

# ***NEW HAMPSHIRE TRANSPORTATION BY THE NUMBERS:***

Meeting the State's Need for Safe and Efficient Mobility

**February 2013**



*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 New Hampshire

<p><b>37%</b></p> <p><b>43%</b></p>	<p>Currently, 37 percent of New Hampshire’s state-maintained roads and highways -- the most critical 4,559 miles of roadways in the state, including the Interstate system -- have pavements in poor condition. Under current levels of funding, the share of state-maintained roads in poor condition in New Hampshire is anticipated to increase to 43 percent by 2016.</p>
<p><b>\$74 million</b></p>	<p>The New Hampshire Department of Transportation (NHDOT) projects that it would need to increase annual investment by \$74 million annually to allow the state to maintain current road and bridge conditions, complete the widening of Interstate 93 from Salem to Manchester, a critical state priority to support economic development and adequately fund maintenance and operations.</p>
<p><b>\$323</b></p> <p><b>\$333 million</b></p> <p><b>\$503</b></p> <p><b>\$400</b></p>	<p>Driving on rough roads costs the average New Hampshire motorists \$323 annually in additional vehicle operating costs – a total of \$333 million statewide each year. The average driver in the Southern New Hampshire area, including Manchester and Nashua, loses \$503 annually due to driving on deteriorated roads, while rough roads cost the average Dover-Rochester-Portsmouth driver \$400 annually.</p>
<p><b>25 %</b></p>	<p>Vehicle miles of travel are anticipated to increase in New Hampshire by 25 percent by 2030.</p>
<p><b>119</b></p>	<p>An average of 119 people were killed annually in New Hampshire traffic crashes over the five-year-period from 2007 to 2011.</p>
<p><b>31 %</b></p> <p><b>15 %</b></p>	<p>Nearly a third – 31 percent - of bridges in New Hampshire show significant deterioration or do not meet current design standards. The number of state-maintained bridges in New Hampshire that are rated poor for one or more structural elements is expected to increase by 15 percent by 2016 under current funding.</p>
<p><b>\$1.3 billion</b></p>	<p>The current backlog to repair all state-maintained roads, highways and bridges currently in poor condition in New Hampshire is \$1.3 billion.</p>
<p><b>63%</b></p> <p><b>26%</b></p>	<p>Sixty-three percent of the goods shipped annually from sites in New Hampshire are carried by trucks and another 26 percent are carried by courier services or multiple mode deliveries, which include trucking.</p>

<b>3 ½</b>	The fatality rate on New Hampshire's non-Interstate rural roads is approximately three-and-a-half times higher than on all other roads in the state.
<b>1,056,889</b>	New Hampshire has 1,056,889 licensed drivers.

## Executive Summary

New Hampshire'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 Granite State's economy. New Hampshire'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 New Hampshire looks to 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 New Hampshire'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.

Meeting New Hampshire's need to modernize and maintain its system of roads, highways and bridges will require a significant boost in local, state and federal funding.

**New Hampshire faces a significant funding shortfall in the cost to maintain its roads, highways and bridges in their current condition and a significant backlog in the cost of repairing all deficient roads and bridges. Meeting the state's need for a well-maintained, safe and reliable network of roads, highways and bridges will enhance New Hampshire's economy by creating jobs.**

- The New Hampshire Department of Transportation (NHDOT) projects that it would need to increase annual investment by \$74 million annually to allow the state to maintain current road and bridge conditions, complete the widening of Interstate 93 from Salem to Manchester, a critical state priority to support economic development and adequately fund maintenance and operations.
- The current backlog to repair all state-maintained roads, highways and bridges in poor condition in New Hampshire is \$1.3 billion.
- 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.

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

- New Hampshire's population reached 1,320,718 in 2012, a 19 percent increase since 1990, when the state's population was approximately 1.1 million. New Hampshire's population is expected to increase by approximately another 325,000 people by 2030, to 1,646,471 – a 25 percent increase.
- New Hampshire has 1,056,889 licensed drivers.
- Vehicle miles traveled in New Hampshire increased by 29 percent from 1990 to 2011 – jumping from 9.8 billion vehicle miles traveled (VMT) in 1990 to 12.7 billion VMT in 2011.
- By 2030, vehicle travel in New Hampshire is projected to increase by another 25 percent.
- From 1990 to 2010, New Hampshire's gross domestic product, a measure of the state's economic output, increased by 52 percent, when adjusted for inflation.

**More than a third of miles of state-maintained roads and highways in New Hampshire have pavement surfaces in poor condition, providing a rough ride and costing motorists in the form of additional vehicle operating costs.**

- Currently, 37 percent of New Hampshire's state-maintained roads and highways -- the most critical 4,559 miles of roadways in the state, including the Interstate system -- have pavements in poor condition, while an additional 44 percent of the state's roads are rated in fair condition and the remaining 19 percent are rated in good condition.
- Under current levels of funding, the share of state-maintained roads in poor condition in New Hampshire is anticipated to increase to 43 percent by 2016.
- 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 fair 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 or excellent condition.
- Driving on rough roads costs the typical New Hampshire motorist an average of \$323 annually in extra vehicle operating costs – a total of \$333 million statewide. Costs include accelerated vehicle depreciation, additional repair costs, and increased fuel consumption and tire wear.

- Driving on rough roads in the Southern New Hampshire area, including Manchester and Nashua, costs the average driver \$503 annually in extra vehicle operating costs. The average motorist in the Dover-Rochester-Portsmouth area loses an additional \$400 annually due to driving on deteriorated roads.

**Nearly a third – 31 percent - of bridges in New Hampshire show significant deterioration or do not meet current design standards. This includes both state and municipal bridges that are 20 feet or more in length.**

- Fifteen percent of New Hampshire’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.
- Sixteen percent of New Hampshire’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.
- At current funding levels, the number of structurally deficient, state-maintained bridges is expected to increase by 15 percent by 2016 from 152 bridges to 174.

**New Hampshire’s traffic fatality rate on rural, non-Interstate routes is approximately three-and-a-half times higher than on all other roads and highways in the state. Improving safety features on New Hampshire’s roads and highways would likely result in a decrease in traffic fatalities and serious crashes in the state. Roadway features are likely a contributing factor in approximately one-third of all fatal and serious traffic crashes.**

- Between 2007 and 2011, a total of 596 people were killed in traffic crashes in New Hampshire, an average of 119 fatalities per year.
- New Hampshire’s overall traffic fatality rate of 0.98 fatalities per 100 million vehicle miles of travel in 2010 is below the national average of 1.11.
- The fatality rate on New Hampshire’s rural non-Interstate roads was 1.89 fatalities per 100 million vehicle miles of travel in 2010, approximately three-and-a-half times higher than the 0.51 fatality rate in 2010 on all other roads and highways in the state.
- Several factors are associated with vehicle crashes that result in fatalities, including 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.

- 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 New Hampshire’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, \$38.5 billion in goods are shipped from sites in New Hampshire and another \$40.3 billion in goods are shipped to sites in New Hampshire, mostly by truck.
- Sixty-three percent of the goods shipped annually from sites in New Hampshire are carried by trucks and another 26 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.
- [Site Selection magazine’s 2010 survey](#) of corporate real estate executives found that transportation infrastructure was the third most important selection factor in site location decisions, behind only work force skills and state and local taxes.

*Sources of information for this report include the New Hampshire Department of Transportation (NHDOT), 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).*

## **Introduction**

New Hampshire'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 state hoping to foster quality of life improvements and economic competitiveness, the modernization of New Hampshire's transportation system is

crucial, particularly to critical areas of the state's economy including tourism, manufacturing, high technology and health care.

As the U.S. and New Hampshire look to rebound fully from the recent economic downturn, the modernization of the state's transportation system could play an important role in improving New Hampshire's 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. And as New Hampshire 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.

This report examines the condition, use and safety of New Hampshire'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 New Hampshire Department of Transportation (NHDOT), 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).

## **Population, Travel and Economic Trends in New Hampshire**

New Hampshire residents and businesses require a high level of personal and commercial mobility. To foster a high quality of life and spur economic development in New Hampshire, 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.



New Hampshire's population grew to 1,320,718 in 2012, a 19 percent increase since 1990, when the state's population was approximately 1.1 million.<sup>1</sup> New Hampshire has 1,056,889 licensed drivers.<sup>2</sup> From 1990 to 2010, New Hampshire's gross domestic product (GDP), a measure of the state's economic output, increased by 52 percent, when adjusted for inflation.<sup>3</sup>

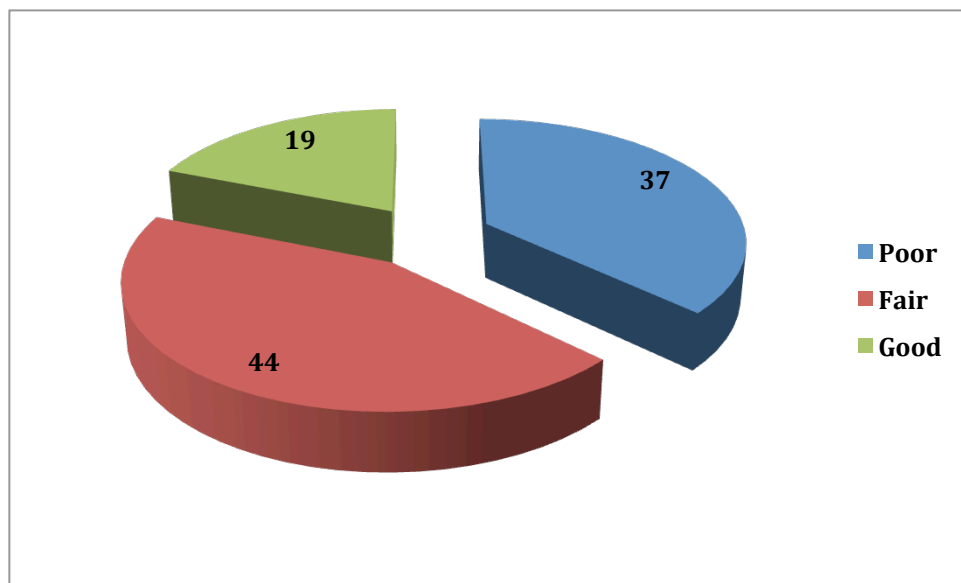
Population increases and economic growth in New Hampshire have resulted in an increase in vehicle travel in the state. From 1990 to 2011, annual vehicle miles of travel in New Hampshire increased by 29 percent, from 9.8 billion miles traveled annually to 12.7 billion miles traveled annually.<sup>4</sup> Based on population and other lifestyle trends, TRIP estimates that travel on New Hampshire's roads and highways will increase by another 25 percent by 2030.<sup>5</sup>

## **Condition of New Hampshire's Roads**

The life cycle of New Hampshire'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.

Throughout the state, more than a third of state-maintained roads and highways -- the most critical 4,559 miles of roadways in the state, including the Interstate system -- have deficient pavements, providing motorists with a rough ride.<sup>6</sup> Currently 37 percent of New Hampshire's state-maintained roads and highways have pavements rated in poor condition.<sup>7</sup> Another 44 percent of New Hampshire's state-maintained roadways are rated in fair condition, while 19 percent are rated in good condition.<sup>8</sup>

**Chart 1. Condition of New Hampshire State-Maintained Roads and Highways, by Percent (2012)**



**Source: New Hampshire Department of Transportation**

Roads rated poor show signs of deterioration, including rutting, extensive cracking and potholes. In some cases, poor roads can be resurfaced but often are too deteriorated and must be reconstructed. Roads rated in fair condition may show signs of significant wear and may also have some visible pavement distress. Most pavements in fair condition can be restored to good condition by resurfacing, but some may need rehabilitation or 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 the pavement and the crushed gravels 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>9</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 more costly rehabilitation or reconstruction of the roadway and its underlying gravel will become necessary.

The condition of New Hampshire's state-maintained roads and highways is expected to worsen. Under current levels of funding, the miles of deficient state roads are anticipated to increase by 16 percent by 2016, resulting in 43 percent of state-maintained roads in New Hampshire being in poor condition.<sup>10</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 New Hampshire motorists as a result of poor road conditions is \$333 million annually, or \$323 per motorist.<sup>11</sup> Costs include accelerated vehicle depreciation, additional repair costs, and increased fuel consumption and tire wear.

Driving on rough roads in the Southern New Hampshire area, including Manchester and Nashua, costs the average driver \$503 annually in extra vehicle operating costs.<sup>12</sup> The average motorist in the Dover-Rochester-Portsmouth area loses an additional \$400 annually due to driving on deteriorated roads.<sup>13</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>14</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>15</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 New Hampshire**

New Hampshire'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.

Nearly a third -- 31 percent -- of New Hampshire's bridges (20 feet or longer) are currently rated as structurally deficient or functionally obsolete.<sup>16</sup>

Fifteen percent of New Hampshire's bridges are rated as structurally deficient.<sup>17</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.

Sixteen percent of New Hampshire's bridges are rated functionally obsolete.<sup>18</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.

At current funding levels, the number of structurally deficient, state-maintained bridges is expected to increase by 15 percent by 2016 from 152 to 174.<sup>19</sup>

## Traffic Safety in New Hampshire

A total of 596 people were killed in motor vehicle crashes in New Hampshire from 2007 through 2011, an average of 119 fatalities per year.<sup>20</sup>

**Chart 2. Traffic fatalities in New Hampshire from 2007 – 2011.**

<i>Year</i>	<i>Fatalities</i>
2007	129
2008	139
2009	110
2010	128
2011	90
<b>Total</b>	<b>596</b>

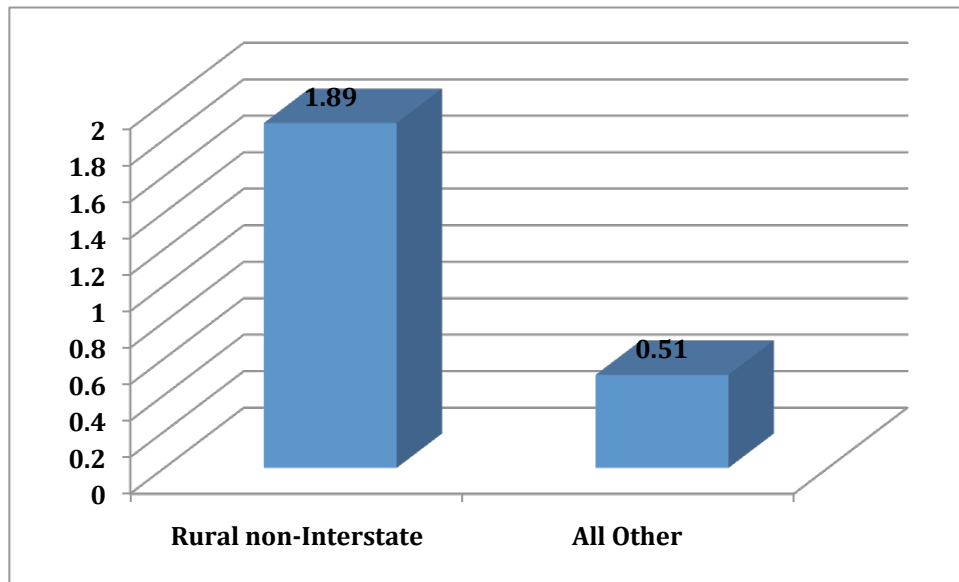
**Source: National Highway Traffic Safety Administration**

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.

New Hampshire's overall traffic fatality rate of 0.98 fatalities per 100 million vehicle miles of travel in 2010 is below the national average of 1.11.<sup>21</sup> But New Hampshire's traffic fatality rate on rural, non-Interstate routes is approximately three-and-a-half times higher than on

all other roads and highways in the state. The fatality rate on New Hampshire's non-Interstate rural roads was 1.89 fatalities per 100 vehicle miles of travel in 2010, higher than the 0.51 fatality rate in 2010 on all other roads and highways in the state.<sup>22</sup> And, while 34 percent of vehicles miles of travel in New Hampshire in 2010 occurred on rural, non-Interstate routes, 66 percent of all traffic fatalities in the state in 2010 occurred on rural, non-Interstate roads.<sup>23</sup>

**Chart 3. Traffic Fatality Rater Per 100 Million Vehicle Miles of Travel in New Hampshire on Non-Interstate Rural Roads and on All Other Roads (2010).**



**Source: TRIP analysis of FHWA data**

Improving safety on New Hampshire'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>24</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. The advent of 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 by accepting customer orders through the Internet. 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 New Hampshire, particularly to the state's tourism, lumber, 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, \$38.5 billion in goods are shipped from sites in New Hampshire and another \$40.3 billion in goods are shipped to sites in New Hampshire, mostly by trucks.<sup>25</sup> Sixty-three percent of the goods shipped annually from sites in New Hampshire are carried by trucks and another 26 percent are carried by courier services or multiple-mode deliveries, which include trucking.<sup>26</sup>

### **New Hampshire's Ability to Fund Needed Transportation Improvements**

New Hampshire currently faces an annual funding shortfall in the investment level needed to maintain current road and bridge conditions, provide adequate winter roadway maintenance and fund a critical highway expansion project. The state also has a significant

funding backlog in the cost of repairing all state-maintained roads, highways and bridges that are currently in poor condition.

The New Hampshire Department of Transportation (NHDOT) projects that it would need to increase annual investment by \$74 million annually to allow the state to maintain current road and bridge conditions, complete the widening of Interstate 93 from Salem to Manchester, a critical state priority to support economic development and adequately fund maintenance and operations.<sup>27</sup>

New Hampshire also faces a current backlog of \$1.3 billion to repair all state-maintained roads, highways and bridges in poor condition , which includes \$615 million to improve all roads and highways in poor condition and \$680 million to repair all bridges where one or more major structural elements is rated in poor condition or worse requires weight-limit posting.<sup>28</sup>

Increasing investment in the state's roads, highways and bridges will also assist the state'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>29</sup>

## **Conclusion**

As New Hampshire looks to enhance and build 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 its 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 New Hampshire'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 New Hampshire'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.

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## Endnotes

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- <sup>1</sup> U.S. Census Bureau (2012).
- <sup>2</sup> Highway Statistics (2011). Federal Highway Administration. DL-1C
- <sup>3</sup> TRIP analysis of Bureau of Economic Analysis data.
- <sup>4</sup> U.S. Department of Transportation - Federal Highway Administration: Highway Statistics 2011. [www.fhwa.dot.gov](http://www.fhwa.dot.gov).
- <sup>5</sup> TRIP calculation based on U.S. Census and Federal Highway Administration data.
- <sup>6</sup> New Hampshire Department of Transportation (2012). The Roads to New Hampshire's Future.
- <sup>7</sup> Ibid.
- <sup>8</sup> Ibid.
- <sup>9</sup> Selecting a Preventative Maintenance Treatment for Flexible Pavements. R. Hicks, J. Moulthrop. Transportation Research Board. 1999. Figure 1.
- <sup>10</sup> New Hampshire Department of Transportation (2012). The Roads to New Hampshire's Future.
- <sup>11</sup> TRIP estimate (2013).
- <sup>12</sup> Ibid.
- <sup>13</sup> Ibid.
- <sup>14</sup> Highway Development and Management: Volume Seven. Modeling Road User and Environmental Effects in HDM-4. Bennett, C. and Greenwood, I. 2000.
- <sup>15</sup> Your Driving Costs. American Automobile Association. 2012.
- <sup>16</sup> Federal Highway Administration (2012). National Bridge Inventory.
- <sup>17</sup> Ibid.
- <sup>18</sup> Ibid.
- <sup>19</sup> New Hampshire Department of Transportation (2012). The Roads to New Hampshire's Future.
- <sup>20</sup> TRIP analysis of National Highway Traffic Safety Administration data (2012).
- <sup>21</sup> TRIP analysis of National Highway Traffic Safety Administration and Federal Highway Administration data (2012).
- <sup>22</sup> Ibid.
- <sup>23</sup> Ibid.
- <sup>24</sup> Adding Highway Shoulders, Width, Reduce Crash Numbers and Save Lives (August 9, 2012). Texas Department of Transportation.
- <sup>25</sup> Bureau of Transportation Statistics, U.S. Department of Transportation. 2007 Commodity Flow Survey, State Summaries.
- <sup>26</sup> Ibid.
- <sup>27</sup> New Hampshire Department of Transportation (November, 2012). Presentation by NHDOT Commissioner Christopher Clement.
- <sup>28</sup> New Hampshire Department of Transportation (2012). The Roads to New Hampshire's Future.
- <sup>29</sup> Federal Highway Administration, 2008. Employment Impacts of Highway Infrastructure Investment.