



CONCEPTUAL IMPROVEMENTS STUDY

Bullitt & Jefferson County
KYTC Item No. 5-550
November 2020



Kentucky Transportation Cabinet
Division of Planning and
Highway District 5





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Executive Summary

The I-65 Conceptual Improvements Study (KYTC Item No. 5-550) was initiated by the Kentucky Transportation Cabinet (KYTC) to examine the need for and scope of improvements required to accommodate traffic demand along I-65 through Bullitt County and southern Jefferson County, from Preston Highway (KY 61) in Lebanon Junction to the Gene Snyder Freeway (I-265) in Louisville. The combination of high traffic volumes, poor pavement conditions, traffic impacts associated with incidents, and limited capacity along alternate routes creates operational issues for traffic flow and compromises safe and reliable interstate travel along the study area portion of I-65, shown in **Figure ES-1**.

PROJECT NEEDS

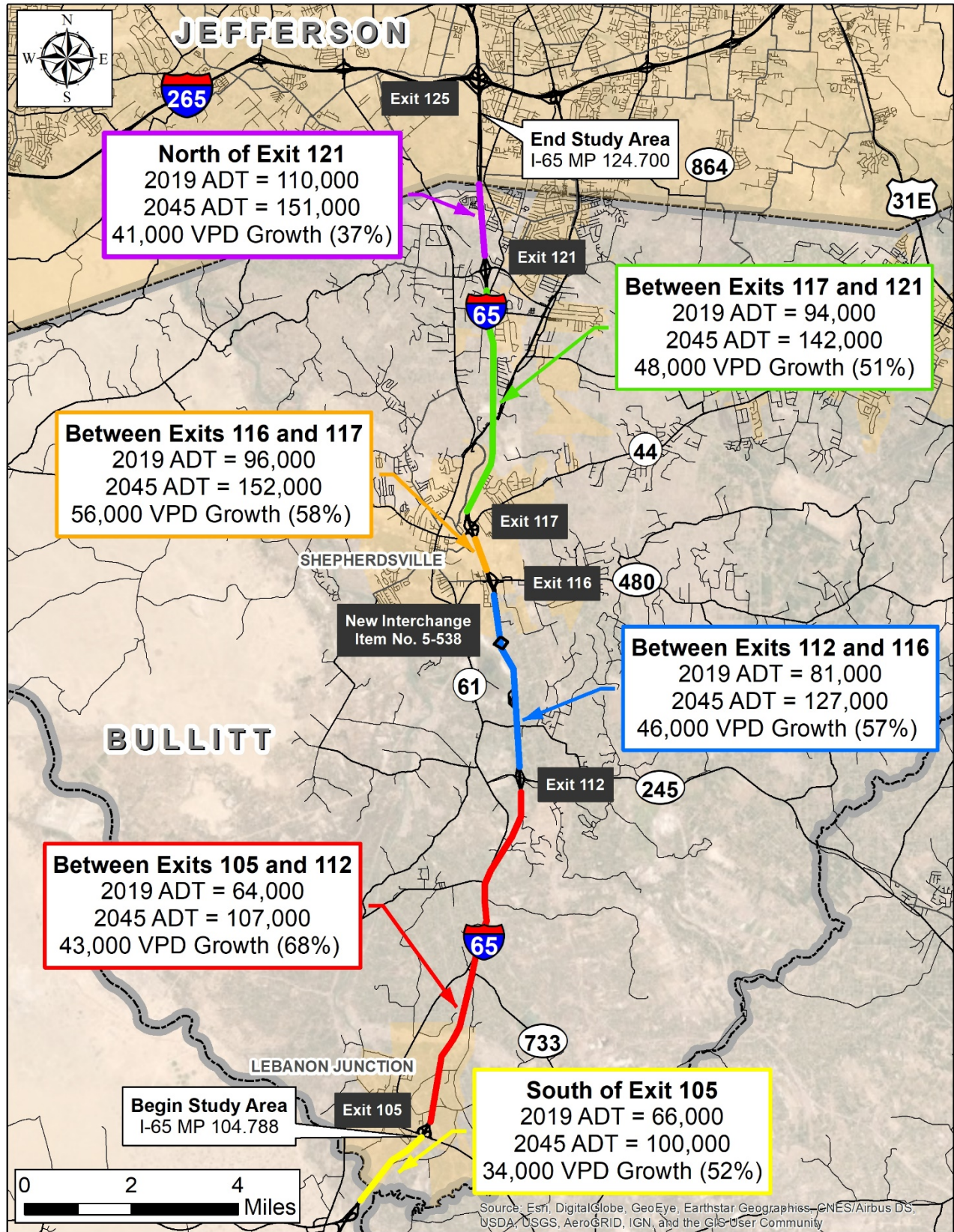
Kentucky's interstate highway system provides access to national and global markets. Within Bullitt County, there are five I-65 interchanges and a sixth (Exit 115) is scheduled to open to traffic in the fall of 2020 that will increase access for manufacturing and logistics industries that currently employ more than 11,000 full-time employees. From the study area, I-65 provides one-day access to well over 60 percent of the major domestic markets¹. Thus, the efficient movement of both people and freight on I-65 is critical to the U.S. economy. I-65 serves a tremendous volume of truck traffic - 22,000 trucks per day at the Bullitt/Jefferson County Line. Forecasts call for the number of trucks to continue to increase as the United States-Mexico-Canada Agreement (USMCA) continues to yield higher volumes of freight between Mexico and Canada. **In 2020, widening the study area portion of I-65 from six to eight lanes was ranked the 16th highest priority project of statewide importance by the Strategic Highway Investment Formula for Tomorrow (SHIFT).** SHIFT is KYTC's data-driven, objective approach to compare capital improvement projects and prioritize transportation funds.



From a local perspective, I-65 is a vital route connecting people to their places of work. Based on home-to-work commuting data from the U.S. Census Bureau, there are 50,000 person trips per day between Jefferson and Bullitt Counties. This number is expected to climb as development within Bullitt County continues to increase. Since 1990, Bullitt County's annual growth has averaged about two percent for population and about four percent for employment. These general trends of high growth are expected to continue, making travel time reliability on I-65 vital to the local and regional economy.

Historical KYTC traffic volumes show Annual Average Daily Traffic (AADT) on the study portion of I-65 ranges from 66,000 vehicles per day (VPD) near Lebanon Junction to 110,000 VPD in Louisville south of the Gene Snyder Freeway (I-265), with trucks representing 19 to 27 percent of that traffic. The combination of high truck traffic and the age of the existing pavement has led to very poor pavement conditions, compromising traffic operations and vehicle safety. By 2045, traffic along the corridor is anticipated to increase to between 107,000 and 152,000 VPD. Based on these traffic projections, without improvements, additional sections of northbound I-65 and most of southbound I-65 north of the Salt River will have undesirable traffic operations.

¹ KIPDA Comprehensive Economic Development Strategy 2018-2023



ES-1: Study Area Existing Traffic and Traffic Forecasts

IMPROVEMENT CONCEPTS

The Project Team examined strategies to address the long-term traffic needs of the corridor as well as more immediate needs related to localized traffic, safety, and operational concerns. Because the concrete pavement needs a full depth replacement, even if the recommendation were to “do nothing”, KYTC will still need to rehabilitate the existing concrete pavement.

Short-Term – Existing operational issues were identified between the KY 480 (Exit 116) and KY 44 (Exit 117) interchanges. These interchanges are of particular interest for several reasons, including the relatively short distance separating them (about 0.5 miles separate the existing acceleration and deceleration lanes) and the high volume of local traffic that uses I-65 to cross the Salt River. Restriping the Salt River Bridge in both directions, as shown in **Figure ES-2**, from six to eight lanes (four lanes in each direction) by simply narrowing the inside and outside shoulders (from 10 feet to 4 feet) would allow for the extension of the existing auxiliary lanes to fully connect the interchange ramps at KY 44 and KY 480 without needing to widen the bridge. This portion of I-65 currently operates at Level of Service (LOS) E but would improve to an acceptable LOS C with the extension of the existing auxiliary lanes.



Figure ES-2: Restripe Salt River Bridge (both directions) to Extend Auxiliary Lanes on I-65 between the KY 480 (Exit 116) and KY 44 (Exit 117) Ramps

To better accommodate southbound exiting traffic at the KY 44 interchange, a dual lane off-ramp is recommended as shown in **Figure ES-3**. This would improve the diverge portion of I-65 from LOS E to LOS D. Most of the traffic turns right onto westbound KY 44 and then right again onto northbound Adam Shepherd Parkway. As a result, a new ramp split to Conestoga Parkway (CS 1170) is also proposed to eliminate the need for dual right turns at the KY 44 intersections with the southbound off-ramp and Adam Shepherd Parkway.

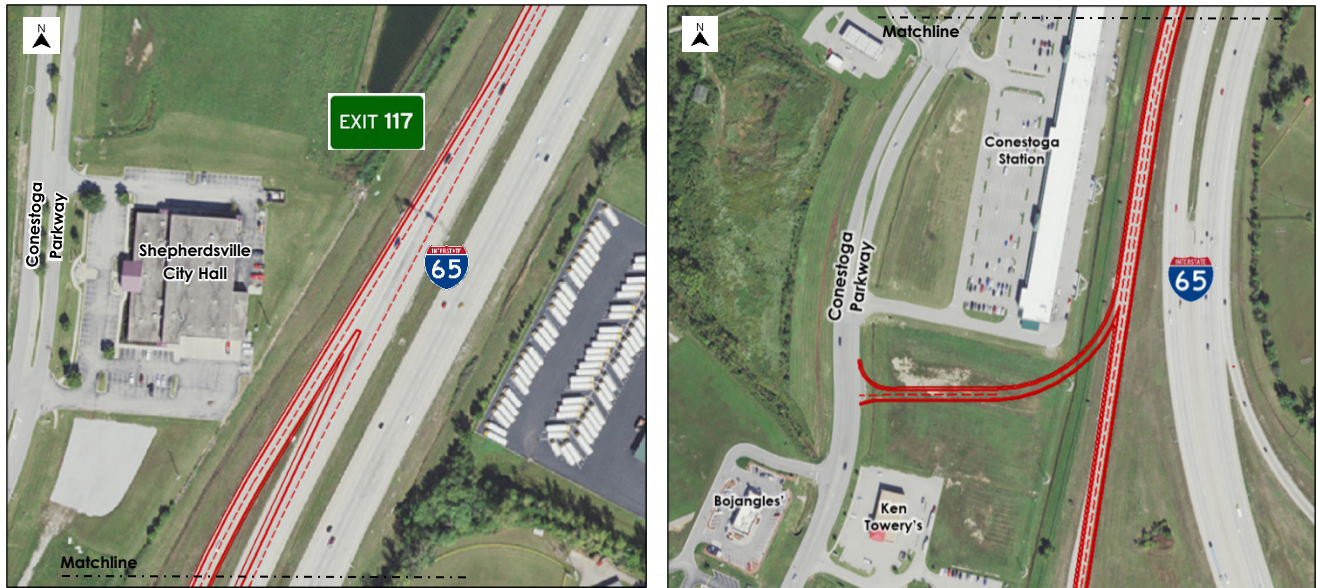


Figure ES-3: Southbound Dual Lane Off-Ramp and Ramp Split to Conestoga Pkwy

Long-Term – Based on a Highway Capacity Software (HCS) traffic analysis, it was determined that most of I-65 north of Exit 112 (KY 245/Clermont Road) would operate at an undesirable LOS E or F during the PM peak by year 2045. Based on this traffic analysis, it is evident that the six-lane portion of I-65 will need additional capacity in the future. A long-term option to increase capacity and reduce congestion is to widen I-65 from six to eight lanes inside the existing 60-ft depressed median, as shown in **Figure ES-4**.

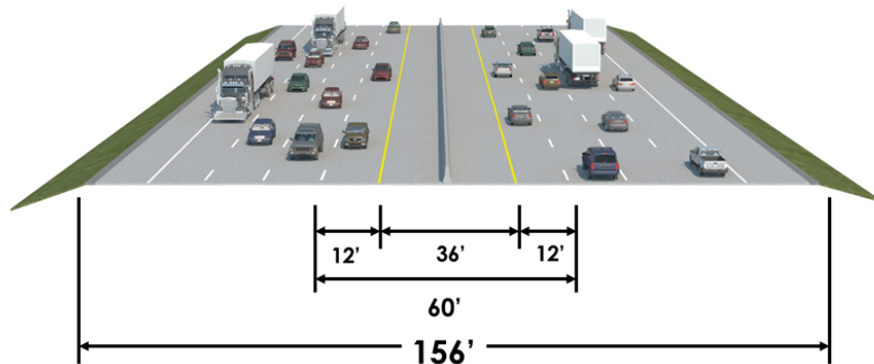


Figure ES-4: Proposed I-65 8-Lane Widening Typical Section Inside Existing Median

CONCLUSIONS

Based on an examination of technical analyses and public input, the Project Team identified priorities through 2030. Due to the high cost, widening I-65 from six to eight lanes would likely be completed in phased segments as funding is made available. Only mainline widening projects projected to be over capacity by 2030 are listed as a priority.

The improvements between the KY 480 and KY 44 interchanges and at the southbound exit ramp to KY 44 were determined to be highest priority because these concepts address existing congestion and safety issues, have a relatively low cost, and would improve the portion of the corridor with the worst existing pavement rating in the study area. From there, widening I-65 from six to eight lanes and/or replacing the existing pavement begins with the sections carrying the most traffic – moving from north to south. **Table ES-1** and **Figure ES-5** present the proposed prioritization of the improvement concepts and the associated evaluation results, including benefit-cost ratios. All of the existing pavement along the study area of I-65 will be replaced, auxiliary lanes between the ramps at Exit 116 (KY 480) and at Exit 117 (KY 44) will be added, and eight through lanes north of Exit 117 (KY 44) to Exit 125 (Gene Snyder Freeway) will be provided once these improvements are completed.

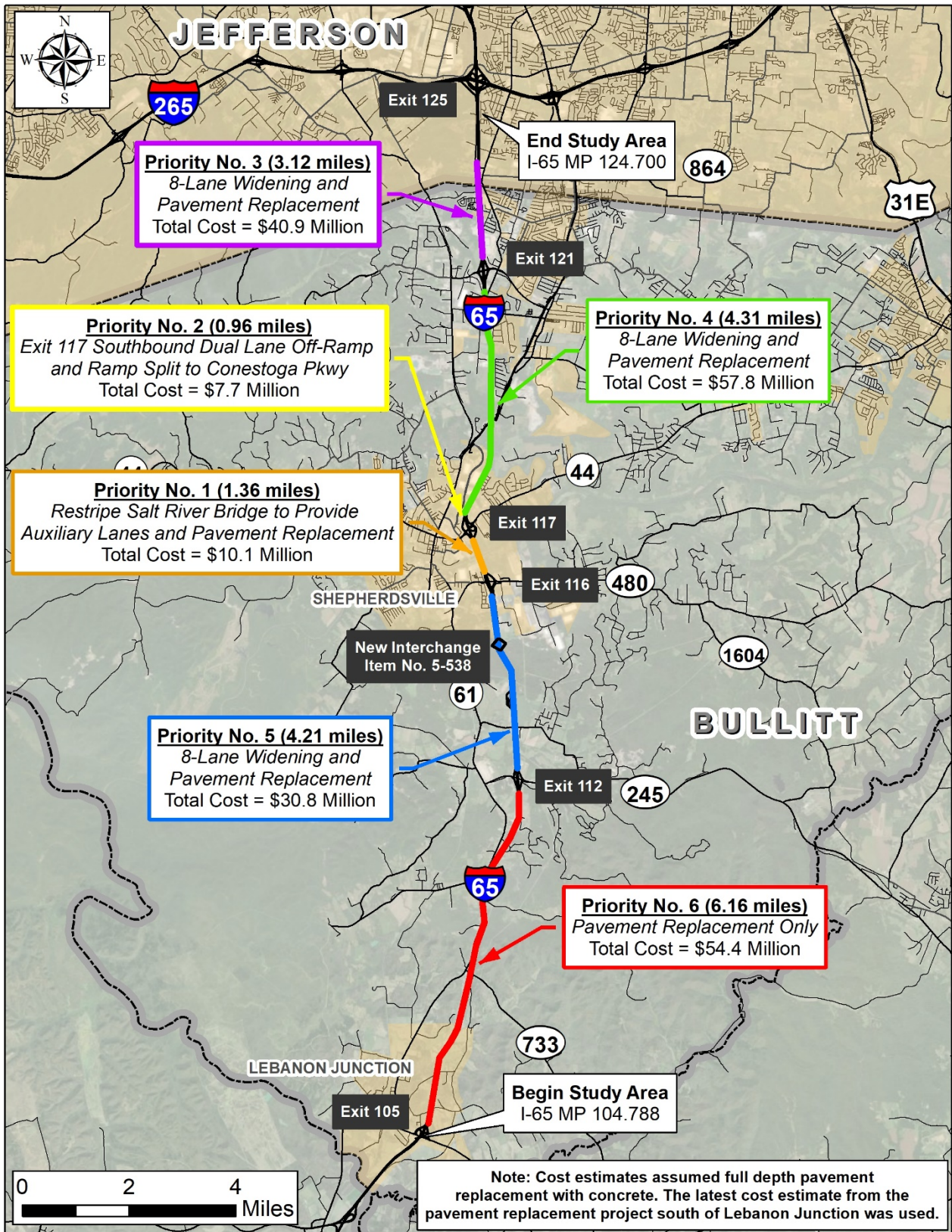
Table ES-1: Improvement Concept Prioritization and Evaluation Matrix

Overall Priority	Improvement Description	Length (mi.)	Year Traffic Demand Will Exceed Available Capacity*	Total Cost Estimate (2020 millions)	Benefit Cost Ratio
1	Exit 116 to Exit 117 Full Depth Pavement Replacement + Restripe Salt River Bridge (both directions) to Extend Auxiliary Lanes on I-65 between the KY 480 (Exit 116) and KY 44 (Exit 117) Ramps	1.36	2021	\$10.1	5.1
2	Exit 117 Southbound Dual Lane Off-Ramp and Ramp Split to Conestoga Pkwy	0.96	2020	\$7.7	--
3	Exit 121 to Exit 125 8-Lane Widening + Full Depth Pavement Replacement	3.12	2020	\$40.9	2.4
4	Exit 117 to Exit 121 8-Lane Widening + Full Depth Pavement Replacement	4.31	2023	\$57.8	1.9
5	Exit 112 to Exit 116 Full Depth Pavement Replacement	4.21	2032	\$30.8	3.6
6	Exit 105 to Exit 112 Full Depth Pavement Replacement	6.16	2046	\$54.4	2.6

*Calculated before the COVID-19 Pandemic

Additional funding sources outside of Kentucky's biennial Highway Plan could be considered to help fund these needed improvements. Possible funding sources include:

- Infrastructure for Rebuilding America (INFRA) Grant: The maximum grant amount for INFRA is \$150 million. A grant of this size could allow KYTC to bundle all the construction sections (Total Cost = \$214 million).
- Better Utilizing Investments to Leverage Development (BUILD) Grant: The maximum grant amount for BUILD is \$25 million. A grant of this size would be ideal for bundling the I-65/KY 480 interchange reconstruction (KYTC Item No. 5-391.30) with restriping the Salt River Bridge to provide auxiliary lanes between KY 480 (Exit 116) and KY 44 (Exit 117) and full depth pavement replacement in Construction Section 3 (Study Priority No. 1). The total cost for these improvements would be \$25.6 million and KYTC could request a BUILD Grant in the amount of \$20.48 million or 80 percent of the cost.



ES-5: Improvement Concept Prioritization