Kentucky Highway District 12

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

FEBRUARY 2018

PREPARED BY

TRIP
a national transportation research group
WWW.TRIPNET.ORG

Founded in 1971, TRIP ® of Washington, DC, is a nonprofit organization that researches, evaluates and distributes economic and technical data on surface transportation issues. TRIP is sponsored by insurance companies, equipment manufacturers, distributors and suppliers; businesses involved in highway and transit engineering and construction; labor unions; and organizations concerned with efficient and safe surface transportation.

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 the following report on travel trends, traffic safety, and road and bridge conditions in Kentucky's Highway District 12, which is located in the easternmost portion of the state and includes the following seven counties: Floyd, Johnson, Knott, Lawrence, Letcher, Martin and Pike.

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

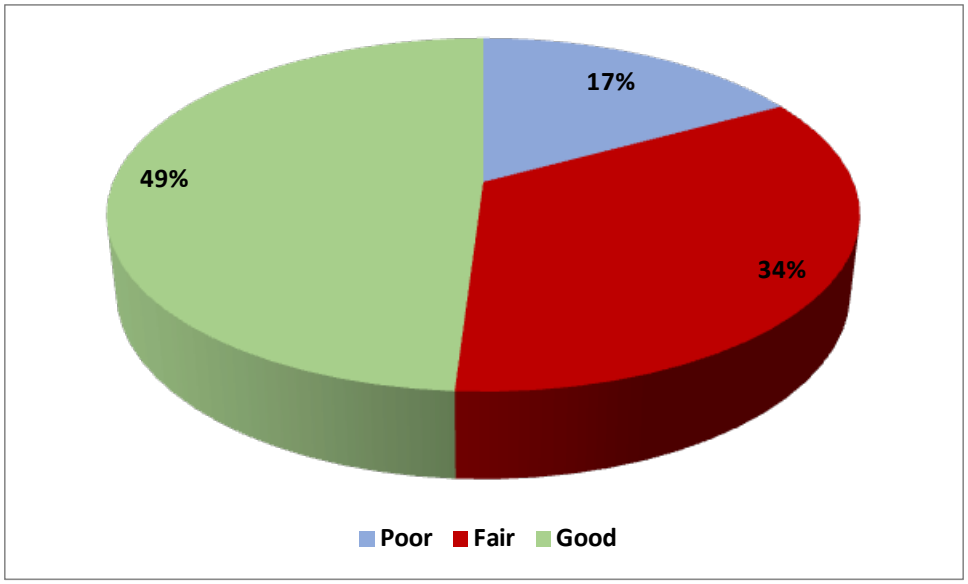
The seven counties that comprise District 12 were home to 187,000 residents in 2016, based on estimates by the U.S. Census Bureau. Vehicle travel in District 12 totaled 2 billion miles in 2016 (based on data provided to TRIP by the Kentucky Office of Highway Safety).

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 in Highway District 12. Survey responses indicated 17 percent of county maintained roads are in poor condition, 34 percent are in fair condition and 49 percent are in good condition.

CHART 1: Share of county maintained roads in poor, fair or good condition in Highway District 12.



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 38 percent of Highway District 12's county-maintained roads are in need of resurfacing, but current funding levels will only allow for the resurfacing of seven percent of county-maintained roads in 2017. The survey also found that five percent of Highway District 12's county-maintained roads are in need of reconstruction, but current funding will only allow for the reconstruction of less than one half of one percent of county-maintained roads in 2017.

Bridge Conditions:

Highway District 12 has 1,019 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, 104 of these bridges (ten percent) were rated as structurally deficient. Sixty-four of the 104 structurally deficient bridges in Highway District 12 are posted with weight-restrictions, which limits them to carrying lighter vehicles.

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 25 most heavily traveled structurally deficient bridges in Highway District 12.

CHART 2: Most heavily traveled structurally deficient bridges in Highway District 12

Rank	County	City	Route Carried	Feature Intersected	Location	Year Built	Avg. Daily Traffic
1	Lawrence		KY-3	LEVISA&TUG FKS-BIG SANDY	.1 MI E-MAIN ST-KY 2566	1977	9,621
2	Pike		HARVEY STREET	TUG FK OF BIG SANDY RVR	AT WEST VIRGINIA STATE LN	1951	8,705
3	Floyd		KY-3	CSX RAILROAD & LEVISA FK	.1 MI SOUTH - KY 321	1992	6,415
4	Letcher		KY 2034C	N FK KY RIVER	200 N US 119	1921	4,514
5	Pike		KY-80	BEAVER CREEK	N @JCT KY 1373 @CEDARVLLE	1933	4,310
6	Martin		KY-40	ROCKCASTLE CREEK	.05 MI W OF JCT KY 3-NOR.	1953	4,241
7	Pike		KY-610	LONG FORK	.1 MI S OF JCT KY 1469	1927	4,218
8	Pike		KY-1441	RACCOON CREEK	1.4 MI S.E. OF JCT KY1426	1969	3,147
9	Letcher		KY-805	POTTERS FORK	.05 MI SW OF JCT KY 317	1926	3,045
10	Knott		KY-160	CARRS FORK LAKE	1.7 MI N. JCT KY 15	1970	2,903
11	Floyd		KY-1426	MUD CREEK	.3 MI NW OF N-JCT KY 979	1979	2,657
12	Pike		KY-122	ROBINSON CREEK	1.5 MI NE OF JCT KY 610	1927	2,564
13	Pike		BIG BRANCH RD	ELKHORN CREEK	.1 MI NW OF JCT KY 197	1972	2,407
14	Floyd		KY-979	MUD CREEK	.05 MI S OF JCT KY 680	1976	2,396
15	Pike		KY-199	PINSONS CREEK	.85 MI N OF JCT KY 1056	1934	2,302
16	Letcher		KY-931	N. FORK KENTUCKY RIVER	.10 MI SOU. OF JCT KY 588	1968	2,242
17	Pike		KY-610	SHELBY CREEK	1.3 MI S OF JCT KY 1469	1927	2,104
18	Pike		KY- 1426	BENT BRANCH	.2 MI E OF NE-JCT KY 194	1921	1,858
19	Letcher		KY-343	WRIGHT FORK	.40 MI EAST OF JCT KY 317	1956	1,675
20	Pike		KY-3220	BIG CREEK	2.5 MI S.E. OF JCT KY 468	1923	1,592
21	Martin		KY-40	ROCKHOUSE FORK	.05 MI E OF JCT KY 1884	1927	1,433
22	Johnson		KY-40	BR OF LITTLE PAINT CREEK	0.5 MI. E.-MAGOFFIN CO.	1961	1,422
23	Letcher		KY-1862	NORTH FORK KY RIVER	.25 MI SE OF JCT US 119	1982	1,317
24	Letcher		KY-2034	CRAFTS COLLY CREEK	2.4 MI NOR. OF JCT US 119	1930	1,185
25	Floyd		KY-550	BRUSH CREEK	.05 MI S.W. OF JCT KY 850	1932	1,180

Indicates bridge is currently closed

Indicates bridge is restricted to only lower-weight vehicles

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

The following chart provides information on the 25 structurally deficient bridges in Highway District 12 (carrying a minimum of 100 vehicles per day) with the lowest average rating for deck, substructure and superstructure. Each major component of a bridge is rated on a scale of zero to nine, with a score of four or below indicating poor condition. If a bridge receives a rating of four or below for its deck, substructure or superstructure, it is rated as structurally deficient.

CHART 3: Structurally deficient bridges with lowest average rating for deck, substructure and superstructure.

Rank	County	City	Route Carried	Feature Intersected	Location	Year Built	Avg. Daily Traffic
1	Knott		KY-3209	BALL FORK	.05 MI E JCT KY 1087	1972	401
2	Floyd		KY-550	BRUSH CREEK	.05 MI S.W. OF JCT KY 850	1932	1,180
3	Martin		KY-40	ROCKHOUSE FORK	.05 MI E OF JCT KY 1884	1927	1,433
4	Floyd		KY-1100	LITTLE PAINT CREEK	ON JOHNSON - FLOYD CL	1927	229
5	Pike		BIG BLUE SPRINGS R	BLACKBERRY CREEK	S @JCT KY 1056	1950	200
6	Pike		KY-610	LONG FORK	.1 MI S OF JCT KY 1469	1927	4,218
7	Letcher		KY-3404	POOR FK OF CUMBERLAND R.	.1 MI S OF JCT US 119	1935	528
8	Letcher		KY-803	MILLSTONE CREEK	1 MI NE OF JCT KY 113	1981	448
9	Letcher		HAMPTON BR	COWAN CREEK	.1 MI SW OF JCT KY 931	1948	224
10	Letcher		LOW GAP BR	ROCKHOUSE CREEK	SE @JCT KY 7	1950	160
11	Pike		KY-122	ROBINSON CREEK	1.5 MI NE OF JCT KY 610	1927	2,564
12	Pike		BIG BRANCH RD	ELKHORN CREEK	.1 MI NW OF JCT KY 197	1972	2,407
13	Pike		KY-199	PINSONS CREEK	.85 MI N OF JCT KY 1056	1934	2,302
14	Pike		KY- 1426	BENT BRANCH	.2 MI E OF NE-JCT KY 194	1921	1,858
15	Letcher		KY-343	WRIGHT FORK	.40 MI EAST OF JCT KY 317	1956	1,675
16	Johnson		KY-40	BR OF LITTLE PAINT CREEK	0.5 MI. E.-MAGOFFIN CO.	1961	1,422
17	Letcher		KY-1862	NORTH FORK KY RIVER	.25 MI SE OF JCT US 119	1982	1,317
18	Letcher		KY-2034	CRAFTS COLLY CREEK	2.4 MI NOR. OF JCT US 119	1930	1,185
19	Floyd		KY-466	LEFT FORK BEAVER CREEK	2.1 MI SOU. OF JCT KY 122	1935	1,080
20	Pike		KY-199	POND CREEK	1.7 MI SW OF JCT KY 1056	1934	631
21	Pike		CR 1070	POND CREEK	.05 MI. S. JCT US 119	1985	600
22	Letcher		KY-588	N. FORK KENTUCKY RIVER	SE @JCT KY 7 @BLACKEY	1930	592
23	Pike		PIGEON ROOST RD	BIG CREEK	.1 MI S OF KY 3220	1965	500
24	Pike		NORTH RIVER RD CON	LEVISA FORK	E @JCT US 460	1975	500
25	Pike		MULLEN FRK	POND CREEK	.1 MI SW OF JCT KY 199	1935	300

Indicates bridge is currently closed

Indicates bridge is restricted to only lower-weight vehicles

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 118 traffic fatalities in Highway District 12, an average of 39 fatalities per year. Fifty-five percent of traffic fatalities in Highway District 12 during this period were as a result of a vehicle leaving the roadway. During the three-year period of 2014 to 2016, there were 278 serious injuries as a result of traffic crashes in Highway District 12, an average of 93 serious injuries per year.

According to TRIP analysis of data provided by the Kentucky Office of Highway Safety, the traffic fatality rate in Highway District 12 during the three-year period of 2014 to 2016 was 1.97 deaths per 100 million miles of vehicle travel. This compares with a statewide average of 1.54 deaths per 100 million vehicle miles of travel and a national average of 1.08.

Top Transportation Needs in Highway District 12:

As part of KMCA's survey of its members, local government officials were asked to indicate their three greatest transportation needs. The three greatest needs indicated by survey respondents in Highway District 12 were, in order:

1. need for additional road rehabilitation and repair;
2. need for additional funding for road, highway and bridge improvements; and,
3. need for new road maintenance equipment for road departments.