EXECUTIVE SUMMARY

Study Background and Purpose

In 2003, the Ohio-Kentucky-Indiana Regional Council of Governments (OKI), the designated metropolitan transportation planning organization for the greater Cincinnati metropolitan area, completed the Kenton County (KY) Transportation Plan in conjunction with the Kentucky Transportation Cabinet, the Northern Kentucky Area Planning Commission, and the Transit Authority of Northern Kentucky. That plan, which included "recommendations for improving a multi-modal transportation system within the constraints imposed by financial resources" listed improvements to KY 1501 (Hands Pike) as a priority project. The 2006-2012 KYTC Six-Year Highway Plan identified this study as Item 6-8307. In 2007 KYTC selected the consulting firm of Qk4 to conduct the study.

Study Location and Limits

Hands Pike is a 2.52-mile state-maintained collector roadway within Kenton County. It is located in southern Covington, south of I-275 between KY 16 and KY 17.

Project Goals

The goals for projects to be evaluated in the Hands Pike study result from discussions with the KYTC Project Team, local officials, and other project stakeholders. The project goals include:

- Improve safety conditions of KY 1501
- Improve access for local traffic

Further, it was explicitly stated that the goals did not include providing for an improved connector between KY 16 and KY 17.

Conditions Analysis

Traffic counts on Hands Pike reveal an estimated 2008 average daily traffic volume (ADT) of 9,600 vehicles a day (vpd) near the intersection with KY 17, with a Level of Service (LOS) of D, and 4,400 vpd near the intersection with KY 16, with an LOS of C. The entire corridor has a critically high crash rate, but the worst section is along Hands Pike Hill, where more than 90 percent of crashes occurred during wet weather. The percentage of trucks in the traffic stream is less than five percent. In the recent past, KY 17 was widened and reconstructed. That project included rebuilding the approach of KY 1501 to current design standards for approximately 1,100 feet east. From that point to KY 16, the lane widths are a substandard 9 feet wide and the shoulders are 1 foot or less. Access control is by permit only, and the posted speed limit is 35 miles per hour (mph). Right-of-way (R/W) widths average 60 feet. It should be noted that KYTC has programmed, and is buying right-of-way for the reconstruction of KY 16, which will include approximately 1,000 feet of KY 1501.

Alternatives Development and Evaluation

There are discreet transportation issues that vary by location along the Hands Pike corridor. Thus, the corridor was segmented into four analysis sections. Those analysis sections and the short- and long-term improvements options considered for each follow:

ANALYSIS SECTIONS AND IMPROVEMENT CONCEPTS

ANALYSIS SECTION 1

Hands Pike Hill

KY 17 (MP 0.22) to near Crystal Lake Drive (MP 0.91)

Short Term Options

❖ **Hands Pike Hill Spot Improvements 1:** This short-term improvement would reconstruct the horizontal curve at the bottom of the hill, just east of Wayman Branch Road (KY 3035). At the direction of the KYTC Project Team, the curve would be improved to 45 mph design speed for an added margin of safety. It would include widening the travel lanes from 9 to 12 feet as well as the addition of 2-foot-wide shoulders with rumble strips and a 4-foot-wide flat bottom ditch along the east side of the roadway. Existing 8-inch and 16-inch sewer lines would be relocated and a box culvert would be replaced and extended.

Approximate Length: 2,200 feet **Estimated Cost:** $6.8 million

❖ **Hands Pike Hill Spot Improvements 2:** This short-term improvement would address the top portion of Hands Pike Hill. Beginning near MP 0.6 and and ending near MP 0.9, it would include widening the travel lanes from 9 to 12 feet as well as the addition of 2-foot-wide shoulders with rumble strips and a 4-foot-wide flat bottom ditch along the north and east side of the roadway (i.e., adjacent to the downhill travel lane). The existing horizontal curve radius would be increased and there would be additional widening on the inside of the curve. Existing cross-drainage structures would be improved and slopes along the north and east side of the roadway would be cut back to improve sight distance.

Approximate Length: 2,400 feet **Estimated Cost:** $1.5 million

Long Term Options

❖ **Alternative Concept 1.0:** This long-term improvement option would reconstruct KY 1501 in its current location—it is essentially a combination of Spot Improvements 1 and 2. It would begin near the intersection of Hands Pike with KY 3035 and include two 12-foot-wide lanes with 8-foot-wide paved shoulders to accommodate bicyclists and 4:1 slopes outside the shoulder.

Approximate Length: 4,750 feet **Estimated Cost:** $8.3 million

Alternatives 1.1 through 1.5 are options that would relocate Hands Pike on new alignment from the top, or near the top, of the hill to KY 17. The different options were explored to identify opportunities, constraints, and costs associated with building on new alignment. Each option includes two 12-foot-wide lanes with 8-foot-wide paved shoulders to accommodate bicyclists and 4:1 slopes outside the shoulder.

❖ **Alternative Concept 1.1:** This improvement would begin near the intersection of Madison Pike and KY 17 approximately 0.3 mile south of the current intersection of Hands Pike with KY 17 and would traverse an easterly then northeasterly path, tying in with the current Hands Pike alignment near mile point (MP) 0.65. This option is less expensive than the others because it would require less excavation.

Approximate Length: 3,850 feet **Estimated Cost:** $9.0 million

❖ **Alternative Concept 1.2:** As with Alternative 1.1, this improvement would begin near the intersection of Madison Pike and KY 17 but would traverse a more easterly path than Alternative 1.1, tying in with the current Hands Pike alignment near MP 0.9.

Approximate Length: 3,650 feet **Estimated Cost:** $13.2 million

❖ **Alternative Concept 1.3:** This improvement would begin approximately 0.6 mile south of the intersection of Hands Pike and KY 17 and traverse a northerly then easterly corridor, tying in with the current Hands Pike alignment near the intersection with Crystal Lake Road (MP 1.03). The concept's length would enable a vertical grade of less than 5%, but the length is why this option is notably more costly than other options.

Approximate Length: 4,850 feet **Estimated Cost:** $27.0 million

❖ **Alternative Concept 1.4:** This improvement would deviate from the existing Hands Pike alignment near MP 0.4 and traverse north and east of the current road before tying back in near MP 0.9. This alignment is notably more expensive than the others, even though it is shorter, because of right-of-way acquisition costs.

Approximate Length: 3,150 feet **Estimated Cost:** $27.8 million

❖ **Alternative Concept 1.5:** This improvement would deviate from the existing Hands Pike alignment at the junction with KY 3035 near MP 0.17 and traverse south and west of the current road before tying back in near Crystal Lake Road (MP 1.03).

Approximate Length: 4,000 feet **Estimated Cost:** $17.0 million

Figure ES-1: Project Analysis Sections

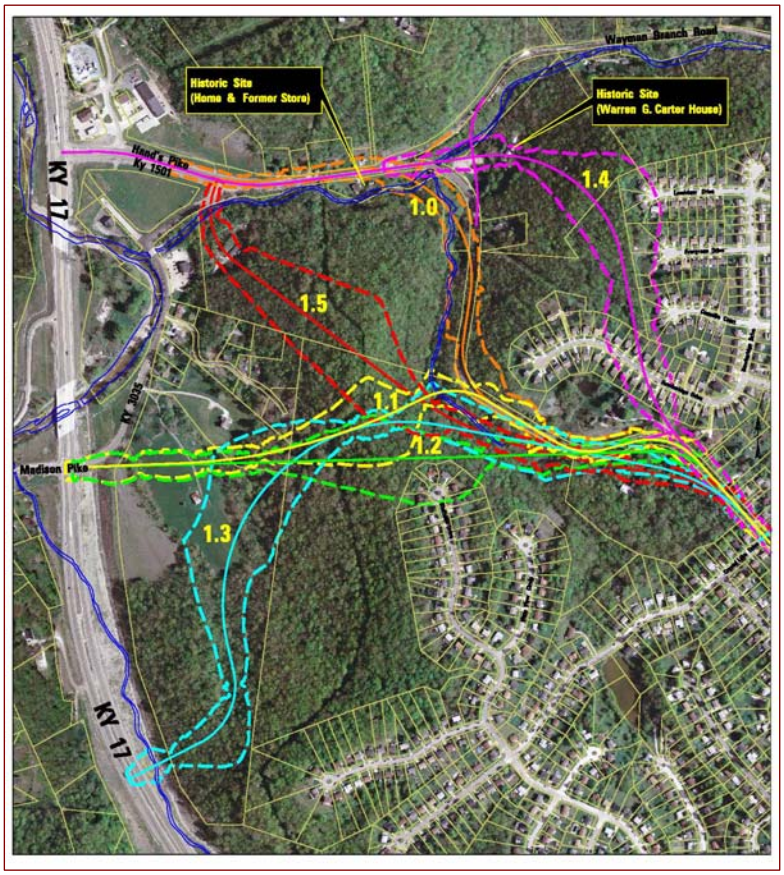

Figure ES-2: Alternate Corridors, Analysis Section 1

ANALYSIS SECTIONS AND IMPROVEMENT CONCEPTS (*Continued*)

ANALYSIS SECTION 2 Near Crystal Lake Drive (MP 0.91) to Near Otter Court (MP 1.47)	❖ **Alternative Concept A:** A 3-lane urban section (curb and gutter) was considered. This concept included a center two-way left-turn lane and improvement of a sag curve between MPs 1.2 and 1.3. A conventional sidewalk would be provided on one side of the road and a wider sidewalk would be provided on the other side as a multi-use bicycle/pedestrian path. **Approximate Length:** 3,000 feet **Estimated Cost:** $4.6 million ❖ **Concept A1:** An additional improvement considered within this section was the construction of a roundabout at the intersection of Tripoli Lane/Tamarack Drive. **Approximate Length:** n/a **Estimated Cost:** $3.7 million **Total Estimated Cost, Both Concepts:** $8.3 million
ANALYSIS SECTION 3 Near Otter Court (MP 1.47) to East of Edwin Drive (MP 2.17)	❖ **Alternative Concept A:** This concept is a new corridor south and west of existing Hands Pike from near the intersection with Otter Court (MP 1.47) to the vicinity of MP 2.17. A 2-lane urban section was envisioned with a conventional sidewalk on one side of the road and a wider sidewalk on the other, provided as a multi-use bicycle/pedestrian path. **Approximate Length:** 3,700 feet **Estimated Cost:** $11.2 million ❖ **Alternative Concept B:** This concept improves the existing corridor. As with Alternative Concept A, this improvement could include a 2-lane urban section with a conventional sidewalk on one side of the road and a wider sidewalk on the other, provided as a multi-use bicycle/pedestrian path. **Approximate Length:** 4,000 feet **Estimated Cost:** $13.5 million
ANALYSIS SECTION 4 East of Edwin Drive (MP 2.17) to KY 16 (MP 2.52)	❖ **Alternative Concept A:** A 2-lane urban section was envisioned along the existing and proposed new alignment associated with the KY 16 improvements with a conventional sidewalk on one side of the road and a wider sidewalk on the other, provided as a multi-use bicycle/pedestrian path. **Approximate Length:** 1,850 feet **Estimated Cost:** $2.0 million

Recommendations

The following project improvements were recommended in priority order:

1. **ANALYSIS SECTION 1: Spot Improvements 2—**Near-term improvements at the top of the hill, estimated to cost $1.5 million.

   Also, carry both **Alternative Concepts 1.0** and **1.1** to the Design phase of project development, where a final decision would be made regarding which alternative to select. The rural cross section is to include 6-foot-wide paved shoulders as a provision for bicyclists. The estimated cost is $8.3 to 9.0 million depending upon the alternative chosen and the extent to which spot improvements ultimately can be integrated into final improvements.

2. **ANALYSIS SECTION 2: Alternative Concept A—**3-Lane Urban Section with Center Left-Turn Lane. A conventional sidewalk would be constructed on one side of the road and a wider sidewalk would be provided on the other side as a multi-use bicycle/pedestrian path. The estimated cost is $4.6 million.

3. **ANALYSIS SECTION 3: Alternative Concept A**—2-Lane Urban Section on New Alignment. A conventional sidewalk would be constructed on one side of the road and

a wider sidewalk would be provided on the other side as a multi-use bicycle/pedestrian path. The estimated cost is $11.2 million.

4. **ANALYSIS SECTION 4: Concept A—**2-Lane Urban Section with Center Left-Turn Lane. A conventional sidewalk would be constructed on one side of the road and a wider sidewalk would be provided on the other side as a multi-use bicycle/pedestrian path along the existing and proposed new alignment associated with the KY 16 improvements. The estimated cost is $2 million.

The total estimated cost of these recommended improvements is **$27.6 or $28.3 million**, depending on which Alternative Concept (1.0 or 1.1) in Section 1 is selected and how the spot improvements are integrated.