

## V. PURPOSE AND NEED STATEMENT

The general purpose of this study is to improve highway safety along US 431 in Kentucky. As a secondary goal, increasing access and connectivity for this regional corridor is also desirable. Projects identified as part of this study should address these needs.

**Purpose and Need**  
 - Improve Safety  
 - Increase Access & Connectivity

### A. Improve Safety

The existing US 431 corridor winds from the Tennessee state line in Logan County to the Owensboro Bypass in Daviess County. Sections of the route take on urban and rural characteristics, depending on their setting.

For the most part, US 431 is a two-lane undivided highway with 9 to 12 foot lanes and narrow shoulders. Especially in rural areas, numerous horizontal and vertical curves restrict sight distances and create potential safety problems along the existing alignment. Single vehicle collisions with objects are common in rural portions of the route; limited sight distance and driveways without turn lanes also lead to rear end and angle type collisions. In urban areas like Central City and Owensboro, the cross-section expands to 3 or 4 lanes with turning bays, curb-and-gutter, and sidewalks in select areas. Concentrations of access points increase conflict opportunities in the developed portions of the corridor, reflected in an increased number of rear end and angle type crashes as driveway densities and traffic volumes increase.

In the four year analysis period from 2003 to 2006, there were 583 reported crashes in the Phase I portion of the route, including 11 fatalities and 165 injuries. For Phase II, there were 611 reported crashes during the same period, including 9 fatalities and 191 injury crashes. A total of 4 segment and 26 spots with a CRF above 1.00 were identified in Phase

I; 4 segments and 14 spots with a CRF above 1.00 were identified in Phase II.

#### **Crash Rates by Vehicle Miles Travelled (VMT)**

Crash rates by county along US 431, based on 2007 ADT for crashes occurring 2003-2006:

Logan: 2.4 crashes / 1,000,000 VMT

Muhlenberg (Ph I): 1.6 crashes / 1,000,000 VMT

Muhlenberg (Ph II): 3.3 crashes / 1,000,000 VMT

McLean: 1.4 crashes / 1,000,000 VMT

Daviess: 0.8 crashes / 1,000,000 VMT

Compared to a statewide rate on all state roads of approximately 1.9 crashes / 1,000,000 VMT

The portion of US 431 in Muhlenberg County was identified in the KYTC 2006 "Five Percent Report," a federally-mandated list describing the top 5% of locations along state highways exhibiting the most severe highway safety needs. This 28-mile length of roadway

had 13 fatalities and 31 incapacitating injuries in the period 2003-2005.

In addition, the high percentage of heavy coal trucks utilizing the existing route further exasperates safety and operational conditions.

## **B. Improve Access and Connectivity**

Improvements to the roadway should also improve access and connectivity between highways and communities located within and around the project corridor. US 431 is strategically located between the William H. Natcher Green River Parkway and the Edward T. Breathitt Pennyryle Parkway to provide regional north-south connectivity between Tennessee and Indiana, with access to several cities and numerous small communities between.

Level of Service (LOS), used to describe traffic flow along the route, degrades to E or F in many of the small developed areas along the two-lane portions of the route. Frequent stops and limited passing opportunities increase travel times between destinations. On this regionally significant route, individual bottlenecks create a negative perception of the route overall and deter long distance trips. Addressing existing geometric deficiencies will have a positive impact on access at both local and regional levels. It may also improve the economic development potential throughout this corridor.