



HOW ALABAMA ROADS COMPARE

Ninth Edition, 2017

Measuring What Matters.

How Alabama Roads Compare, 9th Edition

November 2017

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Published by the Public Affairs Research Council of Alabama
Ryan Hankins, Executive Director



Our Mission

Alabamians want similar things: good schools, safe neighborhoods, a strong economy, freedom, equality, and opportunity, but we often disagree about the best way to achieve these goals. We resolve these disagreements through healthy debate and negotiation, which requires accurate and unbiased information. PARCA exists to provide this information.

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The Public Affairs Research Council of Alabama is a 501(c)(3) nonprofit organization working to inform and improve state and local government, schools, and nonprofits through independent, objective, nonpartisan research and analysis.

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Data Analysis: Data should be a flashlight, not a hammer. PARCA provides complex data analysis to illuminate opportunities and improve outcomes.

Research and Recommendations: Numbers may tell what, but they don't tell why. PARCA seeks to understand what is working, what is not working, and what changes might be feasible.

Performance Evaluation: Trying hard is not enough. PARCA works with nonprofits, schools, and government agencies to define goals, measure accomplishments, and identify areas for improvement.

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- Comparative studies of Alabama's budgets and taxes.
- Comparative studies of municipal finances.
- SMART budgeting analysis for cities and counties.

Education and Workforce Development

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- Deep dives into school systems' performance.
- Audits of school systems' administrative practices and procedures.
- Long-form research in partnership with the Business Education Alliance.

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Executive Summary

Alabama Roads: Where are we now?

Alabama's roads and bridges are in relatively good condition compared to other Southeastern states. The percentage of roads in good condition is higher than most other states, and the percentage of roads in poor condition is lower than most other states. The percentage of bridges in need of replacement because of deficiency is about average for the Southeast.

However, those generally good conditions on existing roads have come at a cost.

The Alabama Department of Transportation has had to devote an increasingly large share of its budget to preserving the existing road system, with a shrinking pool of money available for new projects to address congestion or expand the road system to foster transportation improvements and economic development.

Currently, only \$150 million per year is available for system enhancement and expansion projects, a drop in the bucket considering the billions of dollars in projects needed to address existing congestion issues, much less the additional billions that would be needed to finance aspirational projects like Birmingham's Northern Beltline, a new Mobile River bridge, and variety of other projects desired by communities large and small.

Alabama's road spending in recent years has been supplemented by more than \$1.3 billion in borrowing. That's allowed state and local governments to tackle needed improvements and perform in the present projects that will pay dividends in the future. However, that borrowing authority has been exhausted, and future road spending will be curtailed. The infusion of borrowed money is ending and the demands of paying back what has already been borrowed money will consume a greater share of road money.

This impending road revenue crunch is rooted in a fundamental problem in how we pay for roads: a set 18-cents per gallon motor fuels tax. Per-gallon motor fuels taxes were last raised in the early 1990s. The buying power of that 18 cents on each gallon has eroded due to inflation. On top of that, the greater fuel economy of cars and trucks on the road today means that less gas is being purchased to fuel more miles of travel.

The wear and tear of traffic on the roads continues to increase, but revenue from per-gallon taxes is not keeping pace. Per vehicle mile traveled, Alabama is collecting half what it did in the early 1990s, when adjusted for inflation.

In the immediate term, the 2018 transportation budget will contain about \$200 million less in revenue than it has enjoyed for the past 5 years, revenue provided through the ATRIP borrowing program. The debt service required to pay that borrowing back has been steadily climbing. In 2018, it will leap to \$114 million, almost \$50 million more than the 2017 total, and remain locked in for the next 19 years. As a bottom line, in 2018, there will be about \$250 million less to spend on roads than there was in 2017.

Where do we want to be in the future?

Alabama needs sufficient revenue to pay for the upkeep of its current system, plus an adequate pool of money available to add capacity to address congestion problems and to improve the

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transportation network. That revenue for roads also needs to cover the cost of paying back the money the state has already borrowed.

How do we get there?

Alabama hasn't raised its per gallon gas tax in 25 years. Only 8 other states have gone as long without an increase. In recent years, most states have raised per gallon taxes and have also adopted mechanisms to address the drain on buying power created by inflation and greater fuel economy.

In the past several legislative sessions, Alabama lawmakers have introduced various proposals to address the impending shortfall in road funding but none of those proposals have gathered sufficient support.

As those proposals resurface in subsequent sessions, attention should be paid not only to preventing the immediate shortfall but to preventing the perpetual erosion of road dollars. Many of our Southeastern neighbors have crafted long-term approaches to road funding from which Alabama could learn.

Data presented in the report can also be viewed through interactive tables [here](#).

Introduction

Travel on Alabama roads continues to increase. For 2015, the most recent year for which estimates are available, the number of miles driven on Alabama roads topped 67 billion, a record high and a 2.4 percent increase over 2014 and a 59 percent increase over the number of miles driven in 1990.

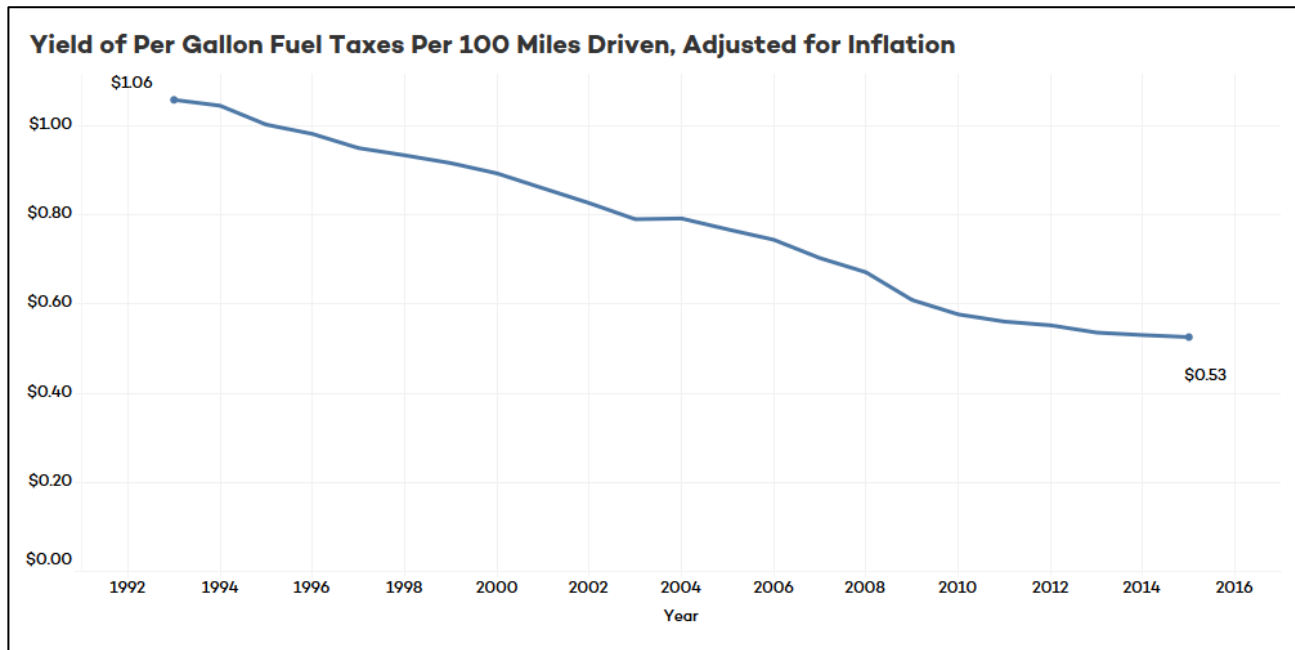
While that increased traffic represents positive increases in economic activity, it also leads to more congestion and wear and tear on the roads, increasing the cost of maintenance and creating the need for new construction to add capacity to the road network.

But the mechanism we've typically used to pay for the upkeep of our roads is faltering. Due to the combined effects of inflation and greater fuel efficiency in vehicles, per gallon gas taxes are producing less and less revenue for each vehicle mile traveled. The state is collecting less per mile driven, and the purchasing power of those collections is being eroded by inflation in transportation construction costs.

When inflation and improvements in fuel economy are taken together, the yield of the per gallon tax per 100 miles driven has been cut in half.

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Figure 1 The Declining Purchasing Power of State Fuel Taxes Per 100 Miles Driven



In recent years, through borrowing, Alabama has been able to continue increasing spending on roads and has done a relatively good job of maintaining the quality of the network. Alabama road and bridge conditions continue to compare favorably to other Southeastern states (See [Road and Bridge Conditions](#) section of this report).

However, with debt service costs mounting and revenue constrained, the state needs to address its malfunctioning mechanism for paying for the maintenance and expansion of its roads and bridges. Going forward, most of the money available will be needed to maintain and preserve our existing road system, leaving even less available to pay for capacity expansion and new road projects coveted by local communities for economic development.

Alabama is not alone in facing a revenue pinch for roads. It's a problem at both the state and national level. Proposals to raise or modify the gas tax have been advanced in every Southeastern state and most states nationwide. Six of the 10 Southeastern states have passed increases and made adjustments to their fuel taxes in the past three years. The states that have made changes have employed mechanisms that will react to the effects of inflation or fuel efficiency.

Without changes, Alabama's budget for road construction and maintenance will drop dramatically in 2018. The state will have \$200 million less to spend on road projects, as the last of the borrowed funds will have been spent. The cost of paying back that borrowing will spike, rising to \$114 million in debt service due annually for the next 20 years. That total debt service is up from \$70 million in 2017 and is five times higher than the levels of debt service the state typically paid before the borrowing began.

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Through prudent use of available funds and borrowing, ALDOT has maintained, and by some measures, improved the quality of Alabama's roads and bridges. However, the agency's ability to continue progress will be severely challenged. And the state will have very little left over to add capacity to the system to address congestion or to develop new projects local communities want to see in the interest of catalyzing development and growth.

The Triple Threat to Financing Alabama Roads

Three primary factors are responsible for Alabama's looming money crunch when it comes to paying for roads:

1. The declining effectiveness of the gasoline tax
2. The diversion of road money to other recipients considering problems elsewhere in the budget
3. Increased borrowing and rising debt service

Declining Gas Taxes

Traditionally, Alabama has been a "pay as you go" state when it comes to paying for roads.

The bulk of road funding comes from a "user tax," a per gallon tax on motor fuel. The State of Alabama last raised its per gallon gas tax in the early 1990s to the current state rate of 18 cents per gallon on gasoline (19 per gallon on diesel).

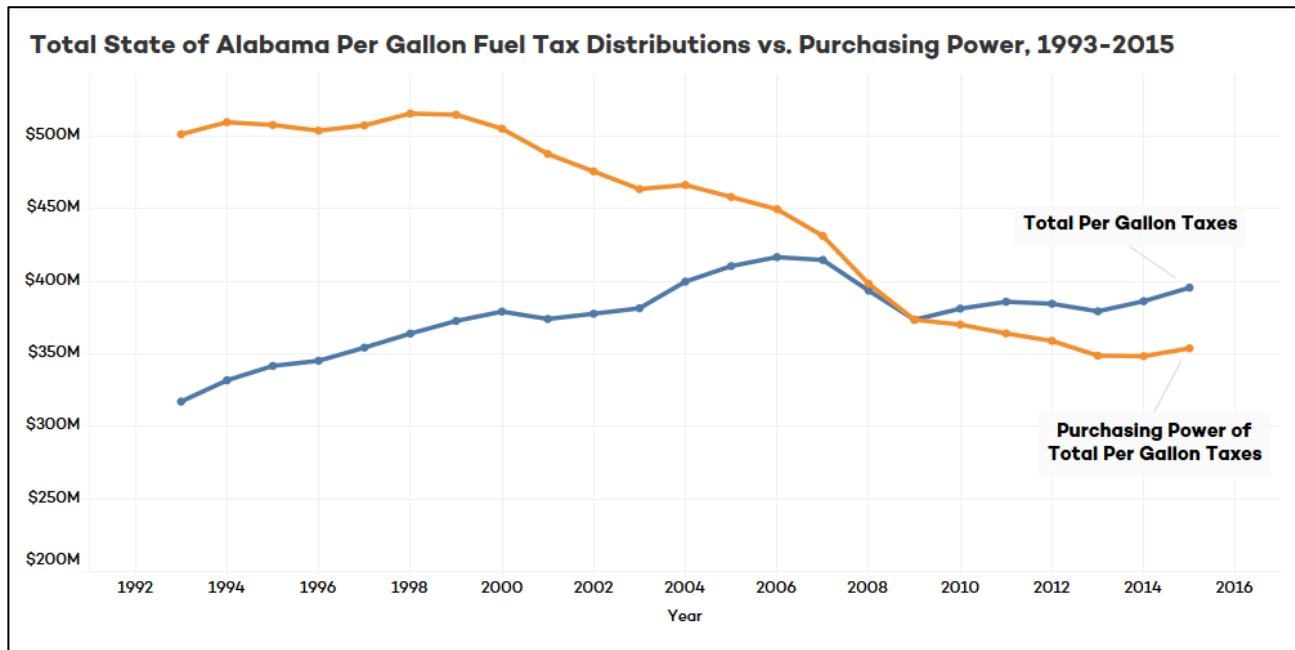
But revenues for roads is in decline. In adjusted dollars, the revenue to the state Road and Bridge Fund generated by the taxes on gasoline and diesel fuel totaled \$396 million in 2015, down from a peak of \$417 million in 2006. When adjusted for inflation, the purchasing power of those fuel taxes has declined even more sharply.

Figure 2 charts the fuel tax revenue to the Road and Bridge Fund over time. The blue line traces total collections from 1993 through 2015. Collections generally rose over time until 2006 with increasing miles driven leading to more fuel sales. During the Great Recession, vehicle miles driven on Alabama roads dipped, and revenue to the Road and Bridge Fund dipped as well. By 2010, vehicle miles traveled returned to and exceeded the 2006 peak, but revenues have not kept pace.

Meanwhile, the orange line in Figure 2 represents the purchasing power of that total fuel tax revenue, adjusted for construction inflation and expressed in constant 2009 dollars. In the 1990s, fuel taxes provided the state with over \$500 million a year in 2009 dollars, but by 2015, fuel taxes were generating around \$350 million in 2009 dollars. That's despite an increase between 1993 and 2015 of 20 billion vehicle miles traveled annually, a 42 percent increase in the miles driven.

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Figure 2. Total Fuel Tax vs. Its Purchasing Power



Two forces are at work driving down the ability of those taxes to keep pace with the needs of the road network.

First, due to inflation, a penny today is worth less than a penny was in 1993. We continue to collect the same number of pennies for each gallon of gas sold, but the total collected produces much less in terms of purchasing power.

We are also buying less gas per mile traveled. As the fuel efficiency of cars rises, less fuel is purchased to travel the same number of miles. Some cars, those powered by batteries, don't pay gas taxes at all.

More miles are being driven on Alabama roads, producing more congestion and wear and tear, but less gasoline is being purchased per mile driven.

Budgetary Diversions

A second drain on the revenue for roads is a continuing diversion of money that has traditionally been earmarked for roads to other uses.

Alabama's General Fund has been in a perpetual state of crisis since the Great Recession, with lawmakers scrambling to find the money to plug holes. One source they've tapped is the Road and Bridge Improvement Fund.

Since 2012, \$63.5 million annually has been shifted from the Road and Bridge Improvement Fund to supplement the budget of the Alabama State Troopers and the court system.

There is certainly a justification for that diversion.

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The Alabama Constitution stipulates:

“No monies derived from any fee, excise or license tax, levied by the state, relating to (1) registration, operation, or use of vehicles or (2) fuels used for propelling vehicles except pump taxes shall be expended for any purpose other than costs of construction, reconstruction, maintenance and repair of public highways and bridges, costs of highway rights of way, payment of highway obligations, the cost of traffic regulation, and the expense of enforcing state traffic and motor vehicle laws.

(Amendment No. 93, ratified November 19, 1952)

Under that amendment, the Legislature is justified in appropriating some funds from the Road and Bridge Improvement Fund to support traffic enforcement by state troopers and the administration of traffic courts.

However, advocates for road spending call attention to the fact that, before 2010, those diversions totaled less than \$25 million annually. The diversion of \$63.5 million annually since 2012 has meant less is left in the fund to apply to road construction and maintenance.

Increased Borrowing

In light of inflation, increasing fuel efficiency, and diversions, the state has turned to borrowing to buoy road spending. Despite declining state fuel tax revenues, Alabama has still been increasing the amount it spends on its transportation network.

With record-low interest rates in place and favorable mechanisms available to enable borrowing, the state has taken on more than \$1 billion in road debt. Borrowing has allowed the state to spend an additional \$200 million annually from 2013 through 2017.

This is a break with tradition in that Alabama has typically borrowed only infrequently for roads and has counted on current revenue collected, primarily through gasoline taxes, to pay for road construction. In 2011, among Southeastern states, Alabama had the second lowest road debt per capita. Only Tennessee had a lower per capita debt level.

However, by 2015, Alabama’s per capita road debt had risen, passing South Carolina. Post-2015 borrowing will likely push Alabama higher on the list.

In 2011, Alabama was paying 13.6 million a year in debt service; by 2015, that total had more than doubled to \$27.6 million a year. By 2018, the debt service due on the \$1.4 billion borrowed for roads is projected to rise to \$114 million annually. That level of obligation for debt service will continue for 19 more years.

Without the annual infusion of \$200 million in bond money and with debt service spiking, the total amount the state will have available to spend on roads will decline sharply.

Without changes, the state will find itself in an untenable situation: increasing needs over time with flat to declining revenues to address those needs. With a portion of future federal revenue

pledged for debt repayment and a faltering gasoline tax, the revenues available to care for and improve our road system will deteriorate.

Fixing the Gasoline Tax

Alabama is not alone in having a faltering system for paying for roads and bridges. Alabama's problems mirror the national picture. Both in Alabama and nationally, the gas tax was last increased about 25 years ago.

The federal gasoline tax is 18.4 cents per gallon, and the tax on diesel fuel is 24.4 cents per gallon. According to the Federal Highway Administration, the National Highway Trust Fund's spending has exceeded its revenues from motor fuel taxes and other earmarked sources each year since Fiscal Year 2008¹.

To ensure that the Trust Fund could pay its bills, Congress has passed a number of bills transferring amounts to the Highway Fund. Through 2018, those transfers, mostly out of the Federal Government's General Fund, amount to \$115 billion. Since the federal government is permitted to run a deficit and does, that \$115 billion has, in effect, been borrowed to fund the upkeep and expansion of the U.S. road system.

Despite some proposals to increase the road user taxes to return to balance, Congress has not taken action.

At the state level, other states have been more proactive.

Since 2013, lawmakers in 24 states have raised or reformed their gas taxes.² Only eight states have gone longer than Alabama without raising their fuels tax. Those states that have raised their gasoline taxes in recent years include six of the 10 Southeastern states: Kentucky, Tennessee, North Carolina, South Carolina, Georgia, and Florida.

States that have passed legislation to increase their per gallon taxes have tended to pass phased increases that will allow the tax to rise over time, or they've devised formulas that will automatically adjust their tax rates based on changing conditions.

[The Institute on Taxation and Economic Policy](#) (ITEP), a Washington, D.C.-based nonpartisan nonprofit, has followed the various state approaches to [reforming their gas taxes](#). Details on the actions of Southeastern states are drawn from ITEP reports.

Initially, states tended to tie the gasoline tax rate to the price of gasoline, with increases in gas prices automatically triggering increases in gas tax rates. However, when gas prices began unexpectedly to fall, those mechanisms would have led to large automatic cuts in gas tax rates. Reacting to that, states like Kentucky scrambled to revamp their formulas.

¹ <https://www.fhwa.dot.gov/policy/olsp/fundingfederalaid/07.cfm>

² Institute on Taxation and Economic Policy, <https://itep.org/how-long-has-it-been-since-your-state-raised-its-gas-tax-4/>

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Learning from the problems with that approach, other states have either adopted phased increases or alternative mechanisms for adjusting the gas tax rate.

Tennessee boosted its gasoline and diesel tax rates by 4 cents each in July, the first stage of a three-part increase. By July 2019, Tennessee's gas tax will have risen by 6 cents and its diesel tax by 10 cents.

South Carolina increased its gasoline and diesel tax rates by 2 cents each in July, the first stage of a 6-year increase that will eventually raise South Carolina's fuel tax rates by 12 cents per gallon.

North Carolina, Georgia, and Florida have put in place variable rate mechanisms. North Carolina's formula considers population increases and energy prices. Florida's is tied to changes in inflation. Georgia's mechanism responds to both changes in the inflation and the fuel economy of cars.

ITEP points to Georgia as the only state that has devised a mechanism for adjusting the gas tax based on rising fuel economy. Georgia will examine new vehicle registrations and determine the average miles per gallon of those cars. The gas tax will rise or fall based on the percentage increase (or decrease) in the estimated miles per gallon of those newly registered vehicles.

The language of the Georgia law reads as follows:

"Using 2014 as a base year, the department shall determine the average miles per gallon of all new vehicles registered in this state pursuant to Code Section 48-5C-1 using the average of combined miles per gallon published in the United States Department of Energy Fuel Economy Guide. Beginning on July 1, 2016, and each year thereafter, the department shall calculate the average miles per gallon of all new vehicles registered in this state in the previous year. The excise tax rate shall be multiplied by the percentage increase or decrease in fuel efficiency from the previous year, and the resulting increase or decrease shall be added to the excise tax rate to determine the preliminary excise tax rate."

Currently, Alabama's state and local gas taxes are the fourth lowest in the Southeast. South Carolina's phased increases will move that state, traditionally the lowest in the Southeast, ahead of Alabama's tax rate within two years.

For the past several legislative sessions, lawmakers have advanced proposals to increase the gasoline tax but have failed to gain passage.

Without additional funding, ALDOT estimates that it will have enough money to continue to maintain the current highway system with just \$150 million a year left to spend on adding capacity to existing highways.

According to ALDOT, much of the existing Interstate Highway System in Alabama is carrying enough traffic to justify expanding the interstates to six lanes where they are still just four lanes. ALDOT officials estimate that the cost of adding those lanes to the existing system might total more than \$10 billion—a rough estimate.

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In addition to those improvements to the existing system, communities around the state are pushing for new major local projects they believe to be vital to solving congestion problems and creating economic development in their region.

Those aspirational projects include a 53-mile Northern Beltline around Birmingham, [more than \\$1 billion in identified expansion needs in Huntsville](#), a [new Mobile Bay Bridge and Bayway](#), an outer highway loop for Montgomery, [Tuscaloosa's Eastern Bypass](#), a bypass around Dothan, and an extension of I-85 across West Alabama. There are at least an additional \$10 billion in aspirational projects like these that local communities would like to see.

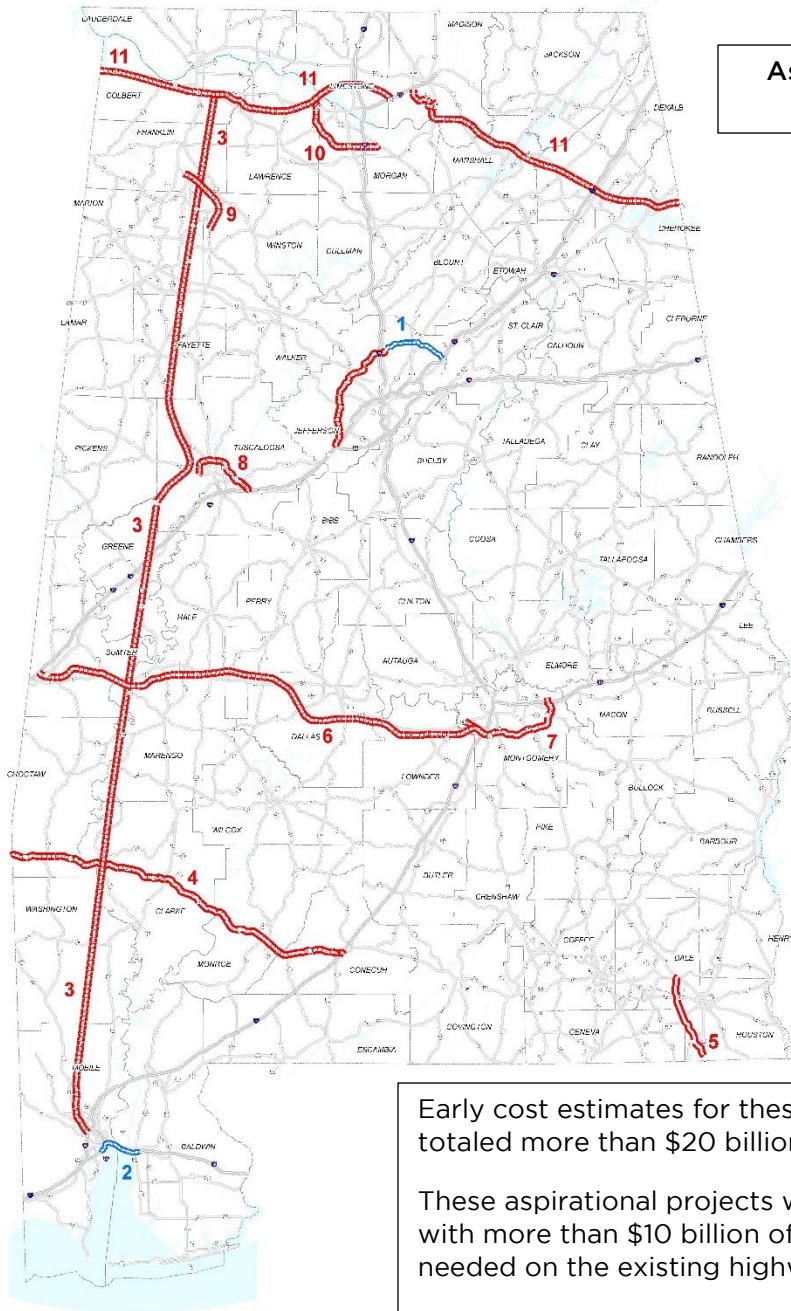
However, with only \$150 million a year available to address capacity needs and pursue aspirational projects, neither the current needed capacity increases nor the aspirational projects could be pursued in a timely fashion (see map on page 12).

Recognizing the constraints of current funding, local leaders are looking for alternative ways to pay for projects. For instance, leaders in Mobile, with support from ALDOT, are exploring using a public-private partnership to fund the construction of their sought-after Mobile Bay Bridge Project. Under such an arrangement, private money would be used to build the bridge and that money, plus interest and profit, would be paid for by [charging tolls to cross the bridge](#).

Each penny of additional gas and diesel fuel tax currently nets about \$32 million in total with approximately \$21 million of those dollars ending up in the Public Road and Bridge Fund. If the current distribution formula were followed with additional gas taxes, it would take an increase of about 5 cents per gallon to generate enough to pay for the rising debt service the state faces.

To cover the debt and restore the purchasing power of gasoline tax to the level it was in the early 1990s when it was last increased, the state would need to add approximately 12 cents per gallon to the state's current gas tax level.

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Aspirational Projects for Alabama's Highway and Interstate System

1. Birmingham Northern Beltline*
2. I-10 Mobile River Bridge*
3. North South Corridor from Mobile County to Lauderdale County
4. US-84 Additional Lanes from State Line to I-65
5. I-10 Dothan Connector
6. I-85 Extension from State Line to I-65
7. Montgomery Outer Loop from I-65 to US-231
8. Tuscaloosa Eastern Bypass
9. SR-13 (US-43) Relocation from Dime to Spruce Pine
10. Decatur/Hartselle Bypass
11. Memphis -Huntsville- Atlanta Freeway

*Active projects noted in blue

Early cost estimates for these projects, now out-of-date, totaled more than \$20 billion.

These aspirational projects would have to compete for funding with more than \$10 billion of capacity expansion projects needed on the existing highway system.

Under current funding constraints, the state has only about \$150 million per year to add capacity to the highway system.

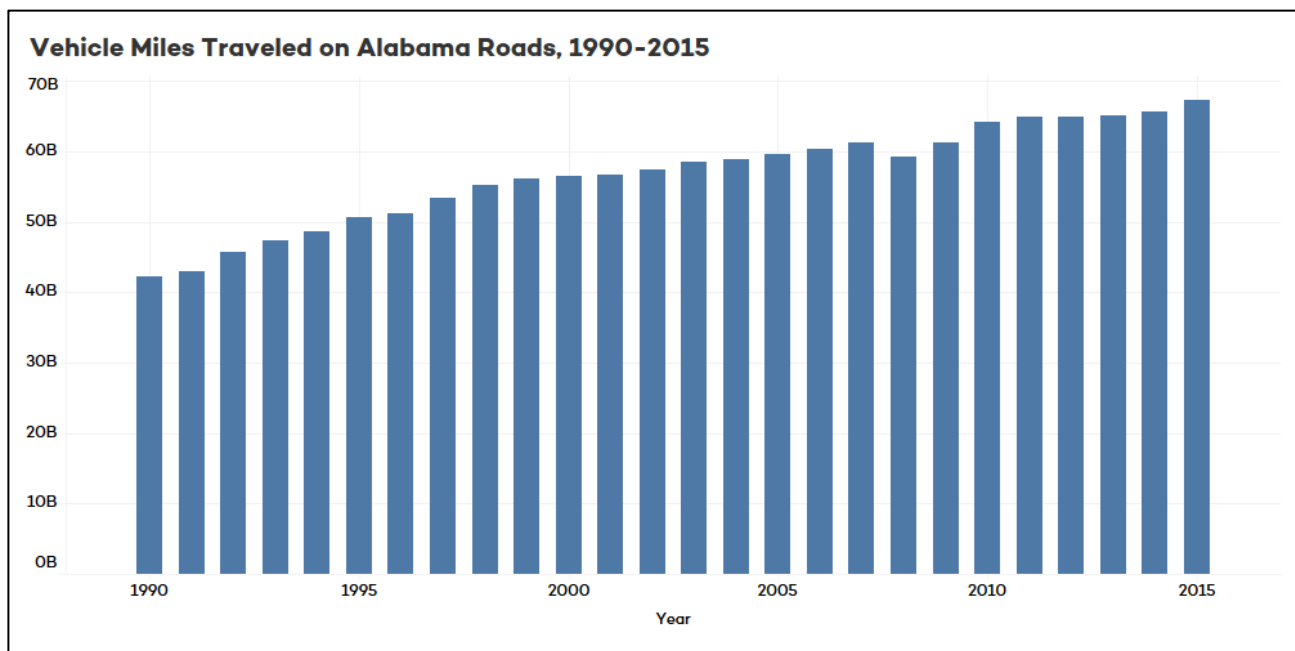
At that level of funding, it would take more than 133 years to meet both needed capacity additions and aspirational projects.

How Alabama Roads Compare, Ninth Edition, 2017

This new edition of *How Alabama Roads Compare* comes at a pivotal time for Alabama’s transportation network and for that of the United States as a whole. The first PARCA report on roads was issued in 1992 at a time when the state and federal government were both in the process of adding 5 cents to the gasoline tax.

Miles Traveled: Since 1990, Alabama has added more 25,525 lane miles to its road system, and the number of vehicle miles traveled on those roads has increased by 25 billion to 67 billion vehicle miles traveled in 2015.

Figure 3. Increasing Travel on Alabama Roads



Road Conditions: Over that 25-year time span, the percentage of roads rated rough has also declined, the percentage of road miles rated smooth has also increased. In the more immediate time span, the percentage of roads in good or very good condition slipped slightly from 78 percent in 2011 to 75 percent in 2015.

There was also a slight increase in the percentage of roads in poor or mediocre condition from 2 percent in 2011 to 2.6 percent in 2015.

Still, Alabama roads compare favorably to most other Southeastern states on these measures. Only Florida and Tennessee have a higher percentage of roads in good or very good condition. And Alabama has the lowest percentage of roads in poor or mediocre roads in the Southeast.

Bridges: The percentage of the state’s bridges classified as either structurally deficient or functionally obsolete dropped from 41 percent in 1990 to 21.5 percent in 2015.

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Despite constrained funding, ALDOT has continued to decrease the percentage of Alabama bridges rated as deficient, either functionally or structurally, from 22.7 percent in 2012 to 21.5 in 2015. Alabama's percentage of bridges in deficient condition is slightly below the Southeastern states.

Road Fatalities: Despite the increase in population and traffic, the number of fatalities on Alabama roads has decreased from 1,083 in 1994 to 849 in 2015. Despite the long-term fall in fatalities, there has been a short-term rise in road deaths. Fatalities on Alabama roads increased between 2014 and 2015, from a record low of 820 in 2014. Preliminary numbers from 2016 indicate that Alabama road fatalities jumped to a total of 1,038.

The fatality rate, which considers the number of fatalities and the amount of rising traffic on Alabama roads, has decreased between 1994 and 2015 from 22 fatalities per billion vehicle miles traveled to 12.6 per billion miles of travel. The jump in 2016 fatalities will likely result in a rise in the fatality rate.

In 2015, Alabama's traffic fatality rate per billion miles traveled was below the Southeastern average of 13.7 per billion miles traveled, but higher than the national rate.

Mass Transit: Alabama continues to be among four U.S. States that provides no state revenue for mass transit. In other states, state support for mass transit is viewed as a tool for helping to mitigate congestion, improve productivity, and spur urban development.

Road System Extent and Usage, 2015

The indicators contained on the following pages are the eighth update of PARCA's analysis of road and bridge data, comparing Alabama to other Southeastern states. The basic data are derived from the Federal Highway Administration publication: *Highway Statistics* for 2015, with calculations by PARCA staff. The indicators fall into the following three categories:

1. Road mileage and traffic volume
2. Finances
3. Road and bridge conditions

Road Mileage and Traffic Volume

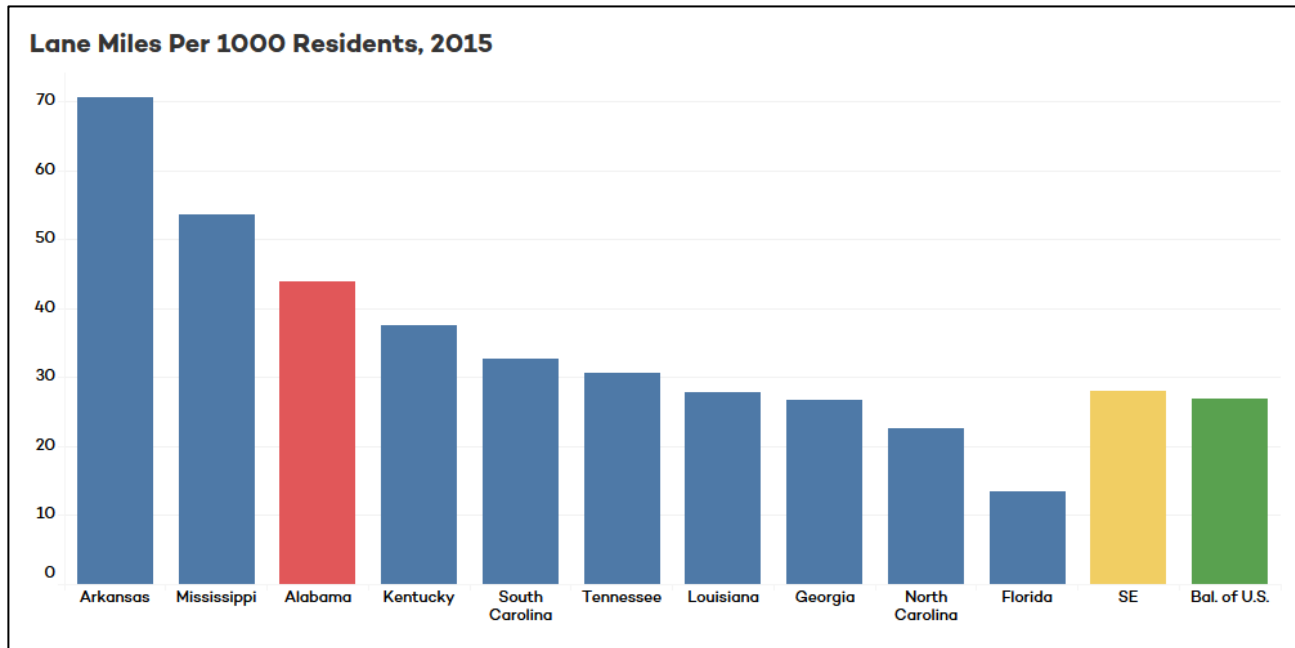
Traffic volume and lane mileage are major factors in the quality of the road system and the expense of maintaining it. A road system with too little capacity for the existing traffic volume leads to congestion and greater numbers of accidents. A road system that is too extensive can become a fiscal burden to maintain adequately.

The key is to achieve an appropriate balance. The charts below compare Alabama with its Southeastern neighbors on these indicators. To compare the states on lane mileage and traffic volume, we divide these factors by the states' populations. Figures 4 and 5, which show the results, were derived from data in Tables HM-60 and VM-2 of *Highway Statistics*. Figures in the tables were divided by Census Bureau population estimates for the states as of July 1, 2015.

Road Mileage Per Person

Figure 4 shows the number of lane-miles per 1,000 residents for Alabama and neighboring Southeastern states. This is a measure of the size of the road system in comparison to the number of people who support it and use it daily.

Figure 4. High Road Capacity Per Resident



Florida, at 13 lane miles per 1,000 residents, has the lowest ratio of road mileage to population among the Southeastern states, while Arkansas, at 71, has the highest ratio. States with higher ratios of lane-miles to population tend to be more rural and more sparsely populated.

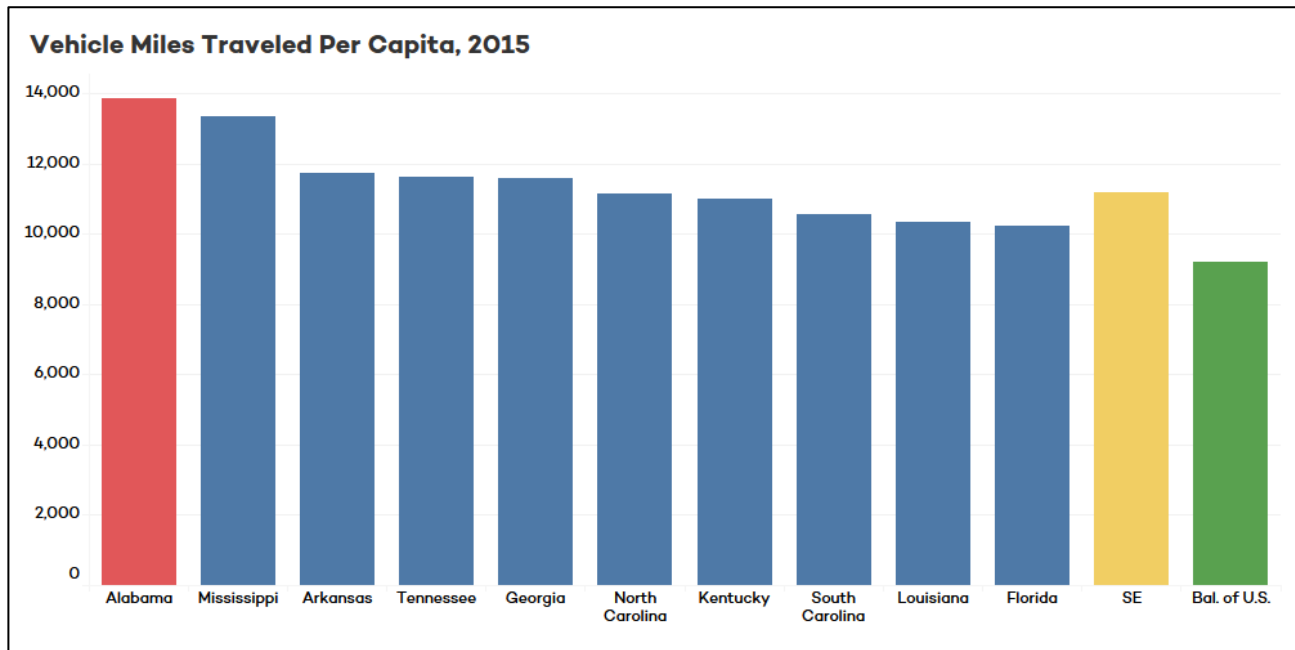
Alabama’s road network consists of 213,127 lane-miles, a ratio of 44 lane miles per 1,000 residents. This is the third highest ratio among Southeastern states and is above the regional average, as well as the average for the balance of the U.S. (In these and subsequent charts, the bar labeled "Bal. U.S." represents all states other than the ten Southeastern states).

Miles of Travel Per Resident

Figure 5 shows the number of vehicle-miles traveled (VMT) per capita. Alabama has the second highest ratio of vehicle-miles traveled per resident in the nation, exceeding 13,856. Only Wyoming is higher in VMT per capita. Alabama’s VMT per capita is the highest in the Southeast. Mississippi is close behind at 13,344. These high figures result from the volume of trucks and cars passing through the state, as well as from driving by residents. Florida ranks lowest on this measure, at 10,244 vehicle-miles per capita.

HOW ALABAMA ROADS COMPARE

Figure 5. High Travel Miles Per Capita



Comparing Figures 4 and 5, the data show that, in relation to its population, Alabama has high road mileage, but also high traffic volume. The two factors are in relative balance with one another.

Some states are less balanced on the two measures. For example, Florida and North Carolina are well below other states in the region on lane-miles per capita, but not as far below their neighbors on vehicle-miles of travel per capita.

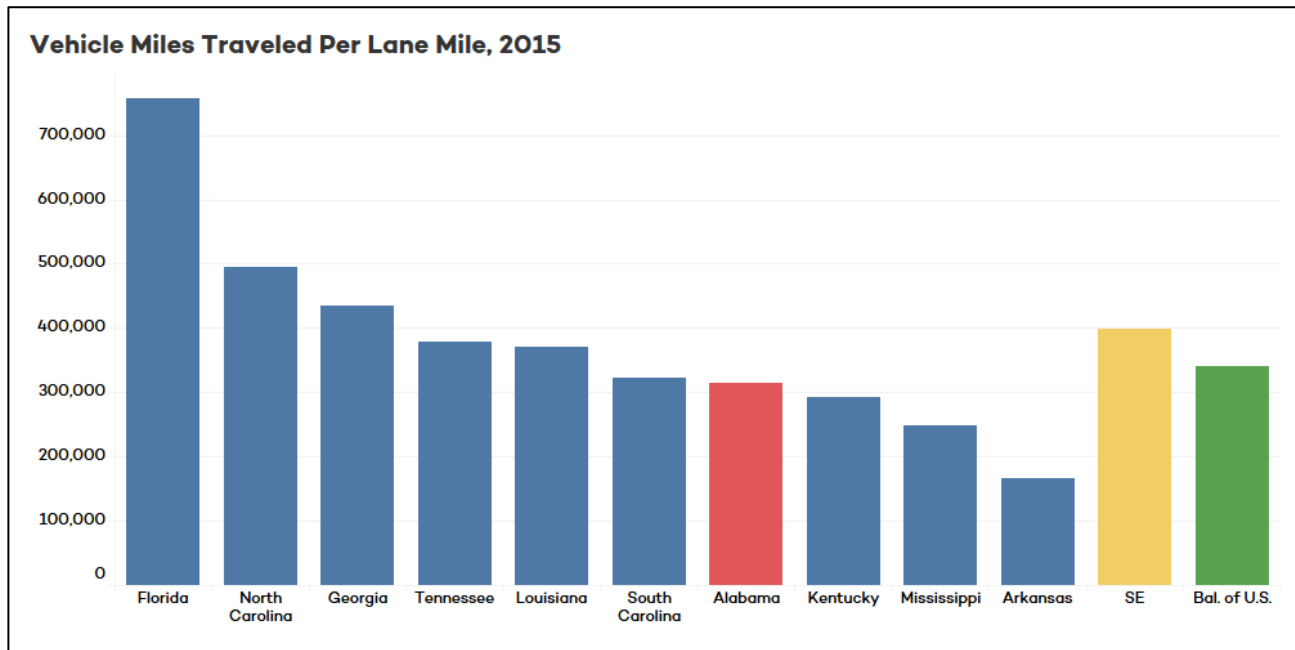
In states with these characteristics, we expect traffic volume to be generally heavy. On the other hand, Arkansas is far above the other states on lane-miles per capita, but not on vehicle-miles per capita. This suggests relatively sparse usage of the road system.

Traffic vs. Capacity

Figure 6 shows another measure of how intensely a state's highway system is used. It compares data in *Highway Statistics* Tables HM-60 (the number of lane miles) and VM-2 (vehicle-miles traveled). Higher numbers in this ratio of lane-miles to vehicle-miles traveled indicate a more crowded road system, and vice versa. For example, Florida shows about 758,000 vehicle-miles of travel per lane-mile of road, substantially more than any other Southeastern state. Arkansas, on the other hand, has 166,000 vehicle-miles of travel per lane-mile, only 22% of the traffic intensity seen in Florida. Alabama, at 316,000 vehicle-miles traveled per lane-mile of highway, is below the regional average and lower than six other states in the region. But in all states, the intensity of travel has increased since 2011.

HOW ALABAMA ROADS COMPARE

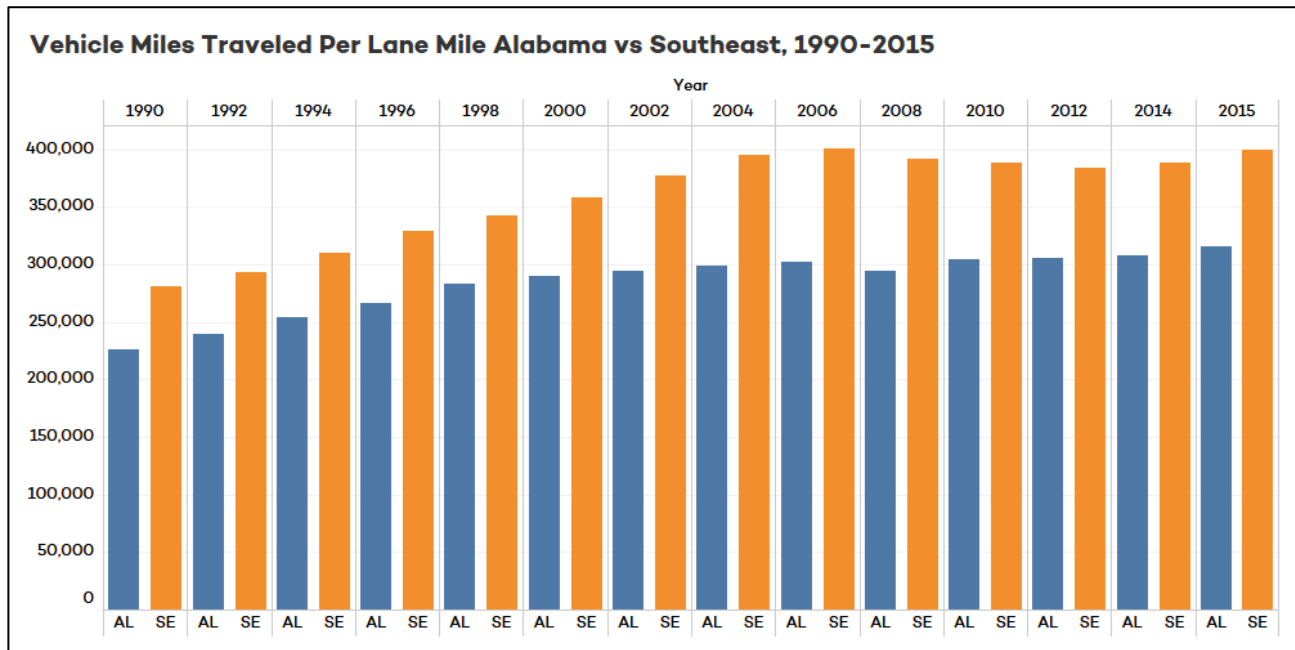
Figure 6. Travel vs. Capacity



Increase in Road Travel Over Time

Figure 7 shows a time series of this highway usage ratio for Alabama and the Southeastern states, covering the years during which PARCA has tracked the data. Alabama had about 226,000 vehicle-miles of travel per lane mile of road in 1990, increasing to more than 316,000 vehicle-miles per lane mile by 2015 — an increase of 40%. During this same period, the Southeastern average increased by more than 38% to 399,000 vehicle-miles per lane mile. During the economic downturn, vehicle-miles traveled declined for both Alabama and the Southeast. By 2015, Alabama's vehicle-miles per lane mile had rebounded to nearly 316,000. The Southeast as a whole, which was experiencing over 400,000 vehicle-miles per lane mile in 2006, has not quite returned to the same level of intensity.

Figure 7. Intensity of Travel, Time Series



Revenues

At least since the birth of the Interstate Highway System, road maintenance and construction has been supported by highway user fees. These fees are collected through federal and state per gallon taxes on fuel. In theory, the amount collected reflects the amount of travel on the roadways.

In practice though, that per gallon tax needs to be adjusted over time. A penny in 1990 was worth more in terms of buying power than a penny today. To generate the same amount of purchasing power for road maintenance and construction, the state and federal government would need to add additional pennies to the gas tax rate to match the purchasing power lost to inflation.

Recently, a second factor has arisen that interferes with the ability of gasoline taxes to generate the level of revenue that reflects the amount of travel on the roads. The fuel economy of vehicles is rising. These more fuel-efficient cars and trucks can drive more miles on less gas. Some vehicles on the roads today run on batteries and highway users driving those vehicles don't pay for the roads through gas taxes.

Taken together, the effects of inflation and better fuel economy have decreased the ability of per gallon gas taxes to keep up with the amount of road travel occurring and the resulting wear and tear and congestion on the road system.

HOW ALABAMA ROADS COMPARE

In this section of the report, we look at the revenues supporting road construction and maintenance. Transportation programs are financed by a combination of federal, state, and local tax revenues, as well as borrowing.

It is also important to understand the state's "balance of payments" with the federal government, comparing federal taxes paid with federal transportation revenues received. The burdens of state and local taxes and borrowing, as well as transportation spending priorities, are also important factors to consider. The charts below address these indicators.

Gas Taxes

Because the gasoline tax is assessed on a fixed 18 cent per gallon basis, the value of the purchasing power of the amount collected per gallon erodes over time due to inflation. When the current Alabama rate (approximately 39 cents per gallon when state, local, and federal taxes are considered together) went into effect in the early 1990s, the price of gasoline, before applying the tax, was around \$1. Today, the same tax is applied to gasoline that costs over \$2 per gallon.

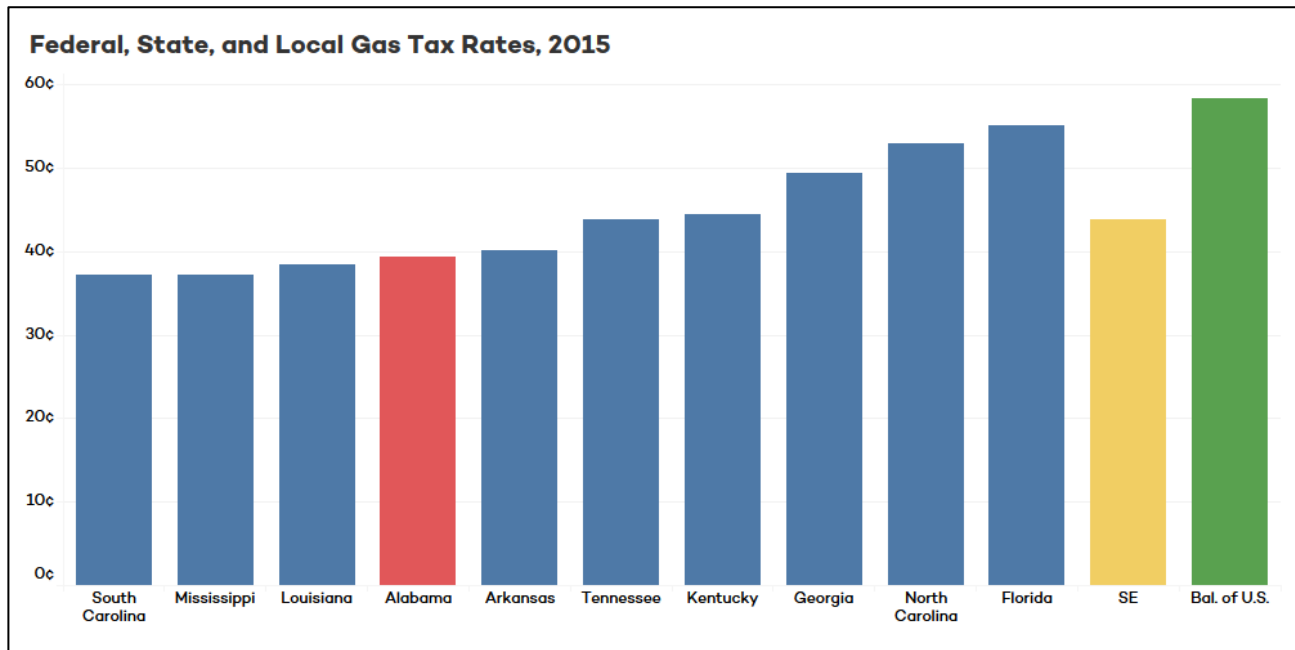
Alabama's per gallon fuel taxes are among the lowest in the Southeast, 5 cents per gallon lower than the regional average. These comparative gas tax rates are compiled by the [American Petroleum Institute](#)³ (API). API takes into account state rates and a weighted average of local rates as well. The total amount collected from state and local sources provides the state and local share of road funding.

Three states have lower gasoline tax rates. However, South Carolina has enacted a phased increase in its per gallon rate that will soon propel its total past Alabama's. Mississippi, Louisiana, and Alabama have each seen proposals in their Legislature to increase their rates, but those proposals have thus far failed to gain adequate support.

³ American Petroleum Institute, <http://www.api.org/oil-and-natural-gas/consumer-information/motor-fuel-taxes>

HOW ALABAMA ROADS COMPARE

Figure 8. Comparison of Total Gas Taxes in the Southeast

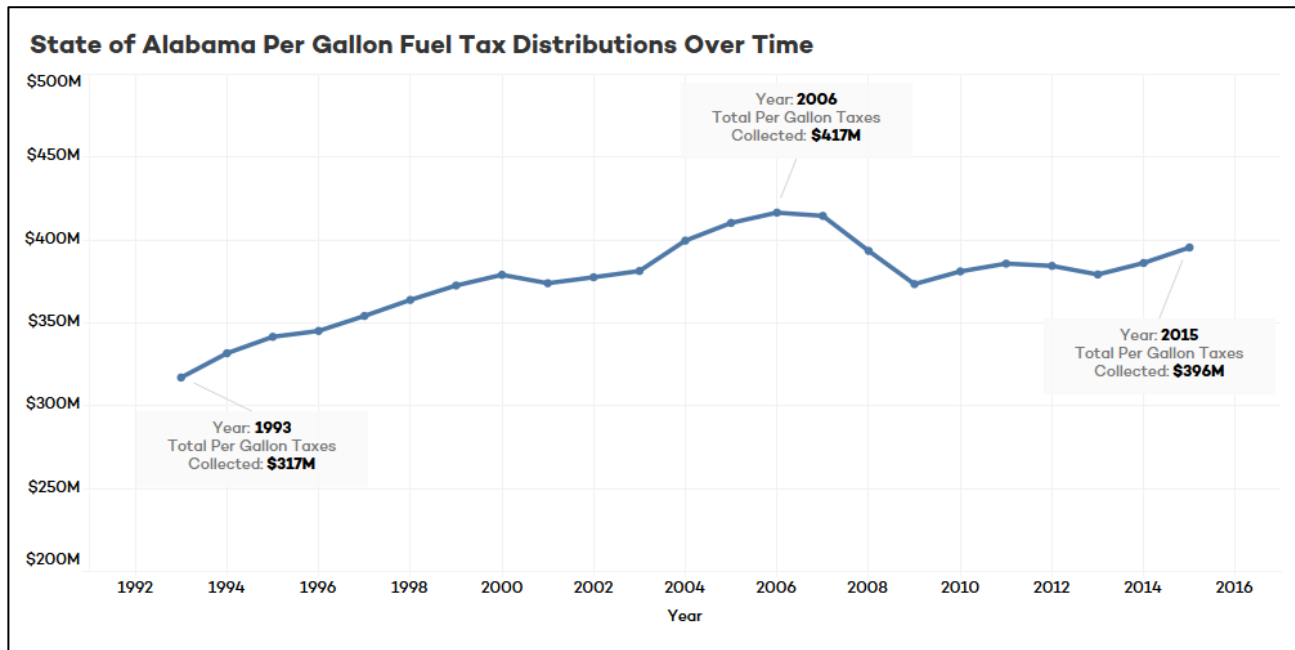


PARCA annually surveys Alabamians on their priorities for state spending and on their willingness to pay more in taxes to fund those priorities. In those surveys, highway spending ranks fourth in terms of priority behind education, health care, and public safety. Only 36 percent of respondents said they would be willing to pay more in taxes to avoid cuts in highway funding. Considering the results, proponents of increased spending on roads will have to persuade Alabamians of the need for change.

The erosion of the effectiveness of the gas tax can be seen in Figure 9. The chart reflects the total amount generated by per gallon fuel taxes and made available to ALDOT for its operations. These totals of gasoline and diesel tax revenues are not adjusted for inflation.

HOW ALABAMA ROADS COMPARE

Figure 9. Per Gallon Fuel Tax Collections, 1993 to 2015



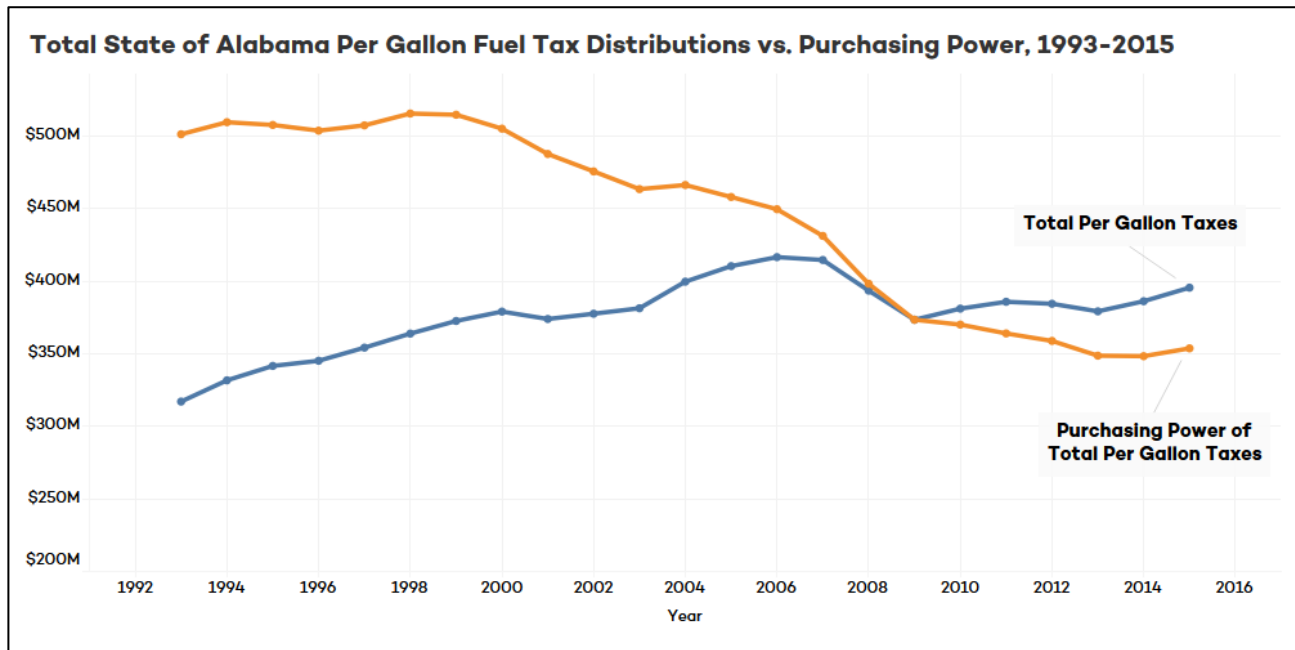
In 1993, Alabama collected \$317 million in fuel taxes to support of state highway spending. The total collected grew steadily with the increase in travel and gasoline purchased, peaking in 2006 at \$417 million. Travel dipped slightly during the Great Recession but has since recovered to pre-recession levels. Despite the fact that vehicle miles traveled have pushed past previous record highs, fuel tax distributions to ALDOT have not recovered, coming in at \$396 million in 2015.

This likely reflects the increase in vehicle fuel efficiency. More miles are being driven, but less gasoline is needed to support that level of travel. Thus, the higher traffic loads and wear and tear is yielding less money to maintain the roads.

By adjusting those total fuel tax distributions to ALDOT for inflation in transportation construction costs, the decline in the purchasing power of those collections is even more apparent. Figure 10 presents those total distributions to ALDOT adjusted for inflation.

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Figure 10. The Eroding Buying Power of Fuel Taxes



When adjusted for inflation and expressed in 2009 dollars, ALDOT received over \$500 million a year in 2009 dollars in the 1990s. Today, the purchasing power of those total distributions has fallen to around \$350 million, despite the increase in vehicle miles traveled and thus the greater need for road maintenance and added capacity.

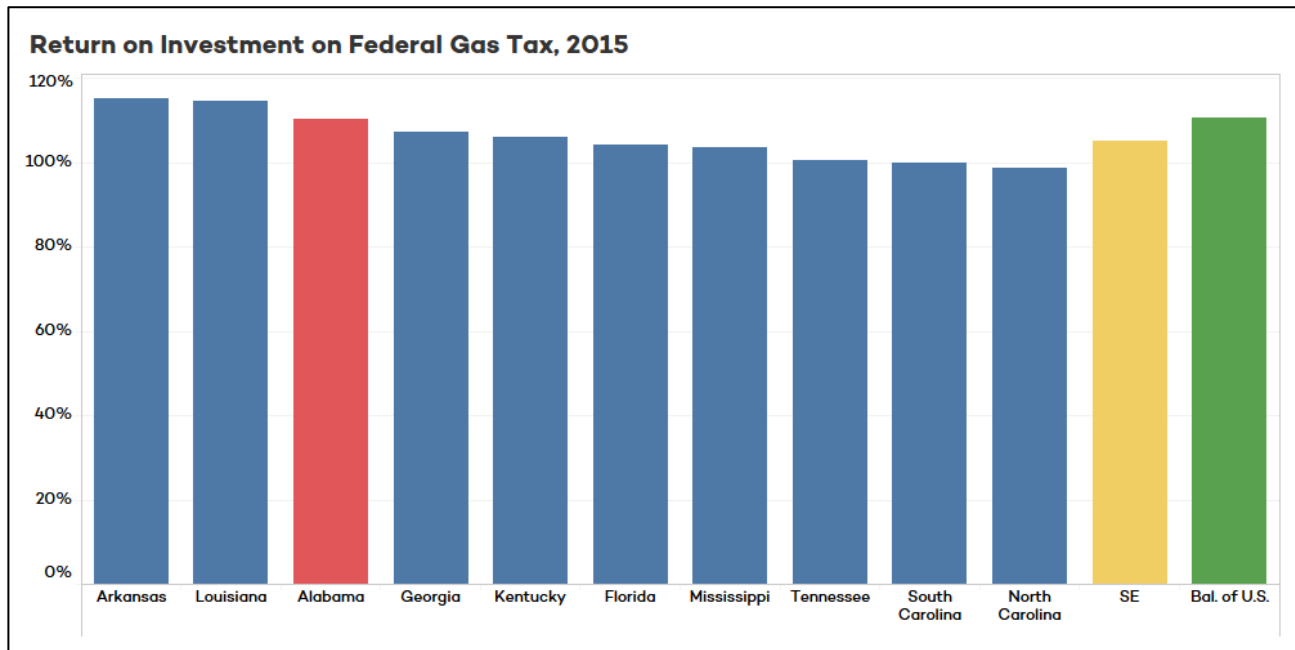
To restore the lost purchasing power of the fuel taxes to the level enjoyed in the early 1990s, taxes would need to rise to approximately 10 cents a gallon. Every penny of fuel taxes generates about \$32 million. Under the current distribution formulas, every penny generates about \$21 million for the state Road and Bridge fund, with the remainder going to city and county road building programs.

Federal Revenues

Figure 11 shows the amount of federal appropriations and allocations to Southeastern states relative to the amount each state paid in federal motor fuel taxes. These data are found in Table FE-221 of *Highway Statistics*. Alabama received \$1.10 in distributions for every dollar paid in federal motor fuel tax (or, to put it as shown in the chart, Alabama's receipts were 110% of our contributions), ranking third among the 10 Southeastern states. This was slightly below the 111% return received by states outside the Southeast (Bal. of U.S.). Arkansas ranked first in the Southeast.

HOW ALABAMA ROADS COMPARE

Figure 11. Fuel Taxes Collected vs. Total Returned to States



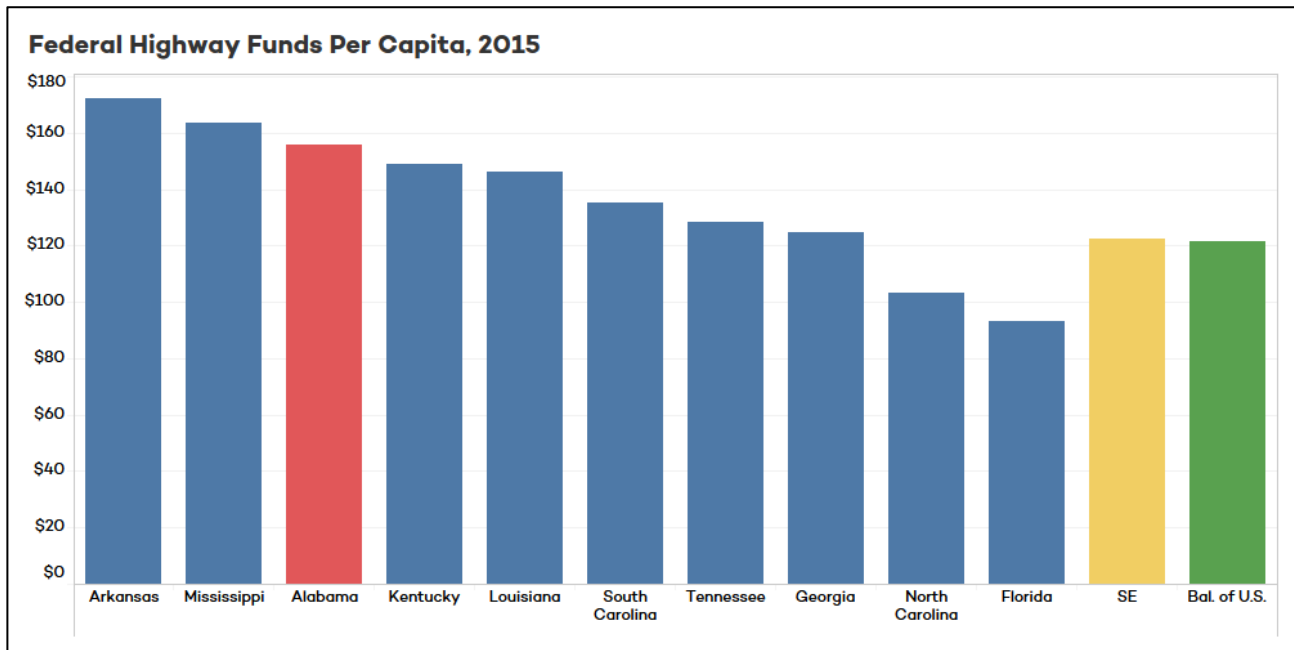
These figures, which show all states receiving back more than they put in, reflect the earlier discussion: The National Highway Trust Fund is paying out more than it receives in fuel taxes. Increasingly, the fund is requiring transfers of general revenues to sustain the current levels of spending.

Federal Funding Per Capita

Figure 12, from the same source table, shows the amount received for roads and bridges from the federal government on a per-capita basis. The amount Alabama received ranked third among the 10 Southeastern states, at \$156 per capita in 2015. That's down from \$168 per capita in 2011. Again, the more sparsely populated states tend to fare well in this comparison. The decline in this amount also points to the declining revenue-generating power of the gas tax.

HOW ALABAMA ROADS COMPARE

Figure 12. Per Capita Disbursements to States

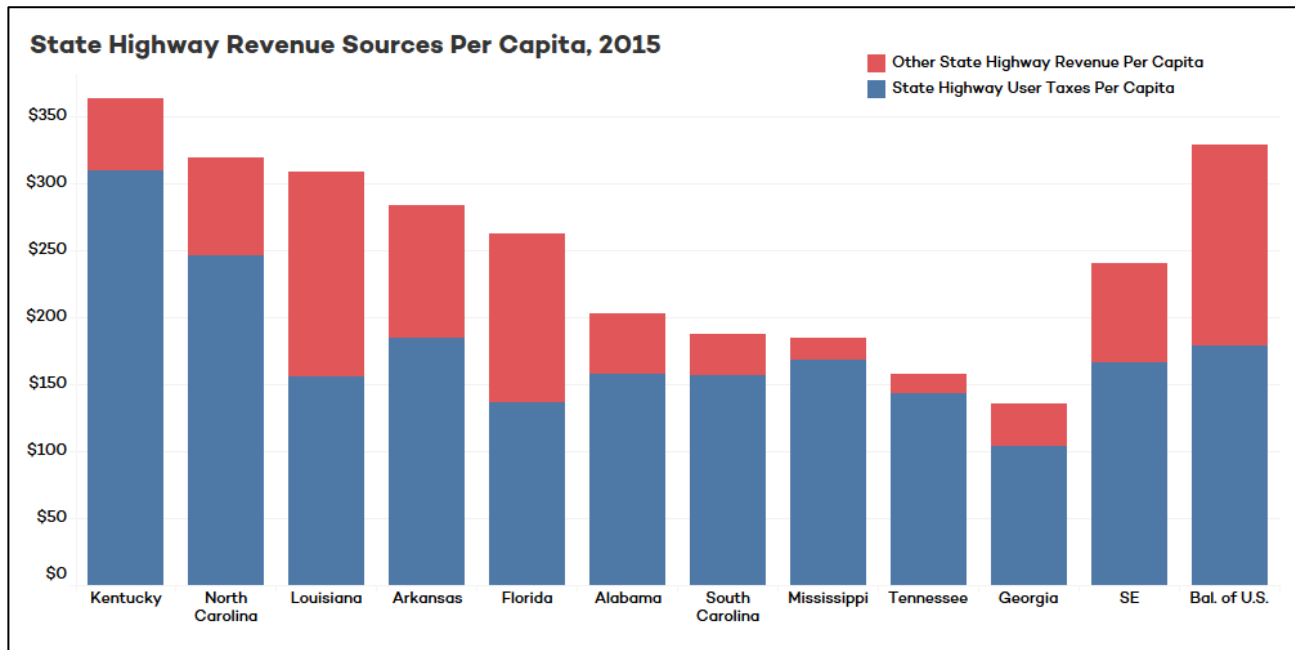


State Funding Per Capita

Figure 13 looks at state highway revenues on a per-capita basis. The table was derived by dividing state highway revenues in Table SF 21 of *Highway Statistics* by state populations. Each bar has two segments. The bottom (blue) segment represents state highway-user tax revenues, and the top (red) segment represents other state highway revenues, which might come from tolls or different forms of taxes. Kentucky ranked first among the Southeastern states in total (at \$364 per capita), while Alabama came in just below the Southeastern state average, collecting \$202 in state highway revenues per capita. Alabama's collections were \$162 less per person than Kentucky and trailed the Southeastern average of \$241 per capita.

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Figure 13. State Per Capita Revenues, User Taxes vs. Other Revenues



Looking at the mix of revenue, it is notable that Florida derives almost half of its highway revenue from other sources, which in Florida's case, includes more than \$1.7 billion in revenue from tolls.

Expenditures

Charts 14-18 provide expenditure comparisons. The data in the charts were derived by combining state and local expenditures from tables SF 2 and LGF 2 of *Highway Statistics*, and the Alabama Department of Transportation's annual report. The results allow comparison of state spending for construction, maintenance, traffic safety, and administration.

Construction and Maintenance

Figure 14 looks at construction and maintenance expenditures on a per-capita basis. Obviously, it is desirable for a state to spend a high percentage of its state and federal highway funds in these two categories to maintain its highway infrastructure, as well as to build new facilities. The table combines the two spending categories in the same bar to show the overall level, as well as the breakdown by type of investment.

In 2015, Alabama's spending on maintenance and construction was \$332 per capita, eighth out of 10 Southeastern states. This represents a large drop in per-capita spending compared to the 2006 totals, when Alabama spent \$526 per capita on construction and maintenance. Alabama's level of spending was below the Southeastern average and below the average of states outside the Southeast.

HOW ALABAMA ROADS COMPARE

Figure 14. Construction and Maintenance Spending

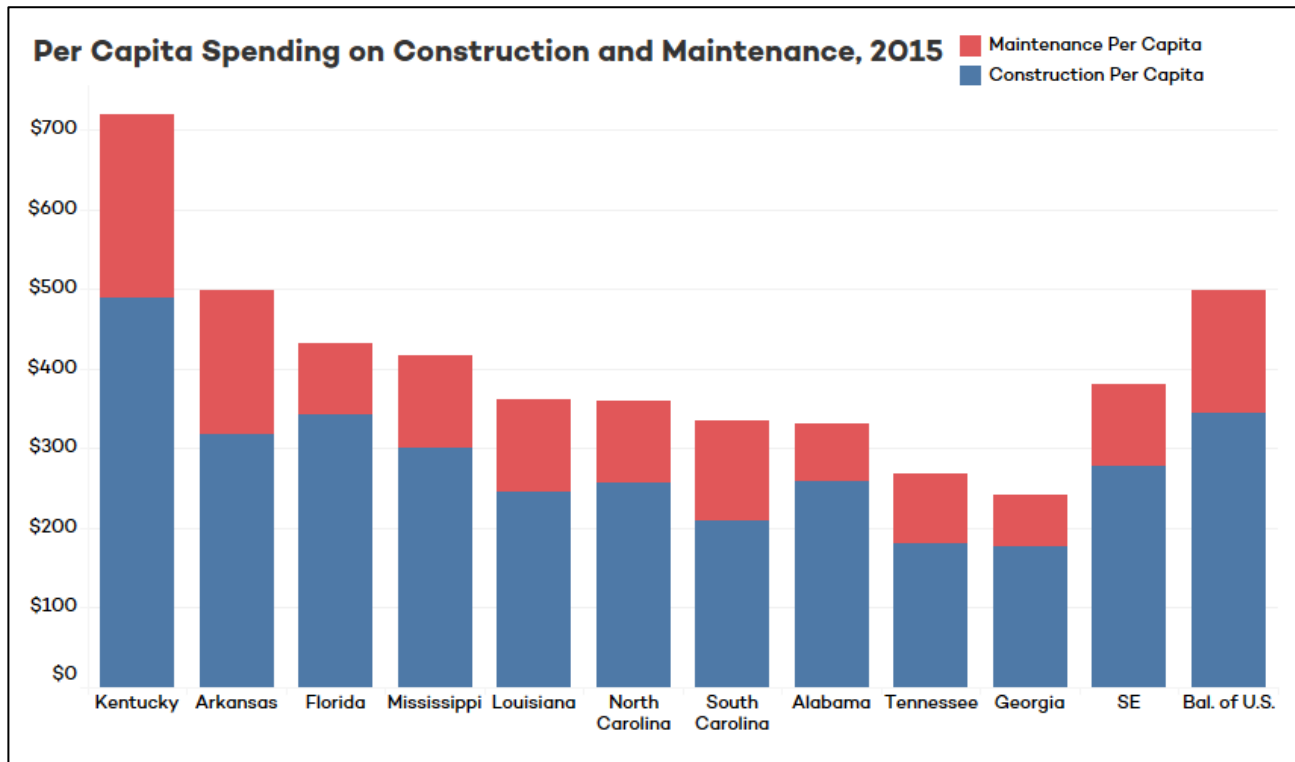


Figure 15 compares Alabama's state-level road spending on system preservation vs. system expansion. These figures, provided by the Alabama Department of Transportation, don't correspond with the construction and maintenance breakdown available in the federal survey that produced Figure 14.

System preservation spending includes money spent on routine roadway maintenance, resurfacing of state and interstate routes, replacement of aging bridges, and safety enhancement measures on the current system.

System expansion includes money spent on adding lanes to address congestion and the construction of new roads.

Excluded from this total is spending on administration, debt service, and transfers to other entities like county and city road projects is excluded.

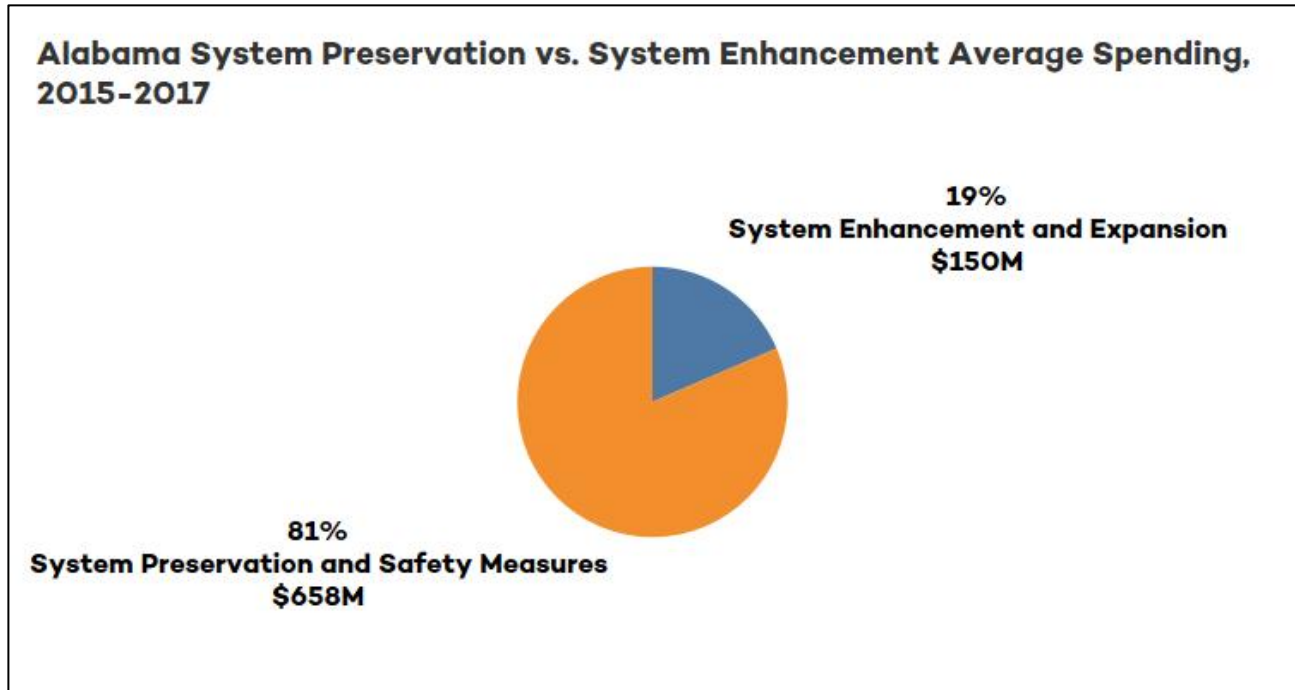
Between 2015 and 2017, ALDOT spent over 80 percent of the funds, an average of \$658 million per year, on system preservation, maintenance, resurfacing, bridge replacement and safety enhancement on the existing system.

The remaining 19 percent, or \$150 million per year, was spent on adding capacity and building new roads.

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With debt service due to increase in 2018, ALDOT will have to find ways to reduce spending. While some of those reductions may be made through cutting administrative spending, system preservation and system enhancement will likely be affected as well.

Figure 15. Alabama Spending on System Preservation vs. System Expansion



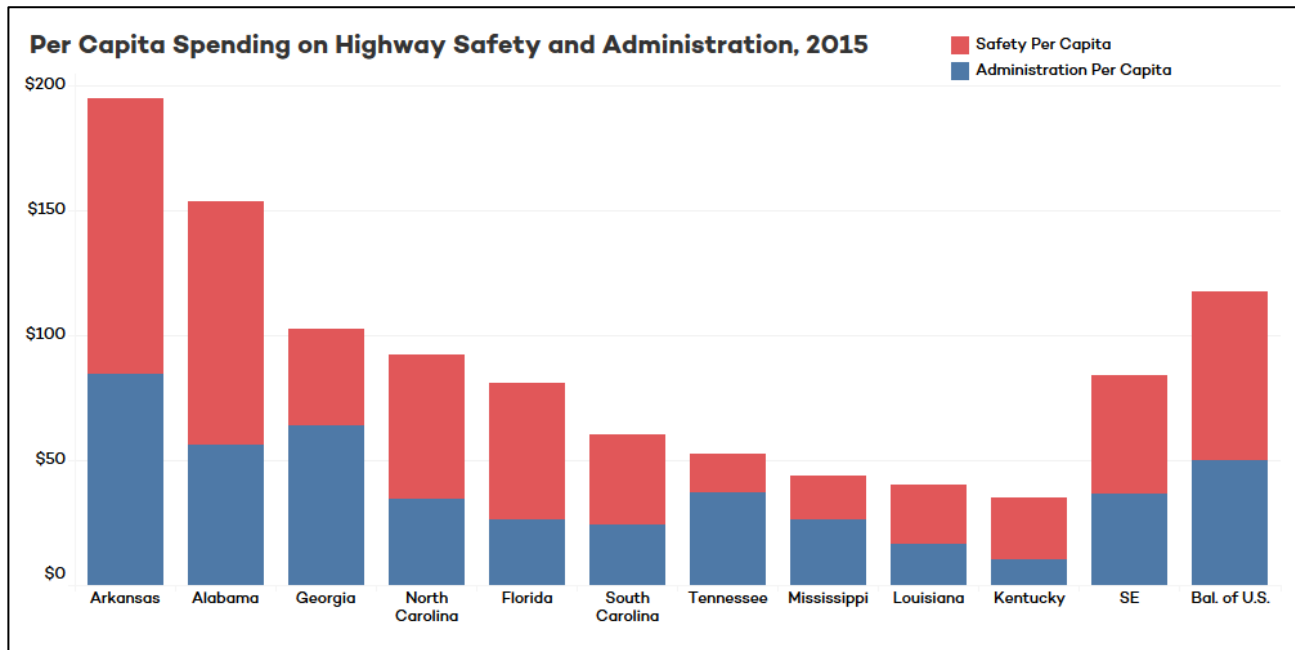
Safety and Administrative Spending

Chart 11 looks at spending for highway safety and administration on a per-capita basis. Alabama ranks first in the Southeast on these categories, due primarily to relatively high spending on safety (\$154 per capita). Safety spending involves road projects that add safety features to existing roadways.

Alabama's highway administration spending of \$49 per capita is also above the Southeastern average. However, included in that administrative total is \$63.5 million in transfers to the State Highway Patrol and courts, plus other transfers that aren't related to Alabama Department of Transportation administration.

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Figure 16. Spending on Safety and Administration

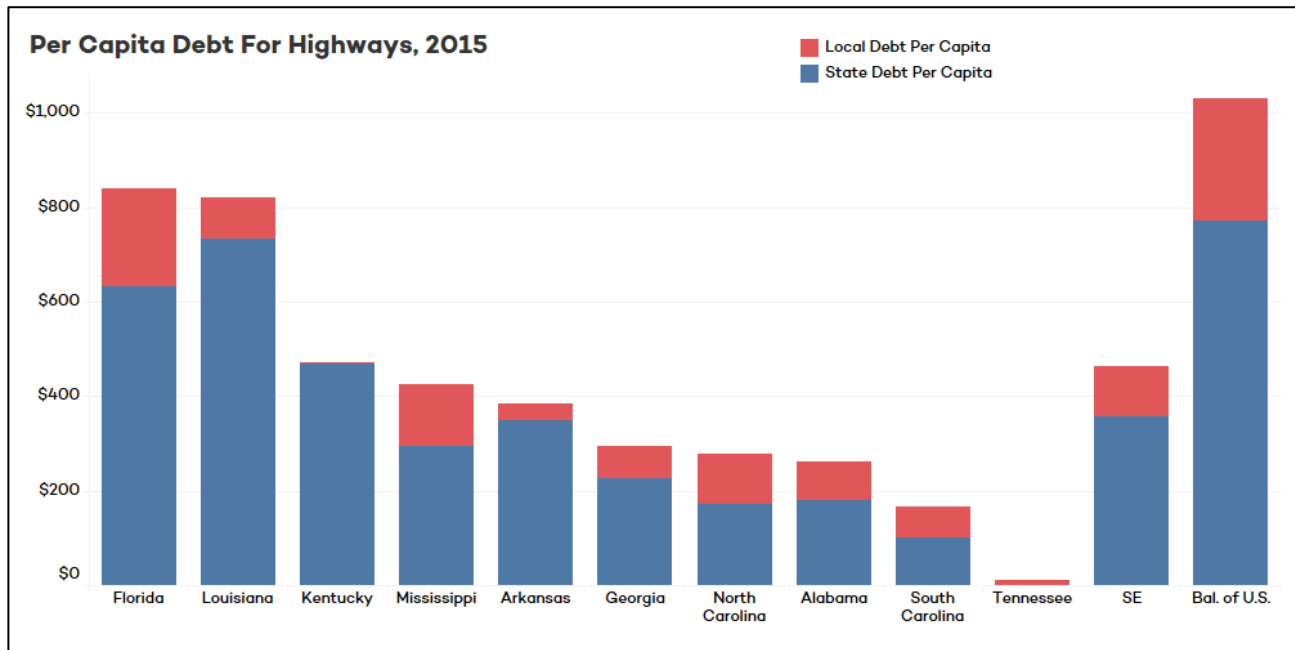


Road Debt

Figure 17 looks at state and local debt for highways on a per-capita basis. The chart is derived by combining long-term state and local highway debt from tables SB 2 and LGB 2 in *Highway Statistics* and then dividing by state populations. Tennessee has virtually no highway debt. Alabama has traditionally been the second-lowest in the region, and most of its outstanding debt has typically been at the local level. Alabama and Tennessee have typically been “pay as you go” states, states that used current revenues to pay for operations. However, record low interest rates, mounting needs, tight revenues, and the ability to pledge future federal revenues to pay debt service led the state to embark on a campaign of borrowing.

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Figure 17. Debt for State and Local Roads



By 2015, Alabama's state and local highway debt had risen to \$263 per capita, up from \$181 per capita in 2011. In 2011, state road debt was \$20 per capita, while local debt was \$161 per capita. By 2015, state debt had risen to \$181 per capita, while local debt had fallen to \$82 per capita.

The borrowing program, known as ATRIP, enabled the state to borrow \$1 billion to spend primarily on local projects. ATRIP allowed state and local governments to undertake a road building campaign that buoyed state road spending by approximately \$200 million per year. Additional money has since been borrowed to finance the construction of the reconstruction of the elevated interstate and its bridges in Birmingham's Central Business District.

With the ATRIP ending in 2017, the state will no longer have those additional borrowed funds available to spend.

And the debt and debt service will mount. In 2018, Alabama will have about \$1.3 billion in debt outstanding at the state level, about \$272 per capita. The state's debt service payments will rise to approximately \$114 million per year in 2018 and will stay at that level for the next 20 years. That's up from only \$13.6 million in debt service in 2011.

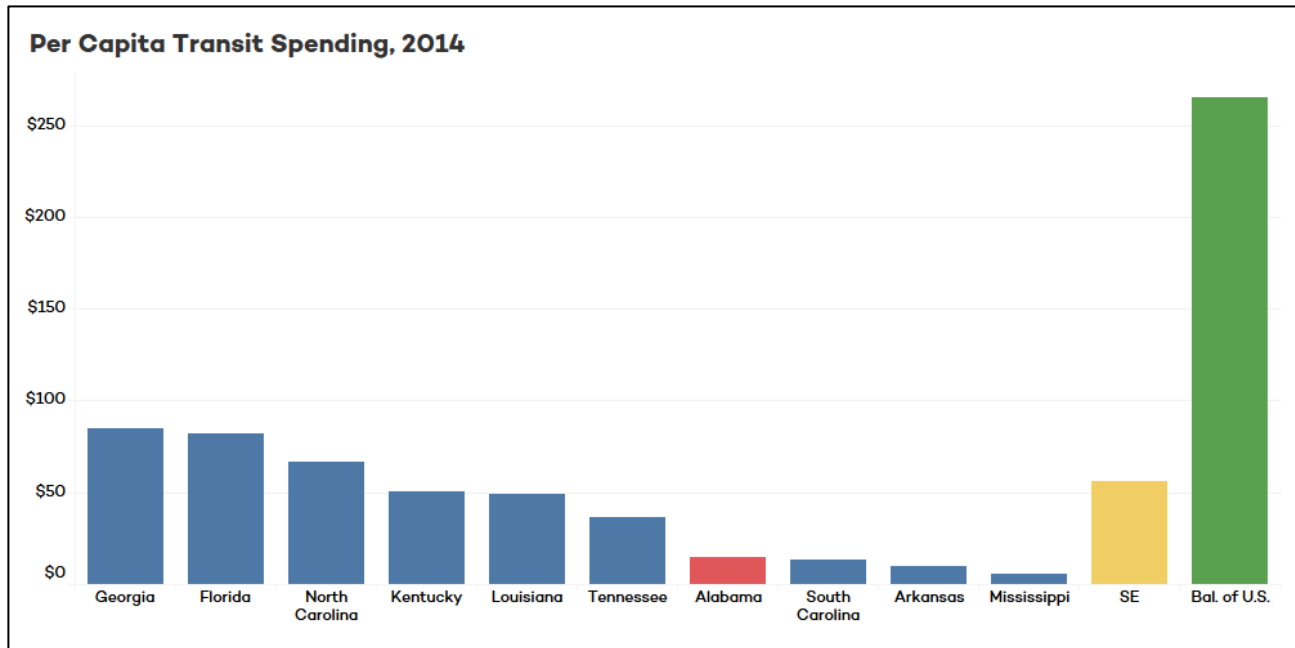
Unless Alabama finds new revenue for its road and bridge fund, payment of that debt will have to be made from federal funds. The spending levels on roads that the state has been able to maintain for the previous several years will drop drastically.

The borrowed money from ATRIP will be gone and more than \$100 million a year will be devoted to paying down debt. With the two factors considered together, total state spending on road construction and maintenance will fall by around \$300 million annually.

Spending for Mass Transit

Another measure PARCA examines when comparing spending for transportation is support for mass transit. Figure 18 looks at state and local spending for mass transit on a per capita basis. The information is drawn from the Census of Governments collected by the U.S. Census Bureau.

Figure 18. Mass Transit Spending



Alabama, along with Arkansas, South Carolina, and Mississippi, spends very little in this category, about \$15 per person. In Alabama, all that money comes from local sources, including local government taxes, from revenue generated by fares and by the transit provider.

Alabama is one of four states that doesn't provide any state-level support for transit. Southeastern states, in general, don't spend as much on mass transit as states in the rest of the country. When considering the divergence between the Southeast and the balance of the U.S., remember that the per capita support for transit in other states is provided not just through taxes, but also through rider fares and other revenue-generating sources.

Road and Bridge Conditions

Each year the Federal Highway Administration (FHWA) within the U.S. Department of Transportation compiles summarized data from its highway performance monitoring system on the condition of arterial and collector roads throughout the country. The data are collected under federal guidelines by state highway departments and provided to FHWA, which includes the results in *Highway Statistics*. In addition, FHWA publishes a separate annual report on bridge conditions, known as the *National Bridge Inventory*. The bridge data are normally

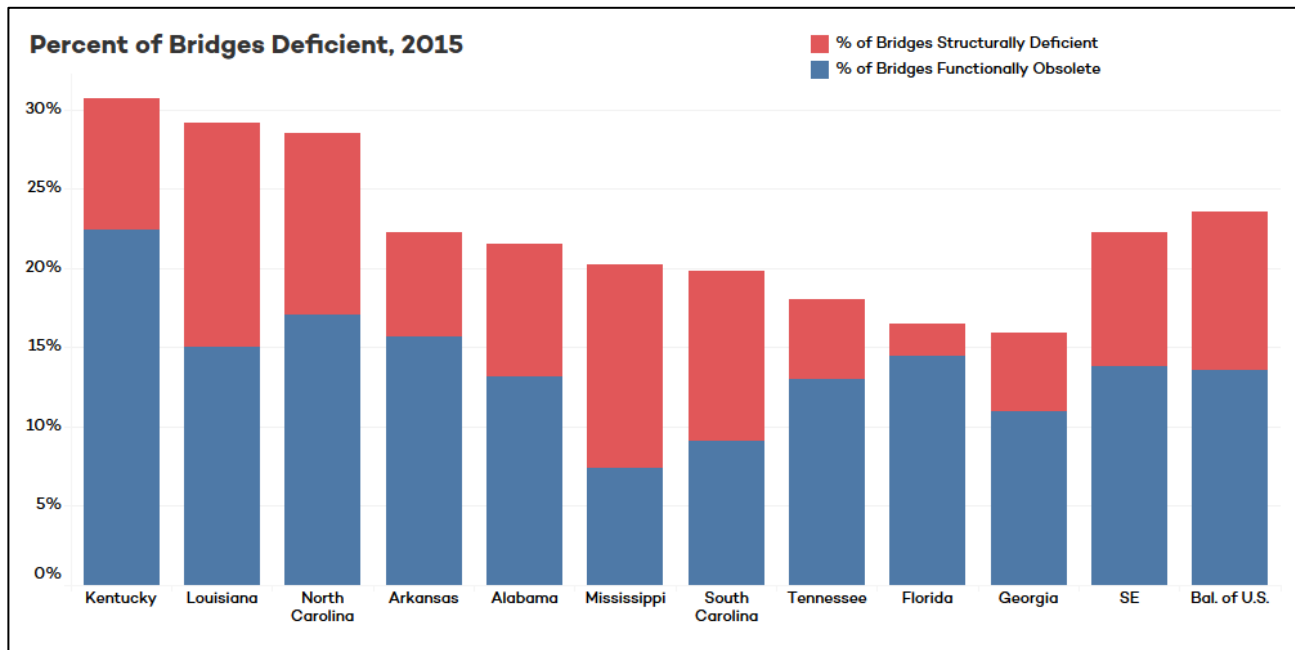
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available a year earlier than the highway data. The charts below present information from these indicators of road and bridge quality.

Deficient Bridges

Figure 19 contains data on the percent of deficient bridges in each state, as reported in the *2015 National Bridge Inventory*. According to the official definitions, “structurally deficient” bridges are closed, posted for weight restrictions, or open when they should be posted. “Functionally obsolete” bridges do not meet present-day design criteria. Alabama ranks in the middle of the Southeastern pack, with about 22 percent of bridges rated deficient, slightly below the regional average of 23 percent. A greater share of Alabama’s bridge deficiencies, 13 percent, stem from being classified as functionally obsolete rather than being structurally deficient.

Figure 19. The Condition of Bridges

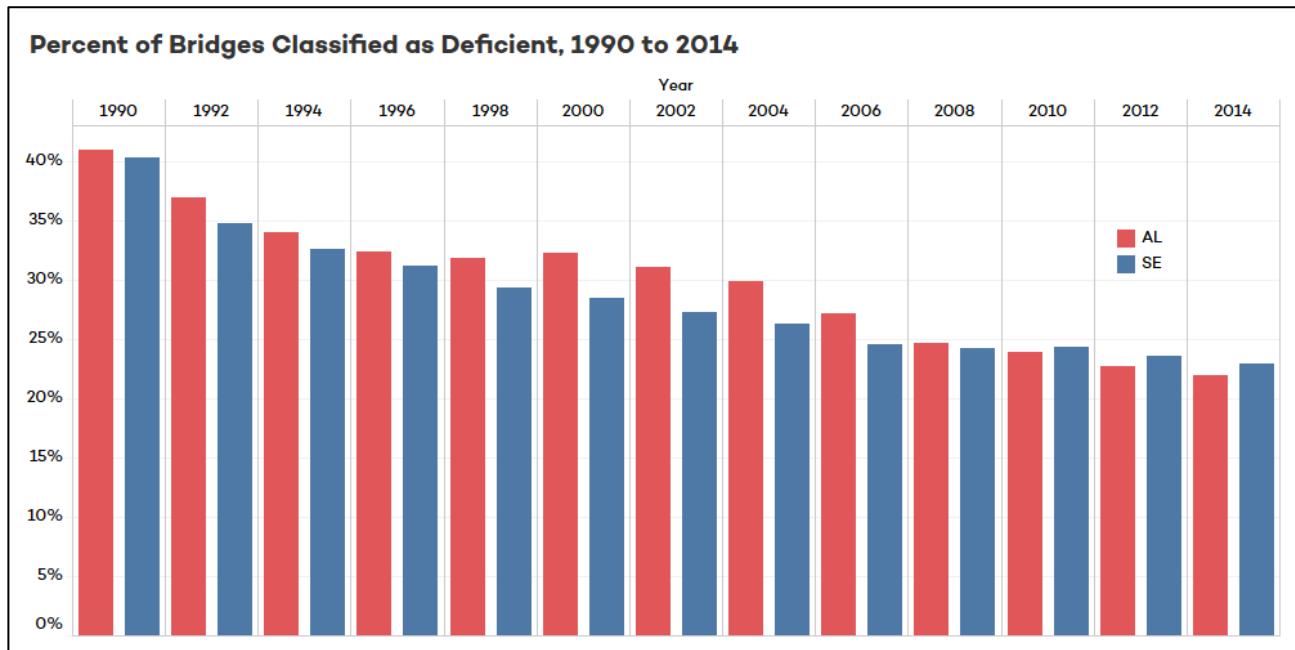


Progress on Bridges

Figure 20 shows a time series of deficient bridges for Alabama and the Southeast. The data indicate steady improvement in bridge conditions for the region and for Alabama, and they show that Alabama is now below the regional average. In 1990, more than 40% of the bridges in Alabama were rated as deficient; by 2015, the deficient percentage had dropped to 22%.

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Figure 20. Bridge Conditions Alabama vs. Southeast



However, it is important to bear in mind that the inventory of bridges considered deficient is likely to rise in coming years. The Interstate Highway System was primarily constructed between 1960 and 1980. Bridges are generally designed for a 50-year lifespan. While some bridges remain functional past their designed lifespan, some bridges, particularly those that are carrying heavier than expected traffic, will wear out more quickly. ALDOT will have difficulty keeping this positive trend on bridge conditions if additional funding isn't procured to match the expected rise in the inventory of bridges in need of replacement.

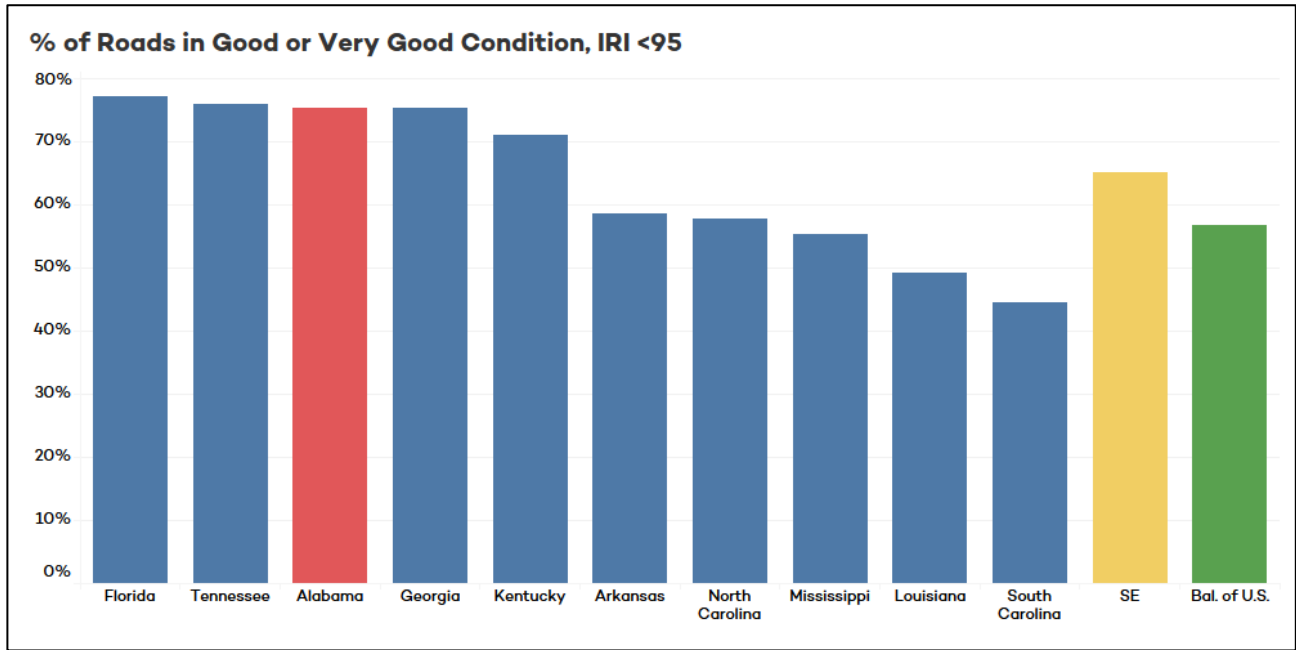
Pavement Condition

As part of the national highway performance monitoring system, the Alabama Department of Transportation assesses the condition of a sample of road miles in the state each year. The data in the following charts are based on a sample of about 8,000 miles of roadway in Alabama and varying numbers of miles in the other states.

Figures 21 and 22 contain data on the percentage of sampled road miles rated in the high and low categories of the international roughness index (IRI), derived from Table HM 64 of *Highway Statistics*. The IRI measures only surface smoothness, not the underlying pavement condition, but it is considered an objective measure of pavement status because it relies on instruments for measurement.

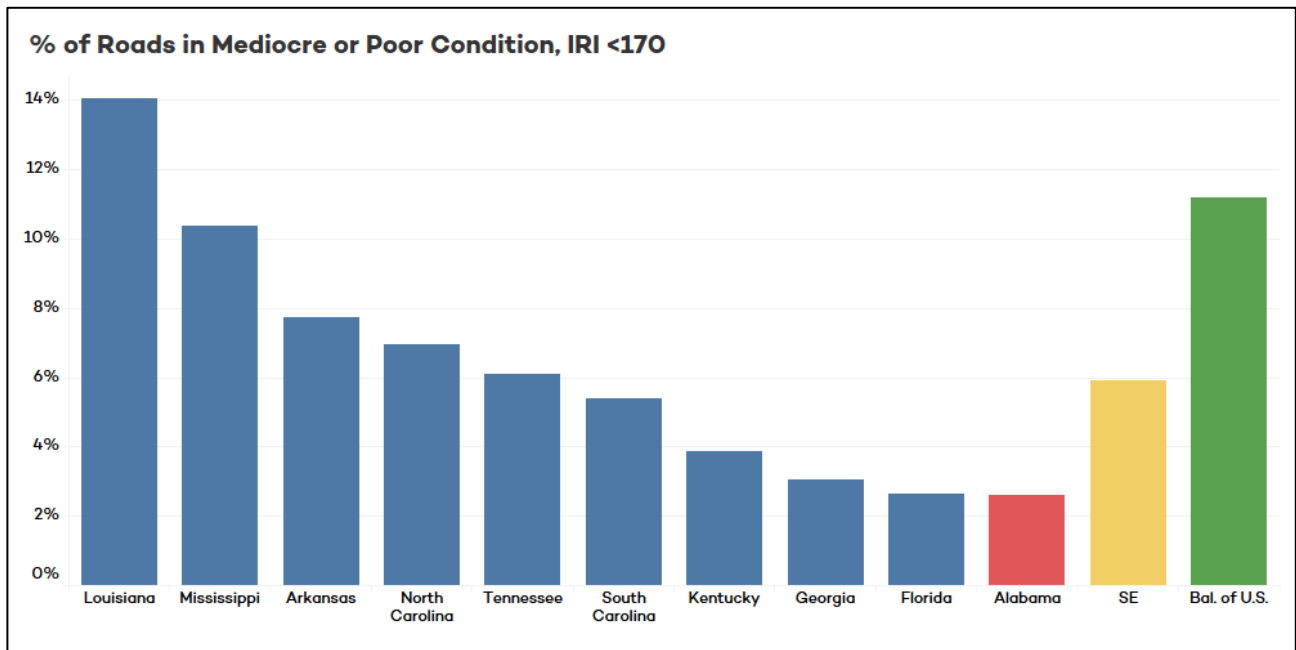
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Figure 21. Percent of State and Local Roads in Good or Very Good Condition



Of the sampled roadways in Alabama, 75 percent were found to be in “good” or “very good” condition, down from 79 percent in 2011, while just 3 percent of the sampled roadways were rated as being in “poor” or “mediocre” condition. That’s up from 2 percent in 2011.

Figure 22. Percent of Roads in Mediocre or Poor Condition



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Alabama ranked third best in the Southeast in the percentage of roads in good or very good condition. Alabama ranked first in the Southeast for the lowest percentage of roadways in poor or mediocre condition. Among Southeastern states, Louisiana had the highest percentage of roads in poor or mediocre condition. Florida had the highest percentage of roads in good or very good condition.

Traffic Congestion

Traffic congestion leads to the excess consumption of fuel, lost work hours, additional pollution, and imposes other costs to drivers on our roadways and to the economy in general.

[The Texas A&M Transportation Institute](#) (TTI), based at Texas A&M University, publishes an [Urban Mobility Scorecard](#) that estimates the delays due to congestion on roadways for urban areas and includes estimates of costs based on those delays. While Alabama commuters in urban areas encounter these costs and delays, Alabama's urban roadways are, in general, less congested than those in other states. Figure 23 compares selected large metro areas on their number of annual hours of delay per driver due to congestion.

Figure 23. Comparing Traffic Congestion in Select Southeastern Cities

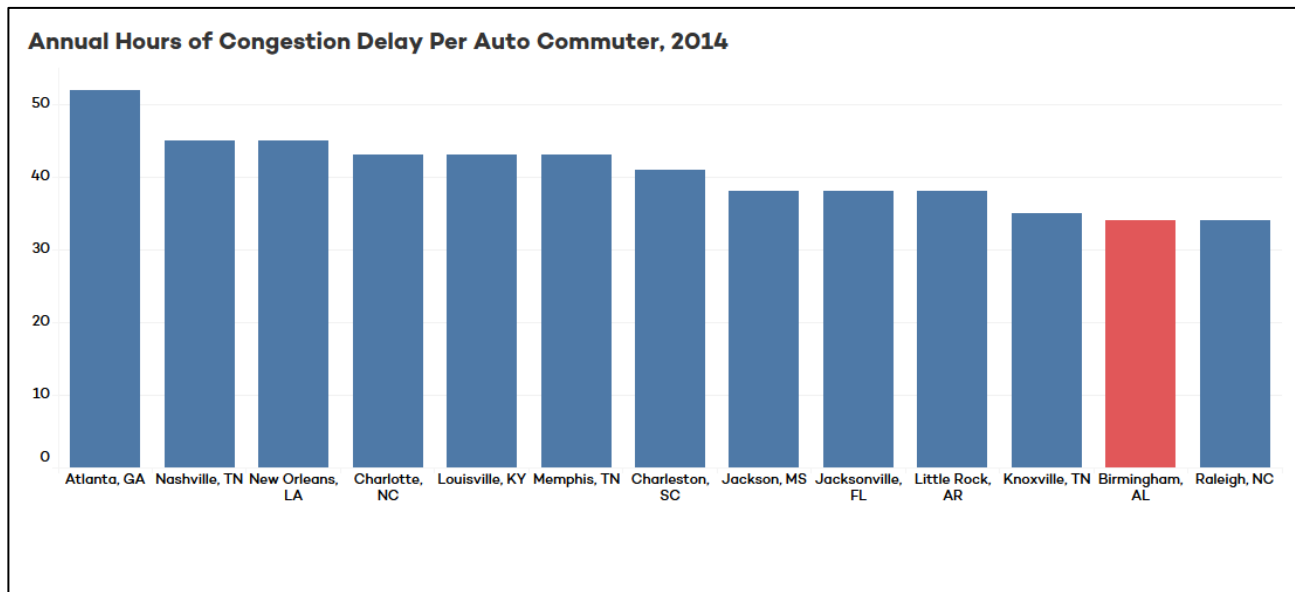


Table 1 compares the average annual delay due to congestion in Alabama metro areas. The table also includes calculations of the costs caused by that delay in each metro area. Birmingham has the highest level of congestion on its roadways, followed by Mobile, Montgomery, and Huntsville. Those commuting to work in Decatur experience the lowest level of traffic congestion among the urban metro areas in Alabama, according to estimates from the [Urban Mobility Scorecard](#).

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Table 1. Cost of Congestion in Alabama Metro Areas

Urban Area	Annual Excess Fuel Consumed		Annual Hours of Delay		Annual Congestion Cost	
	Total Gallons (000)	Gallons per Auto Commuter	Total Delay (000)	Hours per Auto Commuter	Total Dollars (million)	Per Auto Commuter (\$)
Birmingham, AL	9,105	16	19,385	34	\$501	\$891
Mobile, AL	4,865	14	10,396	30	\$236	\$670
Montgomery, AL	3,071	11	6,494	24	\$149	\$553
Huntsville, AL	3,125	10	7,253	23	\$159	\$510
Tuscaloosa, AL	1,191	8	2,563	17	\$61	\$403
Dothan, AL	574	7	1,236	15	\$30	\$370
Auburn, AL	565	7	1,272	15	\$30	\$356
Columbus, GA-AL	1,879	7	4,190	15	\$93	\$325
Florence, AL	595	7	1,232	14	\$28	\$326
Gadsden, AL	452	7	962	14	\$23	\$342
Anniston, AL	458	5	987	11	\$23	\$260
Decatur, AL	374	5	753	10	\$17	\$237

Traffic Fatalities

While the data is still considered preliminary for 2016, those preliminary figures indicate that Alabama experienced a surge in traffic fatalities in 2016, the second year in a row that Alabama has experienced an increase.

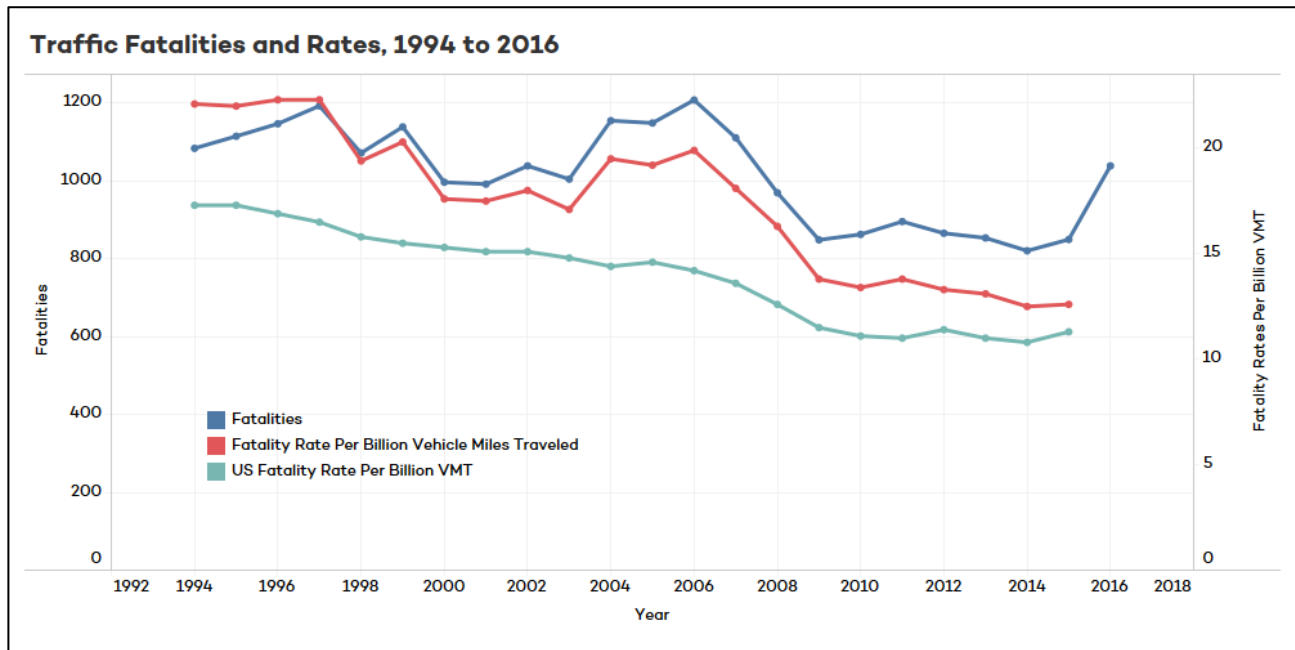
Road Deaths Over Time

Though over the long-term traffic fatality rates have declined, the 2016 preliminary total for fatalities, 1,038, is the highest total since 2007. As shown in Figure 24, the 2016 total is closer to the number of fatalities on Alabama roads in 1994, 1,083.

The 2016 total negates what has been a positive trend in the total number of fatalities on Alabama roads. Alabama's percentage increased in fatalities between 2015 and 2016 at 22.1, the fifth highest in the nation behind Alaska, Hawaii, Iowa, and New Mexico.

Because the number of vehicle miles traveled in 2016 is not yet available for Alabama, the fatality rate can't be computed. Preliminary figures also show an increase in total U.S. road fatalities, but the national percentage increase in traffic deaths of 5.5 percent was not as steep as the rise in Alabama. More information on the preliminary 2016 national figures is available from the National Highway Safety Administration's [Traffic Safety Facts](#), published in October 2017.

Figure 24. Trends in Traffic Fatalities



The University of Alabama’s [Center for Advanced Public Safety](#) analyzed the 2016 crash data and found that the increase in traffic deaths was attributable to multiple factors, including increased speeding on the roadways, failure to use safety belts, distracted driving, and an increased number of pedestrian deaths in which pedestrians were at fault.

The UA analysis found that in 2016 there were more crashes with impact speeds faster than 50 mph. The largest percentage increase was at the highest speed category of 91 mph or above, which increased from 21 fatal crashes with 28 deaths in 2015 to 33 fatal crashes and 44 deaths in 2016.

In 2016, 403 people were not using seat belts when they died during crashes. UA researchers estimated that more than half of these, or at least 200 fatalities, could have been reduced by proper use of restraints.

The number of reported cases in Alabama in which distracted driving caused the crash increased by about 20 percent in 2016 over 2014, according to the analysis of crash statistics. In 2016, 120 pedestrians were killed in accidents, and according to the statistics, 72 of those deaths could have been averted by improved behaviors of the person killed.

Road Fatalities in the Southeast

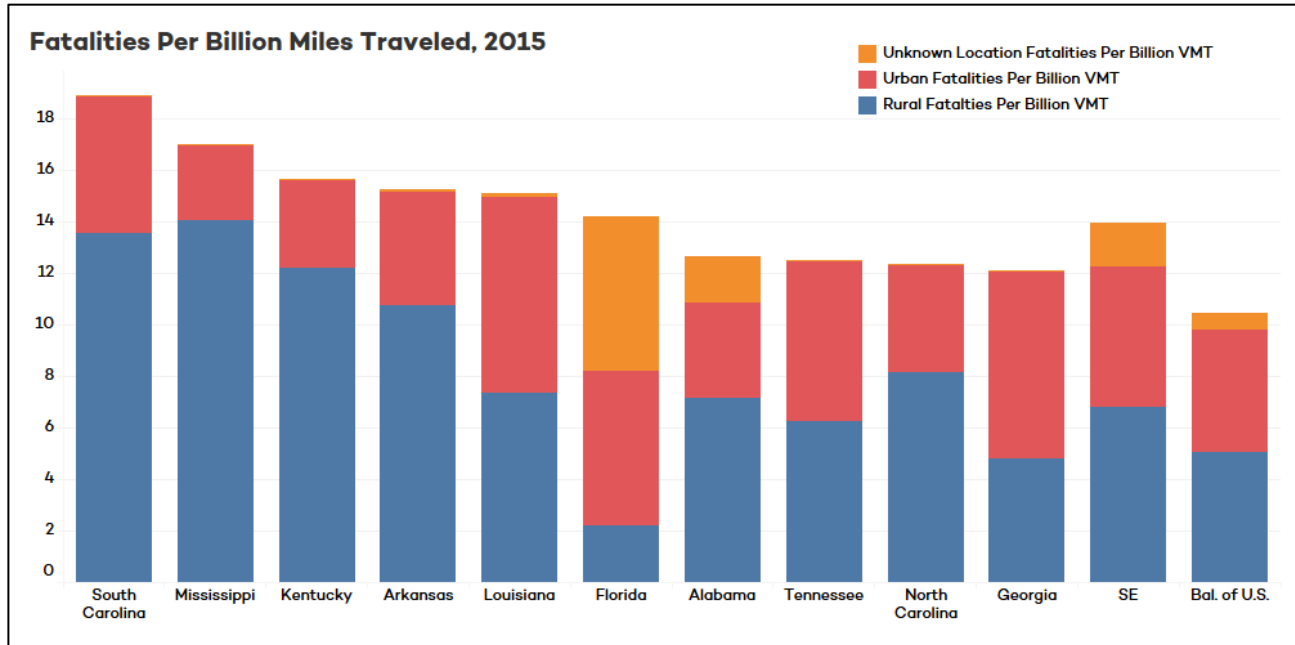
Figure 25 contains data on the number of accidents involving fatalities per billion vehicle-miles of travel, as reported in Table FI 3 of *Highway Statistics 2015*, and provides a comparison with other Southeastern states. The red segment of each bar represents fatal injuries on urban roads, and the blue segment represents fatal injuries on rural roads. The yellow segment represents fatalities in which the location was not classified as either rural or urban. In general,

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across the Southeast, the rural fatality rate is higher than the urban fatality rate, as it is in Alabama.

In 2015, Alabama's overall fatality rate was fourth lowest in the Southeast. South Carolina had the highest rate, followed by Mississippi, Kentucky, Arkansas, Louisiana, and Florida. Tennessee, Georgia, and North Carolina had lower fatality rates.

Figure 25. Traffic Fatality Rates Across the Southeast



Alabama's urban fatality rate is down from 5.0 in 2011 to 3.7 fatal accidents per billion vehicle-miles of travel. The state's rural fatality rate dropped from 8.1 to 7.1 fatalities per billion vehicle-miles of travel.

Despite the improvement, the rate of fatalities on rural roads in Alabama is higher than the national rate on rural roads. Throughout the Southeast, the overall rate of fatalities is higher than in the rest of the country. However, today's road fatality rates are significantly lower than in the past.

Still, in 2015, Alabama's traffic fatality rate, 13 deaths per billion vehicle miles traveled, is the 18th highest rate in the nation and is above the national average of 11 road deaths per billion vehicle miles driven. When 2016 rates are computed, Alabama's rank in traffic fatalities is likely to rise.

Alabama is particularly high in pedestrian deaths. Alabama's pedestrian fatality rate per 100,000 residents was 2.02 compared with the national rate of 1.67 per 100,00. Alabama ranks ninth among U.S. states on this measure. In 2015, 98 pedestrians were killed in vehicle accidents. In 2016 that total rose to 120, which will also likely prompt a rise in the fatality rate ranking when those figures become available.



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How Alabama Roads Compare and all PARCA research is made possible by the generous support of underwriters, including...

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