

Moving South Carolina Forward: Providing a Modern, Sustainable Transportation System in the Palmetto State



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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

Executive Summary

Accessibility and connectivity are critical factors in a state's quality of life and economic competitiveness. The growth and development of a state or region hinges on efficient and safe access to employment, customers, commerce, recreation, education and healthcare via multiple transportation modes. The quality of life in South Carolina -- one of the fastest growing states in the country -- and the pace of the state's economic growth are directly tied to the condition, efficiency, safety and resiliency of its transportation system.

An adequate and reliable source of transportation funding is critical to providing the system of roads, highways and bridges that can support commerce within South Carolina and connect the state to markets around the globe, while providing the safe, smooth and efficient mobility that residents require. The increased transportation funding provided by the state legislature's passage of Act 40 in 2017, combined with previous state legislative actions, has allowed South Carolina to accelerate projects to improve traffic safety, relieve Interstate congestion and improve the condition of roads, highways and bridges. But, while current transportation investment levels have allowed South Carolina to make significant progress, the state still faces challenges in reliably accommodating growing passenger and freight traffic, and providing needed roadway safety improvements and road, highway and bridge repairs.

TRIP's "Moving South Carolina Forward" report examines the condition, use, safety and efficiency of South Carolina's surface transportation system, the impact of Act 40, the importance of reauthorization of the federal surface transportation program and the challenges South Carolina faces to accommodate future transportation growth and sustain adequate state funding despite the potential of increasing fuel efficiency standards and the adoption of electric vehicles. Sources of information for this report include the South Carolina Department of Transportation (SCDOT), the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO), the Bureau of Transportation Statistics (BTS), the U.S. Census Bureau, the Texas Transportation Institute (TTI), the American Road & Transportation Builders Association (ARTBA), and the National Highway Traffic Safety Administration (NHTSA).

SOUTH CAROLINA'S TRANSPORTATION SYSTEM AND FUNDING

Investment in South Carolina's roads, highways and bridges is funded by local, state and federal governments. A lack of sufficient funding at all levels will make it difficult to adequately maintain and improve the state's existing transportation system.

To address a lack of adequate transportation funding, in 2017, the South Carolina legislature passed [Act 40](#), which is anticipated to raise approximately \$600 million per year from 2018 to 2027 for repairs and improvements to the state's roads, highways and bridges through a phased-in increase in the state's motor fuel user fee, an increase in vehicle registration fees, the imposition of a fee on the purchase of motor vehicles, and the creation of a registration fee for electric and hybrid vehicles.

The additional revenue provided by Act 40 has allowed SCDOT to increase its annual investment in roads, bridges, Interstates, safety and metropolitan transportation systems by 72 percent, from \$763 million in 2016 to \$1.3 billion in 2021, and is expected to allow a further increase of 20 percent by 2026, to \$1.6 billion. Despite the additional revenue generated by Act 40, SCDOT estimates that it will still face an annual \$403 million gap in funds to make needed improvements to the state's roads, highways, bridges, pedestrian and bicycle facilities, and mass transit systems to improve safety, reliability and physical conditions.

The current federal transportation legislation, [Fixing America's Surface Transportation Act \(FAST Act\)](#), was set to expire on September 30, 2020. Congress extended it by one year to September 30, 2021. The FAST Act is a major source of funding for road, highway and bridge repairs in South Carolina. Throughout the

FAST Act – fiscal years 2016 to 2021 – the program provided \$4.3 billion to South Carolina for road repairs and improvements, an average of \$713 million per year.

TRAFFIC CONGESTION IN SOUTH CAROLINA

Congested roads, highways and bottlenecks choke commuting and commerce and cost South Carolina drivers \$2.1 billion each year in the form of lost time and wasted fuel. From 2000 to 2019, vehicle travel in South Carolina increased by 27 percent. From 2014 to 2019 vehicle travel in South Carolina increased by 14 percent, the fifth highest rate of travel growth in the nation. Due to the COVID-19 pandemic, vehicle travel in South Carolina dropped by as much as 37 percent in April 2020 (as compared to vehicle travel during the same month the previous year) but rebounded to nearly four percent above June 2019 volume in June 2021. The chart below details the annual hours lost to congestion, congestion costs per driver and the average amount of fuel per driver wasted annually due to congestion in the state's largest urban areas. GSA metro refers to the Greenville-Spartanburg-Anderson urban area.

Location	Hours Lost to Congestion	Annual Cost Per Driver	Gallons of Fuel Wasted Per Driver
Charleston	56	\$1,165	22
Columbia	43	\$842	17
Florence	30	\$697	13
GSA Metro	26	\$615	12
Myrtle Beach	32	\$745	14

Increasing congestion on South Carolina's major highways and roads hampers the state's ability to support economic development and quality of life by reducing the reliability and efficiency of personal and commercial travel, including the transport of goods and services. Traffic congestion robs commuters of time and money and imposes increased costs on businesses, shippers and manufacturers, which are often passed along to consumers. Increased levels of congestion can also reduce the attractiveness of a location when a company is considering expansion or deciding where to locate a new facility. The chart below lists South Carolina's 10 most congested interstate segments based on measuring volume of traffic carried by a roadway compared to its capacity. A chart containing a full list of the most congested interstate segments in South Carolina is included in the report.

Rank	County	Facility/Route	From	To	Length (mile)	Avg. Daily Traffic
1	Greenville, Spartanburg	I-85	I-385/SC-146/Woodruff Rd/Exit 51	County Limit/SC-14/Exit 56	4.9	122,806
2	Charleston, Berkeley	I-526	I-26/Exit 17	Clements Ferry Rd/Exit 23	5.6	79,795
3	Charleston	I-26	US-78/University Blvd/Exit 205	Remount Rd/Exit 212A	7.8	140,419
4	Richland, Lexington	I-26	Broad River Rd/Exit 101	I-126/US-76/Exit 108	7.5	109,640
5	Charleston	I-526	Paul Cantrell Blvd/Exit 11	I-26/Exit 17	5.7	85,407
6	York	I-77	SC-161/Exit 82	US-21/Carowinds Blvd/Exit 90	9.0	118,640
7	Charleston	I-26	Remount Rd/Exit 212A	US 17/Exit 220B	7.6	96,195
8	Spartanburg	I-85	County Limit/SC-14/Exit 56	E Main St/Exit 63	7.6	97,647
9	Lexington	I-26	I-126/US-76/Exit 108	I-77/Exit 116	6.9	93,537
10	Berkeley, Charleston	I-26	N Main St/Exit 199	US-78/University Blvd/Exit 205	5.9	86,152



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To relieve traffic congestion and improve reliability on key portions of the state's 851-mile Interstate highway system, SCDOT has adopted a statewide Interstate plan, which initially will target widening 140 miles of congested Interstate highways and improving interchanges between Interstate highways. To date, SCDOT has either completed or started construction on 80 out of the 140 miles of Interstate highway portions targeted for widening, including the I-85/I-385 Gateway Project in the Greenville area, the Carolina Crossroads project in the Columbia area, and the Lowcountry Corridor project in the Charleston area.

ROAD CONDITIONS IN SOUTH CAROLINA

Statewide, 43 percent of South Carolina's major roads are in poor or mediocre condition. Eighteen percent of South Carolina's major locally and state-maintained roads are in poor condition and 25 percent are in mediocre condition. Eighteen percent of South Carolina's major roads are in fair condition and the remaining 39 percent are in good condition. Since 2018, SCDOT has been able to start approximately 4,000 miles of paving projects, partly due to the additional funding provided by Act 40.

Location	Poor	Mediocre	Fair	Good
Charleston	16%	28%	19%	37%
Columbia	11%	29%	19%	41%
Florence	22%	31%	19%	28%
GSA Metro	20%	28%	18%	34%
Myrtle Beach	24%	29%	13%	34%
South Carolina Statewide	18%	25%	18%	39%

BRIDGE CONDITIONS IN SOUTH CAROLINA

Eight percent of South Carolina's bridges are rated in poor/structurally deficient condition. Bridges that are rated poor/structurally deficient have significant deterioration of the bridge deck, supports or other major components. Forty-eight percent of the state's bridges are rated in fair condition and the remaining 44 percent are in good condition. Most bridges are designed to last 50 years before major overhaul or replacement, although many newer bridges are being designed to last 75 years or longer. In South Carolina, 46 percent of the state's bridges were built in 1969 or earlier.

Since 2018, SCDOT has started repairs on 211 of the 465 state-maintained bridges that were in poor condition or restricted to carrying lighter weight vehicles and prioritized by SCDOT for repair. Based on current funding, SCDOT anticipates that the number of state-maintained bridges that are either in poor condition or restricted to carrying lighter weight vehicles will increase by 81 percent by 2040, from 548 to 994. The chart below details bridge conditions statewide and in the state's largest urban areas.

Location	Poor/Structurally Deficient		Fair		Good		Total Bridges
	Number	Share	Number	Share	Number	Share	
Charleston	37	7%	306	61%	157	31%	500
Columbia	43	7%	234	40%	309	53%	586
Florence	4	1%	148	53%	126	45%	278
GSA Metro	129	7%	673	39%	926	54%	1,728
Myrtle Beach	20	4%	177	38%	263	57%	460
South Carolina Statewide	745	8%	4,574	48%	4,136	44%	9,455



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TRAFFIC SAFETY IN SOUTH CAROLINA

From 2015 to 2019, 5,018 people were killed in traffic crashes in South Carolina. The state's 2019 traffic fatality rate of 1.73 fatalities for every 100 million miles traveled is the highest rate in the country and significantly higher than the national average in 2019 of 1.11. The fatality rate on South Carolina's non-Interstate rural roads in 2019 was also the highest rate in the country and approximately three-and-a-half times higher than all other roads in the state (3.46 per 100 million vehicle miles of travel vs. 0.98).

The SCDOT has initiated a rural roads safety program targeting 1,957 miles of rural roads, which represents approximately five percent of the state's rural roads, but account for approximately 30 percent of the state's rural fatal and serious traffic crashes. Since passage of Act 40, safety improvements have been initiated on 635 miles of the 1,000 miles of rural roads to be addressed under the state's current 10-year plan. These improvements include the addition of rumble strips, guardrails, raised pavement markers, paved shoulders and wider clear zones.

From 2015 to 2019, 17 percent of the state's traffic fatalities in crashes involving motorized vehicles were pedestrians or bicyclists. Improving safety on South Carolina'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. In early 2021, the SCDOT adopted a "Complete Streets" policy that requires the agency to work with regional governments to identify and include walking, biking and transit needs as part of their transportation plans to improve the safety and accessibility of state routes. The chart below shows annual traffic fatalities in South Carolina from 2015 to 2019.

Year	Total Fatalities	Pedestrian Fatalities	Bicycle Fatalities	Share Bike and Ped.
2015	977	123	16	14%
2016	1,015	144	25	17%
2017	988	155	17	17%
2018	1,037	165	23	18%
2019	1,001	160	26	19%
TOTAL	5,018	747	107	17%
AVERAGE	1,004	149	21	17%

Traffic crashes in South Carolina imposed a total of \$5.9 billion in economic costs in 2019. TRIP estimates that roadway features, while not the primary factor, were likely a contributing factor in approximately one-third of all fatal traffic crashes, resulting in \$2 billion in economic costs in South Carolina in 2019. These costs include work and household productivity losses, property damage, medical costs, rehabilitation costs, legal and court costs, congestion costs, and emergency services.

FREIGHT TRANSPORTATION IN SOUTH CAROLINA

The health and future growth of South Carolina's economy is riding on its surface transportation system. Each year, 465 million tons of freight are shipped to, from or through South Carolina, an amount that is anticipated to grow by 65 percent by 2040.

The amount of freight transported in South Carolina and the rest of the U.S. is expected to increase significantly as a result of further economic growth, changing business and retail models, increasing international trade, and rapidly changing consumer expectations that place an emphasis on faster deliveries, often of smaller packages or payloads.

Accommodating the significant increase expected in the movement of truck freight in South Carolina will be further challenged by the significant number of freight routes in the state that are constrained



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because they have inadequate load carrying capacity to accommodate large trucks. The following chart shows the worst highway freight bottlenecks in South Carolina.

Rank	Route	Urban area	Interchange	Avg. Daily Truck	Length (Miles)
1	I-20	Columbia	Broad River Road Interchange	4,191	15.1
2	I-20	Columbia	I-26 Interchange	3,320	7.3
3	I-26	Columbia	St. Andrews Road Interchange	5,478	5.8
4	I-26	Charleston	US-52 Connector Interchange	5,254	19.2
5	I-26	Charleston	I-526 Interchange	5,741	18.3
6	I-126	Columbia	I-26 Interchange	3,839	12.5
7	I-526	Charleston	Leeds Avenue Merge	2,243	8.5
8	I-526	Charleston	Paul Cantrell Boulevard Interchange	1,347	21.6

THE IMPACT OF TRANSPORTATION INVESTMENT ON ECONOMIC GROWTH IN SOUTH CAROLINA

According to a [report by the American Road & Transportation Builders Association](#), the design, construction and maintenance of transportation infrastructure in South Carolina supports approximately 50,000 full-time jobs across all sectors of the economy. These workers earn \$1.7 billion annually. Approximately 919,000 full-time jobs in South Carolina in key industries like tourism, retail sales, agriculture and manufacturing are completely dependent on the state's transportation network.

Sources of information for this report include the Federal Highway Administration (FHWA), the South Carolina Department of Transportation (SCDOT), the American Association of State Highway and Transportation Officials (AASHTO), the American Road and Transportation Builders Association (ARTBA), the Bureau of Transportation Statistics (BTS), the U. S. Census Bureau, the Center for Transportation Studies, the Texas Transportation Institute (TTI) and the National Highway Traffic Safety Administration (NHTSA). All data used in the report are the most recent available.



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Introduction

South Carolina's surface transportation system provides a vital link for the state's residents, visitors and businesses, providing daily access to homes, jobs, shopping, natural resources and recreation. Supporting quality of life and a robust economy in South Carolina requires that the state provide an efficient, safe and well-maintained transportation system that allows for a high level of accessibility, connectivity and safety.

South Carolina relies on a diverse economy including tourism, finance, retail, government services, manufacturing, agriculture and education. A safe, well-maintained and reliable network of roads and bridges is critical to each of these sectors and to the economic health of the state and the nation.

Adequate investment in South Carolina's transportation network will help enhance economic development opportunities, improve business productivity, and make it easier and more reliable for the public to get to and from destinations including work, home, school, shopping and social events.

Population, Travel and Economic Trends in South Carolina

South Carolina 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 vehicle miles of travel (VMT) and an increased demand for mobility and connectivity. To foster quality of life and spur continued economic growth, it will be critical that South Carolina provide an efficient, safe and modern transportation system that can accommodate future growth in population, tourism, business, recreation and vehicle travel.

South Carolina's population has grown steadily, reaching approximately 5.2 million residents in 2020, a 30 percent increase since 2000 and the eleventh highest rate of growth in the country during this period.¹ South Carolina's population is expected to increase by another 22 percent by 2040 to approximately 6.4 million people.² South Carolina had approximately 3.9 million licensed drivers in 2019.³

From 2000 to 2019, South Carolina's gross domestic product (GDP), a measure of the state's economic output, increased by 42 percent when adjusted for inflation.⁴ U.S. GDP, adjusted for inflation, increased 45 percent during this period.⁵

From 2000 to 2019, annual VMT in South Carolina increased by 27 percent, from approximately 46 billion miles traveled annually to approximately 58 billion miles traveled annually.⁶ From 2014 to 2019 vehicle travel in South Carolina increased by 14 percent, the fifth highest rate of travel growth in the nation.⁷ Due to the COVID-19 pandemic, vehicle travel in South Carolina dropped by as much as 37 percent in April 2020 (as compared to vehicle travel during the same month the previous year) but rebounded to nearly four percent above June 2019 levels by June 2021.⁸

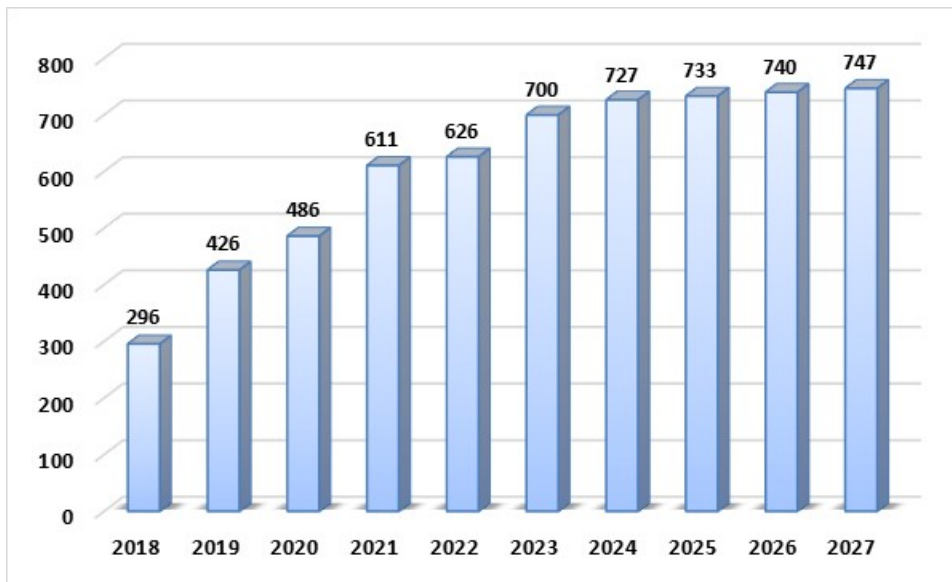
Transportation Funding in South Carolina

Investment in South Carolina's roads, highways and bridges is funded by local, state and federal governments. A lack of sufficient funding at all levels will make it difficult to adequately maintain and improve the state's existing transportation system.

To address a lack of adequate transportation funding, in 2017 the South Carolina legislature passed [Act 40](#), which raises approximately an additional \$600 million annually for repairs and improvements to the state's roads, highways and bridges. The increased funding provided through Act 40 comes through a 12-cent per gallon increase in the state's motor fuel user fee, to be phased in by two-cents-per gallon over six years, a \$16 increase in the biennial vehicle registration fee, the imposition of a fee capped at \$500 on the purchase of a motor vehicle, and the creation of a \$120 registration fee for electric vehicles and a \$60 fee for hybrid vehicles.

Act 40 is expected to generate approximately \$6.1 billion through 2027 in revenues for transportation improvements in South Carolina.⁹ The following chart indicates the revenue generated and anticipated to be generated annually by Act 40 from 2018 to 2027.

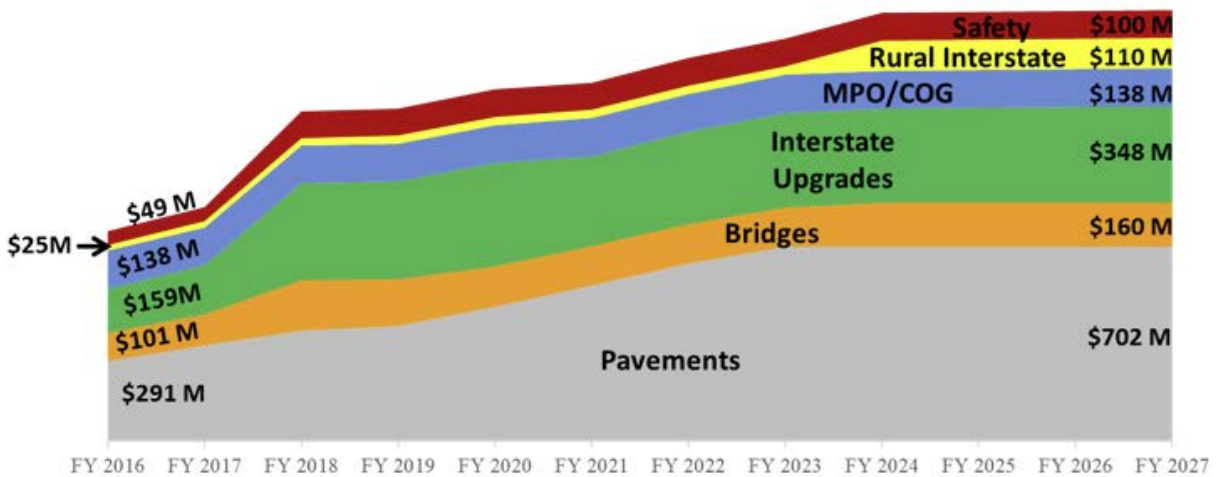
Chart 1. Revenue generated by ACT 40, 2018-2027 (In Millions).



Source: South Carolina Department of Transportation

When combined with federal and other state revenues, the additional revenue provided by Act 40 has allowed SCDOT to increase its annual investment in roads, bridges, Interstates, safety and metropolitan transportation systems by 72 percent, from \$763 million in 2016 to \$1.3 billion in 2021.¹⁰ SCDOT expects to further increase annual investment in core transportation improvements another 20 percent by 2026, to \$1.6 billion. The following chart indicates SCDOT recent, current and anticipated spending 2015 to 2027, based on federal and state funding levels.

Chart 2. SCDOT recent, current and anticipated spending 2016 to 2027.



Source: South Carolina Department of Transportation.

Despite the additional revenue generated by Act 40, SCDOT estimates that it will still face an annual \$403 million gap in funds to make needed improvements to the state's roads, highways, bridges, pedestrian and bicycle facilities and mass transit systems to improve safety, reliability and physical conditions.¹¹

Most federal funds for highway and transit improvements in South Carolina are provided by federal highway user fees, largely an 18.4 cents-per-gallon tax on gasoline and a 24.4 cents-per-gallon tax on diesel fuel (additional revenue is generated by fees on the sale of large trucks, a highway use tax levied on vehicles in excess of 55,000 pounds and a tax on the sale of large truck tires).

Revenue from the motor fuel tax – a critical source of transportation funding -- is likely to erode as a result of increasing vehicle fuel efficiency and the increasing use of electric vehicles. The average fuel efficiency of U.S. passenger vehicles increased from 20 miles per gallon in 2010 to 24.5 miles per gallon in 2020. Average fuel efficiency is expected to increase another 31 percent by 2030, to 32 miles per gallon, and increase 51 percent by 2040, to 37 miles per gallon.¹² The share of electric vehicles of total passenger vehicle sales in the U.S. is expected to increase to five percent by 2023 and 60 percent by 2040, by which time electric vehicles will represent approximately 30 percent of the passenger vehicle fleet.¹³

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.¹⁴

Signed into law in December 2015, the five-year [Fixing America's Surface Transportation Act \(FAST Act\)](#) was scheduled to expire on September 30, 2020. Congress extended the legislation for one year to September 30, 2021. The FAST Act provides modest increases in federal highway and transit spending. The bill also provides states with greater funding certainty and streamlines the federal project approval process. But the FAST Act does not provide adequate funding to meet the nation's need for highway and transit improvements and does not include a long-term and sustainable funding source.

The FAST Act is a major source of funding for road, highway and bridge repairs in South Carolina. Throughout the six years of the FAST-Act – fiscal years 2016 to 2021 – the program provided \$4.3 billion to South Carolina for road repairs and improvements, an average of \$713 million per year.¹⁵

South Carolina federal-aid eligible roads, bridges and highways include the most critical routes in the state, including the Interstate Highway System, major highways and important rural and urban routes. Federal-aid eligible roadways in South Carolina account for 30 percent of state lane-miles and carry 90 percent of all vehicle miles of travel in the state.¹⁶ Sixty-one percent of South Carolina's bridges by count, and 88 percent of bridges measured by deck area are eligible for Federal aid.¹⁷

According to the [Status of the Nation's Highways, Bridges, and Transit, 23rd Edition](#), submitted to Congress by the United States Department of Transportation (USDOT) in 2019, the nation faces a \$786 billion backlog in needed repairs and improvements to the nation's roads, highways and bridges.¹⁸ This backlog includes \$435 billion for highway rehabilitation; \$125 billion for bridge rehabilitation; \$120 billion for system expansion and \$106 billion for system enhancement.¹⁹ The USDOT report found that the nation's current \$105 billion investment in roads, highways and bridges by all levels of government should be increased by 29 percent to \$136 billion annually to improve the conditions of roads, highways and bridges, relieve traffic congestion and improve traffic safety.²⁰

Road Conditions in South Carolina

The life cycle of South Carolina's roads is greatly affected by state and local governments' ability to perform timely maintenance and upgrades to ensure that road and highway surfaces last as long as possible.

The pavement data in this report, which is for all arterial and collector roads and highways, is provided by the Federal Highway Administration (FHWA), based on data submitted annually by SCDOT on the condition of major state and locally maintained roads and highways. Pavement data for Interstate

highways and other principal arterials is collected for all system mileage, whereas pavement data for minor arterial and all collector roads and highways is based on sampling portions of roadways as prescribed by FHWA to ensure the data collected is adequate to provide an accurate assessment of pavement conditions on these roads and highways.

Eighteen percent of South Carolina's major locally and state-maintained roads and highways have pavements rated in poor condition and 25 percent are in mediocre condition.²¹ Eighteen percent of South Carolina's major roads are rated in fair condition and the remaining 39 percent are rated in good condition.²²

Fourteen percent of South Carolina's major locally and state-maintained rural roads and highways have pavements rated in poor condition and 23 percent are in mediocre condition.²³ Nineteen percent of South Carolina's major rural roads are rated in fair condition and the remaining 44 percent are rated in good condition.²⁴

Twenty-eight percent of South Carolina's major locally and state-maintained urban roads and highways have pavements rated in poor condition and 29 percent are in mediocre condition.²⁵ Seventeen percent of South Carolina's major urban roads are rated in fair condition and the remaining 26 percent are rated in good condition.²⁶ The chart below details pavement conditions on major roads in the state's largest urban areas and statewide.²⁷

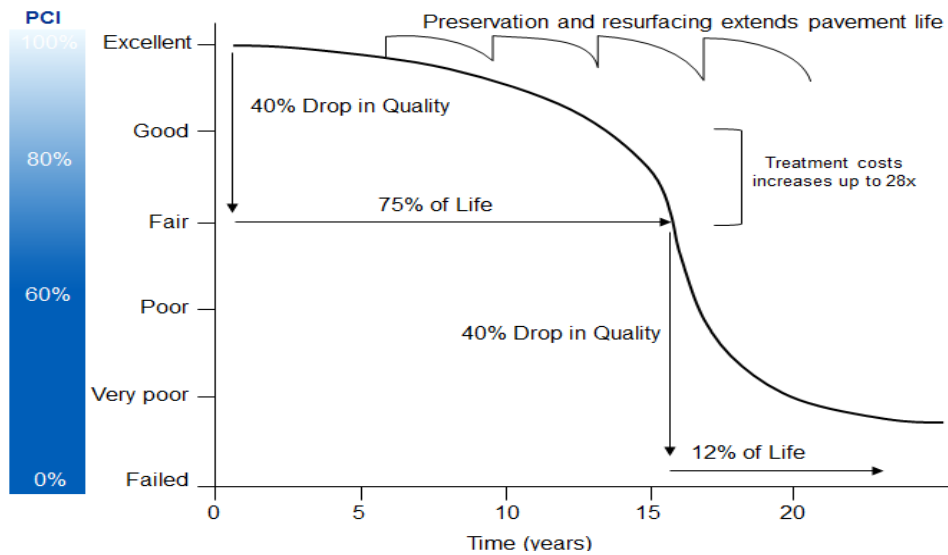
Chart 3. Pavement conditions on major roads in South Carolina's largest urban areas and statewide.

Location	Poor	Mediocre	Fair	Good
Charleston	16%	28%	19%	37%
Columbia	11%	29%	19%	41%
Florence	22%	31%	19%	28%
GSA Metro	20%	28%	18%	34%
Myrtle Beach	24%	29%	13%	34%

Source: TRIP analysis of Federal Highway Administration data.

Approximately 75 percent of the revenues generated by Act 40 are allocated to pavement improvements in all of the state's 46 counties. Since passage of Act 40, SCDOT has been able to initiate approximately 4,000 miles of paving projects, partly due to the additional funding provided by the legislation.²⁸

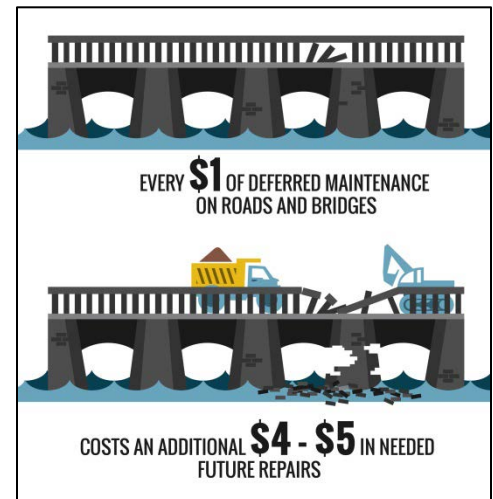
Pavement failure is caused by a combination of traffic, moisture and climate. Moisture often works its way into road surfaces and the materials that form the road's foundation. Road surfaces at intersections are more prone to deterioration because the slow-moving or standing loads occurring at these 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.²⁹ 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.

Chart 4. Pavement condition cycle time with treatment and cost

Source: North Carolina Department of Transportation (2016). [2016 Maintenance Operations and Performance Analysis Report](#)

Since 2018, SCDOT has been able to initiate approximately 4,000 miles of paving projects, partly due to the additional funding provided by Act 40.³⁰

Long-term repair costs increase significantly when road and bridge maintenance is deferred, as road and bridge deterioration accelerates later in the service life of a transportation facility and requires more costly repairs. A [report on maintaining pavements](#) found that every \$1 of deferred maintenance on roads and bridges costs an additional \$4 to \$5 in needed future repairs.³¹



Bridge Conditions in South Carolina

South Carolina'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.

Eight percent (745 of 9,455) of South Carolina's locally and state-maintained bridges are rated in poor/structurally deficient condition.³² This includes all bridges that are 20 feet or more in length. A bridge is deemed poor/structurally deficient if there is significant deterioration of the bridge deck, supports or other major components.

Bridges that are poor/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. Forty-eight percent of South Carolina’s locally and state-maintained bridges have been rated in fair condition.³³ A fair rating indicates that a bridge’s structural elements are sound but minor deterioration has occurred to the bridge’s deck, substructure or superstructure. The remaining 44 percent of the state’s bridges are rated in good condition.³⁴

Since 2018, SCDOT has initiated repairs on 211 of the 465 state-maintained bridges that were in poor condition or restricted to carrying lighter weight vehicles and prioritized by SCDOT for repairs.³⁵ Based on current state and federal funding, SCDOT anticipates that the number of state-maintained bridges that are either in poor condition or restricted to lighter weight vehicles will increase by 81 percent by 2040 from 548 to 994.³⁶

The chart below shows the condition of bridges statewide and in South Carolina’s largest urban areas.³⁷

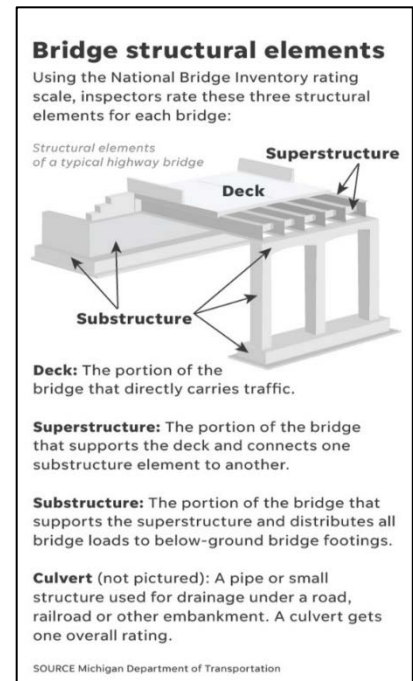


Chart 6. Bridge conditions statewide and in South Carolina’s largest urban areas.

Location	Poor/Structurally Deficient		Fair		Good		Total Bridges
	Number	Share	Number	Share	Number	Share	
Charleston	37	7%	306	61%	157	31%	500
Columbia	43	7%	234	40%	309	53%	586
Florence	4	1%	148	53%	126	45%	278
GSA Metro	129	7%	673	39%	926	54%	1,728
Myrtle Beach	20	4%	177	38%	263	57%	460
South Carolina Statewide	745	8%	4,574	48%	4,136	44%	9,455

Source: TRIP analysis of Federal Highway Administration National Bridge Inventory (2020).

Most bridges are designed to last 50 years before major overhaul or replacement, although many newer bridges are being designed to last 75 years or longer. In South Carolina, 46 percent of the state’s bridges were built in 1969 or earlier.³⁸ The service life of bridges can be extended by performing routine maintenance such as resurfacing decks, painting surfaces, ensuring 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 South Carolina

A total of 5,018 people were killed in South Carolina traffic crashes from 2015 to 2019, an average of 1,004 fatalities per year. From 2015 to 2019, 17 percent of the state’s traffic fatalities in crashes involving motorized vehicles were of pedestrians or bicyclists.³⁹ In early 2021, SCDOT adopted a “[Complete Streets](#)” policy that requires the agency to work with regional governments to identify and include walking, biking and transit needs as part of their transportation plans to improve the safety and accessibility of state routes. The chart below shows annual traffic fatalities in South Carolina from 2015 to 2019.

Chart 7. South Carolina traffic fatalities 2015 – 2019.

Year	Total Fatalities	Pedestrian Fatalities	Bicycle Fatalities	Share Bike and Ped.
2015	977	123	16	14%
2016	1,015	144	25	17%
2017	988	155	17	17%
2018	1,037	165	23	18%
2019	1,001	160	26	19%
TOTAL	5,018	747	107	17%
AVERAGE	1,004	149	21	17%

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, while not the primary factor, 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.

South Carolina's overall traffic fatality rate of 1.73 fatalities per 100 million vehicle miles of travel in 2019 is the highest rate in the nation and significantly higher than the national average of 1.11.⁴⁰ The fatality rate on South Carolina's non-interstate rural roads is also the highest rate in the nation and approximately three-and-a-half times greater than on all other roads in the state (3.46 fatalities per 100 million vehicle miles of travel vs. 0.98).⁴¹

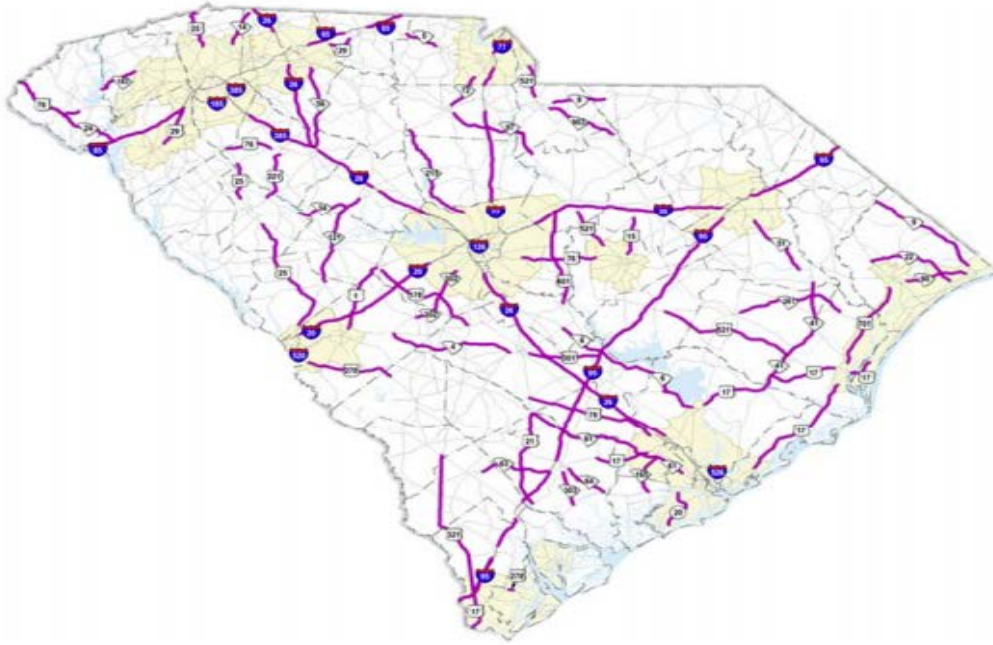
The SCDOT has initiated a rural roads safety program targeting 1,957 miles of rural roads, which represents approximately five percent of the state's rural roads but account for approximately 30 percent of the state's rural fatal and serious traffic crashes. Since passage of Act 40, safety improvements have been initiated on 635 miles of the 1,000 miles of rural roads to be addressed under the state's current 10-year plan. These improvements include the addition of rumble strips, guardrails, raised pavement markers, paved shoulders and wider clear zones.⁴²

Traffic crashes in South Carolina imposed a total of \$5.9 billion in economic costs in 2019.⁴³ TRIP estimates that roadway features, while not the primary factor, were likely a contributing factor in approximately one-third of all fatal traffic crashes, resulting in \$2 billion in economic costs in South Carolina in 2019.⁴⁴ According to a [2015 National Highway Traffic Safety Administration \(NHTSA\) report](#), the economic costs of traffic crashes includes work and household productivity losses, property damage, medical costs, rehabilitation costs, legal and court costs, congestion costs and emergency services.⁴⁵



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Chart 8. South Carolina rural roads targeted by SCDOT for safety improvements.



Source: South Carolina Department of Transportation.

Improving safety on South Carolina'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 converting intersections to roundabouts; removing or shielding roadside objects; the addition of left-turn lanes at intersections; the signalization of intersections; adding or improving median barriers; improved lighting; adding centerline or shoulder rumble strips; providing appropriate pedestrian and bicycle facilities, including sidewalks and bicycle lanes; providing wider lanes, wider and paved shoulders; upgrading roads from two lanes to four lanes; providing better road and lane markings; and updating rail crossings.

The U.S. has a \$146 billion backlog in needed roadway safety improvements, according to a 2017 [report](#) from the AAA Foundation for Traffic Safety. The report found implementing these cost-effective and needed roadway safety improvements on U.S. roadways would save approximately 63,700 lives and reduce the number of serious injuries as a result of traffic crashes by approximately 350,000 over 20 years.

Traffic Congestion in South Carolina

While traffic congestion is largely constrained to the state's urban areas, increasing congestion on South Carolina's major highways and roads hampers the state's ability to support economic development and quality of life by reducing the reliability and efficiency of personal and commercial travel, including the transport of goods and services. Traffic congestion robs commuters of time and money and imposes increased costs on businesses, shippers and manufacturers, which are often passed along to consumers. Increased levels of congestion can also reduce the attractiveness of a location when a company is considering expansion or deciding where to locate a new facility.

Based on a 2019 [report](#) on urban mobility by the [Texas Transportation Institute](#) that analyzes urban traffic congestion levels and provides estimates on the amount of time and the value of lost time and wasted fuel as a result of traffic congestion, TRIP has estimated in the following chart the average number of hours

lost annually for each driver, the per-driver cost of lost time and wasted fuel due to congestion and the average amount of fuel per driver wasted annually due to congestion in each of South Carolina’s largest urban areas.

Chart 9. 2019 Annual hours and fuel lost to congestion and congestion costs per driver.

Location	Hours Lost to Congestion	Annual Cost Per Driver	Gallons of Fuel Wasted Per Driver
Charleston	56	\$1,165	22
Columbia	43	\$842	17
Florence	30	\$697	13
GSA Metro	26	\$615	12
Myrtle Beach	32	\$745	14

Source: TRIP estimate based on Texas Transportation Institute Analysis.

Based on the TTI report, TRIP estimates that the total cost of traffic congestion in South Carolina in 2020 in the form of lost time and wasted fuel is \$2.1 billion annually.⁴⁶

The chart below lists South Carolina’s 25 most congested interstate segments based on measuring the volume of traffic against the capacity of the roadway.⁴⁷

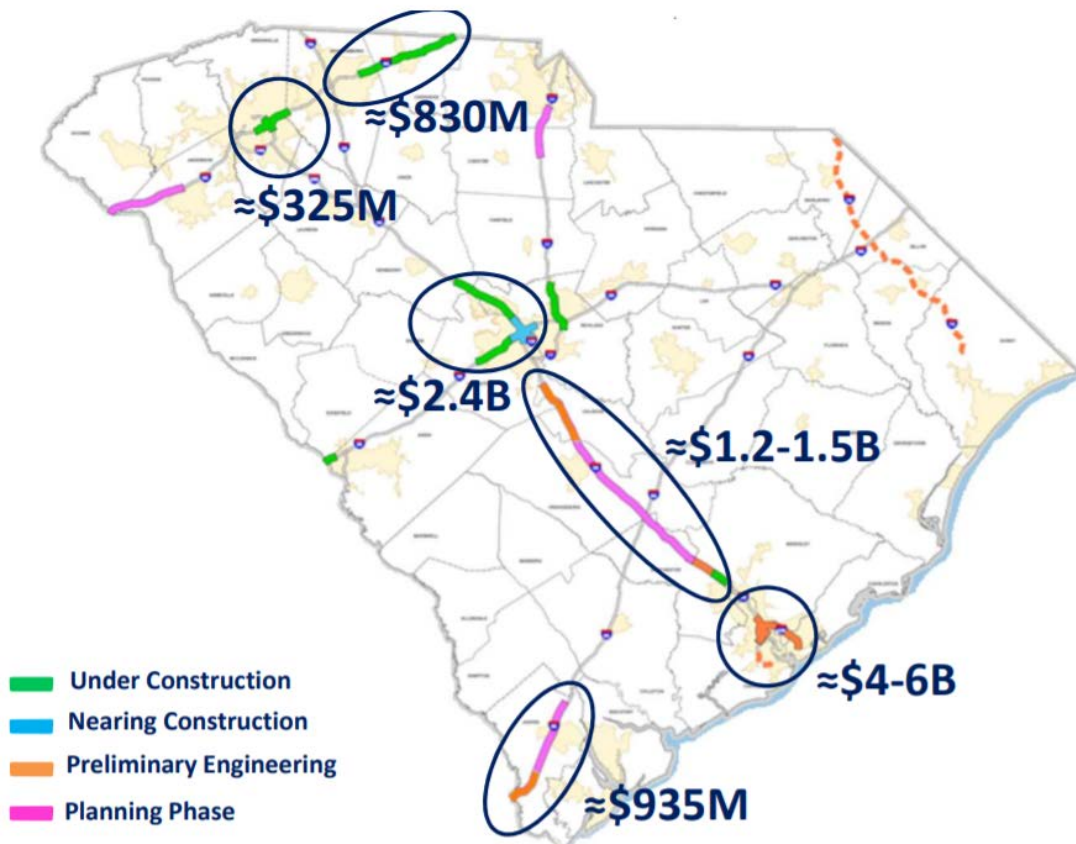
Chart 10. South Carolina’s most congested interstate segments.

Rank	County	Facility/Route	From	To	Length (mile)	Avg. Daily Traffic
1	Greenville, Spartanburg	I-85	I-385/SC-146/Woodruff Rd/Exit 51	County Limit/SC-14/Exit 56	4.9	122,806
2	Charleston, Berkeley	I-526	I-26/Exit 17	Clements Ferry Rd/Exit 23	5.6	79,795
3	Charleston	I-26	US-78/University Blvd/Exit 205	Remount Rd/Exit 212A	7.8	140,419
4	Richland, Lexington	I-26	Broad River Rd/Exit 101	I-126/US-76/Exit 108	7.5	109,640
5	Charleston	I-526	Paul Cantrell Blvd/Exit 11	I-26/Exit 17	5.7	85,407
6	York	I-77	SC-161/Exit 82	US-21/Carowinds Blvd/Exit 90	9.0	118,640
7	Charleston	I-26	Remount Rd/Exit 212A	US 17/Exit 220B	7.6	96,195
8	Spartanburg	I-85	County Limit/SC-14/Exit 56	E Main St/Exit 63	7.6	97,647
9	Lexington	I-26	I-126/US-76/Exit 108	I-77/Exit 116	6.9	93,537
10	Berkeley, Charleston	I-26	N Main St/Exit 199	US-78/University Blvd/Exit 205	5.9	86,152
11	Richland	I-126	I-26	Huger St	3.7	71,583
12	Greenville	I-385	Fairview St/Exit 24	SC-146/Woodruff Rd/Exit 35	11.6	69,463
13	Greenville	I-385	SC-146/Woodruff Rd/Exit 35	SC-291/Pleasantburg Dr/Exit 40	4.6	98,625
14	Lexington	I-20	SC-204/Exit 51	US-378/Exit 61	10.3	59,322
15	Berkeley, Charleston	I-526	Clements Ferry Rd/Exit 23	SC-703/Ben Sawyer Blvd/Coleman Blvd	7.6	61,694
16	Spartanburg	I-85	E Main St/Exit 63	SC-129/Exit 68	5.8	90,834
17	Greenville	I-85	Pleasantburg Dr/Exit 46	I-385/SC-146/Woodruff Rd/Exit 51	6.1	111,970
18	Charleston	I-526	US-17/Savannah Hwy/Exit 10	Paul Cantrell Blvd/Exit 11	1.8	46,129
19	Richland	I-20	I-26/Exit 64	I-77/Exit 76A	11.4	94,704
20	Lexington	I-20	US-378/Exit 61	I-26/Exit 64	2.8	84,933
21	Greenville	I-185	I-85/US-29/Exit 14	Henrydale Ave/Mills Ave/End of Freeway	2.3	18,842
22	Anderson, Greenville	I-85	SC-153/Exit 40	Pleasantburg Dr/Exit 46	5.4	102,780
23	Kershaw, Lee, Darlington, Florence	I-20	US-521/Exit 98	I-95/Exit 141	43.7	29,604
24	Spartanburg	I-85	I-85/Exit 69	I-85/Exit 77	11.6	27,745
25	Florence, Marlboro	I-95	N Williston Rd/Exit 170	US-301/US-501 at NC State Line	28.2	43,200

Source: South Carolina Department of Transportation.

To relieve traffic congestion and improve reliability on key portions of the state's 851-mile Interstate highway system, SCDOT has adopted a statewide Interstate plan, which initially will target widening 140 miles of congested Interstate highways and improving interchanges between Interstate highways.⁴⁸ To date, SCDOT has either completed or started construction on 80 of the 140 miles of Interstate highway portions targeted for widening, including the Carolina Crossroads project in the Columbia area, the Lowcountry Corridor project in the Charleston area, and three Interstate-to-Interstate interchanges.⁴⁹

Chart 11. Status of Interstate highway and interchange widenings and improvements.



Source: South Carolina Department of Transportation, September 16, 2021 Commission presentation.

Freight Transportation in South Carolina

Today's culture of business demands that an area has 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, including its highways, railroads, air and maritime ports, 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 South Carolina. 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.

The amount of freight transported in South Carolina and the rest of the U.S. is expected to increase significantly as a result of further economic growth, changing business and retail models, increasing international trade, and rapidly changing consumer expectations that place an emphasis on faster deliveries, often of smaller packages or payloads.

Each year, 465 million tons of freight are shipped to, from or through South Carolina, an amount that is anticipated to grow by 65 percent by 2040.⁵⁰

Accommodating the significant increase in the movement of freight by trucks in South Carolina will be further challenged by the significant number of freight routes in South Carolina that are constrained because they have inadequate load carrying capacity to accommodate large trucks. The following chart lists South Carolina's worst freight bottlenecks.

Chart 12. South Carolina's worst highway freight bottlenecks.

Rank	Route	Urban area	Interchange	Avg. Daily Truck	Length (Miles)
1	I-20	Columbia	Broad River Road Interchange	4,191	15.1
2	I-20	Columbia	I-26 Interchange	3,320	7.3
3	I-26	Columbia	St. Andrews Road Interchange	5,478	5.8
4	I-26	Charleston	US-52 Connector Interchange	5,254	19.2
5	I-26	Charleston	I-526 Interchange	5,741	18.3
6	I-126	Columbia	I-26 Interchange	3,839	12.5
7	I-526	Charleston	Leeds Avenue Merge	2,243	8.5
8	I-526	Charleston	Paul Cantrell Boulevard Interchange	1,347	21.6

Source: South Carolina Department of Transportation.

The ability of South Carolina's and the nation's freight transportation system to accommodate the growing demand for freight movement efficiently and safely could be hampered by inadequate transportation capacity, a lack of adequate safety features on some transportation facilities, institutional barriers to enhancing the nation's freight facilities, a lack of adequate funding for needed improvements to the freight network, and a shortage of drivers.

The need to improve the U.S. freight network is occurring at a time when the nation's freight delivery system is being transformed by advances in vehicle autonomy, manufacturing, warehousing and supply chain automation, increasing e-commerce, and the growing logistic networks being developed by Amazon and other retail organizations in response to the demand for a faster and more responsive delivery and logistics cycle.

The Importance of Transportation to Economic Growth in South Carolina

Investments in transportation improvements in South Carolina play a critical role in the state's economy. A [report by the American Road & Transportation Builders Association](#) found that the design, construction and maintenance of transportation infrastructure supports the equivalent of approximately 50,000 full-time jobs across all sectors of the state economy, earning these workers approximately \$1.7 billion annually.⁵¹ These jobs include approximately 25,000 full-time jobs directly involved in transportation infrastructure construction and related activities. Spending by employees and companies in the

transportation design and construction industry supports an additional 25,000 full-time jobs in South Carolina.⁵² Transportation construction in South Carolina contributes an estimated \$318 million annually in state and local income, corporate and unemployment insurance taxes and the federal payroll tax.⁵³

Approximately 919,000 million full-time jobs in South Carolina in key industries like tourism, retail sales, agriculture and manufacturing are dependent on the quality, safety and reliability of the state's transportation infrastructure network. These workers earn approximately \$32 billion in wages and contribute an estimated \$5.8 billion in state and local income, corporate and unemployment insurance taxes and the federal payroll tax.⁵⁴

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.

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 2020 [survey](#) of corporate executives by Area Development Magazine.⁵⁵

Improving Transportation Safety, Resiliency and Efficiency

Recognizing that extreme weather, sea level change, and changes in environmental conditions may threaten the condition and longevity of the nation's transportation infrastructure, transportation agencies have begun to assess vulnerabilities and consider the resilience of their transportation assets during the transportation planning process. Transportation agencies across the country have begun to incorporate resilience in asset management plans, addressing resilience in project development and design and optimizing operations and maintenance practices.⁵⁶

Based on the importance of maximizing the level and safety of mobility provided by its transportation system, transportation agencies are adopting Transportation Systems Management and Operations (TSMO) practices and incorporating improved resiliency into their transportation network. While a TSMO program does not eliminate the need for capacity expansions along some routes, it helps enhance the mobility of an existing corridor as much as possible.

A TSMO program adopts an integrated set of strategies to improve traffic flow and safety on a portion of a roadway, including work zone management, traffic incident management, freight management, traveler information, traffic signal coordination, ramp management, transit management and improved bicycle and pedestrian crossings.⁵⁷ The benefits of TSMO can include reduced traffic congestion, reduced fuel consumption and reduced emissions.

Conclusion

As South Carolina strives to support ongoing population and economic growth, it is critical that the state can provide a well-maintained, safe, and efficient 21st-century network of roads, highways, bridges, and transit to accommodate the mobility demands of modern society.

The approval of Act 40 in 2017 has allowed South Carolina to move forward with numerous projects to improve safety and accelerate road and bridge repairs. But, with South Carolina's vehicle miles of travel increasing at the fifth-highest rate nationally and the state expected to be home to 6.4 million residents by 2040, the state will need to make further increases in its level of transportation investment.

While the 2017 investment has provided a significant boost to the state's ability to address repairs and improvements, South Carolina will need to look for opportunities to increase transportation investment from all levels of government – federal, state, and local.

A safe and reliable transportation system that is maintained in good condition and offers improved mobility and accessibility to meet the needs of South Carolina residents, businesses, and tourists alike, is critical to moving South Carolina forward.

###

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