

ISSUE BRIEF



KENTUCKY ROADS

2011 Kentucky Grade: D

Date: February 1, 2011

Kentuckians depend on the transportation network to travel to and from work and school each day and to obtain goods and services. The transportation system must expand and adapt to meet the needs of the state as the economy and population continue to grow, which requires continuous improvement and investment in the safety and capacity of the network.

CURRENT CONDITIONS

According to the Kentucky Transportation Cabinet's (KYTC) Statewide Maintenance Rating Program for 2010, the statewide maintenance levels of service for all roads average 79.7 percent, which is slightly below their target performance level of 80 percent for good condition. The target serves as a benchmark to help identify best practices and opportunities for improvement. *Table 1* shows roadway classifications and their collective score.

*Table 1 – Statewide Maintenance Levels of Service**

Statewide Scores FY 10		
<i>Classification</i>	<i>Score</i>	<i>Grade*</i>
Interstates	89.0	B
National Highway System	87.0	B
State Primary and Secondary	81.9	B
Rural Secondary	73.9	C
All Roads	79.7	C

**These scores are used by the KYTC as an internal measure of maintenance service levels. These grades are not associated with the overall Kentucky Roads Report Card.*

Congestion and delays are growing problems in Kentucky. According to data from the Kentuckiana Regional Planning and Development Agency (KIPDA), between 1982 and 2003, growth in hours of delay in the Kentucky area (specifically the Louisville metropolitan area and Northern Kentucky/Cincinnati area) outpaced the average growth for a medium area, which is defined as an area with a population between 500,000 and 1 million. *Figure 1* shows a summary of KIPDA's freeway level of service data.

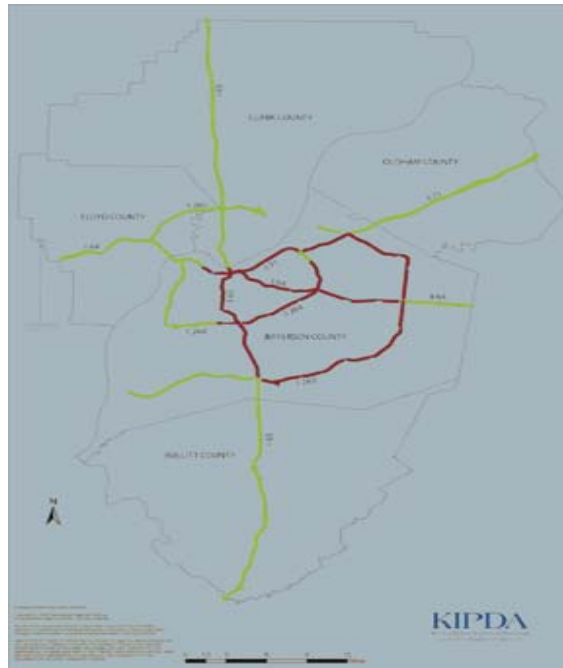


Figure 1 – KIPDA Level of Service Map of Jefferson County and Surrounding Counties

All freeway segments shown in red in *Figure 1* are routinely operating at or above capacity, while those sections shown in green are routinely operating below capacity. Level of service is categorized from A to F. An A level indicates a free flow of traffic at average speeds, while an F level is characterized by every vehicle moving in lockstep with the vehicle in front of it, with frequent drops in speed to nearly 0 MPH, severe delays, high volume and extensive queuing. Once demand exceeds capacity on a freeway segment, efficiency suffers and drivers begin to experience unacceptable delays.

Delays per person due to traffic congestion nationwide increased 236 percent from 1982 to 2000. Highway travel during that time increased 72 percent, while the U.S. population grew by 19 percent. At the same time, new road mileage grew only 6 percent. This trend has continued from 2000 to 2010 and will continue to increase unless improvements are made to increase capacity on Kentucky roads.

The Road Information Project (TRIP) publishes average pavement conditions for metropolitan areas. According to TRIP, 14 percent of pavement in the Louisville area is in poor condition, compared to 13 percent in Cincinnati, 7 percent in Nashville and 27 percent in Indianapolis. As a result of poor pavement conditions, motorists in Louisville pay an additional \$391 in vehicle operating costs per year, compared to \$285 in Cincinnati, \$177 in Nashville and \$490 in Indianapolis.

KYTC pavement condition data indicates that the percentage of pavement on primary state routes in poor condition increased from 13 to 21 percent between 2005 and 2007. During this same time, District 5 (the Louisville metropolitan area), increased from 21 to 25 percent. Even though the percentage of poor pavement on primary state routes has increased, the percentage of poor pavements on rural secondary routes has been steadily decreasing.

In 2009, 730 individuals were killed and 25,063 were injured on Kentucky's highways. Based on these numbers, one in 16 drivers was involved in a traffic collision, one in 126 was injured in a traffic collision and one out of every 3,200 was involved in a fatal accident. The Kentucky fatality rate is 1.68 fatalities per 100 million vehicle miles traveled, whereas the national average is 1.16.

In 2008, Kentucky had the 45th lowest seatbelt usage rate in the U.S. at 73.3 percent. The usage rate increased 6 percent since Kentucky passed a primary seat belt law in 2006. According to the National Highway Traffic Safety Administration, states with stronger belt enforcement laws exhibit generally higher usage rates than those with weaker laws. Fifteen states have 90 percent or higher seatbelt usage rate.

Investment Needs

Significant improvements are needed across the state to increase capacity of the transportation system and safety of existing roads in rural settings and to maintain pavements in a minimally acceptable condition of service.

KYTC maintains a list of unscheduled projects, which includes roadway projects in various stages of planning and design that have not yet been funded. Currently, more than \$40 billion in projects is on the KYTC unscheduled projects list. In addition, individual counties have their own roadway projects that have been planned but do not have a funding source.

Pavement in poor condition affects the safety and comfort of the motoring public and increases vehicle operating and maintenance costs. Postponement of improving poor pavements accelerates deterioration and may result in more expensive improvements and repairs in the future. The Six-Year-Highway Plan allocates less than \$1 billion annually to meet roadway infrastructure needs. Consequently, Kentucky currently has a project-funding backlog of more than 50 years worth of projects.

In addition to the scarcity of funding for roadway construction, there is also a shortfall in maintenance funding. The price of asphalt has risen dramatically with the price of oil. Neither KYTC nor individual counties can keep up with their annual paving schedules. From 2005 to 2007, the cost per mile to resurface primary state routes increased 28 percent, while the amount of miles resurfaced per year decreased 27 percent. The reduction in paving by individual counties is even more drastic.

KYTC's Operations and Pavement Management Branch proposed implementing preventive maintenance techniques to extend pavement life to align with its current resurfacing cycle. This comes at a cost of 20 to 25 percent of the current paving budget in additional funding, which is between \$16.7 and \$20.9 million. In order to maintain pavements at their current conditions while also maintaining the current "worst-first" paving strategy, an additional 40 to 80 percent of the current budget, which amounts to between \$32.5 and \$70.5 million, would be required. If current paving strategies and funding are maintained, 30 to 40 percent of pavements will deteriorate to poor condition in the next three years.

RECOMMENDATIONS SUPPORTED BY ASCE

The following recommendations are supported by ASCE:

- Dedicate funding to reduce the backlog of unfunded roadway improvement projects
- Prioritize projects that will ease congestion and promote economic development throughout the metropolitan areas
- Develop and adopt improved preventive maintenance programs at both the state and county levels to slow the decline in pavement conditions.
- Provide additional funding for preventive maintenance projects
- Coordinate congestion relief efforts with mass transportation improvements
- Find alternative methods of funding
- Increase education around seatbelt safety

GRADE

Kentucky continues to struggle with a growing list of roadway improvement needs and has inadequate funding to support improvements. Without sufficient roadway funding, Kentucky counties will have difficulty providing adequate levels of service and ensuring safety.

The primary funding source for roads in Kentucky is the gas tax, which provided \$500 million in 2007 for transportation projects statewide. As gas prices rise and vehicle miles traveled decrease as a result, gas tax revenue will also decrease. Lack of interest in mass transportation in Kentucky is a contributing factor in roadway congestion and poor road conditions.

Roads in Kentucky are assigned a grade of a D.

KENTUCKY ROADS SUB-COMMITTEE

Donald E. Horn, PE, P.L.S., Committee Chair, HDR, Inc.

Frances E. Blandford, EIT, University of Louisville

Chase K. Wright, EIT, Strand Associates, Inc.

SOURCES

1. ASCE. (2009). *Report Card for America's Infrastructure 2009*.
2. ASCE Kentucky Section. (2003). *2003 Report Card for Kentucky's Infrastructure*.
3. Kentuckiana Regional Planning and Development Agency. *Congestion Management Process Overview for the Louisville (KY-IN) Metropolitan Planning Area*. Retrieved January 19, 2011: http://www.kipda.org/files/PDF/Transportation_Division/Information?CMPOverview.pdf

4. Operations and Pavement Management Branch, Kentucky Transportation Cabinet. *Condition of Pavements on Kentucky Highways State Primary, State Secondary, Supplemental, and Rural Secondary Roads 2007*. Retrieved January 2011: <http://transportation.ky.gov/Maintenance/PM%20Reports/statewide%20Report-.pdf>
5. TRIP. *Keep Both Hands on the Wheel: Metro Areas with the Roughest Rides and Strategies to make our Roads Smoother* Retrieved January 2011: <http://www.tripnet.org/research.htm>