

KY 536 Interchange Reconstruction

Boone County

KYTC Item 6-14.00

Draft Purpose and Need Statement

The purpose of KY 536 (Mt. Zion Road) Interchange Reconstruction Project is to improve safety and traffic operations within and near the KY 536 interchange with I-71/I-75 in Boone County. The project includes not only reconstructing the interchange, but also consideration of access management concepts along adjacent sections of KY 536 to preserve roadway efficiency and safety for future roadway users.

The KY 536 interchange was opened to traffic in 1992 and underwent improvement in 2007. The improvements, which were implemented as an interim project to address recurring congestion issues prior to the future reconstruction of the interchange, consisted of providing additional lanes beneath the I-75 overpass by constructing a soil-nail wall under the south abutment. This relatively low-cost improvement allowed for the eastbound lanes to be relocated to the south, providing a single left-turn and a through lane in each direction. While these interim improvements resulted in much-needed congestion relief, the current project will address the long-term needs of the corridor.

This section of KY 536 through the I-71/I-75 interchange has historically had a high crash rate. Between 2006 and 2009, there were 207 crashes reported within the project area (from Tiburon Drive west of I-71/I-75 to east of Berberich Drive). Critical Rate Factors (CRFs) have been determined as part of this analysis. The CRF value is calculated by dividing the actual crash rate along a particular roadway segment by the critical rate, which is the maximum accident rate for which it can be said that crashes are occurring randomly based on roadway characteristics and traffic. A CRF less than 1.0 indicates that crashes occur at random, and greater than 1.0 suggests that conditions may exist that contribute to non-random occurrences and a higher than average crash rate. Within the project area, KY 536 has a CRF value of 2.16, suggesting that safety is a significant concern to be addressed by the project. The segment of I-71/I-75 adjacent and through the interchange with KY 536 does not appear to have a high crash rate with a CRF of 0.63. However, the proposed project will also explore ways to improve safety on the interstate entrance and exit ramps by reducing congestion and resulting queues.

Traffic volumes on KY 536 have increased precipitously since the interchange was constructed, and future traffic forecasts suggest that growth trend will continue. Existing traffic volumes range from 17,500 vehicles per day west of the interchange to 23,500 east of the interchange. By 2030, these volumes are expected to increase to 49,000 vehicles per day west of the interchange to 57,000 east. Reconstructing the interchange will be necessary to accommodate this future demand for travel and to provide future mobility through the I-71/I-75 corridor.

Ultimately, the improvements that result from the KY 536 Interchange Reconstruction Project must be consistent with the transportation improvement plan (TIP) for the Ohio-Kentucky-Indiana Metropolitan Planning Organization (MPO) as well as other scheduled projects listed in the KYTC Six-Year Highway Plan.