

**The Economic Impact of an
Annual \$500 Million
Increase in Highway and
Bridge Construction
Investment in West Virginia**



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EXECUTIVE SUMMARY

¹State output measures total industry sales for both intermediate and final goods, while GSP measures the value added of all industry sales, or sales to final users in the economy only.

²U.S. Department of Labor Bureau of Labor Statistics Current Employment Statistics. Employment numbers represent seasonally adjusted November employment estimates.

This report examines the economic impact of a \$500 million annual increase in West Virginia highway and bridge investment. The results show that the construction activity would increase market output, grow the tax base and support jobs across all major sectors of the state economy. The improvement in West Virginia's transportation network would provide long term benefits for businesses and users, including improved safety, lower operating costs, reduced congestion and an increase in both mobility and efficiency.

The construction activity from a sustained \$500 million increase in West Virginia's highway and bridge investment would yield the following annual benefits:

- Generate over \$994.5 million in additional economic output¹
- Increase gross state product (GSP) by nearly \$500 million
- Grow state and local tax revenues by \$49.5 million
- Support or create an additional 9,630 jobs throughout the economy, with 47 percent of the employment outside of the construction industry, including an estimated 1,001 jobs in retail trade and 563 jobs in health care and social assistance
- Reduce operating costs and increase market access for West Virginia businesses
- Increase in mobility for all system users

The jobs that would be supported or created come at a time when the West Virginia construction sector is continuing to grapple with the impact of the Great Recession that began in December 2007.

Although the recession officially ended in June 2009, construction employment in West Virginia was down 23 percent in November 2014 compared to November 2007 (pre-recession) levels². Between November 2013 and November 2014 alone, West Virginia construction employment fell 11.3 percent, the biggest drop of any state in the country.

In the long run, West Virginia drivers and businesses would see a number of economic benefits as a result of additional highway and bridge investment. Businesses would have access to a larger pool of labor, supplies and customers. An improved highway and bridge network would also result in lower operating costs, allowing business to increase investment in other capital outlays.

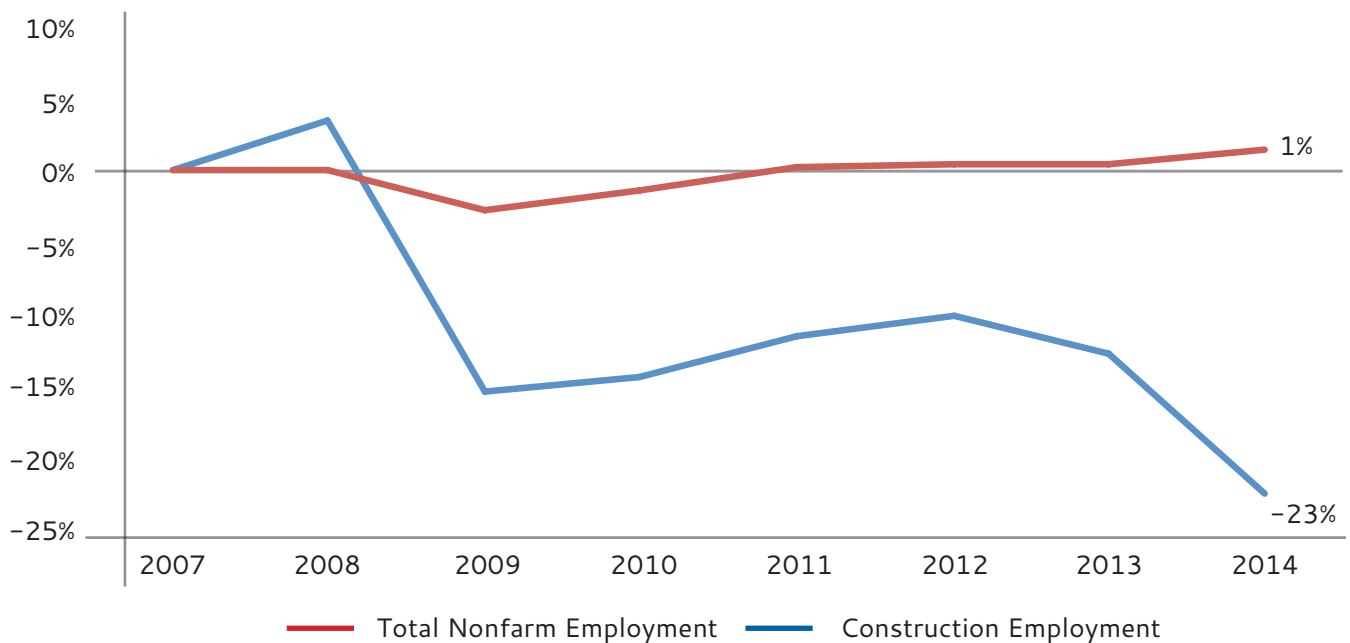
The results strongly suggest that such an investment should be a fundamental component of any plan to grow the state's economy and boost its competitiveness in regional, national and international markets.

Report Methodology

We use the sophisticated "Regional Input-Output Modeling System" (RIMS II) developed by the U.S. Department of Commerce to track the complex money flows and interactions that occur between the state's diverse business sectors. This, in tandem with data from the U.S. Census Bureau's "County Business Patterns" report, allows us to determine how a \$500 million annual increase in highway and bridge construction work would impact the output of key business sectors within the region.

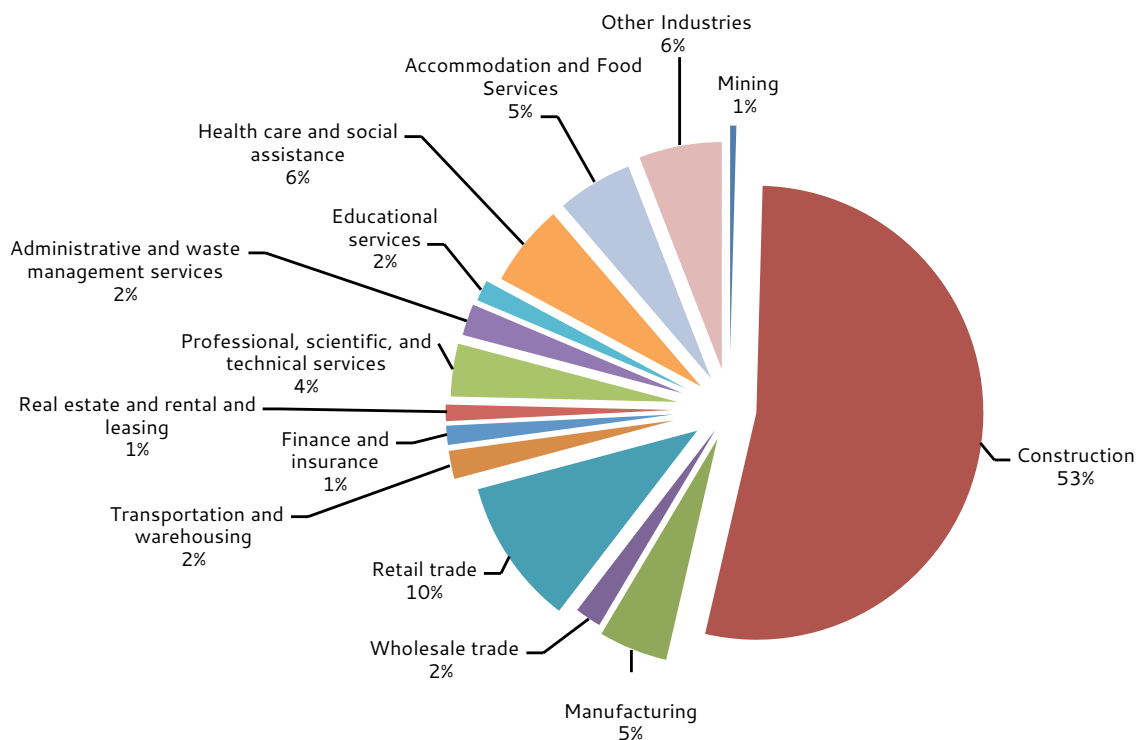
The results show the unique and synergistic nature of transportation capital investments—how they trigger immediate economic activity that creates and sustains jobs and tax revenues, yet yield long-lived capital assets that facilitate economic activity for many decades to come by providing access to jobs, services, materials and markets.

November Percent Change in West Virginia Employment from 2007 Levels



Source: U.S. Department of Labor Bureau of Labor Statistics Current Employment Statistics. Employment numbers represent seasonally adjusted November employment estimates.

Additional West Virginia Jobs Supported/Created by an Annual \$500 Million Increase in Highway and Bridge Construction Investment



CHALLENGES FACING WEST VIRGINIA'S HIGHWAY AND BRIDGE NETWORK

³Based on data from FHWA Highway Statistics

⁴FHWA National Bridge Inventory 2013

⁵National Highway Traffic Safety Administration Fatality Analysis Reporting System, FHWA Highway Statistics

⁶U.S. Census Bureau

⁷McQuaid, Ronald W., et al. "The Importance of Transport in Business' Location Decisions." January 2004.

⁸FHWA Freight Analysis Framework

⁹This percent is the ratio of federal-aid reimbursements to West Virginia and total West Virginia capital outlays. This figure does not include local capital spending. Federal highway reimbursements are primarily used for capital outlays, including construction, right-of-way acquisition and engineering, but are also used for debt service and GARVEE bonds.

¹⁰Miller, Tom. "Tom Miller: Officials Worry about Loss or Cut in Highway Funding." The Herald-Dispatch. N.p., 13 July 2013. Web. 23 July 2013.

West Virginia's highway and bridge network is the backbone of the state's economy. The state is facing a number of infrastructure challenges—demand for passenger and freight traffic travel continues to increase as the system is aging and conditions are deteriorating:

- 28 percent of West Virginia's 10,433 miles of roadway eligible for federal aid are rated "not acceptable" and need major repairs or replacement.³
- West Virginia has 7,099 bridges, of which 35.2 percent are either "structurally deficient" (990 bridges) or "functionally obsolete" (1,511 bridges). It will cost an estimated \$2.6 billion to make needed bridge repairs on 3,536 structures in the state.⁴
- West Virginia has the highest rate of traffic fatalities per mile travelled in the country. There were 339 roadway crash fatalities in West Virginia during 2012, over two thirds of which occurred on rural roads.⁵ Motor vehicle crashes are the number one cause of death and also permanently disabling injuries for young Americans under age 21.
- The average commute one-way to work in West Virginia is 25.6 minutes. Getting there, 82.9 percent drive alone, 9.4 percent carpool and less than one percent take public transportation.⁶
- The overall business environment in the United States is changing, and there is likely to be a greater importance placed on logistics and global transportation networks.⁷ The value of truck freight shipments in West Virginia is expected to almost double from \$95.6 billion in 2012 to over \$175 billion in 2040.⁸ Truck shipments of West Virginia goods for export are estimated to increase from \$1.8 billion in 2012 to over \$4 billion—an increase of over 200 percent. This will have a significant impact on congestion on West Virginia's road and bridge network.
- West Virginia is also facing uncertainty regarding long-term federal funding. Over the past eleven years, on average, the federal highway program has accounted for 61 percent of WVDOT capital outlays for highway and bridge projects.⁹ The most recent surface transportation authorization is set to expire in May after a last-minute extension this past summer. In July, WVDOT spokesman Brent Walker stated that any delays in receiving federal funds would halt all active construction contracts across the state until a long-term solution is put in place.¹⁰

THE ECONOMIC IMPACT OF INCREASED ANNUAL HIGHWAY & BRIDGE CONSTRUCTION INVESTMENT

An annual \$500 million increase in highway and bridge construction investment in West Virginia would have an immediate impact on all sectors of the state economy.

How does this ripple effect work? Highway and bridge contractors purchase inputs (such as materials) from West Virginia businesses, in addition to other firms outside of the state as they complete work on projects. These workers spend their earnings by purchasing clothing, food and other goods and services, thereby creating demand in other sectors of the state economy. As jobs are created or sustained, employees receive additional income and spend more, and businesses increase sales. Subsequently, taxes grow due to larger payroll and sales volumes, providing the state and local municipalities with additional revenues to reinvest in West Virginia.

An annual \$500 million increase in West Virginia highway and bridge construction

investment would generate the following economic benefits each year:

- \$994.5 million in economic output as businesses throughout the economy sell more goods and services to both other businesses and consumers
- \$499.9 million in value added, which contributes to West Virginia’s GSP
- 9,630 jobs created or supported across all sectors of the economy
- These workers would earn over \$296 million in wages
- \$49.5 million in additional federal and state revenues, including:
 - o \$3.0 million in state payroll taxes
 - o \$22.7 million in federal payroll taxes
 - o \$15.8 million in state income taxes
 - o \$8.1 million in state sales taxes

Economic Impact of an Annual \$500 Million Increase in Highway and Bridge Construction Investment in West Virginia

	Current Value	Annual Impact of Additional \$500 Million	Percent Increase from Current Value
Total Output	\$130.6 billion	\$994.5 million	0.8%
Total Value Added (GSP)	\$74.0 billion	\$499.9 million	0.7%
Earnings	\$21.5 billion	\$296.2 million	1.4%
Employment	579,583 jobs	9,630 jobs	1.7%
State Payroll Tax Revenues	\$215.2 million	\$3.0 million	1.4%
Federal Payroll Tax Revenues	\$1.6 billion	\$22.7 million	1.4%
State Income Tax Revenues	\$889.5 million	\$15.8 million	1.8%
State Sales Tax Revenues	\$1.2 billion	\$8.1 million	0.7%

Sources: U.S. Bureau of Economic Analysis, U.S. Census Bureau RIMS, U.S. Department of Labor, County Business Patterns, Government Census, West Virginia State Tax Department

THE ECONOMIC IMPACT OF INCREASED ANNUAL HIGHWAY & BRIDGE CONSTRUCTION INVESTMENT

¹¹Employment numbers represent seasonally adjusted November employment estimates.

More West Virginian Jobs

Just under half of the 9,630 jobs supported or created by an additional annual \$500 million in highway and bridge construction activity would be in sectors outside of the West Virginia construction market.

Although total employment in the state has shown some modest growth in the last few years, employment in such key industries as manufacturing, retail sales and trade and transportation are still below pre-recession levels. There are also signs that many West Virginians are still in need of a job. The unemployment rate has improved from 8.5 percent in 2010 to 6.4 percent in 2014, but is still below the rate of 4.2 percent in 2008.

The labor force participation rate, which measures the percent of the population in West Virginia that is either employed or actively seeking work, has declined steadily since the recession began, reaching 53.7 percent in 2014 compared to 56.9 percent in 2008. Although an aging population is a factor, one of the reasons for this decline is that some West Virginians have given up looking for a job.

The West Virginia construction sector continues to fall behind other parts of the economy. Construction work, particularly highway work, is down for many West Virginia contractors in 2014 compared to 2011, according to a member survey conducted by the Contractors Association of West Virginia (CAWV). Over half (58 percent) of responding CAWV members reported that they laid off employees between November 2011 and November 2014.

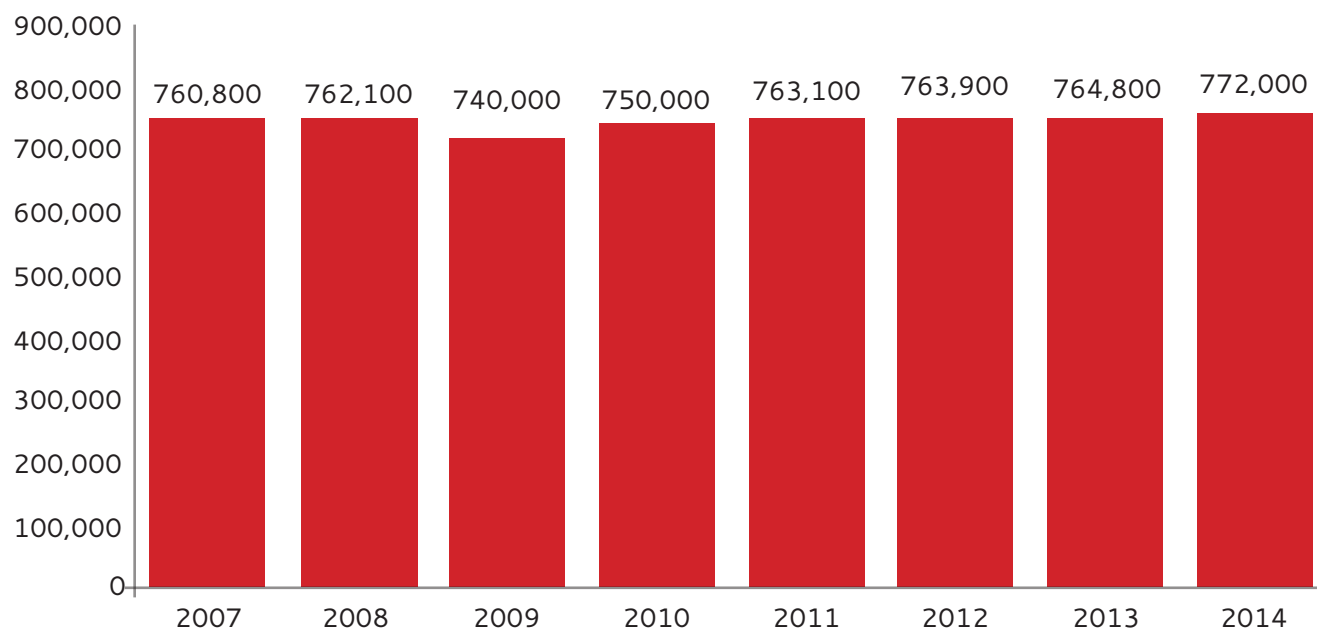
Though West Virginia construction employment increased slightly between 2010 and 2012, November employment levels are still well below pre-recession levels. Over the past two years, November construction employment has decreased even further, according to the Bureau of Labor Statistics' Current Employment Statistics. West Virginia construction employment is estimated at 29,700 in November 2014, 13 percent below construction employment in November 2011 and 23 percent below November 2007 levels.¹¹

Beyond the jobs supported by the immediate highway and bridge construction work, the economic activity and employment for many West Virginia companies relies on the mobility provided by the highway and bridge system.

Without the infrastructure built, maintained and managed by the West Virginia's transportation construction industry, virtually all of the major industry sectors that comprise the West Virginia economy—and the local jobs they sustain—would not exist or could not function.

The simple fact is that 262,580 West Virginia jobs in just tourism, manufacturing, transportation and warehousing, agriculture and forestry, mining, retailing and wholesaling alone are fully dependent on the work done by the state's transportation construction industry. These dependent industries provide a total payroll of \$9.9 billion and their employees contribute \$871.0 million annually in state and federal payroll taxes.

November West Virginia Total Nonfarm Employment 2007-2014



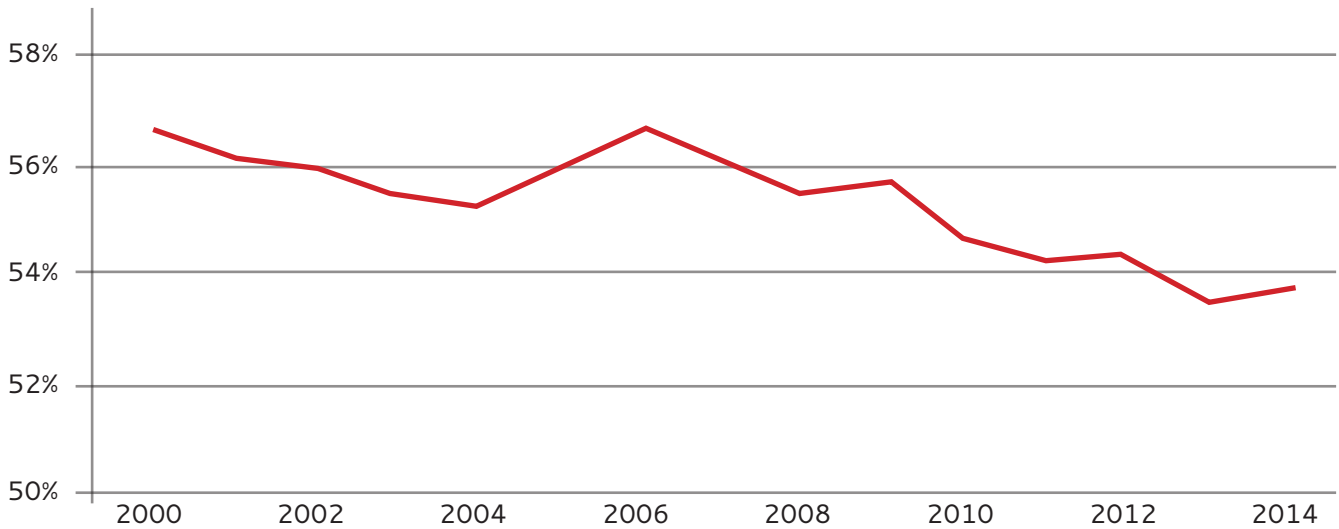
Source: U.S. Department of Labor Bureau of Labor Statistics Current Employment Statistics. Employment numbers represent seasonally adjusted November employment estimates.

Economic Impact of an Annual \$500 Million Increase in Highway and Bridge Construction Investment in West Virginia

Industry	Annual Impact on Industry Output (in millions)	Additional Jobs Supported/Created Each Year
Mining	\$10.8	42
Construction	\$503.0	5,102
Manufacturing	\$115.2	472
Wholesale trade	\$29.0	180
Retail trade	\$63.7	1,001
Transportation and warehousing	\$25.6	192
Finance and insurance	\$22.7	130
Real estate and rental and leasing	\$46.1	112
Professional, scientific, and technical services	\$32.1	359
Administrative and waste management services	\$11.9	215
Educational services	\$6.7	143
Health care and social assistance	\$43.4	563
Accommodation and Food Services	\$18.5	515
Other Industries	\$66.2	566
Total industry impact*	\$994.5	9,630

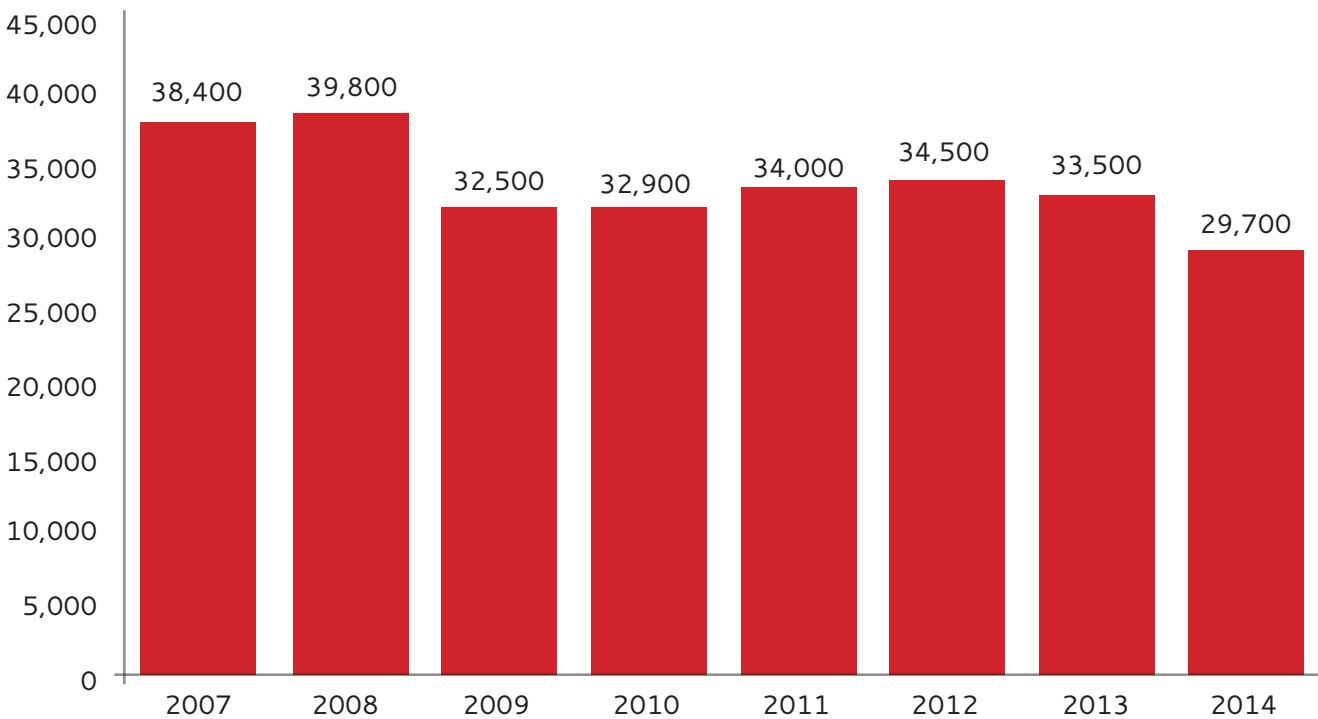
*Does not include impact on government output.

West Virginia Average Labor Force Participation Rate 2000-2014



Source: U.S. Bureau of Labor Statistics Local Area Unemployment Statistics

November West Virginia Construction Employment 2007-2014



Source: U.S. Department of Labor Bureau of Labor Statistics Current Employment Statistics. Employment numbers represent seasonally adjusted November employment estimates.

THE ECONOMIC IMPACT OF INCREASED ANNUAL HIGHWAY & BRIDGE CONSTRUCTION INVESTMENT

Long Run Impacts of Highway and Bridge Investment

In addition to spurring immediate economic growth, investment in West Virginia's infrastructure creates tangible assets that are long-lived and facilitates economic activity for many years to come by providing access to jobs, services, materials and markets. An improved highway network results in reduced operating costs and increased market access for West Virginia businesses. Sustained investment in highways and bridges is critical to making the best use of these capital assets.

The importance of a robust transportation network has been well documented by business analysts, economists and the research community.¹² Overall estimates are that every \$1 increase in the highway and bridge capital stock generates a total of 30 cents in business savings.¹³

Some of these specific benefits include:

- **Access to labor:** A better transportation system means that it is easier for employees in West Virginia to get to work, and that businesses may recruit from a larger pool of potential workers.

- **Increased Market Share & More Customers:** A good transportation system means that West Virginia businesses can reach a greater pool of customers. For example, if a company in Morgantown would not have to contend Morgantown's current gridlock for product delivery and supply routes, the company may be able to increase employment and its market access to other linked industries. Local industries would benefit from these larger markets and reduced transaction costs.¹⁴
- **Reducing production costs:** Economic studies show that reduced costs for inputs is one of the main business benefits from an increase in transportation investment.¹⁵ Typically businesses pay less for inputs when they have access to larger markets.¹⁶
- **Agglomeration Economies:** Firms benefit by locating near one another, even if they are competitors. This is known as the agglomeration of market activity. This happens because a group of firms will attract a greater number of suppliers and customers than one company alone. Lower transportation costs are a key factor for agglomeration, and will be important in attracting new firms to an area.¹⁷ Increasing returns to local industries can be anticipated in areas with intermodal linkages or intramodally, as between major highways.

¹²Weisbrod, Glen, Donald Vary and George Treyz. *Economic Implications of Congestion*. NCHRP Report #463. Project 2-21, National Cooperative Highway Research Program, Transportation Research Board, Washington, DC, 2001

¹³Nadiri, M. Ishaq and Theofanis P. Mamuneas. "Contribution of Highway Capital to Output and Productivity Growth in the US Economy and Industries." *Federal Highway Administration*, August 1998.

¹⁴Ibid.

¹⁵Ibid

¹⁶It is an industry standard to use elasticities of supply and demand for materials as a measure of the impact of a change in transportation infrastructure investment. Based on the above Federal Highway Administration (FHWA) study (Nadiri 1998), the output elasticity of materials is usually the largest. The elasticity of labor and capital inputs is the second largest.

¹⁷Rodrigue, Jean-Paul, Claude Comtois and Brian Slack. "Transport and Location, the Geography of Transport Systems." *Oxon: Routledge*, 2006.

THE ECONOMIC IMPACT OF INCREASED ANNUAL HIGHWAY & BRIDGE CONSTRUCTION INVESTMENT

¹⁸Weisbrod, Glen, Donald Vary and George Treyz. Economic Implications of Congestion. NCHRP Report #463. Project 2-21, National Cooperative Highway Research Program, Transportation Research Board, Washington, DC, 2001

¹⁹The magnitude of the effect of highway capital on output will differ by industry, with the largest difference observed between manufacturing and non-manufacturing industries.

²⁰Economic studies have found output elasticities ranging from as high as 0.56 (Aschauer 1989) to a low of 0.04 (Garcia-Mila and McGuire 1992). This means that a one percent increase in highway investment would result in between 0.04 to 0.56 percent increase in output. Most of this variation is because studies have a different focus—looking at different types of investment measures and output at either the national, state or county level.

- **More efficient operations:** With an efficient transportation system, businesses can make better decisions about their products, inputs and workforce without worrying about poor roadways or congestion. Businesses respond in a variety of ways to congestion. Some businesses may change their mix of labor and capital, reduce the daily deliveries made by a driver or serve a smaller, more specialized market. All of these adjustments can mean a loss for business productivity and market share.¹⁸

- **Increase in demand for inputs:** As the economy expands, businesses will purchase more goods from their suppliers and will increase their demand for private capital. This includes buying more vehicles, equipment, office supplies or even building new plants and factories.¹⁹

Consider the benefits to a business in West Virginia when the state invests in highway and bridge improvements. The increase in construction activity would mean more demand for products and services in the local area. A local business would sell more of its products and may even hire additional employees to increase output. With an improved transportation network, a local business on one of the many main streets in West Virginia could thrive.

The business would also have lower distribution costs because of the improved highways in the area. More customers would be able to reach the business, and the owner may be able to hire more talented, educated and skilled workers that live further away.

The increase in demand may also lead the business to expand, opening another store, plant or business location. Finally, the business would demand more inputs and raw materials from their own suppliers, creating economic ripple effects throughout the economy. It could also be the case that the business owner is able to purchase cheaper inputs because he has greater access to more markets.

Benefits of Highway Investment Well Documented: Support from Economic Literature

The overall economic benefits of highway investment to economic activity are well documented in the economics literature. There are numerous studies that have found a positive correlation between transportation infrastructure investment and economic development. Although the exact impact of the investment has varied among studies, the fact that there is a positive relationship is widely accepted.²⁰

THE ECONOMIC IMPACT OF INCREASED ANNUAL HIGHWAY & BRIDGE CONSTRUCTION INVESTMENT

- A study by Dr. Alicia Munnell of the Federal Reserve Bank of Boston concluded that states that invested more in infrastructure tended to have greater output, more private investment and more employment growth.²¹ Her work found that a one percent increase in public capital would raise national output by 0.15 percent.²² She further notes that the major impact of public capital output is from investment in highways and water and sewer systems. Other public capital investments, such as school buildings and hospitals, had virtually no measureable impact on private production.²³ Munnell also concludes that public capital and infrastructure investment have a significant positive impact on a state's private employment growth and private sector output.
- Smith (1994) reached similar conclusions, estimating increasing investment in highway and capital stock would increase a state's gross output by 0.121 to 0.127 percent. This means a \$1 billion increase in West Virginia's highway capital stock would increase state productivity between \$1.21 million to \$1.27 million.²⁴
- Additional studies have found that transportation infrastructure investments have an impact on the attractiveness of local communities, which helps determine local economic activity and land values. In general, most studies find that locations close to large transportation infrastructure investment have higher land values.²⁵
- M. Ishaq Nadiri of New York University and the National Bureau of Economics Research and Theofanis P. Mamuneas of New York University find significant cost structure and productivity performance impacts on the U.S. manufacturing industry as a result of highway investment. Their work shows that the rate of return on highway investment can be greater than private investment. Some major findings include:²⁶
 - Over the period 1950 to 1989, U.S. industries realized production cost savings averaging 18 cents annually for each dollar invested in the road system.
 - Investments in non-local roads yield even higher annual production cost savings—estimated at 24 cents for each dollar of investment.
- Although the impact of highway investment on productivity has declined since the early 1970s and the initial construction of the Interstate, evidence suggests that highway infrastructure investments more than pay for themselves in terms of industry cost savings.

²¹Munnell, Alicia, *How Does Public Infrastructure Affect Regional Economic Performance*, New England Economic Review, September/October 1990

²²Munnell's elasticity for private capital is 0.31, so that a one percent increase in private capital would raise national output by 0.31 percent. This is in line with other studies of returns from private capital investment.

²³Munnell says she is not implying that government-provided education and health services have no effect on productivity, but rather "the stock of buildings ... may not be the best indicator of the quality of education services; teachers' salaries, for example, might be a better measure."

²⁴Smith, Theresa M. "The Impact of Highway Infrastructure on Economic Performance." *Public Roads* Vol. 57 – No. 4 (Spring 1994).

²⁵A synopsis of these studies are available in the Transportation Research Board's *Expanding Metropolitan Highways: Implications for Air Quality and Energy Use – Special Report 245, 1995*

²⁶Summary provided by U.S. Department of Transportation, *Productivity and the Highway Network: A Look at the Economic Benefits to Industry from Investment in the Highway Network*.

**THE ECONOMIC
IMPACTS OF AN ANNUAL
\$500 MILLION INCREASE
IN HIGHWAY AND
BRIDGE CONSTRUCTION
INVESTMENT ON MAJOR
INDUSTRY SECTORS**

The Economic Benefits of an Annual \$500 Million Increase in West Virginia's Annual Investment in Highway and Bridge Capital Outlays on MINING

SECTOR OVERVIEW

Mining in West Virginia contributed \$13.2 billion to state economic activity in 2013, accounting for 17.8 percent of the state's Gross State Product (GSP).¹ Total sales in the industry were an estimated \$23.2 billion, which includes goods and services for final consumers as well as any inputs sold to other industries. This sector includes 668 establishments and sole proprietorships in West Virginia with an existing payroll valued at \$2.7 billion. These businesses located in West Virginia contribute an estimated \$237.9 million in state and federal payroll taxes. Individuals working in this sector earn an average of \$75,015 each year. The Mining, Quarrying, and Oil and Gas Extraction sector comprises establishments that extract naturally occurring mineral solids, such as coal and ores; liquid minerals, such as crude petroleum; and gases, such as natural gas.

IMPACT OF A \$500 MILLION ANNUAL INCREASE IN HIGHWAY AND BRIDGE INVESTMENT ON THIS SECTOR

The highway and bridge construction industry in West Virginia has an impact on the output, employment and value added for this industry in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building West Virginia's highways and bridges. The second effect is when employees of the transportation construction firms spend their wages and make purchases throughout the economy.

Highway and bridge work done by construction firms in West Virginia as a result of this increased annual investment would support up to 42 jobs in this sector each year, generating \$10.8 million in output and \$2.4 million in wages.

State Profile	Current Value	West Virginia Ranking ²	Percentage of State Total
Industry Output	\$23.2 billion	1	17.8%
Value Added (contribution to GSP)	\$13.2 billion	1	17.8%
Establishments	668 businesses	14	1.8%
Employment	36,657 people	5	6.3%
Average Annual Salary	\$75,015	2	
Total Payroll	\$2.7 billion	2	12.8%
State Payroll Tax Contribution	\$27.5 million	2	12.8%
Federal Payroll Tax Contribution	\$210.4 million	2	12.8%
State Income Tax Contribution	\$137.5 million	2	15.5%
State & Local Sales Tax Contribution	\$212.3 million	1	17.8%

	Current Value	Annual Impact of Additional \$500 Million	Percent Increase from Current Value
Industry Output	\$23.2 billion	\$10.8 million	0.05%
Value Added (contributions to GSP)	\$13.2 billion	\$5.2 million	0.04%
Employment	36,657 people	42 people	0.1%
Total Payroll	\$2.7 billion	\$2.4 million	0.1%
State Payroll Tax Contribution	\$27.5 million	\$23.5 thousand	0.1%
Federal Payroll Tax Contribution	\$210.4 million	\$179.8 thousand	0.1%
State Income Tax Contribution	\$137.5 million	\$158.3 thousand	0.1%
State & Local Sales Tax Contribution	\$212.3 million	\$83.9 thousand	0.04%

¹GSP is the value added by an industry to the overall economy. West Virginia's GSP was \$73.97 billion in 2013, according to the U.S. Bureau of Economic Analysis. That is the difference between total sales and the intermediate goods. Gross output is the measure of total industry sales for both intermediate and final goods. West Virginia's gross output in 2013 is estimated to be \$130.63 billion.

²Values are based on a ranking of West Virginia's 19 major industries, six of which are consolidated in the Other Industries section.

The Economic Benefits of an Annual \$500 Million Increase in West Virginia's Annual Investment in Highway and Bridge Capital Outlays on CONSTRUCTION

SECTOR OVERVIEW

Construction in West Virginia contributed \$3.0 billion to state economic activity in 2013, accounting for 4.0 percent of the state's Gross State Product (GSP).¹ Total sales in the industry were an estimated \$5.3 billion, which includes goods and services for final consumers as well as any inputs sold to other industries. This sector includes 3,353 establishments and sole proprietorships in West Virginia with an existing payroll valued at \$1.2 billion. These businesses located in West Virginia contribute an estimated \$100.4 million in state and federal payroll taxes. Individuals working in this sector earn an average of \$45,576 each year. The Construction sector comprises establishments primarily engaged in the construction of buildings or engineering projects (e.g., highways and utility systems).

IMPACT OF A \$500 MILLION ANNUAL INCREASE IN HIGHWAY AND BRIDGE INVESTMENT ON THIS SECTOR

The highway and bridge construction industry in West Virginia has an impact on the output, employment and value added for this industry in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building West Virginia's highways and bridges. The second effect is when employees of the transportation construction firms spend their wages and make purchases throughout the economy.

Highway and bridge work done by construction firms in West Virginia as a result of this increased annual investment would support up to 5,102 jobs in this sector each year, generating \$503.0 million in output and \$169.0 million in wages.

State Profile	Current Value	West Virginia Ranking ²	Percentage of State Total
Industry Output	\$5.3 billion	7	4.0%
Value Added (contribution to GSP)	\$3.0 billion	7	4.0%
Establishments	3,353 businesses	5	8.8%
Employment	25,464 people	8	4.4%
Average Annual Salary	\$45,576	8	
Total Payroll	\$1.2 billion	6	5.4%
State Payroll Tax Contribution	\$11.6 million	6	5.4%
Federal Payroll Tax Contribution	\$88.8 million	6	5.4%
State Income Tax Contribution	\$48.6 million	6	5.5%
State & Local Sales Tax Contribution	\$48.2 million	7	4.0%

	Current Value	Annual Impact of Additional \$500 Million	Percent Increase from Current Value
Industry Output	\$5.3 billion	\$503.0 million	9.5%
Value Added (contributions to GSP)	\$3.0 billion	\$225.8 million	7.6%
Employment	25,464 people	5,102 people	20.0%
Total Payroll	\$1.2 billion	\$169.0 million	14.6%
State Payroll Tax Contribution	\$11.6 million	\$1.7 million	14.6%
Federal Payroll Tax Contribution	\$88.8 million	\$12.9 million	14.6%
State Income Tax Contribution	\$48.6 million	\$9.7 million	20.0%
State & Local Sales Tax Contribution	\$48.2 million	\$3.6 million	7.6%

¹GSP is the value added by an industry to the overall economy. West Virginia's GSP was \$73.97 billion in 2013, according to the U.S. Bureau of Economic Analysis. That is the difference between total sales and the intermediate goods. Gross output is the measure of total industry sales for both intermediate and final goods. West Virginia's gross output in 2013 is estimated to be \$130.63 billion.

²Values are based on a ranking of West Virginia's 19 major industries, six of which are consolidated in the Other Industries section.

The Economic Benefits of an Annual \$500 Million Increase in West Virginia's Annual Investment in Highway and Bridge Capital Outlays on MANUFACTURING

SECTOR OVERVIEW

Manufacturing in West Virginia contributed \$7.2 billion to state economic activity in 2013, accounting for 9.7 percent of the state's Gross State Product (GSP).¹ Total sales in the industry were an estimated \$12.7 billion, which includes goods and services for final consumers as well as any inputs sold to other industries. This sector includes 1,248 establishments and sole proprietorships in West Virginia with an existing payroll valued at \$2.7 billion. These businesses located in West Virginia contribute an estimated \$229.8 million in state and federal payroll taxes. Individuals working in this sector earn an average of \$53,003 each year. The Manufacturing sector comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products.

IMPACT OF A \$500 MILLION ANNUAL INCREASE IN HIGHWAY AND BRIDGE INVESTMENT ON THIS SECTOR

The highway and bridge construction industry in West Virginia has an impact on the output, employment and value added for this industry in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building West Virginia's highways and bridges. The second effect is when employees of the transportation construction firms spend their wages and make purchases throughout the economy.

Highway and bridge work done by construction firms in West Virginia as a result of this increased annual investment would support up to 472 jobs in this sector each year, generating \$115.2 million in output and \$18.4 million in wages.

State Profile	Current Value	West Virginia Ranking ²	Percentage of State Total
Industry Output	\$12.7 billion	2	9.7%
Value Added (contribution to GSP)	\$7.2 billion	2	9.7%
Establishments	1,248 businesses	11	3.3%
Employment	50,132 people	4	8.6%
Average Annual Salary	\$53,003	4	
Total Payroll	\$2.7 billion	3	12.4%
State Payroll Tax Contribution	\$26.6 million	3	12.4%
Federal Payroll Tax Contribution	\$203.3 million	3	12.4%
State Income Tax Contribution	\$118.1 million	3	13.3%
State & Local Sales Tax Contribution	\$116.1 million	2	9.7%

	Current Value	Annual Impact of Additional \$500 Million	Percent Increase from Current Value
Industry Output	\$12.7 billion	\$115.2 million	0.9%
Value Added (contributions to GSP)	\$7.2 billion	\$39.9 million	0.6%
Employment	50,132 people	472 people	0.9%
Total Payroll	\$2.7 billion	\$18.4 million	0.7%
State Payroll Tax Contribution	\$26.6 million	\$183.5 thousand	0.7%
Federal Payroll Tax Contribution	\$203.3 million	\$1.4 million	0.7%
State Income Tax Contribution	\$118.1 million	\$1.1 million	0.9%
State & Local Sales Tax Contribution	\$116.1 million	\$642.9 thousand	0.6%

¹GSP is the value added by an industry to the overall economy. West Virginia's GSP was \$73.97 billion in 2013, according to the U.S. Bureau of Economic Analysis. That is the difference between total sales and the intermediate goods. Gross output is the measure of total industry sales for both intermediate and final goods. West Virginia's gross output in 2013 is estimated to be \$130.63 billion.

²Values are based on a ranking of West Virginia's 19 major industries, six of which are consolidated in the Other Industries section.

The Economic Benefits of an Annual \$500 Million Increase in West Virginia's Annual Investment in Highway and Bridge Capital Outlays on **WHOLESALE TRADE**

SECTOR OVERVIEW

Wholesale trade in West Virginia contributed \$3.3 billion to state economic activity in 2013, accounting for 4.4 percent of the state's Gross State Product (GSP).¹ Total sales in the industry were an estimated \$5.8 billion, which includes goods and services for final consumers as well as any inputs sold to other industries. This sector includes 1,570 establishments and sole proprietorships in West Virginia with an existing payroll valued at \$966.0 million. These businesses located in West Virginia contribute an estimated \$83.6 million in state and federal payroll taxes. Individuals working in this sector earn an average of \$47,074 each year. The Wholesale Trade sector comprises establishments engaged in wholesaling merchandise, generally without transformation, and rendering services incidental to the sale of merchandise.

IMPACT OF A \$500 MILLION ANNUAL INCREASE IN HIGHWAY AND BRIDGE INVESTMENT ON THIS SECTOR

The highway and bridge construction industry in West Virginia has an impact on the output, employment and value added for this industry in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building West Virginia's highways and bridges. The second effect is when employees of the transportation construction firms spend their wages and make purchases throughout the economy.

Highway and bridge work done by construction firms in West Virginia as a result of this increased annual investment would support up to 180 jobs in this sector each year, generating \$29.0 million in output and \$8.3 million in wages.

State Profile	Current Value	West Virginia Ranking ²	Percentage of State Total
Industry Output	\$5.8 billion	6	4.4%
Value Added (contribution to GSP)	\$3.3 billion	6	4.4%
Establishments	1,570 businesses	8	4.1%
Employment	20,521 people	10	3.5%
Average Annual Salary	\$47,074	6	
Total Payroll	\$966.0 million	7	4.5%
State Payroll Tax Contribution	\$9.7 million	7	4.5%
Federal Payroll Tax Contribution	\$73.9 million	7	4.5%
State Income Tax Contribution	\$41.0 million	7	4.6%
State & Local Sales Tax Contribution	\$52.5 million	6	4.4%

	Current Value	Annual Impact of Additional \$500 Million	Percent Increase from Current Value
Industry Output	\$5.8 billion	\$29.0 million	0.5%
Value Added (contributions to GSP)	\$3.3 billion	\$18.6 million	0.6%
Employment	20,521 people	180 people	0.9%
Total Payroll	\$966.0 million	\$8.3 million	0.9%
State Payroll Tax Contribution	\$9.7 million	\$82.5 thousand	0.9%
Federal Payroll Tax Contribution	\$73.9 million	\$631.1 thousand	0.9%
State Income Tax Contribution	\$41.0 million	\$359.2 thousand	0.9%
State & Local Sales Tax Contribution	\$52.5 million	\$300.1 thousand	0.6%

¹GSP is the value added by an industry to the overall economy. West Virginia's GSP was \$73.97 billion in 2013, according to the U.S. Bureau of Economic Analysis. That is the difference between total sales and the intermediate goods. Gross output is the measure of total industry sales for both intermediate and final goods. West Virginia's gross output in 2013 is estimated to be \$130.63 billion.

²Values are based on a ranking of West Virginia's 19 major industries, six of which are consolidated in the Other Industries section.

The Economic Benefits of an Annual \$500 Million Increase in West Virginia's Annual Investment in Highway and Bridge Capital Outlays on RETAIL TRADE

SECTOR OVERVIEW

Retail trade in West Virginia contributed \$5.1 billion to state economic activity in 2013, accounting for 6.8 percent of the state's Gross State Product (GSP).¹ Total sales in the industry were an estimated \$8.9 billion, which includes goods and services for final consumers as well as any inputs sold to other industries. This sector includes 6,400 establishments and sole proprietorships in West Virginia with an existing payroll valued at \$2.0 billion. These businesses located in West Virginia contribute an estimated \$170.1 million in state and federal payroll taxes. Individuals working in this sector earn an average of \$22,926 each year. The Retail Trade sector comprises establishments engaged in retailing merchandise, generally without transformation, and rendering services incidental to the sale of merchandise.

IMPACT OF A \$500 MILLION ANNUAL INCREASE IN HIGHWAY AND BRIDGE INVESTMENT ON THIS SECTOR

The highway and bridge construction industry in West Virginia has an impact on the output, employment and value added for this industry in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building West Virginia's highways and bridges. The second effect is when employees of the transportation construction firms spend their wages and make purchases throughout the economy.

Highway and bridge work done by construction firms in West Virginia as a result of this increased annual investment would support up to 1,001 jobs in this sector each year, generating \$63.7 million in output and \$19.8 million in wages.

State Profile	Current Value	West Virginia Ranking ²	Percentage of State Total
Industry Output	\$8.9 billion	5	6.8%
Value Added (contribution to GSP)	\$5.1 billion	5	6.8%
Establishments	6,400 businesses	1	16.9%
Employment	85,794 people	2	14.8%
Average Annual Salary	\$22,926	17	
Total Payroll	\$2.0 billion	4	9.1%
State Payroll Tax Contribution	\$19.7 million	4	9.1%
Federal Payroll Tax Contribution	\$150.5 million	4	9.1%
State Income Tax Contribution	\$70.1 million	4	7.9%
State & Local Sales Tax Contribution	\$81.7 million	5	6.8%

	Current Value	Annual Impact of Additional \$500 Million	Percent Increase from Current Value
Industry Output	\$8.9 billion	\$63.7 million	0.7%
Value Added (contributions to GSP)	\$5.1 billion	\$37.6 million	0.7%
Employment	85,794 people	1,001 people	1.2%
Total Payroll	\$2.0 billion	\$19.8 million	1.0%
State Payroll Tax Contribution	\$19.7 million	\$198.0 thousand	1.0%
Federal Payroll Tax Contribution	\$150.5 million	\$1.5 million	1.0%
State Income Tax Contribution	\$70.1 million	\$817.6 thousand	1.2%
State & Local Sales Tax Contribution	\$81.7 million	\$606.6 thousand	0.7%

¹GSP is the value added by an industry to the overall economy. West Virginia's GSP was \$73.97 billion in 2013, according to the U.S. Bureau of Economic Analysis. That is the difference between total sales and the intermediate goods. Gross output is the measure of total industry sales for both intermediate and final goods. West Virginia's gross output in 2013 is estimated to be \$130.63 billion.

²Values are based on a ranking of West Virginia's 19 major industries, six of which are consolidated in the Other Industries section.

The Economic Benefits of an Annual \$500 Million Increase in West Virginia's Annual Investment in Highway and Bridge Capital Outlays on TRANSPORTATION AND WAREHOUSING

SECTOR OVERVIEW

Transportation and warehousing in West Virginia contributed \$2.3 billion to state economic activity in 2013, accounting for 3.1 percent of the state's Gross State Product (GSP).¹ Total sales in the industry were an estimated \$4.1 billion, which includes goods and services for final consumers as well as any inputs sold to other industries. This sector includes 1,234 establishments and sole proprietorships in West Virginia with an existing payroll valued at \$588.8 million. These businesses located in West Virginia contribute an estimated \$50.9 million in state and federal payroll taxes. Individuals working in this sector earn an average of \$39,976 each year. The Transportation and Warehousing sector includes industries providing transportation of passengers and cargo, warehousing and storage for goods, scenic and sightseeing transportation, and support activities related to modes of transportation.

State Profile	Current Value	West Virginia Ranking ²	Percentage of State Total
Industry Output	\$4.1 billion	9	3.1%
Value Added (contribution to GSP)	\$2.3 billion	9	3.1%
Establishments	1,234 businesses	12	3.3%
Employment	14,729 people	12	2.5%
Average Annual Salary	\$39,976	10	
Total Payroll	\$588.8 million	12	2.7%
State Payroll Tax Contribution	\$5.9 million	12	2.7%
Federal Payroll Tax Contribution	\$45.0 million	12	2.7%
State Income Tax Contribution	\$23.2 million	11	2.6%
State & Local Sales Tax Contribution	\$37.2 million	9	3.1%

IMPACT OF A \$500 MILLION ANNUAL INCREASE IN HIGHWAY AND BRIDGE INVESTMENT ON THIS SECTOR

The highway and bridge construction industry in West Virginia has an impact on the output, employment and value added for this industry in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building West Virginia's highways and bridges. The second effect is when employees of the transportation construction firms spend their wages and make purchases throughout the economy.

Highway and bridge work done by construction firms in West Virginia as a result of this increased annual investment would support up to 192 jobs in this sector each year, generating \$25.6 million in output and \$7.0 million in wages.

	Current Value	Annual Impact of Additional \$500 Million	Percent Increase from Current Value
Industry Output	\$4.1 billion	\$25.6 million	0.6%
Value Added (contributions to GSP)	\$2.3 billion	\$13.4 million	0.6%
Employment	14,729 people	192 people	1.3%
Total Payroll	\$588.8 million	\$7.0 million	1.2%
State Payroll Tax Contribution	\$5.9 million	\$70.0 thousand	1.2%
Federal Payroll Tax Contribution	\$45.0 million	\$535.5 thousand	1.2%
State Income Tax Contribution	\$23.2 million	\$302.9 thousand	1.3%
State & Local Sales Tax Contribution	\$37.2 million	\$215.4 thousand	0.6%

¹GSP is the value added by an industry to the overall economy. West Virginia's GSP was \$73.97 billion in 2013, according to the U.S. Bureau of Economic Analysis. That is the difference between total sales and the intermediate goods. Gross output is the measure of total industry sales for both intermediate and final goods. West Virginia's gross output in 2013 is estimated to be \$130.63 billion.

²Values are based on a ranking of West Virginia's 19 major industries, six of which are consolidated in the Other Industries section.

The Economic Benefits of an Annual \$500 Million Increase in West Virginia's Annual Investment in Highway and Bridge Capital Outlays on

FINANCE AND INSURANCE

SECTOR OVERVIEW

Finance and insurance in West Virginia contributed \$2.2 billion to state economic activity in 2013, accounting for 3.0 percent of the state's Gross State Product (GSP).¹ Total sales in the industry were an estimated \$4.0 billion, which includes goods and services for final consumers as well as any inputs sold to other industries. This sector includes 2,163 establishments and sole proprietorships in West Virginia with an existing payroll valued at \$810.0 million. These businesses located in West Virginia contribute an estimated \$70.1 million in state and federal payroll taxes. Individuals working in this sector earn an average of \$44,766 each year. The Finance and Insurance sector comprises establishments primarily engaged in financial transactions (transactions involving the creation, liquidation, or change in ownership of financial assets) and/or in facilitating financial transactions.

State Profile	Current Value	West Virginia Ranking ²	Percentage of State Total
Industry Output	\$4.0 billion	10	3.0%
Value Added (contribution to GSP)	\$2.2 billion	10	3.0%
Establishments	2,163 businesses	7	5.7%
Employment	18,093 people	11	3.1%
Average Annual Salary	\$44,766	9	
Total Payroll	\$810.0 million	10	3.8%
State Payroll Tax Contribution	\$8.1 million	10	3.8%
Federal Payroll Tax Contribution	\$62.0 million	10	3.8%
State Income Tax Contribution	\$33.7 million	9	3.8%
State & Local Sales Tax Contribution	\$36.3 million	10	3.0%

IMPACT OF A \$500 MILLION ANNUAL INCREASE IN HIGHWAY AND BRIDGE INVESTMENT ON THIS SECTOR

The highway and bridge construction industry in West Virginia has an impact on the output, employment and value added for this industry in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building West Virginia's highways and bridges. The second effect is when employees of the transportation construction firms spend their wages and make purchases throughout the economy.

Highway and bridge work done by construction firms in West Virginia as a result of this increased annual investment would support up to 130 jobs in this sector each year, generating \$22.7 million in output and \$5.1 million in wages.

	Current Value	Annual Impact of Additional \$500 Million	Percent Increase from Current Value
Industry Output	\$4.0 billion	\$22.7 million	0.6%
Value Added (contributions to GSP)	\$2.2 billion	\$14.5 million	0.6%
Employment	18,093 people	130 people	0.7%
Total Payroll	\$810.0 million	\$5.1 million	0.6%
State Payroll Tax Contribution	\$8.1 million	\$50.5 thousand	0.6%
Federal Payroll Tax Contribution	\$62.0 million	\$386.3 thousand	0.6%
State Income Tax Contribution	\$33.7 million	\$242.6 thousand	0.7%
State & Local Sales Tax Contribution	\$36.3 million	\$233.1 thousand	0.6%

¹GSP is the value added by an industry to the overall economy. West Virginia's GSP was \$73.97 billion in 2013, according to the U.S. Bureau of Economic Analysis. That is the difference between total sales and the intermediate goods. Gross output is the measure of total industry sales for both intermediate and final goods. West Virginia's gross output in 2013 is estimated to be \$130.63 billion.

²Values are based on a ranking of West Virginia's 19 major industries, six of which are consolidated in the Other Industries section.

The Economic Benefits of an Annual \$500 Million Increase in West Virginia's Annual Investment in Highway and Bridge Capital Outlays on REAL ESTATE AND RENTAL AND LEASING

SECTOR OVERVIEW

Real estate and rental and leasing in West Virginia contributed \$6.8 billion to state economic activity in 2013, accounting for 9.2 percent of the state's Gross State Product (GSP).¹ Total sales in the industry were an estimated \$12.0 billion, which includes goods and services for final consumers as well as any inputs sold to other industries. This sector includes 1,397 establishments and sole proprietorships in West Virginia with an existing payroll valued at \$215.7 million. These businesses located in West Virginia contribute an estimated \$18.7 million in state and federal payroll taxes. Individuals working in this sector earn an average of \$35,522 each year. The Real Estate and Rental and Leasing sector comprises establishments primarily engaged in renting, leasing, or otherwise allowing the use of tangible or intangible assets, and establishments providing related services.

IMPACT OF A \$500 MILLION ANNUAL INCREASE IN HIGHWAY AND BRIDGE INVESTMENT ON THIS SECTOR

The highway and bridge construction industry in West Virginia has an impact on the output, employment and value added for this industry in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building West Virginia's highways and bridges. The second effect is when employees of the transportation construction firms spend their wages and make purchases throughout the economy.

Highway and bridge work done by construction firms in West Virginia as a result of this increased annual investment would support up to 112 jobs in this sector each year, generating \$46.1 million in output and \$2.1 million in wages.

State Profile	Current Value	West Virginia Ranking ²	Percentage of State Total
Industry Output	\$12.0 billion	4	9.2%
Value Added (contribution to GSP)	\$6.8 billion	4	9.2%
Establishments	1,397 businesses	10	3.7%
Employment	6,071 people	16	1.0%
Average Annual Salary	\$35,522	12	
Total Payroll	\$215.7 million	18	1.0%
State Payroll Tax Contribution	\$2.2 million	18	1.0%
Federal Payroll Tax Contribution	\$16.5 million	18	1.0%
State Income Tax Contribution	\$8.3 million	18	0.9%
State & Local Sales Tax Contribution	\$109.8 million	4	9.2%

	Current Value	Annual Impact of Additional \$500 Million	Percent Increase from Current Value
Industry Output	\$12.0 billion	\$46.1 million	0.4%
Value Added (contributions to GSP)	\$6.8 billion	\$35.7 million	0.5%
Employment	6,071 people	112 people	1.8%
Total Payroll	\$215.7 million	\$2.1 million	1.0%
State Payroll Tax Contribution	\$2.2 million	\$21.0 thousand	1.0%
Federal Payroll Tax Contribution	\$16.5 million	\$160.7 thousand	1.0%
State Income Tax Contribution	\$8.3 million	\$154.0 thousand	1.8%
State & Local Sales Tax Contribution	\$109.8 million	\$575.1 thousand	0.5%

¹GSP is the value added by an industry to the overall economy. West Virginia's GSP was \$73.97 billion in 2013, according to the U.S. Bureau of Economic Analysis. That is the difference between total sales and the intermediate goods. Gross output is the measure of total industry sales for both intermediate and final goods. West Virginia's gross output in 2013 is estimated to be \$130.63 billion.

²Values are based on a ranking of West Virginia's 19 major industries, six of which are consolidated in the Other Industries section.

The Economic Benefits of an Annual \$500 Million Increase in West Virginia's Annual Investment in Highway and Bridge Capital Outlays on PROFESSIONAL, SCIENTIFIC, & TECHNICAL SERVICES

SECTOR OVERVIEW

Professional, scientific, and technical services in West Virginia contributed \$2.8 billion to state economic activity in 2013, accounting for 3.8 percent of the state's Gross State Product (GSP).¹ Total sales in the industry were an estimated \$5.0 billion, which includes goods and services for final consumers as well as any inputs sold to other industries. This sector includes 2,984 establishments and sole proprietorships in West Virginia with an existing payroll valued at \$1.2 billion. These businesses located in West Virginia contribute an estimated \$101.1 million in state and federal payroll taxes. Individuals working in this sector earn an average of \$47,458 each year. The Professional, Scientific, and Technical Services sector comprises establishments that specialize in performing professional, scientific, and technical activities for others.

IMPACT OF A \$500 MILLION ANNUAL INCREASE IN HIGHWAY AND BRIDGE INVESTMENT ON THIS SECTOR

The highway and bridge construction industry in West Virginia has an impact on the output, employment and value added for this industry in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building West Virginia's highways and bridges. The second effect is when employees of the transportation construction firms spend their wages and make purchases throughout the economy.

Highway and bridge work done by construction firms in West Virginia as a result of this increased annual investment would support up to 359 jobs in this sector each year, generating \$32.1 million in output and \$14.1 million in wages.

State Profile	Current Value	West Virginia Ranking ²	Percentage of State Total
Industry Output	\$5.0 billion	8	3.8%
Value Added (contribution to GSP)	\$2.8 billion	8	3.8%
Establishments	2,984 businesses	6	7.9%
Employment	24,634 people	9	4.3%
Average Annual Salary	\$47,458	5	
Total Payroll	\$1.2 billion	5	5.4%
State Payroll Tax Contribution	\$11.7 million	5	5.4%
Federal Payroll Tax Contribution	\$89.4 million	5	5.4%
State Income Tax Contribution	\$49.8 million	5	5.6%
State & Local Sales Tax Contribution	\$45.3 million	8	3.8%

	Current Value	Annual Impact of Additional \$500 Million	Percent Increase from Current Value
Industry Output	\$5.0 billion	\$32.1 million	0.6%
Value Added (contributions to GSP)	\$2.8 billion	\$22.6 million	0.8%
Employment	24,634 people	359 people	1.5%
Total Payroll	\$1.2 billion	\$14.1 million	1.2%
State Payroll Tax Contribution	\$11.7 million	\$141.0 thousand	1.2%
Federal Payroll Tax Contribution	\$89.4 million	\$1.1 million	1.2%
State Income Tax Contribution	\$49.8 million	\$726.6 thousand	1.5%
State & Local Sales Tax Contribution	\$45.3 million	\$364.6 thousand	0.8%

¹GSP is the value added by an industry to the overall economy. West Virginia's GSP was \$73.97 billion in 2013, according to the U.S. Bureau of Economic Analysis. That is the difference between total sales and the intermediate goods. Gross output is the measure of total industry sales for both intermediate and final goods. West Virginia's gross output in 2013 is estimated to be \$130.63 billion.

²Values are based on a ranking of West Virginia's 19 major industries, six of which are consolidated in the Other Industries section.

The Economic Benefits of an Annual \$500 Million Increase in West Virginia's Annual Investment in Highway and Bridge Capital Outlays on ADMINISTRATIVE AND WASTE MANAGEMENT

SECTOR OVERVIEW

Administrative and waste management services in West Virginia contributed \$1.7 billion to state economic activity in 2013, accounting for 2.3 percent of the state's Gross State Product (GSP).¹ Total sales in the industry were an estimated \$3.0 billion, which includes goods and services for final consumers as well as any inputs sold to other industries. This sector includes 1,443 establishments and sole proprietorships in West Virginia with an existing payroll valued at \$923.8 million. These businesses located in West Virginia contribute an estimated \$79.9 million in state and federal payroll taxes. Individuals working in this sector earn an average of \$27,739 each year. The Administrative and Support and Waste Management and Remediation Services sector comprises establishments performing routine support activities for the day-to-day operations of other organizations.

IMPACT OF A \$500 MILLION ANNUAL INCREASE IN HIGHWAY AND BRIDGE INVESTMENT ON THIS SECTOR

The highway and bridge construction industry in West Virginia has an impact on the output, employment and value added for this industry in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building West Virginia's highways and bridges. The second effect is when employees of the transportation construction firms spend their wages and make purchases throughout the economy.

Highway and bridge work done by construction firms in West Virginia as a result of this increased annual investment would support up to 215 jobs in this sector each year, generating \$11.9 million in output and \$4.5 million in wages.

State Profile	Current Value	West Virginia Ranking ²	Percentage of State Total
Industry Output	\$3.0 billion	12	2.3%
Value Added (contribution to GSP)	\$1.7 billion	12	2.3%
Establishments	1,443 businesses	9	3.8%
Employment	33,303 people	6	5.7%
Average Annual Salary	\$27,739	13	
Total Payroll	\$923.8 million	8	4.3%
State Payroll Tax Contribution	\$9.2 million	8	4.3%
Federal Payroll Tax Contribution	\$70.7 million	8	4.3%
State Income Tax Contribution	\$34.1 million	8	3.8%
State & Local Sales Tax Contribution	\$27.0 million	12	2.3%

	Current Value	Annual Impact of Additional \$500 Million	Percent Increase from Current Value
Industry Output	\$3.0 billion	\$11.9 million	0.4%
Value Added (contributions to GSP)	\$1.7 billion	\$8.4 million	0.5%
Employment	33,303 people	215 people	0.6%
Total Payroll	\$923.8 million	\$4.5 million	0.5%
State Payroll Tax Contribution	\$9.2 million	\$44.5 thousand	0.5%
Federal Payroll Tax Contribution	\$70.7 million	\$340.4 thousand	0.5%
State Income Tax Contribution	\$34.1 million	\$220.2 thousand	0.6%
State & Local Sales Tax Contribution	\$27.0 million	\$134.7 thousand	0.5%

¹GSP is the value added by an industry to the overall economy. West Virginia's GSP was \$73.97 billion in 2013, according to the U.S. Bureau of Economic Analysis. That is the difference between total sales and the intermediate goods. Gross output is the measure of total industry sales for both intermediate and final goods. West Virginia's gross output in 2013 is estimated to be \$130.63 billion.

²Values are based on a ranking of West Virginia's 19 major industries, six of which are consolidated in the Other Industries section.

The Economic Benefits of an Annual \$500 Million Increase in West Virginia's Annual Investment in Highway and Bridge Capital Outlays on EDUCATIONAL SERVICES

SECTOR OVERVIEW

Educational services in West Virginia contributed \$351.0 million to state economic activity in 2013, accounting for 0.5 percent of the state's Gross State Product (GSP).¹ Total sales in the industry were an estimated \$619.8 million, which includes goods and services for final consumers as well as any inputs sold to other industries. This sector includes 267 establishments and sole proprietorships in West Virginia with an existing payroll valued at \$287.1 million. These businesses located in West Virginia contribute an estimated \$24.8 million in state and federal payroll taxes. Individuals working in this sector earn an average of \$27,303 each year. The Educational Services sector comprises establishments that provide instruction and training in a wide variety of subjects.

IMPACT OF A \$500 MILLION ANNUAL INCREASE IN HIGHWAY AND BRIDGE INVESTMENT ON THIS SECTOR

The highway and bridge construction industry in West Virginia has an impact on the output, employment and value added for this industry in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building West Virginia's highways and bridges. The second effect is when employees of the transportation construction firms spend their wages and make purchases throughout the economy.

Highway and bridge work done by construction firms in West Virginia as a result of this increased annual investment would support up to 143 jobs in this sector each year, generating \$6.7 million in output and \$2.8 million in wages.

State Profile	Current Value	West Virginia Ranking ²	Percentage of State Total
Industry Output	\$619.8 million	18	0.5%
Value Added (contribution to GSP)	\$351.0 million	18	0.5%
Establishments	267 businesses	16	0.7%
Employment	10,516 people	15	1.8%
Average Annual Salary	\$27,303	15	
Total Payroll	\$287.1 million	16	1.3%
State Payroll Tax Contribution	\$2.9 million	16	1.3%
Federal Payroll Tax Contribution	\$22.0 million	16	1.3%
State Income Tax Contribution	\$10.6 million	16	1.2%
State & Local Sales Tax Contribution	\$5.7 million	18	0.5%

	Current Value	Annual Impact of Additional \$500 Million	Percent Increase from Current Value
Industry Output	\$619.8 million	\$6.7 million	1.1%
Value Added (contributions to GSP)	\$351.0 million	\$3.8 million	1.1%
Employment	10,516 people	143 people	1.4%
Total Payroll	\$287.1 million	\$2.8 million	1.0%
State Payroll Tax Contribution	\$2.9 million	\$28.0 thousand	1.0%
Federal Payroll Tax Contribution	\$22.0 million	\$214.2 thousand	1.0%
State Income Tax Contribution	\$10.6 million	\$143.3 thousand	1.4%
State & Local Sales Tax Contribution	\$5.7 million	\$60.5 thousand	1.1%

¹GSP is the value added by an industry to the overall economy. West Virginia's GSP was \$73.97 billion in 2013, according to the U.S. Bureau of Economic Analysis. That is the difference between total sales and the intermediate goods. Gross output is the measure of total industry sales for both intermediate and final goods. West Virginia's gross output in 2013 is estimated to be \$130.63 billion.

²Values are based on a ranking of West Virginia's 19 major industries, six of which are consolidated in the Other Industries section.

The Economic Benefits of an Annual \$500 Million Increase in West Virginia's Annual Investment in Highway and Bridge Capital Outlays on HEALTH CARE AND SOCIAL ASSISTANCE

SECTOR OVERVIEW

Health care and social assistance in West Virginia contributed \$6.9 billion to state economic activity in 2013, accounting for 9.3 percent of the state's Gross State Product (GSP).¹ Total sales in the industry were an estimated \$12.2 billion, which includes goods and services for final consumers as well as any inputs sold to other industries. This sector includes 4,961 establishments and sole proprietorships in West Virginia with an existing payroll valued at \$5.0 billion. These businesses located in West Virginia contribute an estimated \$436.7 million in state and federal payroll taxes. Individuals working in this sector earn an average of \$38,249 each year. The Health Care and Social Assistance sector comprises establishments providing health care and social assistance for individuals.

IMPACT OF A \$500 MILLION ANNUAL INCREASE IN HIGHWAY AND BRIDGE INVESTMENT ON THIS SECTOR

The highway and bridge construction industry in West Virginia has an impact on the output, employment and value added for this industry in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building West Virginia's highways and bridges. The second effect is when employees of the transportation construction firms spend their wages and make purchases throughout the economy.

Highway and bridge work done by construction firms in West Virginia as a result of this increased annual investment would support up to 563 jobs in this sector each year, generating \$43.4 million in output and \$19.1 million in wages.

State Profile	Current Value	West Virginia Ranking ²	Percentage of State Total
Industry Output	\$12.2 billion	3	9.3%
Value Added (contribution to GSP)	\$6.9 billion	3	9.3%
Establishments	4,961 businesses	2	13.1%
Employment	131,989 people	1	22.8%
Average Annual Salary	\$38,249	11	
Total Payroll	\$5.0 billion	1	23.5%
State Payroll Tax Contribution	\$50.5 million	1	23.5%
Federal Payroll Tax Contribution	\$386.2 million	1	23.5%
State Income Tax Contribution	\$197.5 million	1	22.2%
State & Local Sales Tax Contribution	\$111.1 million	3	9.3%

	Current Value	Annual Impact of Additional \$500 Million	Percent Increase from Current Value
Industry Output	\$12.2 billion	\$43.4 million	0.4%
Value Added (contributions to GSP)	\$6.9 billion	\$26.9 million	0.4%
Employment	131,989 people	563 people	0.4%
Total Payroll	\$5.0 billion	\$19.1 million	0.4%
State Payroll Tax Contribution	\$50.5 million	\$191.0 thousand	0.4%
Federal Payroll Tax Contribution	\$386.2 million	\$1.5 million	0.4%
State Income Tax Contribution	\$197.5 million	\$841.8 thousand	0.4%
State & Local Sales Tax Contribution	\$111.1 million	\$434.0 thousand	0.4%

¹GSP is the value added by an industry to the overall economy. West Virginia's GSP was \$73.97 billion in 2013, according to the U.S. Bureau of Economic Analysis. That is the difference between total sales and the intermediate goods. Gross output is the measure of total industry sales for both intermediate and final goods. West Virginia's gross output in 2013 is estimated to be \$130.63 billion.

²Values are based on a ranking of West Virginia's 19 major industries, six of which are consolidated in the Other Industries section.

The Economic Benefits of an Annual \$500 Million Increase in West Virginia's Annual Investment in Highway and Bridge Capital Outlays on ACCOMMODATION AND FOOD SERVICES

SECTOR OVERVIEW

Accommodation and Food Services in West Virginia contributed \$2.2 billion to state economic activity in 2013, accounting for 3.0 percent of the state's Gross State Product (GSP).¹ Total sales in the industry were an estimated \$3.9 billion, which includes goods and services for final consumers as well as any inputs sold to other industries. This sector includes 3,626 establishments and sole proprietorships in West Virginia with an existing payroll valued at \$860.8 million. These businesses located in West Virginia contribute an estimated \$74.5 million in state and federal payroll taxes. Individuals working in this sector earn an average of \$13,842 each year. The Accommodation and Food Services sector comprises establishments providing customers with lodging and/or repairing meals, snacks, and beverages for immediate consumption.

IMPACT OF A \$500 MILLION ANNUAL INCREASE IN HIGHWAY AND BRIDGE INVESTMENT ON THIS SECTOR

The highway and bridge construction industry in West Virginia has an impact on the output, employment and value added for this industry in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building West Virginia's highways and bridges. The second effect is when employees of the transportation construction firms spend their wages and make purchases throughout the economy.

Highway and bridge work done by construction firms in West Virginia as a result of this increased annual investment would support up to 515 jobs in this sector each year, generating \$18.5 million in output and \$6.6 million in wages.

State Profile	Current Value	West Virginia Ranking ²	Percentage of State Total
Industry Output	\$3.9 billion	11	3.0%
Value Added (contribution to GSP)	\$2.2 billion	11	3.0%
Establishments	3,626 businesses	4	9.6%
Employment	62,188 people	3	10.7%
Average Annual Salary	\$13,842	19	
Total Payroll	\$860.8 million	9	4.0%
State Payroll Tax Contribution	\$8.6 million	9	4.0%
Federal Payroll Tax Contribution	\$65.9 million	9	4.0%
State Income Tax Contribution	\$28.2 million	10	3.2%
State & Local Sales Tax Contribution	\$36.0 million	11	3.0%

	Current Value	Annual Impact of Additional \$500 Million	Percent Increase from Current Value
Industry Output	\$3.9 billion	\$18.5 million	0.5%
Value Added (contributions to GSP)	\$2.2 billion	\$10.1 million	0.5%
Employment	62,188 people	515 people	0.8%
Total Payroll	\$860.8 million	\$6.6 million	0.8%
State Payroll Tax Contribution	\$8.6 million	\$65.5 thousand	0.8%
Federal Payroll Tax Contribution	\$65.9 million	\$501.1 thousand	0.8%
State Income Tax Contribution	\$28.2 million	\$233.9 thousand	0.8%
State & Local Sales Tax Contribution	\$36.0 million	\$162.1 thousand	0.5%

¹GSP is the value added by an industry to the overall economy. West Virginia's GSP was \$73.97 billion in 2013, according to the U.S. Bureau of Economic Analysis. That is the difference between total sales and the intermediate goods. Gross output is the measure of total industry sales for both intermediate and final goods. West Virginia's gross output in 2013 is estimated to be \$130.63 billion.

²Values are based on a ranking of West Virginia's 19 major industries, six of which are consolidated in the Other Industries section.

The Economic Benefits of an Annual \$500 Million Increase in West Virginia's Annual Investment in Highway and Bridge Capital Outlays on OTHER INDUSTRIES

SECTOR OVERVIEW

Other industries in West Virginia contributed \$5.6 billion to state economic activity in 2013, accounting for 7.6% of the state's Gross State Product (GSP).¹ Total sales in the industry were an estimated \$9.9 billion, which includes goods and services for final consumers as well as any inputs sold to other industries. This sector includes 6,569 establishments and sole proprietorships in West Virginia with an existing payroll valued at \$2.1 billion. These businesses located in West Virginia contribute an estimated \$182.6 million in state and federal payroll taxes. This Other Industries category includes the following industry sectors: Agriculture, forestry, fishing, and hunting; Utilities; Information; Management of companies and enterprises; Arts, Entertainment, and Recreation; and Other Services (except Public Administration).

IMPACT OF A \$500 MILLION ANNUAL INCREASE IN HIGHWAY AND BRIDGE INVESTMENT ON THIS SECTOR

The highway and bridge construction industry in West Virginia has an impact on the output, employment and value added for this industry in two ways. The first is through direct purchases from transportation construction firms and suppliers involved in building West Virginia's highways and bridges. The second effect is when employees of the transportation construction firms spend their wages and make purchases throughout the economy.

Highway and bridge work done by construction firms in West Virginia as a result of this increased annual investment would support up to 566 jobs in other industries each year, generating \$66.2 million in output and \$16.8 million in wages.

State Profile	Current Value	Percentage of State Total
Industry Output	\$9.9 billion	7.6%
Value Added (contribution to GSP)	\$5.6 billion	7.6%
Establishments	6,569 businesses	17.3%
Employment	59,492 people	10.3%
Total Payroll	\$2.1 billion	9.8%
State Payroll Tax Contribution	\$21.1 million	9.8%
Federal Payroll Tax Contribution	\$161.5 million	9.8%
State Income Tax Contribution	\$88.8 million	10.0%
State & Local Sales Tax Contribution	\$90.1 million	7.6%

	Current Value	Annual Impact of Additional \$500 Million	Percent Increase from Current Value
Industry Output	\$9.9 billion	\$66.2 million	0.7%
Value Added (contributions to GSP)	\$5.6 billion	\$37.3 million	0.7%
Employment	59,492 people	566 people	1.0%
Total Payroll	\$2.1 billion	\$16.8 million	0.8%
State Payroll Tax Contribution	\$21.1 million	\$168.0 thousand	0.8%
Federal Payroll Tax Contribution	\$161.5 million	\$1.3 million	0.8%
State Income Tax Contribution	\$88.8 million	\$748.8 thousand	0.8%
State & Local Sales Tax Contribution	\$90.1 million	\$601.7 thousand	0.7%

¹GSP is the value added by an industry to the overall economy. West Virginia's GSP was \$73.97 billion in 2013, according to the U.S. Bureau of Economic Analysis. That is the difference between total sales and the intermediate goods. Gross output is the measure of total industry sales for both intermediate and final goods. West Virginia's gross output in 2013 is estimated to be \$130.63 billion.

METHODOLOGY AND SOURCES

The impact of highway and bridge construction spending is calculated using the U.S. Department of Commerce Regional Input-Output Modeling System (RIMS II). RIMS II is based on input output (I-O) tables. For a given industry, the I-O tables show the industrial distribution of inputs purchased and outputs sold.

Research shows that RIMS II multipliers are similar to other regional I-O models based on in depth and often expensive surveys. According to the U.S. Department of Commerce, RIMS multipliers have been used to estimate such things as the regional impact of military base closings, tourist expenditures, new energy facilities, offshore drilling and the opening or closing of manufacturing plants and other facilities. The construction multipliers in this report are used frequently to analyze the impact of new construction projects, including transportation construction. The construction multipliers are specific to West Virginia and are based on benchmark regional data from 2006 and industry data from the 1997 benchmark series, as published by the U.S. Department of Commerce. These multipliers are standard for this type of analysis and are the latest information available.

Industry value added (contribution to GSP) for West Virginia is the most recent data from the U.S. Bureau of Economic Analysis GDP estimates for the state, broken out by industry, for 2013. Industry output for West Virginia was estimated by taking West Virginia's percent share of national GSP for each industry and multiplying it by national gross output by industry.

The state payroll tax rate is calculated using the average employer tax rate as a percent of total wages. The source for this information is the National Association of State Workforce Agencies (NASWA) and the U.S. Department of Labor Employment Training Administration (ETA) Financial Handbook 394. The federal payroll tax rate is estimated to be 7.65 percent. Income tax contributions are estimated using the average wage in each of the 19 industries and the corresponding tax rate as published by the state of West Virginia. For industries where the average earnings are between \$10,000 and \$25,000, the income tax is calculated

as \$300 plus 4.0 percent of the average wages over \$10,000, as per the West Virginia State Tax Department. For industries where the average earnings are between \$25,000 and \$40,000, the income tax is calculated as \$900 plus 4.5 percent of the average wages over \$25,000. For industries where the average earnings are between \$40,000 and \$60,000, the income tax is calculated as \$1,575 plus 6.0 percent of the average wages over \$40,000. For industries where the average earnings are over \$60,000, the income tax is calculated as \$2,775 plus 6.5 percent of the average wages over \$60,000. Total estimated income tax collections using this method are \$889.5 million. Actual income tax collections reported by West Virginia in the 2011 U.S. Census of State & Local Governments was \$1.7 billion. This difference is in part attributable to inflation, an expanded workforce and income taxes paid by government workers. Employment and economic impact of the public sector is not included in the 19 sector analysis.

Total state sales tax revenues are the actual collections of consumer sales tax/use tax in fiscal year 2013 as recorded in the State of West Virginia's June 2014 Revenues Collections report. The value of sales tax revenues for each sector was calculated by distributing total sales tax revenues by each sector's share of GSP. West Virginia has a 6% sales and use tax rate.

The total value of state sales tax receipts in this report is \$1.2 billion. The figure in this report matches actual reported revenues for the estate sales and use tax. The 2011 Census of State and Local Government Finance, published by the U.S. Census Bureau, reports that West Virginia collected \$1.2 billion in sales tax revenue at the state level.

In this report, we estimate the impact of a \$500 million annual increase in West Virginia highway and bridge construction investment on various sectors of the economy.

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