

KANSAS TRANSPORTATION BY THE NUMBERS:

Meeting the State's Need for Safe, Smooth and
Efficient Mobility

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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

Ten Key Transportation Numbers in Kansas

\$2.7 billion	Driving on deficient roads costs Kansas motorists a total of \$2.7 billion annually in the form of additional vehicle operating costs (VOC), congestion-related delays and traffic crashes.
Johnson/Wyandotte Counties - \$1,596 Topeka - \$1,453 Wichita - \$1,597	TRIP has calculated the cost to the average motorist in the state's largest urban areas in the form of additional VOC, congestion-related delays and traffic crashes. Drivers in the state's largest urban areas incur annual costs as a result of driving on deficient roads as follows: Johnson/Wyandotte Counties - \$1,596; Topeka - \$1,453; Wichita - \$1,597.
\$2.4 billion \$3.4 billion	The ability of the Kansas Department of Transportation (KDOT) to repair and improve the state's transportation system has been hampered by the transfer of \$2.4 billion in state highway funds to state general funds and other state agencies between fiscal year 2011 and fiscal year 2017. Governor Sam Brownback's FY 2018/FY 2019 budget proposal would increase transfers of state highway funds to state general funds and other state agencies to \$3.4 billion from FY 2011 to FY 2019.
14% 15%	Vehicle miles traveled (VMT) in Kansas increased by 14 percent from 2000 to 2016 –from 28.1 billion VMT in 2000 to 32.1 billion VMT in 2016. By 2030, vehicle travel in Kansas is projected to increase by another 15 percent.
4 1/2 X	The fatality rate on Kansas' rural roads is approximately four-and-a-half times greater than the fatality rate on all other roads in the state (2.24 fatalities per 100 million VMT vs. 0.50).
37%	Thirty-seven percent of Kansas' major urban roads are in poor or mediocre condition. Eight percent are in fair condition and the remaining 56 percent are in good condition.
\$1 = \$4 to \$5	Every \$1 of deferred maintenance on roads and bridges has been found to cost an additional \$4 to \$5 in needed future repairs.
9%	Nine percent of Kansas' bridges are structurally deficient, meaning they have significant deterioration to the major components of the bridge.
Johnson/Wyandotte Counties – 39 hours Topeka – 16 hours Wichita – 35 hours	Mounting congestion robs drivers of time and fuel. Annual time wasted in congestion for drivers in the state's largest urban areas is as follows: Johnson/Wyandotte Counties – 39 hours, Topeka – 16 hours, Wichita- 35 hours.
\$1.00 = \$5.20	The Federal Highway Administration estimates that each dollar spent on road, highway and bridge improvements results in an average benefit of \$5.20 in the form of reduced vehicle maintenance costs, reduced delays, reduced fuel consumption, improved safety, reduced road and bridge maintenance costs, and reduced emissions as a result of improved traffic flow.

Executive Summary

The rate of economic growth in Kansas, which is greatly impacted by the reliability and condition of the state's transportation system, has a significant impact on quality of life in the Sunflower State. Yet, the ability of Kansans to reap the quality of life and economic benefits of a well-maintained, safe and efficient transportation system is threatened by the continued diversion of state highway funds to the state's general fund.

An efficient, safe and well-maintained transportation system provides economic and social benefits by affording individuals access to employment, housing, healthcare, education, goods and services, recreation, entertainment, family, and social activities. It also provides businesses access to suppliers, markets and employees, all critical to a business' level of productivity and ability to expand. Reduced accessibility and mobility - as a result of traffic congestion, a lack of adequate capacity, or deteriorated roads, highways, bridges and transit facilities - diminishes a region's quality of life by reducing economic productivity and limiting opportunities for economic, health or social transactions and activities.

With an economy based largely on manufacturing, agriculture and natural resource extraction, the quality of Kansas' transportation system plays a vital role in the state's economic growth and quality of life.

In this report, TRIP looks at the top transportation numbers in Kansas as the state addresses modernizing and maintaining its system of roads, highways, bridges and transit.

COST TO KANSAS MOTORISTS OF DEFICIENT ROADS

An inadequate transportation system costs Kansas motorists a total of \$2.7 billion every year in the form of additional vehicle operating costs (VOC), congestion-related delays and traffic crashes.

- Driving on rough roads costs Kansas motorists a total of \$1 billion annually in extra vehicle operating costs. Costs include accelerated vehicle depreciation, additional repair costs, and increased fuel consumption and tire wear.
- Traffic crashes in which roadway design was likely a contributing factor costs Kansas motorists a total of \$730 million each year in the form of lost household and workplace productivity, insurance and other financial costs.
- Traffic congestion costs Kansas motorists a total of \$1 billion each year in the form of lost time and wasted fuel.
- The chart below details the average cost per driver in the state's largest urban areas and statewide.

Location	VOC	Congestion	Safety	TOTAL
Johnson/Wyandotte	\$510	\$933	\$153	\$1,596
Topeka	\$819	\$388	\$246	\$1,453
Wichita	\$508	\$837	\$252	\$1,597
Kansas Statewide	\$1 billion	\$1 billion	\$730 million	\$2.7 billion

POPULATION, TRAVEL AND ECONOMIC TRENDS IN KANSAS

The rate of population and economic growth results in increased demands on a state’s major roads and highways, leading to increased wear and tear on the transportation system.

- Kansas’ population reached approximately 2.9 million residents in 2016, an eight percent increase since 2000. Kansas had approximately 2 million licensed drivers in 2015.
- Vehicle miles traveled (VMT) in Kansas increased by 14 percent from 2000 to 2016 – from 28.1 billion VMT in 2000 to 32.1 billion VMT in 2016. From 2013 to 2016, VMT in the state increased by six percent.
- From 2000 to 2015, Kansas’ gross domestic product, a measure of the state’s economic output, increased by 23 percent, when adjusted for inflation. U.S. GDP increased 27 percent during this time.
- By 2030, vehicle travel in Kansas is projected to increase by another 15 percent.

KANSAS ROAD CONDITIONS

A lack of adequate state and local funding has resulted in 37 percent of major roads and highways in Kansas having pavement surfaces in poor or mediocre condition, providing a rough ride and costing motorists in the form of additional vehicle operating costs. Deferring maintenance on roads and highways can greatly increase long-term repair costs.

- 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 the Kansas Department of Transportation (KDOT) 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 insure that the data collected is adequate to provide an accurate assessment of pavement conditions on these roads and highways.
- Thirteen percent of Kansas’ major locally and state-maintained roads and highways have pavements in poor condition and 24 percent are rated in mediocre condition. Eight percent of the state’s major roads are in fair condition and the remaining 56 percent are rated in good condition.

- Thirty-seven percent of Kansas’ major locally and state-maintained urban roads and highways have pavements in poor condition and 26 percent are rated in mediocre condition. Thirteen percent of the state’s major urban roads are in fair condition and the remaining 24 percent are rated in good condition.
- Nine percent of Kansas’ locally and state-maintained rural roads and highways have pavements in poor condition and 23 percent are rated in mediocre condition. Seven percent of the state’s rural roads are in fair condition and the remaining 62 percent are rated in good condition.
- The chart below details the share of pavement in poor, mediocre, fair and good condition in the state’s largest urban areas.

Location	Poor	Mediocre	Fair	Good
Johnson/Wyandotte	22%	26%	19%	33%
Topeka	47%	26%	11%	15%
Wichita	22%	32%	7%	40%

- Roads rated in mediocre to poor condition may show signs of deterioration, including rutting, cracks and potholes. In some cases, these roads can be resurfaced, but often are too deteriorated and must be reconstructed.
- Driving on rough roads costs Kansas motorists a total of \$1 billion annually in extra vehicle operating costs. Costs include accelerated vehicle depreciation, additional repair costs, and increased fuel consumption and tire wear.
- 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.

KANSAS BRIDGE CONDITIONS

Nine percent of locally and state-maintained bridges in Kansas show significant deterioration. This includes all bridges that are 20 feet or more in length.

- Nine percent of Kansas’ bridges are structurally deficient. A bridge is structurally deficient if there is significant deterioration of the bridge deck, supports or other major components. Structurally deficient bridges are often posted for lower weight or closed to traffic, restricting or redirecting large vehicles, including commercial trucks and emergency services vehicles.
- The chart below details the share of structurally deficient bridges in Johnson and Wyandotte Counties, Topeka and Wichita and statewide.

	Structurally Deficient Number	Structurally Deficient Percentage	Total Bridges
Johnson/Wyandotte	17	2%	1,055
Topeka	22	4%	554
Wichita	54	4%	1,302
Kansas Statewide	2,151	9%	25,013

HIGHWAY SAFETY AND FATALITY RATES IN KANSAS

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

- A total of 1,881 people were killed in Kansas traffic crashes from 2011 to 2015, an average of 376 fatalities per year.
- Kansas’ overall traffic fatality rate of 1.13 fatalities per 100 million vehicle miles of travel in 2015 was the same as the national average of 1.13.
- The fatality rate on Kansas’ non-interstate rural roads in 2015 was approximately four-and-a-half times greater than on all other roads in the state (2.24 fatalities per 100 million vehicle miles of travel vs. 0.50).
- The chart below details the average number of people killed in traffic crashes from 2013 to 2015 in the state’s largest urban areas, as well as the cost per motorist of traffic crashes.

Location	Ave. Fatalities	Safety Cost
Johnson/Wyandotte	39	\$153
Topeka	15	\$246
Wichita	48	\$252

- Traffic crashes in Kansas imposed a total of \$2.2 billion in economic costs in 2015. TRIP estimates that traffic crashes in which roadway features were likely a contributing factor imposed \$730 million in economic costs in 2015.
- 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.

- Roadway features that impact safety include the number of lanes, lane widths, lighting, lane markings, rumble strips, shoulders, guard rails, other shielding devices, median barriers and intersection design. The cost of serious crashes includes lost productivity, lost earnings, medical costs and emergency services.
- Several factors are associated with vehicle crashes that result in fatalities, including driver behavior, vehicle characteristics and roadway features. TRIP estimates that roadway features are likely a contributing factor in approximately one-third of fatal traffic crashes.
- Where appropriate, highway improvements can reduce traffic fatalities and crashes while improving traffic flow to help relieve congestion. Such improvements include removing or shielding obstacles; adding or improving medians; improved lighting; adding rumble strips, wider lanes, wider and paved shoulders; upgrading roads from two lanes to four lanes; and better road markings and traffic signals.
- Investments in rural traffic safety have been found to result in significant reductions in serious traffic crashes. A 2012 report by the [Texas Transportation Institute](#) (TTI) found that improvements completed recently by the Texas Department of Transportation that widened lanes, improved shoulders and made other safety improvements on 1,159 miles of rural state roadways resulted in 133 fewer fatalities on these roads in the first three years after the improvements were completed (as compared to the three years prior). TTI estimates that the improvements on these roads are likely to save 880 lives over 20 years.

KANSAS TRAFFIC CONGESTION

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

- Based on [Texas Transportation Institute](#) (TTI) estimates, the value of lost time and wasted fuel in Kansas is approximately \$1 billion per year.
- The chart below details the number of hours lost to congestion by the average driver in the state’s largest urban areas, as well as the annual cost of traffic congestion per driver in the form of lost time and wasted fuel.

Location	Hours Lost	Congestion Cost
Johnson/Wyandotte	39	\$933
Topeka	16	\$388
Wichita	35	\$837

- Increasing levels of congestion add significant costs to consumers, transportation companies, manufacturers, distributors and wholesalers and can reduce the attractiveness of a location to a company when considering expansion or where to locate a new facility.

Congestion costs can also increase overall operating costs for trucking and shipping companies, leading to revenue losses, lower pay for drivers and employees, and higher consumer costs.

TRANSPORTATION FUNDING IN KANSAS

Investment in Kansas’ roads, highways and bridges is funded by local, state and federal governments. The continued transfer of state highway funds to the state general fund threatens the state’s ability to provide a well-maintained, safe and efficient transportation system. The five-year federal surface transportation program includes modest funding increases and provides states with greater funding certainty, but falls far short of providing the level of funding needed to meet the nation’s highway and transit needs. The bill does not include a long-term and sustainable revenue source. The nation faces a significant shortfall in needed funding for road, highway and bridge improvements.

- The ability of the Kansas Department of Transportation to repair and improve the state’s transportation system has been hampered by the transfer of \$2.4 billion in state highway funds to state general funds and other state agencies between fiscal year 2011 and fiscal year 2017.

FY 2011	\$257.8 million
FY 2012	\$307.6 million
FY 2013	\$110.1 million
FY 2014	\$263.8 million
FY 2015	\$424.5 million
FY 2016	\$526.2 million
FY 2017	\$504.8 million
Total	\$2.4 billion

- Governor Sam Brownback’s FY 2018/FY 2019 budget proposal would increase transfers of state highway funds to state general funds to \$3.4 billion from FY 2011 to FY 2019.
- \$700 million of the \$2.4 billion transferred out of the state’s highway fund between FY 2011 and FY 2017 and \$200 million out of the additional \$1 billion of state highway funds proposed to be transferred in the Governor’s FY 2018/FY 2019 budget proposal, are part of the state’s Transportation Works for Kansas (T-Works) program.
- Signed into law in December 2015, the [Fixing America’s Surface Transportation Act \(FAST Act\)](#), provides modest increases in federal highway and transit spending, allows states greater long-term 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 five-year, \$305 billion FAST Act will provide a boost of approximately 15 percent in national highway funding and 18 percent in national transit funding over the duration of the program, which expires in 2020.

- According to the [2015 Status of the Nation's Highways, Bridges and Transit: Conditions and Performance](#) report submitted by the United States Department of Transportation (USDOT) to Congress, the nation faces an \$836 billion backlog in needed repairs and improvements to the nation's roads, highways and bridges.
- 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 35 percent to \$142.5 billion annually to improve the conditions of roads, highways and bridges, relieve traffic congestion and improve traffic safety.

TRANSPORTATION AND ECONOMIC GROWTH IN KANSAS

The efficiency of Kansas' transportation system, particularly its highways, is critical to the health of the state's economy. Businesses rely on an efficient and dependable transportation system to move products and services. A key component in business efficiency and success is the level and ease of access to customers, markets, materials and workers.

- Annually, \$395 billion in goods are shipped to and from sites in Kansas, mostly by truck.
- Eighty-two percent of the goods shipped annually to and from sites in Kansas are carried by trucks and another 12 percent are carried by courier services or multiple mode deliveries, which include trucking.
- 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 two site selection factor behind only the availability of skilled labor in a 2015 survey of corporate executives by [Area Development Magazine](#).
- The [Federal Highway Administration](#) estimates that each dollar spent on road, highway and bridge improvements results in an average benefit of \$5.20 in the form of reduced vehicle maintenance costs, reduced delays, reduced fuel consumption, improved safety, reduced road and bridge maintenance costs and reduced emissions as a result of improved traffic flow.

Sources of information for this report include 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) and the National Highway Traffic Safety Administration (NHTSA).

Introduction

Kansas' roads, highways and bridges form vital transportation links for the state's residents, visitors and businesses, providing daily access to homes, jobs, shopping, natural resources and recreation. Modernizing Kansas' transportation system is critical to quality of life and economic competitiveness in the Sunflower State. Yet, the ability of Kansans to reap the quality of life and economic benefits of a well-maintained, safe and efficient transportation system is threatened by the continued diversion of state highway funds to the state's general fund.

Supporting quality of life and a robust economy in Kansas requires that the state provide a safe, efficient and well-maintained transportation system. Inadequate transportation investment, which will result in deteriorated transportation facilities and diminished access, will negatively affect economic competitiveness and quality of life in Kansas.

To accommodate population and economic growth, maintain its level of economic competitiveness and achieve further economic growth, Kansas will need to maintain and modernize its roads, highways and bridges by improving the physical condition of its transportation network and enhancing the system's ability to provide efficient, reliable and safe mobility for residents, visitors and businesses. Making needed improvements to Kansas' roads, highways, bridges and transit systems could also provide a significant boost to the state's economy by creating jobs in the short term and stimulating long-term economic growth as a result of enhanced mobility and access.

This report examines the condition, use and safety of Kansas' roads, highways and bridges, funding needs, and the future mobility needs of the state. Sources of information for this report include 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), and the National Highway Traffic Safety Administration (NHTSA).

Population, Travel and Economic Trends in Kansas

Kansas motorists and businesses require a high level of personal and commercial mobility. To foster quality of life and spur continued economic growth in Kansas, it will be critical that the state provide a safe and modern transportation system that can accommodate future growth in population, tourism, business, recreation and vehicle travel.

Kansas' population grew to approximately 2.9 million residents in 2016, an eight percent increase since 2000 and the sixth highest rate of growth in the nation during that time.¹ Kansas had approximately 2 million licensed drivers in 2015.² From 2000 to 2015, Kansas' gross domestic product (GDP), a measure of the state's economic output, increased by 23 percent, when adjusted for inflation.³ U.S. GDP increased 27 percent during this period.⁴

From 2000 to 2016, annual VMT in Kansas increased by 14 percent, from 28.1 billion miles traveled annually to 32.1 billion miles traveled annually.⁵ From 2013 to 2016, VMT in Kansas increased by six percent.⁶ Based on population and other lifestyle trends, TRIP estimates that travel on Kansas' roads and highways will increase by another 15 percent by 2030.⁷

Condition of Kansas' Roads

The life cycle of Kansas' roads is greatly affected by the 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 the Kansas Department of Transportation (KDOT) 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 insure that the data collected is adequate to provide an accurate assessment of pavement conditions on these roads and highways.

Statewide, 13 percent of Kansas' major locally and state-maintained roads are in poor condition and 24 percent are in mediocre condition.⁸ Eight percent of major roads in Kansas are in fair condition and the remaining 56 percent are in good condition.⁹

Thirty-seven percent of Kansas' major locally and state-maintained urban roads and highways have pavements rated in poor condition and 26 percent are in mediocre condition.¹⁰ Thirteen percent of the state's major urban roads are rated in fair condition and the remaining 24 percent are rated in good condition.¹¹

Nine percent of Kansas' major locally and state-maintained rural roads and highways have pavements rated in poor condition and 23 percent are in mediocre condition.¹² Seven percent of the state's major rural roads are rated in fair condition and the remaining 62 percent are rated in good condition.¹³

The chart below details pavement conditions on major urban roads in the state's largest urban areas.¹⁴

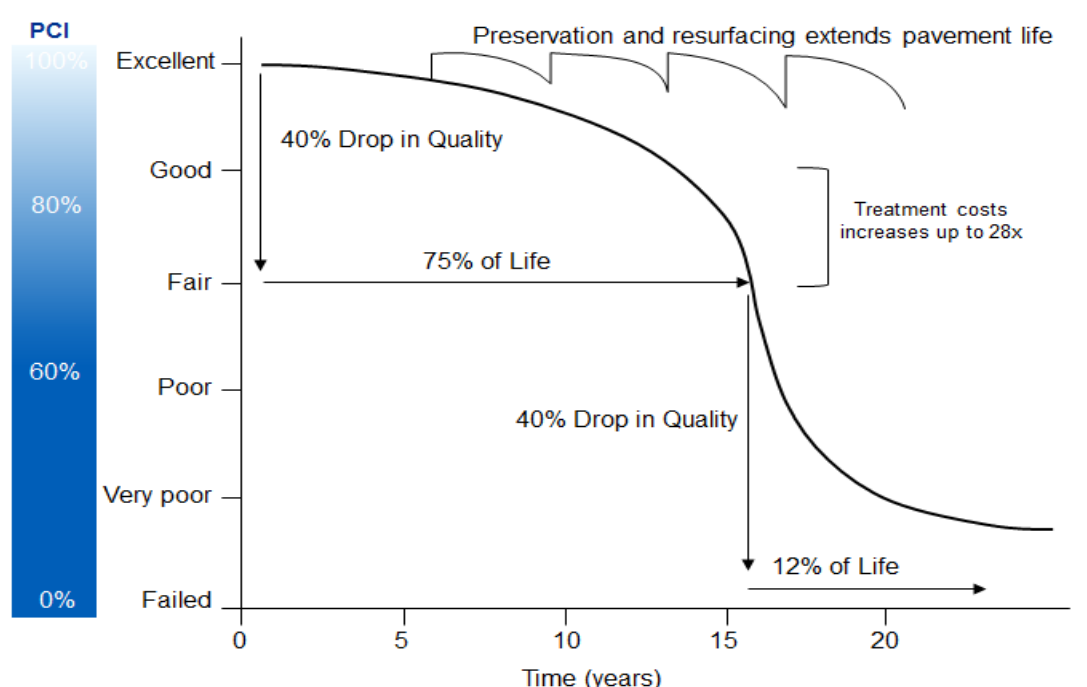
Chart 1. Pavement conditions on major roads in the state's largest urban areas.

Location	Poor	Mediocre	Fair	Good
Johnson/Wyandotte	22%	26%	19%	33%
Topeka	47%	26%	11%	15%
Wichita	22%	32%	7%	40%

Source: TRIP analysis of Federal Highway Administration data.

Pavement failure is caused by a combination of traffic, moisture and climate. Moisture often works its way into road surfaces and the materials that form the road's foundation. Road surfaces at intersections are even more prone to deterioration because the slow-moving or standing loads occurring at these sites subject the pavement to higher levels of stress. As roads and highways continue to age, often at approximately 15 years, they will reach a point that, in the absence of appropriate pavement treatments, they will quickly deteriorate to a point where far more costly reconstruction of the roadway and its underlying surfaces will become necessary.¹⁵

Chart 2. Pavement Condition Cycle Time with Treatment and Cost



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

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.¹⁶

The Costs to Motorists of Roads in Inadequate Condition

TRIP has calculated the additional cost to motorists of driving on roads in poor, mediocre or fair condition. When roads are in poor, mediocre or fair condition – which may include potholes, rutting or rough surfaces – the cost to operate and maintain a vehicle increases. These

additional vehicle operating costs (VOC) include accelerated vehicle depreciation, additional - vehicle repair costs, increased fuel consumption and increased tire wear. TRIP estimates that additional VOC borne by Kansas motorists as a result of deteriorated road conditions is \$1 billion annually, or \$500 per driver.¹⁷ The chart below details additional VOC per motorist in the state's largest urban areas.

Chart 3. Vehicle operating costs per motorist as a result of driving on deteriorated roads.

Location	VOC
Johnson/Wyandotte	\$510
Topeka	\$819
Wichita	\$508
Kansas Statewide	\$1 billion

Source: TRIP estimates.

Additional vehicle operating costs have been calculated in the Highway Development and Management Model (HDM), which is recognized by the U.S. Department of Transportation and more than 100 other countries as the definitive analysis of the impact of road conditions on vehicle operating costs. The HDM report is based on numerous studies that have measured the impact of various factors, including road conditions, on vehicle operating costs.¹⁸

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

TRIP's additional VOC estimate is based on taking the average number of miles driven annually by a motorist, calculating current VOC based on AAA's 2016 VOC and then using the HDM model to estimate the additional VOC paid by drivers as a result of substandard roads.¹⁹ Additional research on the impact of road conditions on fuel consumption by the Texas Transportation Institute (TTI) is also factored in to TRIP's vehicle operating cost methodology.

Bridge Conditions in Kansas

Kansas' 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.

Nine percent of Kansas' locally and state maintained bridges are rated as structurally deficient.²⁰ A bridge is structurally deficient if there is significant deterioration of the bridge deck, supports or other major components. Bridges that are structurally deficient may be posted for lower weight limits or closed if their condition warrants such action. Deteriorated bridges can have a significant impact on daily life. Restrictions on vehicle weight may cause many vehicles – especially emergency vehicles, commercial trucks, school buses and farm equipment – to use alternate routes to avoid posted bridges. Redirected trips also lengthen travel time, waste fuel and reduce the efficiency of the local economy.

The chart below details the share of bridges in the state's largest urban areas that are structurally deficient.

Chart 4. Share of structurally deficient bridges in Kansas' largest urban areas and statewide.

	Structurally Deficient Number	Structurally Deficient Percentage	Total Bridges
Johnson/Wyandotte	17	2%	1,055
Topeka	22	4%	554
Wichita	54	4%	1,302
Kansas Statewide	2,151	9%	25,013

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

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

Traffic Safety in Kansas

A total of 1,881 people were killed in Kansas traffic crashes from 2011 to 2015, an average of 376 fatalities per year.²¹

Chart 5. Traffic Fatalities in Kansas from 2011 – 2015.

<i>Year</i>	<i>Fatalities</i>
2011	386
2012	405
2013	350
2014	385
2015	355
Total	1,881

Source: National Highway Traffic Safety Administration.

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

Kansas' overall traffic fatality rate of 1.13 fatalities per 100 million vehicle miles of travel in 2015 is the same as than the national average.²² The traffic fatality rate on the state's rural roads is disproportionately high. The fatality rate on Kansas' non-interstate rural roads is approximately four-and-a-half times higher than on all other roads in the state (2.24 fatalities per 100 million vehicle miles of travel vs. 0.50).²³

The chart below details the number of people killed in traffic crashes in the state's largest urban areas between 2013 and 2015, as well as the cost of traffic crashes per driver.

Chart 6. Average fatalities between 2013 and 2015 and crash cost per driver.

Location	Ave. Fatalities	Safety Cost
Johnson/Wyandotte	39	\$153
Topeka	15	\$246
Wichita	48	\$252

Source: TRIP analysis.

Traffic crashes in Kansas imposed a total of \$2.2 billion in economic costs in 2015.²⁴ TRIP estimates that traffic crashes in which roadway features were likely a contributing factor imposed \$730 million in economic costs in 2015.²⁵

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.²⁶

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

The severity of serious traffic crashes could be reduced through roadway improvements, where appropriate, such as adding turn lanes, removing or shielding obstacles, adding or improving medians, widening lanes, widening and paving shoulders, improving intersection layout, and providing better road markings and upgrading or installing traffic signals. Roads with poor geometry, with insufficient clear distances, without turn lanes, having inadequate shoulders for the posted speed limits, or poorly laid out intersections or interchanges, pose greater risks to motorists, pedestrians and bicyclists.

Investments in rural traffic safety have been found to result in significant reductions in serious traffic crashes. A [2012 report by TTI](#) found that improvements completed recently by TxDOT that widened lanes, improved shoulders and made other safety improvements on 1,159 miles of rural state roadways resulted in 133 fewer fatalities on these roads in the first three years after the improvements were completed (as compared to the three years prior).²⁷ TTI estimates that the improvements on these roads are likely to save 880 lives over 20 years.²⁸

Traffic Congestion in Kansas

Increasing levels of traffic congestion cause significant delays in Kansas, particularly in its larger urban areas, choking commuting and commerce. Traffic congestion robs commuters of

time and money and imposes increased costs on businesses, shippers and manufacturers, which are often passed along to the consumer.

Based on TTI methodology, TRIP estimates the value of lost time and wasted fuel in Kansas is approximately \$1 billion per year. The chart below details the number of hours lost annually for each driver in the state’s largest urban areas, as well as the per-driver cost of lost time and wasted fuel due to congestion.

Chart 7. Annual hours lost to congestion and congestion costs per driver.

Location	Hours Lost	Congestion Cost
Johnson/Wyandotte	39	\$933
Topeka	16	\$388
Wichita	35	\$837

Source: Texas Transportation Institute Urban Mobility Report.

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

Transportation Funding

Investment in Kansas’ 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.

The ability of Kansans to reap the quality of life and economic benefits of a well-maintained, safe and efficient transportation system is threatened by the continued diversion of

state highway funds to the state’s general fund. Between FY 2011 to FY 2017, \$2.4 billion of state highway funds were transferred to the state general fund and other state agencies.²⁹

Chart 8. Transfer of Kansas State Highway Funds to State General Funds and other State , Agencies, FY 2011 to FY 2017

FY 2011	\$257.8 million
FY 2012	\$307.6 million
FY 2013	\$110.1 million
FY 2014	\$263.8 million
FY 2015	\$424.5 million
FY 2016	\$526.2 million
FY 2017	\$504.8 million
Total	\$2.4 billion

Source: Kansas Department of Transportation

Governor Sam Brownback’s FY 2018/FY 2019 budget proposal would increase transfers of state highway funds to state general funds and other state agencies to \$3.4 billion from FY 2011 to FY 2019.³⁰

\$700 million of the \$2.4 billion transferred out of the state’s highway fund between FY 2011 and FY 2017 and \$200 million out of the additional \$1 billion of state highway funds proposed to be transferred in the Governor’s FY 2018/FY 2019 budget proposal, are part of the state’s Transportation Works for Kansas (T-Works) program.³¹

The federal government is a critical source of funding for Kansas’ roads, highways, bridges and transit systems and provides a significant return in road and bridge funding based on the revenue generated in the state by the federal motor fuel tax.

Most federal funds for highway and transit improvements in Kansas 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. 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.³²

Signed into law in December 2015, the [Fixing America's Surface Transportation Act \(FAST Act\)](#), provides modest increases in federal highway and transit spending. The five-year 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 five-year, \$305 billion FAST Act will provide a boost of approximately 15 percent in highway funding and 18 percent in transit funding over the duration of the program, which expires in 2020.³³ In addition to federal motor fuel tax revenues, the FAST Act will also be funded by \$70 billion in U.S. general funds, which will rely on offsets from several unrelated federal programs including the Strategic Petroleum Reserve, the Federal Reserve and U.S. Customs.

According to the [2015 Status of the Nation's Highways, Bridges and Transit: Conditions and Performance](#) report submitted by the United States Department of Transportation (USDOT) to Congress, the nation faces an \$836 billion backlog in needed repairs and improvements to the nation's roads, highways and bridges.³⁴

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 35 percent to \$142.5 billion annually to improve the conditions of roads, highways and bridges, relieve traffic congestion and improve traffic safety.

Importance of Transportation to Economic Growth

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

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

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

Every year, \$395 billion in goods are shipped to and from sites in Kansas, mostly by trucks.³⁵ Eighty-two percent of the goods shipped annually to and from sites in Kansas are carried by trucks and another 12 percent are carried by courier services or multiple-mode deliveries, which include trucking.³⁶

The cost of road and bridge improvements are more than offset by the reduction of user costs associated with driving on rough roads, the improvement in business productivity, the

reduction in delays and the improvement in traffic safety. The [Federal Highway Administration estimates](#) that each dollar spent on road, highway and bridge improvements results in an average benefit of \$5.20 in the form of reduced vehicle maintenance costs, reduced delays, reduced fuel consumption, improved safety, reduced road and bridge maintenance costs and reduced emissions as a result of improved traffic flow.³⁷

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 two site selection factor behind only the availability of skilled labor in a 2015 survey of corporate executives by [Area Development Magazine](#).³⁸

Conclusion

As Kansas works to build and enhance a thriving, growing and dynamic state, it will be critical that it is able to address the state's most significant transportation issues by providing a 21st century network of roads, highways, bridges and transit that can accommodate the mobility demands of a modern society.

Kansas will need to modernize its surface transportation system by improving the physical condition of its transportation network and enhancing the system's ability to provide

efficient, safe and reliable mobility for residents, visitors and businesses. Making needed improvements to the state's roads, highways, bridges and transit systems could provide a significant boost to the economy by creating jobs in the short term and stimulating long-term economic growth as a result of enhanced mobility and access.

While the modest funding increase provided by the FAST Act will be helpful, numerous projects to improve the condition and expand the capacity of Kansas' roads, highways, bridges and transit systems are threatened by the ongoing transfer of state highway funds to the state general fund and other state agencies. If Kansas is unable to complete needed transportation projects it will hamper the state's ability to improve the condition and efficiency of its transportation system or enhance economic development opportunities and quality of life.

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Endnotes

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- ² Highway Statistics (2015). Federal Highway Administration. DL-1C
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- ⁴ Ibid.
- ⁵ U.S. Department of Transportation - Federal Highway Administration: Highway Statistics 2000 and 2015.
- ⁶ Ibid.
- ⁷ TRIP calculation based on U.S. Census and Federal Highway Administration data.
- ⁸ Federal Highway Administration (2016). Pavement condition data is for 2015.
- ⁹ Ibid.
- ¹⁰ Ibid.
- ¹¹ Ibid.
- ¹² Ibid.
- ¹³ Ibid.
- ¹⁴ Ibid.
- ¹⁵ [North Carolina Department of Transportation \(2016\). 2016 Maintenance and Operations and Performance Analysis Report \(MOPAR\)](#). P. 24.
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- ²³ Ibid.
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- ³¹ Ibid.
- ³² “Surface Transportation Reauthorization and the Solvency of the Highway Trust Fund,” presentation by Jim Tymon, American Association of State Highway and Transportation Officials (2014).
- ³³ 2015 “Fixing America’s Surface Transportation Act.” (2015) American Road and Transportation Builders Association. <http://www.artba.org/newsline/wp-content/uploads/2015/12/ANALYSIS-FINAL.pdf>
- ³⁴ United States Department of Transportation (2015). 2015 Status of the Nation’s Highways, Bridges, and Transit: Conditions and Performance. Executive Summary, Chapter 8. <https://www.fhwa.dot.gov/policy/2015cpr/es.cfm#8h>
- ³⁵ TRIP analysis of Bureau of Transportation Statistics, U.S. Department of Transportation. 2012 Commodity Flow Survey, State Summaries.
- ³⁶ Ibid.

³⁷ FHWA estimate based on its analysis of 2006 data. For more information on FHWA's cost-benefit analysis of highway investment, see the 2008 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance.

³⁸ Area Development Magazine (2016). 30th Annual Survey of Corporate Executives: Availability of Skilled Labor New Top Priority. <http://www.areadevelopment.com/Corporate-Consultants-Survey-Results/Q1-2016/corporate-executive-site-selection-facility-plans-441729.shtml>