



Kentucky's Surface Transportation System

ROAD AND BRIDGE CONDITIONS, TRAFFIC SAFETY,
TRAVEL TRENDS, AND NEEDS

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PREPARED BY



a national transportation research group

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Founded in 1971, [TRIP](http://WWW.TRIPNET.ORG)® 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.

The quality of life and economic health of a community is closely tied to the reliability, safety and physical condition of its transportation system. An efficient, safe and well-maintained transportation system provides economic and social benefits by providing individuals access to employment, housing, healthcare, education, goods and services, recreation and social activities, while connecting businesses to suppliers, markets and employees.

A lack of adequate transportation funding can result in deteriorated road and bridge conditions, diminished traffic safety and reduced access, all of which hamper business productivity, limit economic development opportunities, increase vehicle operating costs and reduce a region's overall quality of life. Providing a safe, efficient and well-maintained 21st century transportation system, which will require long-term, sustainable funding, is critical to supporting economic growth, improved safety and quality of life.

TRIP has prepared individual reports on travel trends, traffic safety, and road and bridge conditions in [each of Kentucky's 12 Highway Districts](#). This summary document includes information for each Highway District and statewide.

Sources of information for the report include a survey of county governments by the Kentucky Magistrates & Commissioners Association (KMCA), the Kentucky Office of Highway Safety and the Federal Highway Administration (FHWA).

Population and Travel Trends

Kentucky was home to 4.4 million residents in 2016, based on estimates from the U.S. Census Bureau. Vehicle travel in the state totaled 49.5 billion miles in 2016, an increase of five percent since 2013 (according to the Federal Highway Administration).

Pavement Conditions

The life cycle of Kentucky's 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.

Based on results of a TRIP survey completed by members of KMCA, TRIP has calculated the share of county maintained roads in poor, fair or good condition throughout the state and in each of the state's 12 Highway Districts. Survey responses indicated 20 percent of Kentucky's county maintained roads are in poor condition, 26 percent are in fair condition and 53 percent are in good condition (pavement conditions for one percent of county maintained roads were unreported).

The chart below details pavement conditions on county maintained roads statewide and in each of the state's 12 Highway Districts.

CHART 1: Share of county maintained roads in poor, fair or good condition in each Highway District and statewide.

Highway District	Poor Condition	Fair Condition	Good Condition
1	17%	23%	60%
2	23%	21%	56%
3	17%	28%	56%
4	19%	26%	52%
5	14%	19%	67%
6	23%	27%	50%
7	10%	14%	76%
8	22%	29%	49%
9	30%	24%	44%
10	34%	34%	33%
11	26%	34%	41%
12	17%	34%	49%
Kentucky	20%	26%	53%

Roads rated poor may show signs of deterioration, including rutting, cracks and potholes. In some cases, poor roads can be resurfaced but often are too deteriorated and must be reconstructed. Roads rated in fair condition may show signs of significant wear and may also have some visible pavement distress. Most pavements in fair condition can be repaired by resurfacing, but some may need more extensive reconstruction to return them to good condition.

Pavement failure is caused by a combination of traffic, moisture and climate. Moisture often works its way into road surfaces and the materials that form the road’s foundation. Road surfaces at intersections are even more prone to deterioration because the slow-moving or standing loads occurring at these sites subject the pavement to higher levels of stress. It is critical that roads are fixed before they require major repairs because reconstructing roads costs approximately four times more than resurfacing them.

The KMCA survey of county governments found that 29 percent of Kentucky’s county-maintained roads are in need of resurfacing, but current funding levels will only allow for the resurfacing of three percent of the state’s county-maintained roads in 2017. The survey also found that nine percent of the state’s county-maintained roads are in need of reconstruction, but current funding will only allow for the reconstruction of one percent of county-maintained roads in 2017.

The chart below details the share of miles of county maintained roads in each Highway District and statewide that are in need of resurfacing or reconstruction, as well as the share that are projected to be resurfaced or reconstructed in 2017 with the current amount of funding available.

Chart 2. Share of county-maintained roads in need of resurfacing or reconstruction and share that will be able to be resurfaced or reconstructed in 2017.

Highway District	Need To Be Resurfaced	Plan to Resurface in 2017	Need To Be Reconstructed	Plan to Reconstruct in 2017
1	39%	3%	11%	0%
2	19%	2%	6%	0%
3	18%	3%	7%	0%
4	22%	4%	9%	1%
5	22%	5%	3%	0%
6	33%	9%	2%	1%
7	18%	3%	5%	0%
8	29%	3%	13%	0%
9	45%	2%	20%	1%
10	57%	2%	26%	4%
11	38%	1%	8%	0%
12	38%	7%	5%	0%
Kentucky	29%	3%	9%	1%

Bridge Conditions:

Kentucky has 14,265 bridges that are at least 20 feet long and are included in the Federal Highway Administration’s National Bridge Inventory (NBI). According to NBI data, in 2016, 1,110 of these bridges (eight percent) were rated as structurally deficient.

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

The following chart provides information on the share of structurally deficient bridges statewide and in each Highway District.

CHART 3: Share and percentage of structurally deficient bridges in each Highway District and statewide.

Highway District	Structurally Deficient	Structurally Deficient	Total Bridges
1	123	7%	1,752
2	123	6%	1,937
3	25	3%	864
4	67	6%	1,092
5	123	10%	1,226
6	81	8%	962
7	61	5%	1,260
8	61	6%	963
9	73	6%	1,145
10	67	8%	862
11	249	21%	1,183
12	104	10%	1,019
Kentucky	1157	8%	14,265

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

Traffic Safety:

Three major factors are associated with 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 and other shielding devices, median barriers, and intersection design.

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

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

Based on TRIP analysis of data provided by the Kentucky Office of Highway Safety, during the three-year period of 2014 to 2016, there were an average of 755 fatalities per year in

Kentucky. Forty-eight percent of traffic fatalities in the state during this period were as a result of a vehicle leaving the roadway. During the three-year period of 2014 to 2016, there were an annual average of 3,168 serious injuries as a result of traffic crashes in Kentucky.

According to TRIP analysis of data provided by the Kentucky Office of Highway Safety, the traffic fatality rate in Kentucky during the three-year period of 2014 to 2016 was 1.54 deaths per 100 million miles of vehicle travel. This compares with a national average of 1.08.

The chart below details the average number of traffic fatalities and serious injuries each year from 2014-2016, the share of fatalities involving the vehicle leaving the roadway during that time and the fatality rate per 100 million vehicle miles of travel (VMT).

Chart 4. Traffic fatalities, serious injuries, share of fatalities involving the vehicle leaving the roadway and the fatality rate per 100 million vehicle miles of travel in each Highway District and statewide.

District	Average Fatalities 2014-16	Average Serious Injuries 2014-16	Fatalities Involving Roadway Departure	Fatality Rate per 100M VMT
1	57	200	56%	1.86
2	63	282	43%	1.44
3	55	180	52%	1.57
4	76	249	52%	1.98
5	128	886	32%	1.23
6	53	247	40%	0.99
7	106	436	49%	1.45
8	54	151	48%	2.17
9	32	152	53%	1.42
10	40	99	65%	3.13
11	52	192	56%	1.84
12	39	93	55%	1.97
Kentucky	755	3,168	48%	1.54