ALABAMA TRANSPORTATION BY THE NUMBERS:

Meeting the State’s Need for Safe and Efficient Mobility

AUGUST 2014

TRIP

a national transportation research group

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tripnet.org

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 Alabama

| $3.1 Billion | Driving on deficient roads costs Alabama motorists a total of $3.1 billion annually in the form of additional vehicle operating costs (VOC), congestion-related delays and traffic crashes. |
| $1,562 $1,226 $1,195 $1,218 | TRIP has calculated the cost to the average motorist in Alabama’s largest urban areas in the form of additional VOC, congestion-related delays and traffic crashes. The cost for the average driver in each urban area is: Birmingham: $1,562; Huntsville: $1,226; Mobile: $1,195; Montgomery: $1,218. |
| 887 4,435 | On average, 887 people were killed annually in Alabama traffic crashes from 2008 to 2012, a total of 4,435 fatalities over the five year period. |
| 2X | The fatality rate on Alabama’s non-interstate rural roads is nearly double that on all other roads in the state (1.92 fatalities per 100 million vehicle miles of travel vs. 0.99). |
| $183 billion $189 billion | Annually, $183 billion in goods are shipped from sites in Alabama and another $189 billion in goods are shipped to sites in Alabama, mostly by truck. |
| 23 % | A total of 23 percent of Alabama bridges are in need of repair, improvement or replacement. Nine percent of the state’s bridges are structurally deficient and 14 percent are functionally obsolete. |
| 35 hours 28 hours 28 hours 29 hours | The average driver in the Birmingham urban area loses 35 hours each year as a result of traffic congestion; each Huntsville driver loses 28 hours each year; each Mobile driver loses 28 hours; and each Montgomery driver loses 29 hours. |
| $1.32 | From 2008 to 2012, the federal government provided $1.32 for road improvements in Alabama for every dollar paid in federal motor fuel fees |
| $1 billion = 27,800 jobs | An 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. |
| $1.00 = $5.20 | 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. |
Executive Summary

Alabama’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. Alabama’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 Alabama looks to retain its businesses, maintain 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 Alabama’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 6.8 percent and with the state’s population continuing to grow, Alabama 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 Alabamans. Meeting Alabama’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 21st Century Act), has improved several procedures that in the past had delayed projects, MAP-21 does not address long-term funding challenges facing the federal surface transportation program. Congress recently approved the Highway and Transportation Funding Act of 2014, an eight-month extension of the federal surface transportation program, on which states rely for road, highway, bridge and transit funding. The program, initially set to expire on September 30, 2014, will now run through May 31, 2015. In addition to extending the current authorization of the highway and public transportation programs, the legislation will transfer nearly $11 billion into the Highway Trust Fund (HTF) to preserve existing levels of highway and public transportation investment through the end of May 2015.

Congress will need to pass new legislation prior to the May 31 extension expiration to ensure prompt federal reimbursements to states for road, highway, bridge and transit repairs and improvements.

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 Alabama.
An inadequate transportation system costs Alabama residents a total of $3.1 billion every year in the form of additional vehicle operating costs (VOC), congestion-related delays and traffic crashes.

- TRIP estimates that Alabama roadways that lack some desirable safety features, have inadequate capacity to meet travel demands or have poor pavement conditions cost the state’s residents approximately $3.1 billion annually in the form of additional vehicle operating costs (including accelerated vehicle depreciation, additional repair costs, and increased fuel consumption and tire wear), the cost of lost time and wasted fuel due to traffic congestion, and the financial cost of traffic crashes.

- TRIP has calculated the average cost to drivers in the state’s largest urban areas as a result of driving on roads that are deteriorated, congested and lack some desirable safety features. The chart below details the costs to drivers in the Birmingham, Huntsville, Mobile and Montgomery areas.

<table>
<thead>
<tr>
<th>Location</th>
<th>VOC</th>
<th>Safety</th>
<th>Congestion</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birmingham</td>
<td>$593</td>
<td>$196</td>
<td>$773</td>
<td>$1,562</td>
</tr>
<tr>
<td>Huntsville</td>
<td>$429</td>
<td>$203</td>
<td>$594</td>
<td>$1,226</td>
</tr>
<tr>
<td>Mobile</td>
<td>$417</td>
<td>$177</td>
<td>$601</td>
<td>$1,195</td>
</tr>
<tr>
<td>Montgomery</td>
<td>$437</td>
<td>$177</td>
<td>$604</td>
<td>$1,218</td>
</tr>
<tr>
<td><strong>Alabama - Statewide</strong></td>
<td><strong>$1.2 Billion</strong></td>
<td><strong>$914 M</strong></td>
<td><strong>$1 Billion</strong></td>
<td><strong>$3.1 Billion</strong></td>
</tr>
</tbody>
</table>

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

- Alabama’s population reached approximately 4.8 million in 2012, a 19 percent increase since 1990. Alabama had 3,827,522 licensed drivers in 2012.

- Vehicle miles traveled (VMT) in Alabama increased by 53 percent from 1990 to 2012 – jumping from 42.3 billion VMT in 1990 to 65 billion VMT in 2012.

- By 2030, vehicle travel in Alabama is projected to increase by another 30 percent.

- From 1990 to 2012, Alabama’s gross domestic product, a measure of the state’s economic output, increased by 47 percent, when adjusted for inflation.

A lack of adequate state and local funding has resulted in fifteen percent of major urban roads and highways in Alabama having pavement surfaces in poor condition, providing a rough ride and costing motorist in the form of additional vehicle operating costs.
- Fifteen percent of Alabama’s major urban roads and highways have pavements in poor condition, while an additional 35 percent of the state’s major urban roads are rated in mediocre or fair condition and the remaining 50 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.

- Driving on rough roads costs all Alabama motorists a total of $855 million annually in extra vehicle operating costs. Costs include accelerated vehicle depreciation, additional repair costs, and increased fuel consumption and tire wear.

- The chart below details the pavement conditions on major roads in the state’s largest urban areas.

<table>
<thead>
<tr>
<th>Location</th>
<th>Poor</th>
<th>Mediocre</th>
<th>Fair</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birmingham</td>
<td>21%</td>
<td>51%</td>
<td>5%</td>
<td>22%</td>
</tr>
<tr>
<td>Huntsville</td>
<td>13%</td>
<td>36%</td>
<td>15%</td>
<td>37%</td>
</tr>
<tr>
<td>Mobile</td>
<td>18%</td>
<td>8%</td>
<td>17%</td>
<td>47%</td>
</tr>
<tr>
<td>Montgomery</td>
<td>15%</td>
<td>30%</td>
<td>21%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Twenty-three percent of locally and state-maintained bridges in Alabama 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.

- Nine percent of Alabama’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.

- Fourteen percent of Alabama’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.

Alabama’s traffic fatality rate is significantly higher than the national average. Improving safety features on Alabama’s roads and highways would likely result in a decrease in the state’s traffic fatalities and serious crashes. It is estimated that roadway features are likely a contributing factor in approximately one-third of all fatal and serious traffic crashes.

- Between 2008 and 2012 a total of 4,435 people were killed in traffic crashes in Alabama, an average of 887 fatalities per year.
• Alabama’s overall traffic fatality rate of 1.33 fatalities per 100 million vehicle miles of travel in 2012 is significantly higher than the national traffic fatality rate of 1.13.

• The fatality rate on Alabama’s rural non-Interstate roads was 1.92 fatalities per 100 vehicle miles of travel in 2012, nearly double the 0.99 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.

**Increasing levels of traffic congestion cause significant delays in Alabama, particularly in its larger urban areas, choking commuting and commerce. Traffic congestion robs commuters of time and money and imposes increased costs on businesses, shippers and manufacturers, which are often passed along to the consumer.**

• According to the Texas Transportation Institute (TTI), the average driver in the Birmingham urban area loses $773 each year in the cost of lost time and wasted fuel as a result of traffic congestion. The average commuter in the Birmingham urban area wastes 35 hours each year stuck in traffic.

• Based on TTI methodology, TRIP estimates that the average driver in the Huntsville urban area loses $594 each year in the cost of lost time and wasted fuel as a result of traffic congestion. The average Huntsville commuter wastes 28 hours each year stuck in traffic.
• Based on TTI methodology, TRIP estimates that the average Mobile-area driver loses $601 each year in the cost of lost time and wasted fuel as a result of traffic congestion. On average, Mobile commuters waste 28 hours each year stuck in traffic.

• Based on TTI methodology, TRIP estimates that the average driver in the Montgomery urban area loses $604 each year in the cost of lost time and wasted fuel as a result of traffic congestion. The average Montgomery commuter wastes 29 hours each year stuck in traffic.

• Increasing levels of congestion add significant costs to consumers, transportation companies, manufacturers, distributors and wholesalers and can reduce the attractiveness of a location to a company to consider expansion or even to locate a new facility. Congestion costs can also increase overall operating costs for trucking and shipping companies, leading to revenue losses, lower pay for drivers and employees, and higher consumer costs.

The efficiency of Alabama’s transportation system, particularly its highways, is critical to the health of the state’s economy. Businesses are increasingly reliant on an efficient and dependable 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, $183 billion in goods are shipped from sites in Alabama and another $189 billion in goods are shipped to sites in Alabama, mostly by truck.

• Seventy-six percent of the goods shipped annually from sites in Alabama are carried by trucks and another ten 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 is a critical source of funding for Alabama’s roads, highways and bridges and provides a significant return to Alabama in road and bridge funding based on the revenue generated in the state by the federal motor fuel tax.

- Signed into law in July 2012, MAP-21 (Moving Ahead for Progress in the 21st Century Act), has improved several procedures that in the past had delayed projects, MAP-21 does not address long-term funding challenges facing the federal surface transportation program.

- Congress recently approved the Highway and Transportation Funding Act of 2014, an eight-month extension of the federal surface transportation program, on which states rely for road, highway, bridge and transit funding. The program, initially set to expire on September 30, 2014, will now run through May 31, 2015. In addition to extending the current authorization of the highway and public transportation programs, the legislation will transfer nearly $11 billion into the Highway Trust Fund (HTF) to preserve existing levels of highway and public transportation investment through the end of May 2015.

- If Congress decides to provide additional revenues into the federal Highway Trust Fund in tandem with authorizing a new federal surface transportation program, a number of technically feasible revenue options have been identified by the American Association of State Highway and Transportation Officials.

- From 2008 to 2012, the federal government provided $1.32 for road improvements in Alabama for every dollar the state paid in federal motor fuel fees.

- Federal funding has allowed the state to complete many needed transportation projects since 2005, including widening of several portions of I-65, rehabilitation of several sections of I-59, and widening and rehabilitation of portions of I-20. A full list of projects can be found in Appendix A.

- Numerous transportation projects throughout the state would require significant federal funding to proceed prior to 2019. These projects include the construction of several new routes in Montgomery, Birmingham, Anniston and Auburn to relieve congestion and provide for future growth, as well as widening portions of US-80 in Sumter and resurfacing a portion of I-10 in Mobile. A full list of projects can be found in Appendix B.
• The Alabama Department of Transportation relies heavily on its allocation of federal funds to keep the state’s roads open and in an acceptable state of repair. Without the annual allocation of federal dollars, the state would lose $170 million for Interstate maintenance (about 85 miles), $80 million for bridge replacement (about 40 bridges), $260 million for the resurfacing of state routes (about 850 miles), and $150 million in capacity improvements (new roads/added lanes).

Sources of information for this report include the Alabama Department of Transportation (ALDOT), the Federal Highway Administration (FHWA), the Bureau of Transportation Statistics (BTS), the U.S. Census Bureau, the American Association of State Highway and Transportation Officials (AASHTO), the Texas Transportation Institute (TTI) and the National Highway Traffic Safety Administration (NHTSA).
Introduction

Alabama’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 Yellowhammer State hoping to foster quality of life improvements and economic competitiveness, the modernization of Alabama’s transportation system is crucial, particularly to critical areas of the state’s economy including tourism, agriculture and manufacturing.

As the U.S. and Alabama look to rebound from the recession, the preservation and modernization of the state’s transportation system could play an important role in retaining Alabama’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 Alabama 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 Alabama’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 21st Century Act), has improved several procedures that in the past had delayed projects. However, MAP-21 does not address long-term funding challenges facing the federal surface transportation program. Congress recently approved the Highway and Transportation Funding Act of 2014, an eight-month extension of the federal surface transportation program, on which states rely for road, highway, bridge and transit funding. The program, initially set to expire on September 30, 2014,
will now run through May 31, 2015. In addition to extending the current authorization of the highway and public transportation programs, the legislation will transfer nearly $11 billion into the Highway Trust Fund (HTF) to preserve existing levels of highway and public transportation investment through the end of May 2015.

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 of the states.

This report examines the condition, use and safety of Alabama’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 Alabama Department of Transportation (ALDOT), the Federal Highway Administration (FHWA), the U.S. Census Bureau, the American Association of State Highway and Transportation Officials (AASHTO), 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 Alabama**

Alabama 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 Alabama, 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.
Alabama’s population grew to approximately 4.8 million residents in 2012, a 19 percent increase since 1990.\(^1\) Alabama had 3,827,522 licensed drivers in 2012.\(^2\) From 1990 to 2012, Alabama’s gross domestic product (GDP), a measure of the state’s economic output, increased by 47 percent, when adjusted for inflation.\(^3\)

From 1990 to 2012, annual vehicle miles of travel (VMT) in Alabama increased by 53 percent, from 42.3 billion miles traveled annually to 65 billion miles traveled annually.\(^4\) Based on population and other lifestyle trends, TRIP estimates that travel on Alabama’s roads and highways will increase by another 30 percent by 2030.\(^5\)

**Condition of Alabama’s Roads**

The life cycle of Alabama’s roads is greatly affected by the state and local government’s ability to perform timely maintenance and upgrades to ensure that road and highway surfaces last as long as possible.

Fifteen percent of Alabama’s major urban roads and highways have pavements rated in poor condition.\(^6\) Another 35 percent of Alabama’s major urban roads are rated in mediocre or fair condition, while the remaining 50 percent are rated in good condition.\(^7\)

The chart below details the pavement conditions on major roads in the state’s largest urban areas.

### Chart 1. Percentage of major roads in poor, mediocre, fair and good condition in Alabama’s largest urban areas.

<table>
<thead>
<tr>
<th>Location</th>
<th>Poor</th>
<th>Mediocre</th>
<th>Fair</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birmingham</td>
<td>21%</td>
<td>51%</td>
<td>5%</td>
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<td>Huntsville</td>
<td>13%</td>
<td>36%</td>
<td>15%</td>
<td>37%</td>
</tr>
<tr>
<td>Mobile</td>
<td>18%</td>
<td>8%</td>
<td>17%</td>
<td>47%</td>
</tr>
<tr>
<td>Montgomery</td>
<td>15%</td>
<td>30%</td>
<td>21%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Source: TRIP analysis of Federal Highway Administration data.
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 Alabama Department of Transportation (ALDOT) on the condition of major state and locally maintained roads and highways in the state.

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. 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.

**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 Alabama motorists as a result of poor road conditions is $1.2 billion
annually. Driving on rough roads costs the average Alabama motorist $321 annually in extra vehicle operating costs (this includes motorists outside the state’s major urban areas). 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.

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. 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 Alabama**

Alabama’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.
Twenty-three percent of Alabama’s locally and state-maintained bridges (20 feet or longer) are currently rated as structurally deficient or functionally obsolete.

Nine percent of Alabama’s locally and state-maintained bridges are rated as structurally deficient. 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.

Fourteen percent of Alabama’s locally and state-maintained bridges are rated functionally obsolete. 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 Alabama

A total of 4,435 people were killed in motor vehicle crashes in Alabama from 2008 through 2012, an average of 887 fatalities per year.

<table>
<thead>
<tr>
<th>Year</th>
<th>Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>966</td>
</tr>
<tr>
<td>2009</td>
<td>848</td>
</tr>
<tr>
<td>2010</td>
<td>862</td>
</tr>
<tr>
<td>2011</td>
<td>894</td>
</tr>
<tr>
<td>2012</td>
<td>865</td>
</tr>
<tr>
<td>Total</td>
<td>4,435</td>
</tr>
</tbody>
</table>

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.

Alabama’s overall traffic fatality rate of 1.33 fatalities per 100 million vehicle miles of travel in 2012 is higher than the national average of 1.13.16 The fatality rate on Alabama’s non-Interstate rural roads was 1.92 fatalities per 100 million vehicle miles of travel in 2012, nearly double the fatality rate of 0.99 on all other roads and highways in the state.17

Improving safety on Alabama’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.\textsuperscript{18}

**Traffic Congestion in Alabama**

Increasing levels of traffic congestion cause significant delays in Alabama, particularly in its larger urban areas, choking commuting and commerce. Traffic congestion robs commuters of time and money and imposes increased costs on businesses, shippers and manufacturers, which are often passed along to the consumer.

According to the Texas Transportation Institute, the average driver in the Birmingham urban area loses $773 each year in the cost of lost time and wasted fuel as a result of traffic congestion.\textsuperscript{19} The average commuter in the Birmingham urban area wastes 35 hours each year stuck in traffic.\textsuperscript{20}

Based on TTI methodology, TRIP estimates that the average driver in the Huntsville, Mobile and Montgomery urban areas loses $594, $601 and $604, respectively.\textsuperscript{21} The average
commuter in Huntsville and Mobile waste 28 hours each year stuck in traffic and the average Montgomery area commuter wastes an additional 29 hours annually stuck in traffic congestion.22

The increasing levels of congestion add significant costs to consumers, transportation companies, manufacturers, distributors and wholesalers. The increased levels of congestion can reduce the attractiveness of a location to a company to consider expansion or even to locate a new facility. Congestion costs can also increase overall operating costs for trucking and shipping companies, leading to revenue losses, lower pay for employees, and higher consumer costs.

**Transportation Funding**

Investment in Alabama’s roads, highways and bridges is funded by local, state and federal governments. The federal government provides funding for the state’s transportation system largely as part MAP-21 (Moving Ahead for Progress in the 21st Century Act), the current two-year federal surface transportation program, which expires on May 31, 2015.

The federal government is a critical source of funding for Alabama’s roads, highways, bridges and transit systems and provides a significant return to Alabama in road and bridge funding based on the revenue generated in the state by the federal motor fuel tax. From 2008 to 2012, the federal government provided $1.32 for road improvements in Alabama for every dollar the state paid in federal motor fuel fees.23

Federal funds for highway and transit improvements in Alabama are provided through the federal Highway Trust Fund, which raises revenue through federal user fees, largely an 18.4 cents-per-gallon tax on gasoline and a 24.4 cents-per-gallon tax on diesel fuel. Since 2008 revenue into the federal Highway Trust Fund has been inadequate to support legislatively set
funding levels so Congress has transferred approximately $53 billion in general funds and an additional $2 billion from a related trust fund into the federal Highway Trust Fund.\textsuperscript{24}

Signed into law in July 2012, MAP-21 has improved several procedures that in the past had delayed projects. However, MAP-21 does not address long-term funding challenges facing the federal surface transportation program. Congress recently approved the Highway and Transportation Funding Act of 2014, an eight-month extension of the federal surface transportation program, on which states rely for road, highway, bridge and transit funding. The program, initially set to expire on September 30, 2014, will now run through May 31, 2015. In addition to extending the current authorization of the highway and public transportation programs, the legislation will transfer nearly $11 billion into the Highway Trust Fund (HTF) to preserve existing levels of highway and public transportation investment through the end of May 2015.

The Alabama Department of Transportation relies heavily on its allocation of federal funds to keep the state’s roads open and in an acceptable state of repair. Without the annual allocation of federal dollars, the state would lose $170 million for Interstate maintenance (about 85 miles), $80 million for bridge replacement (about 40 bridges), $260 million for the resurfacing of state routes (about 850 miles), and $150 million in capacity improvements (new roads/added lanes).\textsuperscript{25}

Federal funding has allowed the state to complete many needed transportation projects since 2005, including widening of several portions of I-65, rehabilitation of several sections of I-59, and widening and rehabilitation of portions of I-20. A full list of projects can be found in Appendix A.
Numerous transportation projects throughout the state would require significant federal funding to proceed prior to 2019. These projects include the construction of several new routes in Montgomery, Birmingham, Anniston and Auburn to relieve congestion and provide for future growth, as well as widening portions of US-80 in Sumter and resurfacing a portion of I-10 in Mobile. A full list of projects can be found in Appendix B.

Increasing investment in the state’s roads, highways and bridges could boost Alabama’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. 

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. Global communications and the impact of free trade in North America and elsewhere have resulted in a significant increase in freight movement, making the quality of a region’s transportation system 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 e-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 Alabama, particularly to the state’s paper, chemical, apparel and textiles, automobile manufacturing, energy, agriculture and tourism industries. 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, $183 billion in goods are shipped from sites in Alabama and another $189 billion in goods are shipped to sites in Alabama, mostly by trucks. Seventy-six percent of the goods shipped annually from sites in Alabama are carried by trucks and another ten percent are carried by courier services or multiple-mode deliveries, which include trucking.

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.

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. 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 Alabama looks to build and enhance a thriving, growing and dynamic state, it will be critical that it is able to provide a 21st 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 recession, 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 Alabama’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 Alabama’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

1 U.S. Census Bureau (2013).
2 Highway Statistics (2012). Federal Highway Administration. DL-1C
3 TRIP analysis of Bureau of Economic Analysis data.
5 TRIP calculation based on U.S. Census and Federal Highway Administration data.
7 Ibid.
8 Selecting a Preventative Maintenance Treatment for Flexible Pavements. R. Hicks, J. Moulthrop. Transportation Research Board. 1999. Figure 1.
9 TRIP calculation
10 Ibid.
13 Federal Highway Administration (2013). National Bridge Inventory.
14 Ibid.
17 Ibid.
18 Adding Highway Shoulders, Width, Reduce Crash Numbers and Save Lives (August 9, 2012). Texas Transportation Institute.
20 Ibid.
21 Ibid.
22 TRIP estimate based on Texas Transportation Institute methodology.
25 ALDOT response to TRIP inquiry.
28 Ibid.
29 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.
30 Area Development Magazine (Winter, 2012). 26th Annual Survey of Corporate Executive Results.