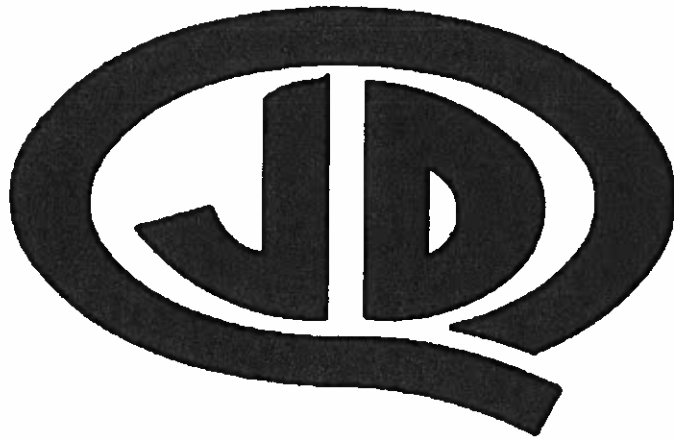


Appendix B – KY 144 Improvements Report



KY 144

IMPROVEMENT REPORT

**FOR THE
DAVISS COUNTY FISCAL COURT**

MARCH 2005

JOHNSON, DEPP & QUISENBERRY
CONSULTING ENGINEERS

2625 FREDERICA STREET	•	OWENSBORO, KY 42301
2417 REGENCY ROAD-SUITE D	•	LEXINGTON, KY 40503
6417 CHERYLWOOD DRIVE	•	SPRINGFIELD, IL 62707

KY 144 IMPROVEMENT REPORT

MARCH 2005

1. DESCRIPTION AND PURPOSE.

A one mile section of KY 144 is proposed to be improved from just west of the Pleasant Valley Road intersection eastward to near Boteler Road. The purpose of the project is to widen the road and improve the horizontal alignment to make the road safer. In particular, the school bus and coal truck interaction at some sharp curves needs improvement.

KY 144 is classified as a Rural Collector Road. Traffic counts in 2001 and 2002 show the Average Daily Traffic (ADT) to be about 2450.

2. EXISTING CONDITIONS.

The existing alignment in this section has eight horizontal curves varying in design speed from 20 mph to 45 mph. Near Boteler Road a 1975 improvement began that widened the pavement to 22 feet with 8-foot earth shoulders and provided a 50 mph alignment and ditch-to-ditch width of 50 feet. Another section west of this project was also improved to those standards. The existing pavement width is 20 to 21 feet wide.

The road runs along a ridge line so that no culverts were required to cross KY 144. After a rise in elevation of about 30 feet at the beginning of the project, the road remains fairly level.

The 1975 improvement pavement structure included six inches of bituminous pavement over eight inches of Dense Graded Aggregate (DGA). It appears to be in good condition.

3. PROPOSED IMPROVEMENT.

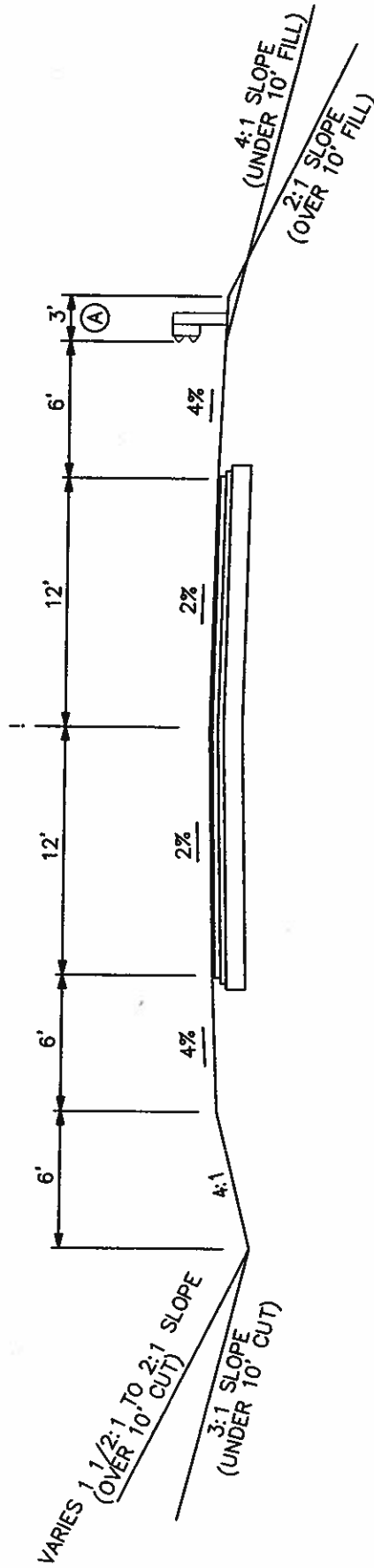
Four 50 mph horizontal curves with some straightening of the alignment are proposed to replace the existing 8 curves. The first curve replaces a sharp 90 degree curve and a flatter reverse curve. The last curve replaces three curves that follow the ridgeline. The 50 mph design speed matches the past improvements that have been made to KY 144. The proposed roadway includes a 24' pavement with 6' earth shoulders, which only slightly deviates from the previous improvements. This provides 12' lanes for trucks and school buses instead of the 11' lanes. It provides a ditch-to-ditch width of 48'.

The proposed pavement structure includes 7-1/2" of bituminous pavement over 10" of Dense Graded Aggregate (DGA), which more closely matches current pavement designs for similar roads.

The vertical alignment begins with a grade rise of 2.9% to achieve the thirty foot increase in elevation and then rolls along the ridge from flat to up-or-down 1% grades, which are very suitable.

NORMAL TYPICAL SECTION

KENTUCKY HIGHWAY 144



CLASS: RURAL
DESIGN SPEED = 50 M.P.H.

- BASE — 10" COMPACTED DEPTH DENSE GRADED AGGREGATE BASE
- 6" COMPACTED DEPTH CL 1 ASPHALT BASE 0.75D PG 64-22 (2 - 3" COURSES)
- SURFACE — 1 1/2" COMPACTED DEPTH CL 1 ASPHALT SURFACE 0.38D PG64-22



KENTUCKY HIGHWAY NO. 144

ROADWAY FACTS

DAVISS COUNTY

JOHNSON, DEPP & QUISENBERRY

EXISTING ALIGNMENT

Project Length - 5460 ft
1.034 miles

Pavement width 20-21 feet
Shoulder width varies from none

Horizontal alignment includes (curves in order):
20, 35, 45, 35, 40, 30, 30, 35 mph - 10' lanes
Design Speed

Horizontal alignment includes (in order):
20, 35, 45, 35, 40, 30, 30, 35 mph - 10' lanes
Design Speed

Horizontal alignment includes (in order):
20, 35, 45, 35, 40, 30, 30, 35 mph - 10' lanes
Design Speed

PROPOSED ALIGNMENT

Pavement width 24 feet
Shoulder width 6 feet

All new alignment
4 horizontal curves at 50 mph - 12' lanes

Earthwork: Embankment 21,250 cu yds
Excavation 8,660 cu yds

Horizontal alignment includes (in order):
50 mph, <45, 35, 40 mph existing>, 50 mph - 12' lanes

Earthwork: Embankment 21,250 cu yds
Excavation 8,660 cu yds

Horizontal alignment includes (in order):
50 mph/12' lanes, <45, 35, 40 mph existing/ 10' lanes>, 50 mph/12' lanes

Unimproved Length = 2050 ft or 0.388 miles

Earthwork: Embankment 19,760 cu yds
Excavation 5,770 cu yds

ALTERNATE 1

ALTERNATE 2

ALTERNATE 3



KENTUCKY HIGHWAY NO. 144

COST ESTIMATE

DAVISS COUNTY

JOHNSON, DEPP & QUISENBERRY

3/22/2005

ALTERNATE 1

PAVEMENT - All New Construction		
KY 144, STA 10+00 TO STA 64+60		\$382,000
Pleasant Valley Rd & Entrances		\$43,000
		\$425,000
DRAINAGE		\$20,000
SITWORK: CLEARING, PAVEMENT REMOVAL		\$125,000
ROADWAY EMBANKMENT	21,250cy	\$215,000
ROADSIDE ITEMS, GUARDRAIL, ROW MARKERS		\$26,000
EROSION CONTROL		\$26,000
SEEDING AND FERTILIZER		\$21,000
TRAFFIC CONTROL, STRIPING		\$18,000
	SUBTOTAL	\$876,000
MOBILIZATION, DEMOBILIZATION,		\$176,000
ENGINEERING AND CONTINGENCIES		
	TOTAL ALTERNATE #1 COST	\$1,052,000



KENTUCKY HIGHWAY NO. 144

COST ESTIMATE

DAVIESS COUNTY

JOHNSON, DEPP & QUISENBERRY
3/22/2005

ALTERNATE 3

PAVEMENT - New Construction of two curves		
KY 144, STA 10+00 TO STA 27+50		\$238,000
and STA 48+00 TO STA 64+60		
Entrances		\$28,000
		\$266,000
DRAINAGE		\$19,000
SITWORK: CLEARING, PAVEMENT REMOVAL		\$73,000
ROADWAY EMBANKMENT	19,760cy	\$200,000
ROADSIDE ITEMS, GUARDRAIL, ROW MARKERS		\$25,000
EROSION CONTROL		\$16,000
SEEDING AND FERTILIZER		\$14,000
TRAFFIC CONTROL, STRIPING		\$17,000
	SUBTOTAL	\$630,000
MOBILIZATION, DEMOBILIZATION,		\$126,000
ENGINEERING AND CONTINGENCIES		
	TOTAL ALTERNATE #3 COST	\$756,000



KY 144 IMPROVEMENT
March 2005

4. COST ESTIMATES.

To estimate possible cost-savings by developing the project in different ways, three cost alternates were developed. The partial breakdown of construction costs is attached. Right of Way and utility costs are not included.

Alternate 1.

Construct the entire project on new alignment - STA 10+00 to STA 64+60: 5460 ft.

Construction Cost.....\$ 1,052,000

Alternate 2.

Construct the new alignment at the beginning and end of the project, replacing the worst curves. Widen and overlay the existing pavement in the center of the project.

New Alignment:	STA 10+00 to STA 27+50:	1750 ft
	STA 48+00 to STA 64+60:	<u>1660 ft</u>
		3410 ft

Widen and overlay:	STA 27+50 to STA 48+00:	2050 ft
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Construction Cost.....\$ 873,000

Alternate 3.

Construct the new alignment at the beginning and end of the project, replacing the worst curves. Connect into the existing pavement in the center of the project.

New Alignment:	STA 10+00 to STA 27+50:	1750 ft
	STA 48+00 to STA 64+60:	<u>1660 ft</u>
		3410 ft

No Work:	STA 27+50 to STA 48+00:	2050 ft
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Construction Cost.....\$ 756,000

KENTUCKY HIGHWAY NO. 144

COST ESTIMATE

DAVISS COUNTY

JOHNSON, DEPP & QUISENBERRY

3/22/2005

ALTERNATE 2

PAVEMENT - New Construction with Widening and Overlay

KY 144, STA 10+00 TO STA 64+60 \$278,000

Pleasant Valley Rd & Entrances \$43,000

\$321,000

DRAINAGE \$20,000

SITework: CLEARING, PAVEMENT REMOVAL \$85,000

ROADWAY EMBANKMENT 21,250cy \$210,000

ROADSIDE ITEMS, GUARDRAIL, ROW MARKERS \$26,000

EROSION CONTROL \$26,000

SEEDING AND FERTILIZER \$21,000

TRAFFIC CONTROL, STRIPING \$18,000

SUBTOTAL \$727,000

MOBILIZATION, DEMOBILIZATION, \$146,000

ENGINEERING AND CONTINGENCIES

TOTAL ALTERNATE #2 COST \$873,000

