Information (LMI) Gateway.<sup>5</sup> The data were processed and inserted into two Excel files<sup>6</sup> that are used to calculate the impact on employment and earnings.

Economic multipliers are applied 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 State of Colorado were purchased from the Bureau of Economic Analysis (BEA).<sup>7</sup> They are based on the 2002 Benchmark Input-Output Table for the Nation and 2010 state data.<sup>8</sup> A breakdown of the multipliers by industry aggregate and by impact metric (output, earnings, employment, and value added) is provided in Appendix D.

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<sup>4</sup> The program lost its funding after the passage of the Moving Ahead for Progress in the 21st Century Act (MAP-21) in 2012.

<sup>5</sup> <https://www.colmigateway.com>

<sup>6</sup> EMPLOYMENT.xls and WAGES.xls.

<sup>7</sup> BEA's RIMS II multipliers can be purchased online at <http://www.bea.gov/regional/rims/>. As of March 2016, the cost is \$275 per region.

<sup>8</sup> BEA only provides RIMS II multipliers for one year at a time. So, the same multipliers were used over the analysis period (2009 – 2014). This is not a concern, however, given the size of the region – i.e., the structure of the state economy did not change significantly between 2009 and 2014.

**Table 1: Data Collection Template**

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	VALUE
Visitor Profiles	% Daytrippers	%	Yes	Input/VisitorProfiles	Sum of the two must be 100%	State or local agencies (byway organization, chamber of commerce, visitor center, etc.)	pp. 17-18 & 29	
	% Overnight Visitors	%	Yes	Input/VisitorProfiles				
	% Living Within the Byway Region	%	Yes	Input/VisitorProfiles	Sum of the two must be 100%			
	% Living Outside of the Byway Region	%	Yes	Input/VisitorProfiles				
	% Staying in Paid Accommodations	%	Yes	Input/VisitorProfiles	Sum of the two must be 100%			
	% Staying with Friends/Relatives	%	Yes	Input/VisitorProfiles				
	Average Length of Stay in Region (Days) for All Visitors	Days	Yes	Input/VisitorProfiles				
	Average Nights Stayed in Region for Overnight Visitors	Nights	Yes	Input/VisitorProfiles				
	Average Number of People in Travel Party	People	Yes	Input/VisitorProfiles				
	Visitor Spending	Entertainment & Recreation	Per person, per trip	Yes	Input/VisitorSpending			Determine whether it is taxable
Restaurant Food/Drink			Yes	Input/VisitorSpending	Determine whether it is taxable			
Groceries		OR Per person, per day/night	Yes	Input/VisitorSpending	Determine whether it is taxable			
Gas Stations			Yes	Input/VisitorSpending	Determine whether it is taxable			
Private Hotels/Campgrounds			Yes	Input/VisitorSpending	Determine whether it is taxable			
Public Campgrounds/Lodges		OR Per party, per trip	Yes	Input/VisitorSpending	Determine whether it is taxable			
Rental Homes/Cottages		OR Per party, per day/night	Yes	Input/VisitorSpending	Determine whether it is taxable			
Transportation			Yes	Input/VisitorSpending	Determine whether it is taxable			
Retail Purchases		OR Total annual spending	Yes	Input/VisitorSpending	Determine whether it is taxable			
Services Purchases			Yes	Input/VisitorSpending	Determine whether it is taxable			
Visitor Counts	Person Trips	Person-trips	No	Input/VisitorCounts	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); CDOT (traffic data)	pp. 18 & 30	Seq. 1 Seq. 2 Seq. 3 Seq. 4 Seq. 5
Economic Activity	Investment amount	\$	No	Input/Investments	Determine whether to measure the value of how investments affect intrinsic qualities (archeological, cultural, historical, etc.)	Byway organization	pp. 18-19 & 30-32	Inv. 1
								Inv. 2
								Inv. 3
								Inv. 4
								Inv. 5
	Amount Attributable to Byway Designation	\$ OR %	No	Input/Investments				Inv. 1
								Inv. 2
								Inv. 3
								Inv. 4
								Inv. 5
Property Value Appreciation	Jurisdiction's Total Valuation by Year	\$	No	Input/PropertyValue	For base year and current year			Jur. 1 Jur. 2 Jur. 3
								Jur. 1
	% of Valuation of Jurisdiction Located in Byway Area	%	Yes	Input/PropertyValue		Tax Assessor's office	pp. 20 & 32	Jur. 2 Jur. 3
								Jur. 1
	Ratio of Value Change in Byway Area as % of Jurisdiction's Overall Growth Rate	%	Yes	Input/PropertyValue	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			Jur. 2 Jur. 3
								Jur. 1
	% of Appreciation Attributable to Byway Activity	%	Yes	Input/PropertyValue				Jur. 2 Jur. 3
								Jur. 1
								Jur. 2
								Jur. 3
Tax Rate	Property Tax Rates	Property Tax Rate	Amount per \$1,000	No	Input/PropertyTax	Enter inputs for non-primary jurisdictions if necessary	Tax Assessor's office	pp. 20 & 32-33
		% of Value Assessed	%	No	Input/PropertyTax			
		Equalization Ratio	%	No	Input/PropertyTax			

# Analysis Results

The economic impact analysis of Colorado byways was conducted at the state level and on an annual basis. The impacts were then summed up over the period 2009 – 2014 and allocated to the byways based on their respective share of roadway traffic – measured by annual average daily traffic (AADT) – using data from CDOT’s Online Transportation Information System.<sup>9</sup> The impacts are measured in terms of jobs, economic output (i.e., total volume of sales), earnings (or labor income), and tax revenue. Whenever possible they are broken down by type of impact (direct, indirect, and total).

Direct economic effects reflect the immediate results of tourism spending in the byway regions, such as increases in sales, wages, salaries, and supplies in the restaurant or hotel industries. Additional economic activity that ripples from this initial spending is defined as indirect economic impact. It usually takes the form of increased business-to-business activity down the supply chain, such as increased demand for hotel linen supplies, or restaurant foodstuff and supplies, creating jobs and economic activity in these downstream industries. Direct and indirect impacts can be totaled to obtain overall economic impacts.

The cumulated impact of Colorado byways on the state economy over the period 2009 – 2014 is estimated at almost \$4.8 billion (economic output), or about \$800 million annually. Nearly all of it is due to visitor spending. It is important to note, however, that only less than half, or approximately \$2.25 billion are direct economic impacts to the Byways regions over five years. The rest are indirect impacts to the overall state economy. The Colorado byways also generated almost \$790 million in wage earnings over the same period: \$376 million of direct impacts and \$413 million of indirect impacts. The earnings represent the total value of wages distributed to all the jobs created over the 6-year analysis time period. A summary of cumulated economic impacts is provided in Table 2 below.

**Table 2: Overall Economic Impacts by Type of Impact (2009 – 2014)**

	<b>Direct Impacts</b>	<b>Indirect Impacts</b>	<b>Total Impacts</b>
<b>Earnings (\$000)</b>	\$376,377	\$413,303	\$789,680
<b>Economic Output (\$000)</b>			
Visitor Spending	\$2,246,541	\$2,550,260	\$4,796,801
Annual Operating Expenses (2014)	\$20	\$29	\$49
Capital Investments to Date	\$4,505	\$6,586	\$11,091

For 2014 alone, Colorado byways generated \$835 million in economic output (total spending) and \$141 million in wage earnings for more than 4,000 jobs, or about \$35,250 per employee. These results reflect both the direct and indirect economic impacts. The employment impacts include both part-and full-time jobs and should not be interpreted as full-time equivalents (FTEs). State and local tax revenues amounted to about \$31 million, including over \$24 million from sales/use/lodging taxes.

The complete analysis results at the state level for 2014 are presented in Table 3 through Table 6 below.

<sup>9</sup> This approach was used to approximate the impacts at the byway level, given the absence of data on the number of travelers visiting each byway.

Table 3: Overall Economic Impacts by Type of Impact (2014)

	Direct Impacts	Indirect Impacts	Total Impacts
<b>Employment (No. of Jobs)</b>	1,965	2074	4039
<b>Earnings (\$000)</b>	\$67,110	\$74,386	\$141,496
<b>Economic Output (\$000)</b>			
Visitor Spending	\$391,904	\$443,883	\$835,787
Annual Operating Expenses	\$20	\$29	\$49
Capital Investments to Date	\$55	\$81	\$136

Table 4: Employment Impacts (Jobs) by Type of Impact (2014)

	Direct Impacts	Indirect Impacts	Total Impacts
<b>Employment Change from Capital (One-Time) Investments</b>			
Public Investments	0.3	0.8	1.1
Private Investments	-	-	-
<b>Total from Capital Investments</b>	0.3	0.8	1.1
<b>Employment Change from Operating (Ongoing) Investments (Num. Jobs)</b>			
Operating Expenses	0.2	0.2	0.4
Visitor Spending	2,965	2,073	5,038
<b>Total from Operating Investments</b>	2,965	2,073	5,038
<b>Total Byway Related Employment Change</b>	2,965	2,074	5,039

Table 5: Earnings Impacts by Type of Impact (2014)

	Direct Impacts	Indirect Impacts	Total Impacts
<b>Earnings Change from Capital (One-Time) Investments (\$000)</b>			
Public Investments	\$20.4	\$30.5	\$50.8
Private Investments	-	-	-
<b>Total from Capital Investments</b>	\$20.4	\$30.5	\$50.8
<b>Earnings Change from Operating (Ongoing) Investments (\$000)</b>			
Operating Expenses	\$6.1	\$8.5	\$14.6
Visitor Spending	\$67,083	\$74,329	\$141,412
<b>Total from Operating Investments</b>	\$67,089	\$74,338	\$141,427
<b>Total Byway Related Earnings Change</b>	\$67,110	\$74,368	\$141,478

Table 6: Tax Impacts by Type of Tax (2014)

	Sales/Use/Lodging Taxes	Income Taxes
Value/Sales/Earnings Increase (\$000)	\$391,904	\$141,478
Tax Revenue (\$000)	\$24,512	\$6,550

Note: Sales/use/lodging tax revenue estimates are based on a state tax rate of 2.9 percent and an average local tax rate of 4.49 percent.

In terms of impacts to specific Byways, these effects were calculated by apportioning the state-level 6-year cumulative impacts (direct and indirect) to each Byway based on their recorded traffic counts. The most popular and therefore economically meaningful Byways are Mount Evans, the Lariat Loop, the San Juan Skyway, Guanella Pass, and Trail of the Ancients. Mount Evans accounts for a quarter of all impacts, with over \$1.2 billion in visitor spending impacts over 5 years from 2009 to 2014. By comparison, the next most popular Byway, the Lariat Loop, claims less than half that (\$566 million). It is worth mentioning that Trail Ridge Road, the popular Rocky Mountain National Park road, is 9<sup>th</sup> on the list, with \$171 million in total spending impacts. Detailed results at the byway level are provided in Appendix B.

## Conclusions and Recommendations

Colorado byways contributed almost \$4.8 billion in economic output (or business sales) over the period 2009 – 2014. For 2014 alone, they generated \$835 million in economic output and more than 4,000 jobs, after accounting for the multiplier effect. These impacts may seem small in comparison to the size of the state economy. At the end of 2014, total employment in Colorado was estimated at 2.7 million and state GDP at \$305 billion. However, Colorado byways have limited resources and operate on shoestring budgets, especially since the National Scenic Byways Program has been defunded. Therefore, the return on investment is considerable.

The study results can be used to show the value of investing in byways to elected officials and the general public. While this study provides a good starting point for understanding the economic impacts of byways, there are some significant limitations to the analysis relating to the availability of data at the byway level. Most significantly, the spending and visitor profiles used are derived by applying byway-specific assumptions to state-level data. Only touring trip counts are included as visitor counts and spending is attributed to byways based on informal interviews with program staff members from several byways across the country. To ensure we obtain conservative estimates, the low range of 5 percent from these interviews was used to attribute spending to byways. The following are a few recommendations for future updates of the analysis with the Byways Economic Impact Tool:

- A survey of Colorado byway visitors or acquisition of more granular regional tourism data will allow CDOT to obtain more accurate data on visitor profile, spending, and counts. In particular, it will help estimate the portion of visitor spending that can be attributed to the byway designation without making assumptions on state-level data.
- As more accurate and additional data become available at the byway level, it is recommended that the economic impact analysis be conducted for each byway separately.
- Though economic multipliers for the State of Colorado are updated annually by the BEA, the multipliers used for this study are valid for several years (3-5 years), or as long as the structure of the state economy does not change significantly<sup>10</sup>.
- New employment and wage data is needed to estimate the economic impacts after 2014. In addition, historical data on employment and wages are often revised by the Bureau of Labor

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<sup>10</sup> New multipliers can be purchased from the BEA website at a very affordable price (\$275). Only two files sent by the BEA (M\_62RG01.DAT and M406RG01.DAT) need to be replaced in the appropriate folder of the Tool.

Statistics. Though this information can be easily obtained from the Colorado LMI Gateway website, we recommend the employment and wages data files be validated as changes will have to be made to the structure of these files to ensure that the economic impact analysis is conducted properly.

# Appendix A: Economic Activity Inputs

**Table 7: Visitor Profile Data**

Visitor Characteristic	Value
% Daytrippers	52.88
% Overnight Visitors	47.12
% Living Within the Byway Region	53.04
% Living Outside of the Byway Region	46.96
% Staying in Paid Accommodations	70.00
% Staying with Friends/Relatives	30.00
Average Length of Stay in Region (Days) for All Visitors	2.70
Average Nights Stayed in Region for Overnight Visitors	4.60
Average Number of People in Travel Party	2.90

Source: Longwoods International, Colorado Travel Year 2014, Final Report, May 2015.

**Table 8: Visitor Spending Data (per Person and per Trip)**

Spending Category	2009	2010	2011	2012	2013	2014
Entertainment & Recreation	\$4.04	\$3.95	\$3.95	\$3.97	\$3.87	\$3.71
Restaurant Food/Drink	\$6.26	\$6.29	\$6.38	\$6.56	\$6.52	\$6.42
Groceries	\$1.33	\$1.30	\$1.33	\$1.35	\$1.31	\$1.28
Gas Stations	\$2.41	\$2.61	\$2.90	\$2.82	\$2.63	\$2.38
Private Hotels/Campgrounds	\$6.36	\$6.48	\$6.89	\$7.19	\$7.41	\$7.77
Public Campgrounds/Lodges	\$2.65	\$2.70	\$2.87	\$2.99	\$3.08	\$3.24
Rental Homes/Cottages	\$1.59	\$1.63	\$1.73	\$1.80	\$1.86	\$1.95
Transportation	\$1.72	\$1.87	\$2.07	\$2.01	\$1.88	\$1.70
Retail Purchases	\$4.37	\$4.37	\$4.37	\$4.38	\$4.24	\$4.03
Services Purchases	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Average Spending</b>	<b>\$30.7</b>	<b>\$31.17</b>	<b>\$32.47</b>	<b>\$33.05</b>	<b>\$32.77</b>	<b>\$32.46</b>

Sources: Dean Runyan Associates, *The Economic Impact of Travel on Colorado: 1996-2011*, prepared for the Colorado Tourism Office, November 2012; Dean Runyan Associates, *Colorado Travel Impacts: 1996-2014p*, prepared for the Colorado Tourism Office, June 2015.

Notes: Estimates reflect the portion of visitor spending that can be attributed to the byway designation (5% of average per person spending). Accommodation expenditures were apportioned across Private Hotels/Campgrounds, Rental Homes/Cottages, and Rental Homes/Cottages based on U.S. default values provided in the Impact Tool.

**Table 9: Visitor Count Data**

	2009	2010	2011	2012	2013	2014
Number of Visitors (Person Trips)	10,962,000	11,800,000	12,079,000	11,832,000	11,155,000	12,066,000

Source: Longwoods International, Colorado Travel Year 2014, Final Report, May 2015.

Note: Estimates include both daytrippers and overnight visitors for touring trips.

**Table 10: Investment Data**

	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Grants and Other Public Funds	\$513,100	\$192,160	\$2,203,801	\$1,514,583	\$143,000	\$75,000

*Source: Communications with CDOT.*

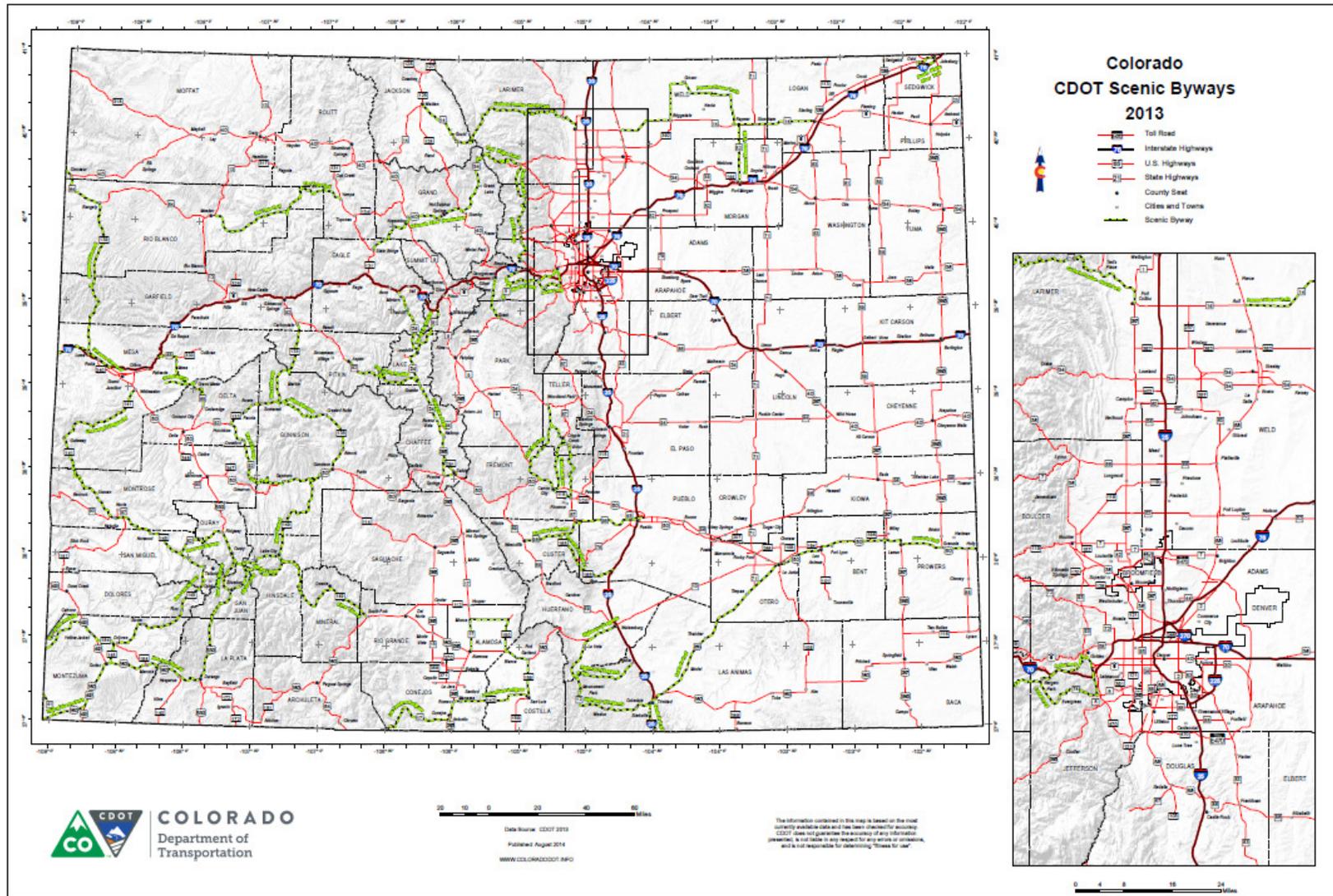
## Appendix B: Detailed Analysis Results

Table 11: Cumulative Impacts (\$000) by Byway (2009 – 2014) – sorted by magnitude

Byway	Earnings	Output	Taxes
Mount Evans	\$200,496	\$1,217,885	\$44,576
Lariat Loop	\$93,325	\$566,891	\$20,749
San Juan Skyway	\$49,569	\$301,097	\$11,020
Guanella Pass	\$48,201	\$292,792	\$10,716
Trail of The Ancients	\$41,330	\$251,053	\$9,189
Colorado River Headwaters	\$37,817	\$229,717	\$8,408
Collegiate Peaks	\$31,280	\$190,003	\$6,954
Highway of Legends	\$29,593	\$179,757	\$6,579
Trail Ridge Road	\$28,203	\$171,315	\$6,270
West Elk Loop	\$22,849	\$138,795	\$5,080
Flat Tops Trail	\$21,537	\$130,821	\$4,788
Top of The Rockies	\$16,682	\$101,335	\$3,709
Unaweep Tabeguache	\$16,409	\$99,672	\$3,648
Peak To Peak	\$16,341	\$99,258	\$3,633
Santa Fe Trail	\$15,900	\$96,584	\$3,535
Gold Belt Tour	\$15,622	\$94,897	\$3,473
Pawnee Pioneer Trails	\$14,850	\$90,203	\$3,302
Dinosaur Diamond	\$13,845	\$84,099	\$3,078
Los Caminos Antiguos	\$13,691	\$83,164	\$3,044
Frontier Pathways	\$11,896	\$72,264	\$2,645
South Platte River Trail	\$11,127	\$67,591	\$2,474
Silver Thread	\$11,042	\$67,071	\$2,455
Grand Mesa	\$10,384	\$63,075	\$2,309
Cache la Poudre - North Park	\$9,948	\$60,428	\$2,212
Alpine Loop	\$7,743	\$47,033	\$1,721
<b>Total</b>	<b>\$789,680</b>	<b>\$4,796,801</b>	<b>\$175,568</b>

*Note: Due to the absence of data on the number of travelers visiting each byway, statewide economic impacts were allocated to the byways based on their respective share of roadway traffic – measured by AADT – using data from CDOT's Online Transportation Information System.*

# Appendix C: Map of Colorado Scenic Byways



# Appendix D: RIMS II Multipliers

## Total Multipliers for Output, Earnings, Employment, and Value Added by Industry Aggregation – Colorado (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	2.4782	0.4680	17.5181	1.1027	3.4340	2.4240
2. Forestry, fishing, and related activities	2.0298	0.6510	27.1141	1.0151	1.7931	1.4073
3. Oil and gas extraction	2.1435	0.5208	10.2243	1.1969	2.6941	3.6389
4. Mining, except oil and gas	2.1569	0.5970	11.8975	1.2002	2.2829	2.9825
5. Support activities for mining	2.2529	0.6431	13.0447	1.1803	2.4019	3.1817
6. Utilities*	2.0376	0.4964	9.0406	1.1885	2.3924	4.0901
7. Construction	2.3175	0.7700	18.5348	1.2688	1.9980	2.1484
8. Wood product manufacturing	2.0190	0.5075	13.9194	0.8771	2.3899	2.1557
9. Nonmetallic mineral product manufacturing	2.2135	0.5987	13.5356	1.1367	2.4324	2.5910
10. Primary metal manufacturing	2.0907	0.4750	11.1861	0.9209	2.9186	2.8485
11. Fabricated metal product manufacturing	2.1084	0.5598	12.6367	1.0592	2.3049	2.5904
12. Machinery manufacturing	2.0092	0.5062	10.1707	0.9657	2.3804	3.1463
13. Computer and electronic product manufacturing	2.2324	0.5924	10.8341	1.0780	2.6476	4.0329
14. Electrical equipment and appliance manufacturing	1.9379	0.4923	10.3487	0.9757	2.2726	2.6404
15. Motor vehicle, body, trailer, and parts manufacturing	1.9947	0.4838	13.1113	0.8256	2.5012	2.0728
16. Other transportation equipment manufacturing	2.4026	0.7030	13.4330	1.1976	2.6545	4.5167
17. Furniture and related product manufacturing	2.0929	0.5662	12.7847	1.0466	2.2809	2.5949
18. Miscellaneous manufacturing	2.0796	0.6199	13.8162	1.1326	2.0519	2.3093
19. Food, beverage, and tobacco product manufacturing	2.4373	0.4889	12.3214	1.0178	3.8688	4.2500
20. Textile and textile product mills	1.8122	0.4675	13.2822	0.7948	2.0339	1.8049
21. Apparel, leather, and allied product manufacturing	1.9499	0.4808	15.0789	0.9486	2.3979	1.8581
22. Paper manufacturing	1.8377	0.4476	9.4022	0.8660	2.2330	2.6304
23. Printing and related support activities	2.0521	0.6200	16.1852	1.0979	2.0124	1.9434
24. Petroleum and coal products manufacturing	2.0873	0.4142	7.4471	0.7113	3.3071	6.3100
25. Chemical manufacturing	2.0508	0.4543	8.5906	0.9432	3.2091	4.4913
26. Plastics and rubber products manufacturing	1.8845	0.4651	10.2600	0.8970	2.2287	2.4774
27. Wholesale trade	2.0178	0.6295	12.3358	1.2917	1.9469	2.7057
28. Retail trade	2.0582	0.6523	21.3191	1.2958	1.8637	1.8062
29. Air transportation	2.1863	0.6816	16.0128	1.1323	1.9951	2.2940
30. Rail transportation	2.1015	0.5215	10.4549	1.1423	2.7073	4.4518
31. Water transportation	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32. Truck transportation	2.3041	0.7021	17.3209	1.2270	2.3276	2.4843
33. Transit and ground passenger transportation*	2.3858	0.7246	19.1888	1.1206	2.2967	2.0810
34. Pipeline transportation	2.4583	0.6385	12.5870	1.0949	3.1635	6.9874
35. Other transportation and support activities*	2.2088	0.8314	19.4001	1.3661	1.7645	1.9887
36. Warehousing and storage	2.2491	0.7963	22.2405	1.3744	1.8245	1.7863
37. Publishing industries, except Internet	2.1270	0.6167	12.6186	1.2427	2.2368	3.2989
38. Motion picture and sound recording industries	1.8718	0.4752	15.5651	1.1170	2.1631	1.7663
39. Broadcasting, except Internet	2.4135	0.8082	15.3831	1.2712	2.1510	3.7492

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	2.0211	0.4577	9.1688	1.1542	2.6593	3.9459
41. Internet and other information services	2.0882	0.6228	12.2812	1.2841	2.0392	3.0383
42. Federal Reserve banks, credit intermediation and related services	1.9683	0.5303	11.5821	1.2559	2.2022	2.8659
43. Securities, commodity contracts, investments	2.4309	0.9095	27.1410	1.4318	1.8807	1.7248
44. Insurance carriers and related activities	2.2785	0.6784	15.0109	1.2901	2.2648	2.7628
45. Funds, trusts, and other financial vehicles	2.6213	0.6939	25.8459	1.1548	4.9359	2.5478
46. Real estate	1.5648	0.2231	9.6763	1.0900	3.3208	1.7249
47. Rental and leasing services and lessors of intangible assets	1.7078	0.3711	7.4779	1.1250	2.2842	3.3307
48. Professional, scientific, and technical services	2.2598	0.8343	17.4939	1.4344	1.8117	2.3445
49. Management of companies and enterprises	2.2890	0.7969	13.6334	1.4037	1.9295	3.5599
50. Administrative and support services	2.2085	0.7789	26.5948	1.3971	1.8412	1.5588
51. Waste management and remediation services	2.0784	0.5588	11.8853	1.1999	2.3193	3.0529
52. Educational services	2.3029	0.7579	25.0735	1.3598	1.9008	1.6358
53. Ambulatory health care services	2.3423	0.9139	19.8618	1.4539	1.7582	2.1235
54. Hospitals	2.3159	0.7955	17.7655	1.3620	1.8640	2.2578
55. Nursing and residential care facilities	2.2632	0.8548	25.9975	1.4228	1.7160	1.5984
56. Social assistance	2.2393	0.7394	28.4615	1.3285	1.9138	1.5207
57. Performing arts, spectator sports, museums, zoos, and parks	2.3084	0.8111	28.6647	1.3929	1.9483	1.6244
58. Amusements, gambling, and recreation	2.1532	0.6782	25.7095	1.3286	1.9428	1.5092
59. Accommodation	2.0674	0.6185	18.8820	1.2839	2.0648	1.7590
60. Food services and drinking places	2.2213	0.6624	25.6734	1.2364	2.0617	1.5137
61. Other services*	2.2524	0.6770	17.5045	1.2631	2.1714	2.2363
62. Households	1.4046	0.4003	11.4019	0.8465	0.0000	0.0000

\*Includes Government enterprises.

1) 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.

2) 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.

3) 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.

4) 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.

5) 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.

6) 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.

Note: Multipliers are based on the 2002 Benchmark Input-Output Table for the Nation and 2010 regional data.

## Appendix E: References and Data Sources

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