

# ***WEST VIRGINIA TRANSPORTATION BY THE NUMBERS:***

Meeting the State's Need for Safe and Efficient Mobility

**JANUARY 2014**



*Founded in 1971, TRIP® of Washington, DC, is a nonprofit organization that researches, evaluates and distributes economic and technical data on surface transportation issues. TRIP is sponsored by insurance companies, equipment manufacturers, distributors and suppliers; businesses involved in highway and transit engineering and construction; labor unions; and organizations concerned with efficient and safe surface transportation.*

## Ten Key Transportation Numbers in West Virginia

<p><b>\$333</b> <b>\$400</b> <b>\$383</b></p>	<p>Driving on rough roads costs the average West Virginia motorist \$333 annually in extra vehicle operating costs— a total of \$400 million statewide annually. The average Charleston-area motorist loses \$383 each year as a result of driving on rough roads . Additional vehicle operating costs result from driving on rough roads and include accelerated vehicle depreciation, additional repair costs, and increased fuel consumption and tire wear.</p>
<p><b>#2</b></p>	<p>West Virginia’s overall traffic fatality rate of 1.78 fatalities per 100 million vehicle miles of travel in 2011 was the second highest nationally (behind only Montana at 1.79) and was 62 percent higher than the national average of 1.10.</p>
<p><b>35 %</b></p>	<p>A total of 35 percent of West Virginia bridges are in need of repair, improvement or replacement. Thirteen percent of the state’s bridges are structurally deficient and 22 percent are functionally obsolete.</p>
<p><b>\$425 million</b></p>	<p>If a lack of adequate revenue into the Federal Highway Trust Fund is not addressed by Congress, funding for highway and transit improvements in West Virginia will be cut by \$425 million for the federal fiscal year beginning October 1, 2014.</p>
<p><b>2X</b></p>	<p>The fatality rate on West Virginia’s non-interstate rural roads is more than double the rate on all other roads in the state (2.54 fatalities per 100 million vehicle miles of travel vs. 1.19).</p>
<p><b>36%</b> <b>42%</b></p>	<p>Thirty-six percent of West Virginia’s major roads are in either poor or mediocre condition. Forty-two percent of Charleston-area major roads are in poor or mediocre condition.</p>
<p><b>364</b> <b>1,820</b></p>	<p>On average, 364 people were killed annually in West Virginia traffic crashes from 2007 to 2011, a total of 1,820 fatalities over the five year period.</p>
<p><b>\$2.26</b> <b>34%</b></p>	<p>From 2007 to 2011, the federal government provided \$2.26 for road improvements in West Virginia for every \$1.00 paid in federal motor fuel fees. From 2007 to 2011, federal revenues accounted for 34 percent of state spending on West Virginia’s roads, highways and bridges.</p>
<p><b>23 %</b> <b>20 %</b></p>	<p>Vehicle miles of travel in West Virginia increased 23 percent from 1990 to 2011 and are expected to increase another 20 percent by 2030.</p>
<p><b>\$1.00 =</b> <b>\$5.20</b></p>	<p>The Federal Highway Administration estimates that each dollar spent on road, highway and bridge improvements results in an average benefit of \$5.20 in the form of reduced vehicle maintenance costs, reduced delays, reduced fuel consumption, improved safety, reduced road and bridge maintenance costs, and reduced emissions as a result of improved traffic flow.</p>

## Executive Summary

West Virginia's extensive system of roads, highways and bridges provides the state's residents, visitors and businesses with a high level of mobility. This transportation system forms the backbone that supports the state's economy. West Virginia's surface transportation system enables the state's residents and visitors to travel to work and school, visit family and friends, and frequent tourist and recreation attractions while providing its businesses with reliable access to customers, materials, suppliers and employees.

As West Virginia looks to retain its businesses, continue its level of economic competitiveness and achieve further economic growth, the state will need to maintain and modernize its roads, highways and bridges by improving the physical condition of its transportation network and enhancing the system's ability to provide efficient and reliable mobility for motorists and businesses. Making needed improvements to West Virginia's roads, highways and bridges could also provide a significant boost to the state's economy by creating jobs in the short term and stimulating long term economic growth as a result of enhanced mobility and access.

With a current unemployment rate of 6.1 percent and with the state's population continuing to grow, West Virginia must improve its system of roads, highways and bridges to foster economic growth and keep businesses in the state. In addition to economic growth, transportation improvements are needed to ensure safe, reliable mobility and quality of life for all West Virginians. Meeting West Virginia's need to modernize and maintain its system of roads, highways and bridges will require a significant boost in local, state and federal funding.

Signed into law in July 2012, MAP-21 (Moving Ahead for Progress in the 21<sup>st</sup> Century Act), the current federal surface transportation program, will fund surface transportation programs in West Virginia at approximately \$424 million annually for fiscal years 2013 and 2014.

While the new federal surface transportation program has streamlined several procedures that in the past had delayed projects, MAP-21 does not address long-term funding challenges facing the federal surface transportation program. As a result, nationwide federal funding for highways is expected to be cut by almost 100 percent from the current investment level for the fiscal year starting on October 1, 2014 (FY 2015) unless Congress provides additional transportation revenues. This is due to a cash shortfall in the Highway Trust Fund as projected by the [Congressional Budget Office](#).

The level of funding and the provisions of the federal surface transportation program have a significant impact on highway and bridge conditions, roadway safety, transit service, quality of life and economic development opportunities in West Virginia.

**Population and economic growth in West Virginia have resulted in increased demands on the state's major roads and highways, leading to increased wear and tear on the transportation system.**

- West Virginia's population reached nearly 1.9 million in 2012, a three percent increase since 1990. West Virginia had 1,198,837 licensed drivers in 2011.
- Vehicle miles traveled (VMT) in West Virginia increased 23 percent from 1990 to 2011 – jumping from 15.4 billion VMT in 1990 to 19 billion VMT in 2011.
- By 2030, vehicle travel in West Virginia is projected to increase by another 20 percent.
- From 1990 to 2011, West Virginia's gross domestic product, a measure of the state's economic output, increased by 37 percent, when adjusted for inflation.

**One-third of major locally and state-maintained roads and highways in West Virginia have pavement surfaces in poor or mediocre condition, providing a rough ride and costing motorists in the form of additional vehicle operating costs.**

- Twelve percent of West Virginia's major roads and highways have pavements in poor condition while an additional 24 percent of the state's major roads are rated in mediocre condition. Eighteen percent are rated in fair condition and the remaining 46 percent are rated in good condition.
- The pavement data in this report for all arterial roads and highways is provided by the Federal Highway Administration, based on data submitted annually by the West Virginia Department of Transportation (WVDOT) on the condition of major state and locally maintained roads and highways.
- In the Charleston urban area, 15 percent of major locally and state-maintained roads are rated in poor condition and 28 percent are rated in mediocre condition. Twenty-six percent of major roads in the Charleston area are rated in fair condition and 31 percent are rated in good condition.
- Roads rated in poor condition may show signs of deterioration, including rutting, cracks and potholes. In some cases, poor roads can be resurfaced, but often are too deteriorated and must be reconstructed. Roads rated in mediocre condition may show signs of significant wear and may also have some visible pavement distress. Most pavements in mediocre condition can be repaired by resurfacing, but some may need more extensive reconstruction to return them to good condition.
- Driving on rough roads costs West Virginia motorists a total of \$400 million annually in extra vehicle operating costs. Costs include accelerated vehicle depreciation, additional repair costs, and increased fuel consumption and tire wear.
- Driving on rough roads costs the average West Virginian motorists \$333 annually and the average Charleston-area driver \$383 in extra vehicle operating costs.

**More than one-third of locally and state-maintained bridges in West Virginia show significant deterioration or do not meet current design standards, often because of narrow lanes, inadequate clearances or poor alignment. This includes all bridges that are 20 feet or more in length.**

- Thirteen percent of West Virginia's bridges are structurally deficient. A bridge is structurally deficient if there is significant deterioration of the bridge deck, supports or other major components. Structurally deficient bridges are often posted for lower weight or closed to traffic, restricting or redirecting large vehicles, including commercial trucks and emergency services vehicles.
- Twenty-two percent of West Virginia's bridges are functionally obsolete. Bridges that are functionally obsolete no longer meet current highway design standards, often because of narrow lanes, inadequate clearances or poor alignment.

**West Virginia's traffic fatality rate is the second highest in the nation. Improving safety features on West Virginia's roads and highways would likely result in a decrease in the state's traffic fatalities and serious crashes. Roadway features are likely a contributing factor in approximately one-third of all fatal and serious traffic crashes.**

- West Virginia's overall traffic fatality rate of 1.78 fatalities per 100 million vehicle miles of travel in 2011 was the second highest nationally, behind only Montana at 1.79. West Virginia's traffic fatality rate was 62 percent higher than the national average of 1.10.
- Between 2007 and 2011 a total of 1,820 people were killed in traffic crashes in West Virginia, an average of 364 fatalities per year.
- The fatality rate on West Virginia's rural non-Interstate roads was 2.54 fatalities per 100 vehicle miles of travel in 2011, more than double the 1.19 fatality rate on all other roads and highways in the state.
- Roadway features that impact safety include the number of lanes, lane widths, lighting, lane markings, rumble strips, shoulders, guard rails, other shielding devices, median barriers and intersection design. The cost of serious crashes includes lost productivity, lost earnings, medical costs and emergency services.
- Several factors are associated with vehicle crashes that result in fatalities, including driver behavior, vehicle characteristics and roadway features. TRIP estimates that roadway features are likely a contributing factor in approximately one-third of fatal traffic crashes.
- Where appropriate, highway improvements can reduce traffic fatalities and crashes while improving traffic flow to help relieve congestion. Such improvements include removing or shielding obstacles; adding or improving medians; improved lighting; adding rumble strips, wider lanes, wider and paved shoulders; upgrading roads from two lanes to four lanes; and better road markings and traffic signals.

- Investments in rural traffic safety have been found to result in significant reductions in serious traffic crashes. A 2012 report by the [Texas Transportation Institute](#) (TTI) found that improvements completed recently by the Texas Department of Transportation that widened lanes, improved shoulders and made other safety improvements on 1,159 miles of rural state roadways resulted in 133 fewer fatalities on these roads in the first three years after the improvements were completed (as compared to the three years prior). TTI estimates that the improvements on these roads are likely to save 880 lives over the next 20 years.

**The efficiency of West Virginia’s transportation system, particularly its highways, is critical to the health of the state’s economy. Businesses are increasingly reliant on an efficient and reliable transportation system to move products and services. A key component in business efficiency and success is the level and ease of access to customers, markets, materials and workers.**

- Annually, \$49.8 billion in goods are shipped from sites in West Virginia and another \$54.1 billion in goods are shipped to sites in West Virginia, mostly by truck.
- Sixty-five percent of the goods shipped annually from sites in West Virginia are carried by trucks and another 11 percent are carried by courier services or multiple mode deliveries, which include trucking.
- Businesses have responded to improved communications and greater competition by moving from a push-style distribution system, which relies on low-cost movement of bulk commodities and large-scale warehousing, to a pull-style distribution system, which relies on smaller, more strategic and time-sensitive movement of goods.
- Increasingly, companies are looking at the quality of a region’s transportation system when deciding where to re-locate or expand. Regions with congested or poorly maintained roads may see businesses relocate to areas with a smoother, more efficient and more modern transportation system.
- Highway accessibility was ranked the number one site selection factor in a [2011 survey](#) of corporate executives by [Area Development Magazine](#).
- A [2007 analysis by the Federal Highway Administration](#) found that every \$1 billion invested in highway construction would support approximately 27,800 jobs, including approximately 9,500 in the construction sector, approximately 4,300 jobs in industries supporting the construction sector, and approximately 14,000 other jobs induced in non-construction related sectors of the economy.
- The [Federal Highway Administration](#) estimates that each dollar spent on road, highway and bridge improvements results in an average benefit of \$5.20 in the form of reduced vehicle maintenance costs, reduced delays, reduced fuel consumption, improved safety, reduced road and bridge maintenance costs and reduced emissions as a result of improved traffic flow.

**The federal government remains a critical source of funding for West Virginia's roads, highways and bridges and provides a significant return to West Virginia in road and bridge funding based on the revenue generated in the state by the federal motor fuel tax.**

- MAP-21, approved by Congress in July 2012, greatly increased funding flexibility for states and streamlined project approval processes to improve the efficiency of state and local transportation agencies in providing needed transportation improvements in the state.
- MAP-21 does not provide sufficient long-term revenues to support the current level of federal surface transportation investment. Nationwide federal funding for highways is expected to be cut by almost 100 percent from the current investment level for the fiscal year starting October 1, 2014 (FY 2015) unless Congress provides additional transportation revenues. This is due to a cash shortfall in the Highway Trust Fund as projected by the [Congressional Budget Office](#).
- If a lack of adequate revenue into the Federal Highway Trust Fund is not addressed by Congress, funding for highway and transit improvements in West Virginia will be cut by \$425 million for the federal fiscal year beginning October 1, 2014.
- From 2007 to 2011, the federal government provided \$2.26 for road improvements in West Virginia for every dollar the state paid in federal motor fuel fees.
- From 2007 to 2011, federal revenues accounted for 34 percent of state spending on West Virginia's roads, highways and bridges.

*Sources of information for this report include the West Virginia Department of Transportation (WVDOT), the Federal Highway Administration (FHWA), the Bureau of Transportation Statistics (BTS), the U.S. Census Bureau, the Texas Transportation Institute (TTI) and the National Highway Traffic Safety Administration (NHTSA). All data used in the report is the latest available.*

## **Introduction**

West Virginia's roads, highways and bridges form vital transportation links for the state's residents, visitors and businesses, providing daily access to homes, jobs, shopping, natural resources and recreation. Today, with the Mountain State hoping to foster quality of life improvements and economic competitiveness, the modernization of West Virginia's transportation system is crucial, particularly to critical areas of the state's economy including tourism, agriculture and manufacturing.

As the U.S. and West Virginia look to rebound from the recent economic downturn, the preservation and modernization of the state's transportation system could play an important role in retaining West Virginia's economic competitiveness and improving its economic well-being by providing critically needed jobs in the short term and by improving the productivity and competitiveness of the state's businesses in the long term. As West Virginia faces the challenge of preserving and modernizing its transportation system, the future level of federal, state and local transportation funding will be a critical factor in whether the state's residents and visitors continue to enjoy access to a safe and efficient transportation network.

Meeting West Virginia's need to modernize and maintain its system of roads, highways and bridges will require a significant boost in local, state and federal funding. The level of funding and the provisions of the federal surface transportation program have a significant impact on highway and bridge conditions, roadway safety, transit service, quality of life and economic development opportunities in all states. Signed into law by Congress in July 2012, MAP-21 (Moving Ahead for Progress in the 21<sup>st</sup> Century Act) will fund surface transportation programs in West Virginia at approximately \$424 million annually for fiscal years 2013 and 2014. <sup>1</sup>

This report examines the condition, use and safety of West Virginia's roads, highways and bridges, federal, state and local funding needs, and the future mobility needs of the state. Sources of information for this study include the West Virginia Department of Transportation (WVDOT), the Federal Highway Administration (FHWA), the U.S. Census Bureau, the Texas Transportation Institute (TTI), the Bureau of Transportation Statistics (BTS), and the National Highway Traffic Safety Administration (NHTSA). All data used in the report is the latest available.

## **Population, Travel and Economic Trends in West Virginia**

West Virginia residents and businesses require a high level of personal and commercial mobility. Population increases and economic growth in the state have resulted in an increase in the demand for mobility as well as an increase in vehicle miles of travel (VMT). To foster a high quality of life and spur economic growth in West Virginia, it will be critical that the state provide a safe and modern transportation system that can accommodate future growth in population, tourism, recreation and vehicle travel.

West Virginia's population grew to approximately 1.9 million residents in 2012, a three percent increase since 1990.<sup>2</sup> West Virginia had 1,198,837 licensed drivers in 2011.<sup>3</sup> From 1990 to 2011, West Virginia's gross domestic product (GDP), a measure of the state's economic output, increased by 37 percent, when adjusted for inflation.<sup>4</sup>

From 1990 to 2011, annual vehicle miles of travel in West Virginia increased 23 percent, from 15.4 billion miles traveled annually to 19 billion miles traveled annually.<sup>5</sup> Based on

population and other lifestyle trends, TRIP estimates that travel on West Virginia's roads and highways will increase by another 20 percent by 2030.<sup>6</sup>

## **Condition of West Virginia's Roads**

The life cycle of West Virginia's roads is greatly affected by the state's ability to perform timely maintenance and upgrades to ensure that road and highway surfaces last as long as possible. The pavement condition of the state's major roads -- generally roads other than neighborhood roads or minor local roads -- is evaluated and classified as being in poor, mediocre, fair or good condition.

Throughout the state, more than one-third of major locally and state-maintained roads and highways have deficient pavements, providing motorists with a rough ride.<sup>7</sup> Twelve percent of West Virginia's major roads and highways have pavements rated in poor condition.<sup>8</sup> Another 24 percent of West Virginia's major roads are rated in mediocre condition, while 18 percent are rated in fair condition and the remaining 46 percent are rated in good condition.<sup>9</sup>

The pavement data in this report for all arterial roads and highways is provided by the Federal Highway Administration, based on data submitted annually by the West Virginia Department of Transportation (WVDOT) on the condition of major state and locally maintained roads and highways in the state.

Roads rated poor may show signs of deterioration, including rutting, cracks and potholes. In some cases, poor roads can be resurfaced but often are too deteriorated and must be reconstructed. Roads rated in mediocre condition may show signs of significant wear and may also have some visible pavement distress. Most pavements in fair condition can be repaired by resurfacing, but some may need more extensive reconstruction to return them to good condition.

Pavement failure is caused by a combination of traffic, moisture and climate. Moisture often works its way into road surfaces and the materials that form the road's foundation. Road surfaces at intersections are even more prone to deterioration because the slow-moving or standing loads occurring at these sites subject the pavement to higher levels of stress. It is critical that roads are fixed before they require major repairs because reconstructing roads costs approximately four times more than resurfacing them.<sup>10</sup> As roads and highways continue to age, they will reach a point of deterioration where routine paving and maintenance will not be adequate to keep pavement surfaces in good condition and costly reconstruction of the roadway and its underlying surfaces will become necessary.

In the Charleston urban area, 15 percent of major locally and state- maintained roads are rated in poor condition, 28 percent are rated in mediocre condition, 26 percent are rated in fair condition and 31 percent are rated in good condition.<sup>11</sup>

### **The Costs to Motorists of Roads in Inadequate Condition**

TRIP has calculated the additional cost to motorists of driving on roads in poor or unacceptable condition. When roads are in poor condition – which may include potholes, rutting or rough surfaces – the cost to operate and maintain a vehicle increases. These additional vehicle operating costs include accelerated vehicle depreciation, additional vehicle repair costs, increased fuel consumption and increased tire wear. TRIP estimates that additional vehicle operating costs borne by West Virginia motorists as a result of driving on tough roads is \$400 million annually.

Driving on rough roads costs the average West Virginia motorist \$333 annually and the average Charleston area motorist \$383 annually in extra vehicle operating costs.<sup>12</sup>

Additional vehicle operating costs have been calculated in the Highway Development and Management Model (HDM), which is recognized by the U.S. Department of Transportation and more than 100 other countries as the definitive analysis of the impact of road conditions on vehicle operating costs. The HDM report is based on numerous studies that have measured the impact of various factors, including road conditions, on vehicle operating costs.<sup>13</sup>

The HDM study found that road deterioration increases ownership, repair, fuel and tire costs. The report found that deteriorated roads accelerate the pace of depreciation of vehicles and the need for repairs because the stress on the vehicle increases in proportion to the level of roughness of the pavement surface. Similarly, tire wear and fuel consumption increase as roads deteriorate since there is less efficient transfer of power to the drive train and additional friction between the road and the tires.

TRIP's additional vehicle operating cost estimate is based on taking the average number of miles driven annually by a motorist, calculating current vehicle operating costs based on AAA's 2012 vehicle operating costs and then using the HDM model to estimate the additional vehicle operating costs paid by drivers as a result of substandard roads.<sup>14</sup> Additional research on the impact of road conditions on fuel consumption by the Texas Transportation Institute (TTI) is also factored into TRIP's vehicle operating cost methodology.

## Bridge Conditions in West Virginia

West Virginia's bridges form key links in the state's highway system, providing communities and individuals access to employment, schools, shopping and medical facilities, and facilitating commerce and access for emergency vehicles.

Thirty-five percent of West Virginia's locally and state- maintained bridges (20 feet or longer) are currently rated as structurally deficient or functionally obsolete.<sup>15</sup>

Thirteen percent of West Virginia's locally and state- maintained bridges are rated as structurally deficient.<sup>16</sup> A bridge is structurally deficient if there is significant deterioration of the bridge deck, supports or other major components. Bridges that are structurally deficient may be posted for lower weight limits or closed if their condition warrants such action. Deteriorated bridges can have a significant impact on daily life. Restrictions on vehicle weight may cause many vehicles – especially emergency vehicles, commercial trucks, school buses and farm equipment – to use alternate routes to avoid posted bridges. Redirected trips also lengthen travel time, waste fuel and reduce the efficiency of the local economy.

Twenty-two percent of West Virginia's locally and state- maintained bridges are rated functionally obsolete.<sup>17</sup> Bridges that are functionally obsolete no longer meet current highway design standards, often because of narrow lanes, inadequate clearances or poor alignment with the approaching roadway.

The service life of bridges can be extended by performing routine maintenance such as resurfacing decks, painting surfaces, insuring that a facility has good drainage and replacing deteriorating components. But most bridges will eventually require more costly reconstruction or major rehabilitation to remain operable.

## Traffic Safety in West Virginia

A total of 1,820 people were killed in motor vehicle crashes in West Virginia from 2007 through 2011, an average of 364 fatalities per year.<sup>18</sup>

**Chart 1. Traffic fatalities in West Virginia from 2007 – 2011.**

<i>Year</i>	<i>Fatalities</i>
2007	432
2008	380
2009	356
2010	315
2011	337
<b>Total</b>	<b>1,820</b>

**Source: National Highway Traffic Safety Administration**

Three major factors are associated with fatal vehicle crashes: driver behavior, vehicle characteristics and roadway features. It is estimated that roadway features are likely a contributing factor in approximately one-third of fatal traffic crashes. Roadway features that impact safety include the number of lanes, lane widths, lighting, lane markings, rumble strips, shoulders, guard rails, other shielding devices, median barriers and intersection design.

West Virginia's overall traffic fatality rate of 1.78 fatalities per 100 million vehicle miles of travel in 2011 is 62 percent higher than the national average of 1.10 and is the second highest nationally, behind only Montana at 1.79.<sup>19</sup> The fatality rate on West Virginia's non-Interstate rural roads was 2.54 fatalities per 100 million vehicle miles of travel in 2011, more than double the fatality rate of 1.19 on all other roads and highways in the state.<sup>20</sup> While 44 percent of vehicles miles of travel in West Virginia in 2011 occurred on rural, non-Interstate routes, 62 percent of all traffic fatalities in the state occurred on rural, non-Interstate roads.<sup>21</sup>

Improving safety on West Virginia's roadways can be achieved through further improvements in vehicle safety; improvements in driver, pedestrian, and bicyclist behavior; and a variety of improvements in roadway safety features.

The severity of serious traffic crashes could be reduced through roadway improvements, where appropriate, such as adding turn lanes, removing or shielding obstacles, adding or improving medians, widening lanes, widening and paving shoulders, improving intersection layout, and providing better road markings and upgrading or installing traffic signals.

Roads with poor geometry, with insufficient clear distances, without turn lanes, having inadequate shoulders for the posted speed limits, or poorly laid out intersections or interchanges, pose greater risks to motorists, pedestrians and bicyclists.

Investments in rural traffic safety have been found to result in significant reductions in serious traffic crashes. A 2012 report by the [Texas Transportation Institute](#) (TTI) found that improvements completed recently by the Texas Department of Transportation that widened lanes, improved shoulders and made other safety improvements on 1,159 miles of rural state roadways resulted in 133 fewer fatalities on these roads in the first three years after the improvements were completed (as compared to the three years prior). TTI estimates that the improvements on these roads are likely to save 880 lives over the next 20 years.<sup>22</sup>

## **Transportation Funding**

Investment in West Virginia's roads, highways and bridges is funded by local, state and federal governments. The federal government remains a critical source of funding for West

Virginia's roads, highways and bridges and provides a significant return to West Virginia in road and bridge funding based on the revenue generated in the state by the federal motor fuel tax. From 2007 to 2011, the federal government provided \$2.26 for road improvements in West Virginia for every dollar the state paid in federal motor fuel fees.<sup>23</sup> Federal revenues accounted for 34 percent of state spending on West Virginia's roads, highways and bridges from 2007 to 2011.<sup>24</sup>

The federal government provides funding for the state's transportation system largely as part of MAP-21 (Moving Ahead for Progress in the 21st Century Act), the current two-year federal surface transportation program, which expires on September 30, 2014. MAP-21, approved by Congress in July 2012, greatly increased funding flexibility for states and streamlined project approval processes to improve the efficiency of state and local transportation agencies in providing needed transportation improvements in the state. MAP-21 does not provide sufficient long-term revenues to support the current level of federal surface transportation investment. Nationwide, federal funding for highways is expected to be cut by almost 100 percent from the current investment level for the fiscal year starting October 1, 2014 (FY 2015) unless Congress provides additional transportation revenues. This is due to a cash shortfall in the Highway Trust Fund as projected by the [Congressional Budget Office](#).

If the funding shortfalls into the federal Highway Trust Fund are addressed solely by cutting spending it is estimated that federal funding for highway and transit improvements in West Virginia will be cut by \$425 million for the federal fiscal year starting October 1, 2014, unless Congress provides additional transportation revenues.<sup>25</sup>

Increasing investment in the state's roads, highways and bridges could boost West Virginia's economy by creating jobs. A [2007 analysis by the Federal Highway Administration](#)

found that every \$1 billion invested in highway construction would support approximately 27,800 jobs, including approximately 9,500 in the construction sector, approximately 4,300 jobs in industries supporting the construction sector, and approximately 14,000 other jobs induced in non-construction related sectors of the economy.<sup>26</sup>

## **Importance of Transportation to Economic Growth**

Today's culture of business demands that an area have well-maintained and efficient roads, highways and bridges if it is to remain economically competitive. Modern national and global communications and the impact of free trade in North America and elsewhere have resulted in a significant increase in freight movement. Consequently, the quality of a region's transportation system has become a key component in a business's ability to compete locally, nationally and internationally.

Businesses have responded to improved communications and the need to cut costs with a variety of innovations including just-in-time delivery, increased small package delivery, demand-side inventory management and Internet commerce. The result of these changes has been a significant improvement in logistics efficiency as firms move from a push-style distribution system, which relies on large-scale warehousing of materials, to a pull-style distribution system, which relies on smaller, more strategic movement of goods. These improvements have made mobile inventories the norm, resulting in the nation's trucks literally becoming rolling warehouses.

Highways are vitally important to continued economic development in West Virginia, particularly to the state's tourism, chemical, biotechnology, mining, agriculture and

manufacturing sectors. As the economy expands, creating more jobs and increasing consumer confidence, the demand for consumer and business products grows. In turn, manufacturers ship greater quantities of goods to market to meet this demand, a process that adds to truck traffic on the state's highways and major arterial roads.

Every year, \$49.8 billion in goods are shipped from sites in West Virginia and another \$54.1 billion in goods are shipped to sites in West Virginia, mostly by trucks.<sup>27</sup> Sixty-five percent of the goods shipped annually from sites in West Virginia are carried by trucks and another 11 percent are carried by courier services or multiple-mode deliveries, which include trucking.<sup>28</sup>

The cost of road and bridge improvements are more than offset by the reduction of user costs associated with driving on rough roads, the improvement in business productivity, the reduction in delays and the improvement in traffic safety. The [Federal Highway Administration estimates](#) that each dollar spent on road, highway and bridge improvements results in an average benefit of \$5.20 in the form of reduced vehicle maintenance costs, reduced delays, reduced fuel consumption, improved safety, reduced road and bridge maintenance costs and reduced emissions as a result of improved traffic flow.<sup>29</sup>

Local, regional and state economic performance is improved when a region's surface transportation system is expanded or repaired. This improvement comes as a result of the initial job creation and increased employment created over the long-term because of improved access, reduced transport costs and improved safety Highway accessibility was ranked the number one site selection factor in a [2011 survey](#) of corporate executives by [Area Development Magazine](#).<sup>30</sup>

Increasingly, companies are looking at the quality of a region's transportation system when deciding where to re-locate or expand. Regions with congested or poorly maintained roads

may see businesses relocate to areas with a smoother, more efficient and more modern transportation system.

## **Conclusion**

As West Virginia looks to build and enhance a thriving, growing and dynamic state, it will be critical that it is able to provide a 21<sup>st</sup> century network of roads, highways and bridges that can accommodate the mobility demands of a modern society.

As the nation looks to fully rebound from the recent economic downturn, the U.S. will need to modernize its surface transportation system by improving the physical condition of its transportation network and enhancing the system's ability to provide efficient and reliable mobility for motorists and businesses. Making needed improvements to West Virginia's roads, highways and bridges could provide a significant boost to the state's economy by creating jobs in the short term and stimulating long-term economic growth as a result of enhanced mobility and access.

Without a substantial boost in federal, state and local highway funding, numerous projects to improve the condition and expand the capacity of West Virginia's roads, highways and bridges will not be able to proceed, hampering the state's ability to improve the condition of its transportation system and to enhance economic development opportunities in the state.

###

## Endnotes

- 
- <sup>1</sup> Federal Highway Administration (2013). FY 2013 and FY 2014 MAP-21 Apportionment tables. <http://www.fhwa.dot.gov/map21/>
- <sup>2</sup> U.S. Census Bureau (2012).
- <sup>3</sup> Highway Statistics (2011). Federal Highway Administration. DL-1C
- <sup>4</sup> TRIP analysis of Bureau of Economic Analysis data.
- <sup>5</sup> U.S. Department of Transportation - Federal Highway Administration: Highway Statistics 1990 and 2011.
- <sup>6</sup> TRIP calculation based on U.S. Census and Federal Highway Administration data.
- <sup>7</sup> Federal Highway Administration (2013). Pavement condition data is for 2011.
- <sup>8</sup> Ibid.
- <sup>9</sup> Ibid.
- <sup>10</sup> Selecting a Preventative Maintenance Treatment for Flexible Pavements. R. Hicks, J. Moulthrop. Transportation Research Board. 1999. Figure 1.
- <sup>11</sup> Federal Highway Administration (2013). Pavement condition data is for 2011.
- <sup>12</sup> TRIP calculation.
- <sup>13</sup> Highway Development and Management: Volume Seven. Modeling Road User and Environmental Effects in HDM-4. Bennett, C. and Greenwood, I. 2000.
- <sup>14</sup> Your Driving Costs. American Automobile Association. 2012.
- <sup>15</sup> Federal Highway Administration (2012). National Bridge Inventory.
- <sup>16</sup> Ibid.
- <sup>17</sup> Ibid.
- <sup>18</sup> TRIP analysis of National Highway Traffic Safety Administration data (2012).
- <sup>19</sup> TRIP analysis of National Highway Traffic Safety Administration and Federal Highway Administration data (2012).
- <sup>20</sup> Ibid.
- <sup>21</sup> Ibid.
- <sup>22</sup> Adding Highway Shoulders, Width, Reduce Crash Numbers and Save Lives (August 9, 2012). Texas Transportation Institute.
- <sup>23</sup> TRIP analysis of Federal Highway Administration data. 2007 to 2011 Highway Statistics sf-1.
- <sup>24</sup> TRIP analysis of Federal Highway Administration data. 2007 to 2011 Highway Statistics fe-221.
- <sup>25</sup> U.S. Senate Committee on Environment and Public Works (2013). [http://www.epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore\\_id=cf1dfe4e-8e60-4506-a9e0-205fe809f314](http://www.epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=cf1dfe4e-8e60-4506-a9e0-205fe809f314)
- <sup>26</sup> Federal Highway Administration, 2008. Employment Impacts of Highway Infrastructure Investment.
- <sup>27</sup> Bureau of Transportation Statistics (2010), U.S. Department of Transportation. 2007 Commodity Flow Survey, State Summaries. [http://www.bts.gov/publications/commodity\\_flow\\_survey/2007/states/](http://www.bts.gov/publications/commodity_flow_survey/2007/states/)
- <sup>28</sup> Ibid.
- <sup>29</sup> FHWA estimate based on its analysis of 2006 data. For more information on FHWA's cost-benefit analysis of highway investment, see the 2008 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance.
- <sup>30</sup> Area Development Magazine (Winter, 2012). 26<sup>th</sup> Annual Survey of Corporate Executive Results.