



2011

# Pre-Design Scoping Study

**D**ata  
**N**eeds  
**A**nalysis



KY 144, Daviess County  
Near Pleasant Valley Road  
Item No. 2-194.00

Prepared by the KYTC  
Division of Planning and  
KYTC District 2

September 2011



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## I. INTRODUCTION

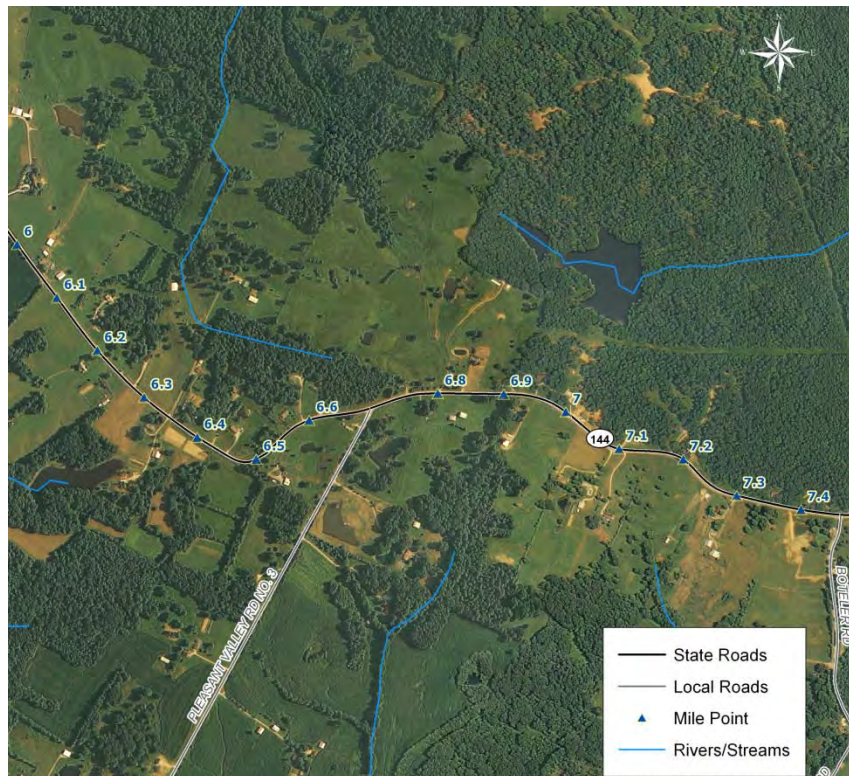
This study is a Data Needs Analysis (DNA) of a roadway project for the KY 144 corridor in Daviness County, Item Number 2-194.00.

### A. Study Purpose

The purpose of the DNA is to address the nine elements of Purpose and Need as defined by NEPA in order to develop a draft Purpose and Need Statement for the project. This study will also provide a more defined project scope, possible alternatives, planning-level cost estimates, an identification of potential environmental impacts, and other information that will be of assistance in future phases of the Project Development process of this project.

### B. Location

This project is located on KY 144 in Daviness County east of Owensboro. The project limits haven't been effectively established, but this study focuses primarily on KY 144 near the intersection with Pleasant Valley Road. See **Figure 1** and Exhibit 1 in **Appendix A**. A topographic map of the study area, Exhibit 2, can also be viewed in **Appendix A**.



**Figure 1: Project Location Map**

## II. PROJECT PURPOSE AND NEED

### A. Legislation

The following is a description of the project as it is listed in the 2010 General Assembly's Enacted Highway Plan.

- **Item #2-194.00, Daviess County**

<u>Funding</u>	<u>Phase</u>	<u>Year</u>	<u>Amount</u>
SPP	C	2010	\$520,000

RECONSTRUCT KY 144 IN THE VICINITY OF PLEASANT VALLEY ROAD

Milepoints: 6.6 to 6.7

Purpose and Need: RELIABILITY/ MAJOR WIDENING

Item #2-8631.00 is additional funding for the project. The following description is from the highway plan.

- **Item #2-8631.00, Daviess County**

<u>Funding</u>	<u>Phase</u>	<u>Year</u>	<u>Amount</u>
SB2	D	2012	\$660,000

REALIGN KY 144 TO KNOTTSVILLE

Purpose and Need: RELIABILITY/ RECONSTRUCTION

### B. Project Status

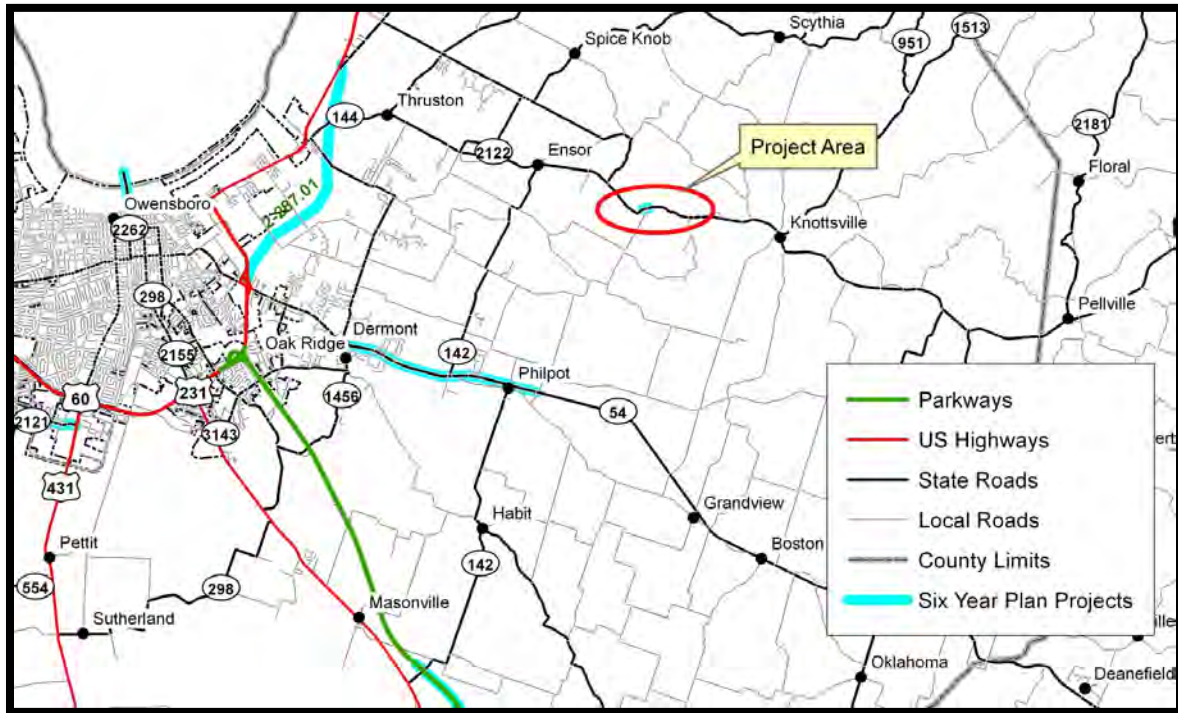
According to the Preconstruction Database, \$500,000 of SB2 Design funds have been authorized under Item #2-194.00. The funding from Item #2-8631.00 was moved to Item #2-194.00.

In 2005, JDQ produced a KY 144 Improvement Report for the Daviess County Fiscal Court. It proposed replacing eight curves with four 50 MPH horizontal curves with some straightening of the alignment. A copy from the report can be viewed in **Appendix B**. In the past, KY 144 was used regularly by coal trucks, and there was much local concern about the safety of school busses and other vehicles sharing the road with the coal trucks. More recently, the coal mine located off this route is open only intermittently, and the coal haul traffic may not be as much of an issue.

There is currently a project on the Unscheduled Projects List (UPL) that describes the project proposed in the KY 144 Improvement Report to address eight curves between MP 5.738 and MP 7.461. The Project Identification Form (PIF) for the project (#02 030 D0144 32.00) can be viewed in **Appendix C**. The Metropolitan Planning Organization (MPO) for Owensboro–Daviess County has not included this project in their FY 2011-2016 Transportation Improvement Plan (TIP).

### C. System Linkage

This segment of KY 144 connects the city of Owensboro to the community of Knottsville and other communities east of Owensboro (See **Figure 2** and Exhibit 3 in **Appendix A**).



**Figure 2: System Linkage Map**

KY 54 has the following roadway classifications:

- **Functional Classification – Rural Major Collector**
- **State System – State Secondary**
- **Truck Weight Classification – AA**
- **Coal Haul Route – Approximately 407,000 tons annually**
- **Access - By Permit**

### D. Modal Interrelationships

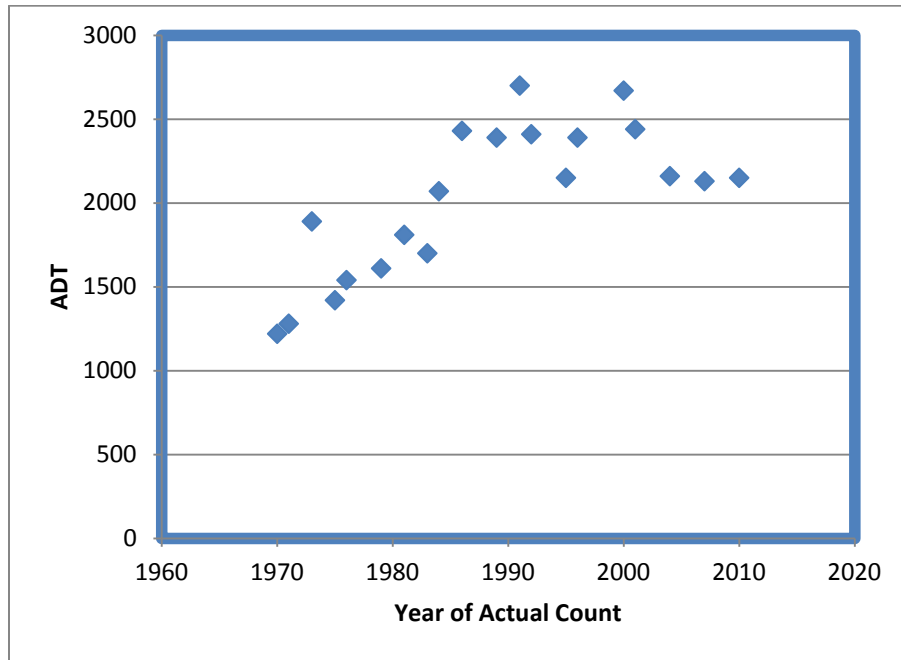
This is a coal haul route. There is an on-call service for public transit, GRITS.

### E. Social Demands & Economic Development

There are currently no plans for development along the route. It is used locally to access schools, hospitals, places of employment and retail areas.

### F. Transportation Demand

**Figure 3** below displays historic traffic counts for KY 144.



**Figure 3: Historic Traffic Counts on KY 144**

The last traffic count for this section of KY 144 was approximately 2,150. It can be seen in **Figure 3** that traffic has remained about the same in the past ten years. There was a slight drop in ADT in the late 1990's.

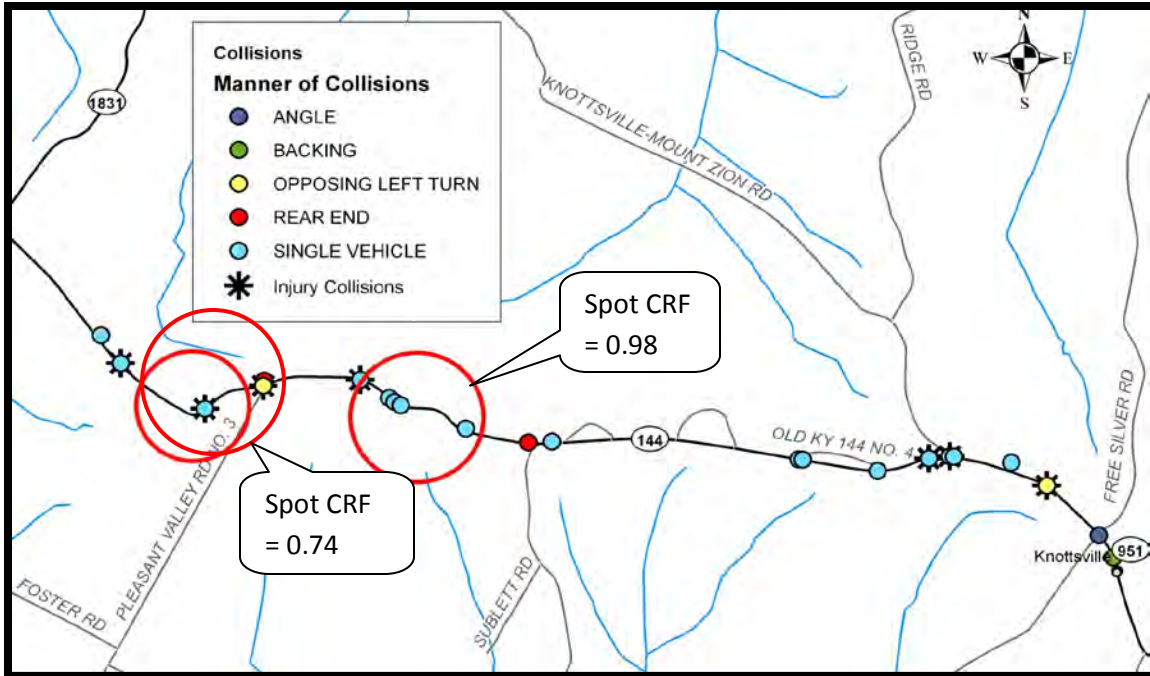
### G. Capacity

The current Volume/Service Flow, which is a measure of capacity, for this segment of KY 144 is 0.11. Capacity does not appear to be an issue at this time.

### H. Safety

Collision data was obtained from the Kentucky State Police database for a three year period from January 1, 2008 to December 31, 2010 for the project limits on KY 144. **Figure 4** displays the location of the collisions.

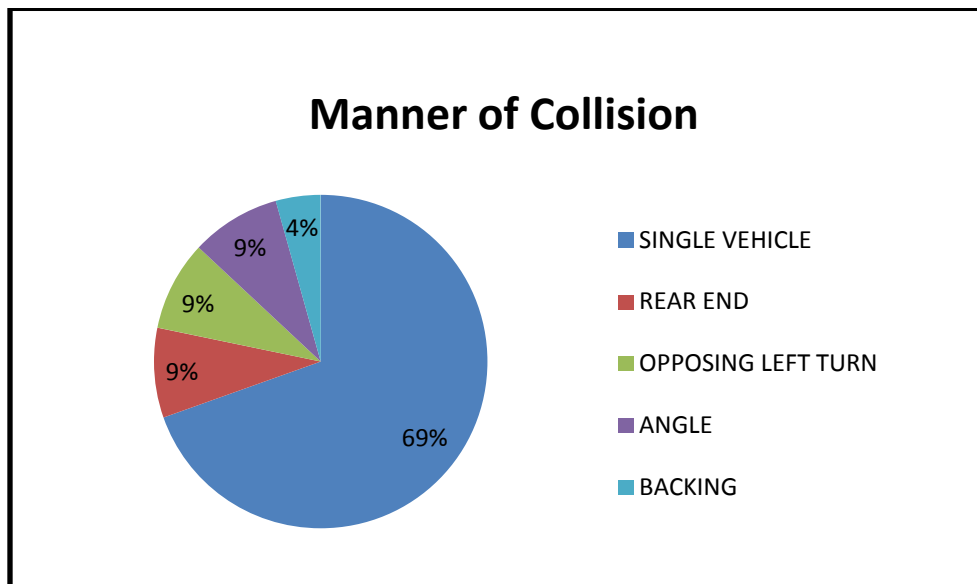




**Figure 4: Collision Locations**

The following is a summary of the collisions from MP 6.0 to MP 9.2:

- 0 fatalities
- 7 Injury collisions
- 23 Total collisions
- Segment CRF = 0.87



**Figure 5: Manner of Collisions**

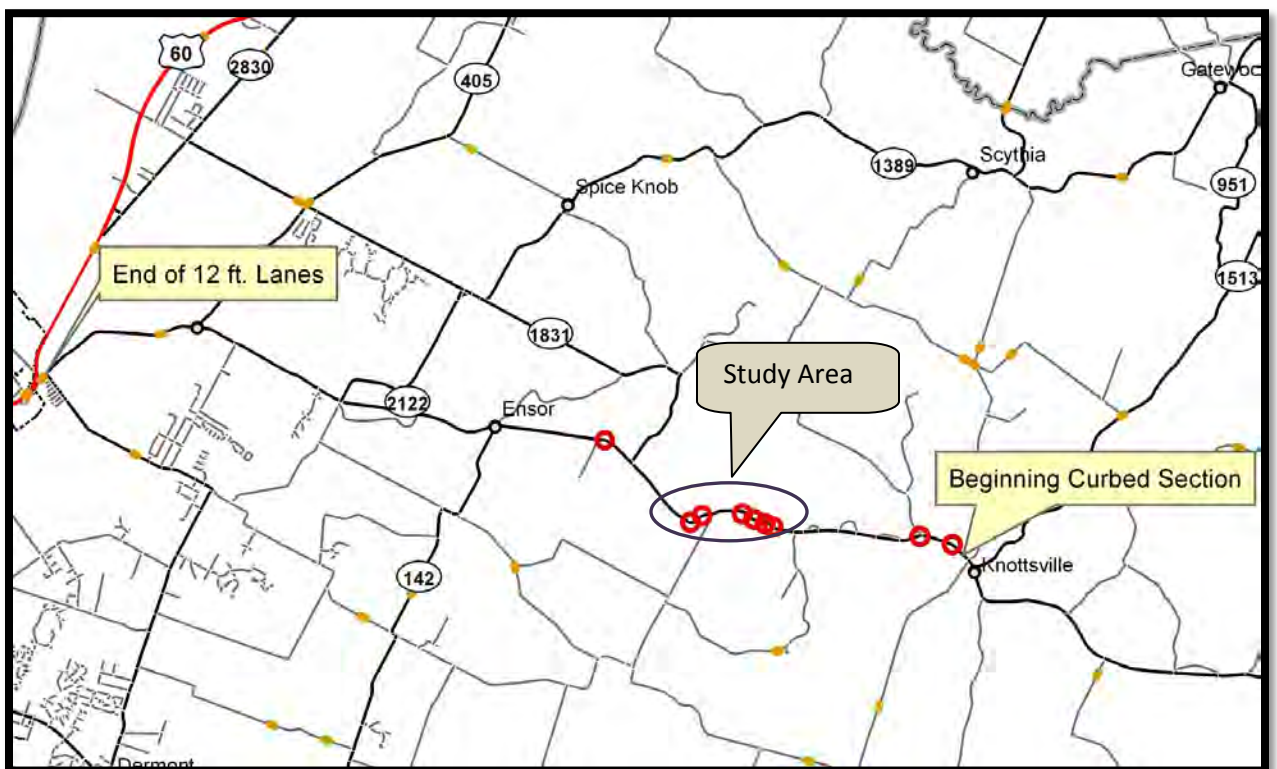
It should be noted that 6 of the 16 single vehicle collisions were with animals, and that several of the collisions occur in or while entering or exiting a curve.

The Critical Rate Factor (CRF) is the ratio of the actual crash rate on a segment of highway for a given time period as compared to the average crash rate of other similar roads in Kentucky. A CRF greater than 1.00 indicates the segment of roadway may have a statistically significant number of crashes. The segment CRF was 0.87. Two 0.3 mile spot CRF were also calculated in the area of the deficient curves. They can be viewed in **Figure 4** and were calculated to be 0.74 and 0.98. More detailed collision data can be viewed in **Appendix D**.

## I. Roadway Deficiencies

### a. Mainline Geometrics

This roadway currently has a rural template with 10-ft lanes and 2-ft shoulders. KYTC's Common Geometric Practices for Rural Collectors (see **Appendix E**) recommends 12-ft lanes with 8-ft shoulders. The existing alignment meets the minimum criteria for grade. There are several curves within the study area that do not meet the guidelines for horizontal curvature (see **Figure 6**).



**Figure 6: Deficient Horizontal Curves on KY 144**

Existing plans for this section of KY 144 were not readily available. A summary of existing conditions can be viewed in **Table 1**.

None of the sections appear to have significant drainage problems. FIRM maps of the area can be viewed in **Appendix F**.

Photos of KY 144 can be viewed in **Appendix G**.

b. Bridges

There are no bridges located within the project limits.

**Table 1: Existing Conditions and Data Summary**

County:	<u>Daviess</u>	Road Name:	<u>Knottsville Road</u>
Route Number(s):	<u>KY 144</u>		
Item No.:	<u>02-194.00</u>		
BMP:	<u>6.3</u>	EMP:	<u>7.33</u>
Segment Length:	<u>1.03 miles</u>		
Rdwy. Class.:	<u>Rural Major Collector</u>	State Class.:	<u>State Secondary</u>
Truck Class:	<u>AA</u>		
ADT (current):	<u>2,150</u>		
Terrain:	<u>Level</u>	Access Control:	<u>By Permit</u>
Posted Speed:	<u>55 MPH</u>	Median Type:	<u>Undivided</u>
Funding Type:	<u>Design-SB2</u>		

**Roadway Data:**

	<u>Existing Conditions</u>	<u>Recommended Design Guidelines</u>
No. of Lanes	2	Min. 2
Lane Width	10 ft	Min. 12 ft
Shoulder Width	2 ft	8 ft
Minimum Radius	<400 ft	960 ft*
Maximum Grade	<2.4 %	7%

*\* From AASHTO's Policy on Geometric Design of Highway and Street, Ex. 3-15, 55 MPH Design Speed, 8% eMax*

Adequacy Rtg %: 70.9 %

**III. PRELIMINARY ENVIRONMENTAL OVERVIEW**

Currently this project is listed as being state funded, therefore not requiring an environmental document. No streams as defined by the U.S. Army Corps of Engineers were observed. If a permit is required then an environmental document will be necessary.

**A. Air Quality**

Daviess County is currently in attainment for all monitored air pollutants.

**B. Archaeology**

All additional right of way or permanent easement will require a Phase I archaeology survey.

**C. Threatened and Endangered Species**

The United States Fish and Wildlife Service (USFWS) has identified the known and potential presence of threatened and endangered species in Daviess County (**Table 2**). During a site visit on February 17, 2011, potential habitat was observed for the bat species and several of the mussel species. A biological assessment should be completed prior to construction to assess the potential impact to threatened and endangered species.

**Table 2 – USFWS listing of Threatened and Endangered Species in Daviess County**

<b>Group</b>	<b>Species</b>	<b>Common Name</b>	<b>Legal Status</b>	<b>Known Potential</b>
Mammals	<i>Myotis sodalis</i>	Indiana bat	E	K
Mussels	<i>Plethobasus cooperianus</i>	orangefoot pimpleback	E	P
	<i>Plethobasus cyphus</i>	sheepnose	E	P
	<i>Pleurobema clava</i>	clubshell	E	P
	<i>Pleurobema plenum</i>	rough pigtoe	E	P
	<i>Potamilus capax</i>	fat pocketbook	E	P
	<i>Cyprogenia stegaria</i>	fanshell	E	P
	<i>Lampsilis abrupta</i>	pink mucket	E	P

**C. Hazardous Materials**

During the February 17, 2011 site visit no sources of potential hazardous materials were observed.

**E. Historic Resources**

There were several homes noted within the view shed of the project that were 50 years old or older. A thorough assessment of local residences would be required to gauge their eligibility for listing on the National Register of Historic Places. An example of the structures observed is noted below in **Figure 7**.



**Figure 7: Property Potentially Eligible for the National Register of Historic Places**

**F. Permitting**

Corps permitting is not expected to be an issue.

**G. Noise**

The scope of the project should not require additional noise analyses since there are no additional lanes of thru traffic planned.

**H. Socioeconomic**

Socioeconomic impacts should not be an issue on this project.

**I. Section 4(f) Resources**

If either the archaeology sites or residences located nearby are ruled eligible for the National Register of Historic Places they could also be afforded protection under Section 4(f). KYTC has options to mitigate and avoid impacts to Section 4 (f) resources including a Programmatic Agreement for mitigating historic properties, using 'de minimus' guidance for minor strip takings.

**J. Section 6(f) Resources**

No potential Section 6(f) resources were observed on this potential project.

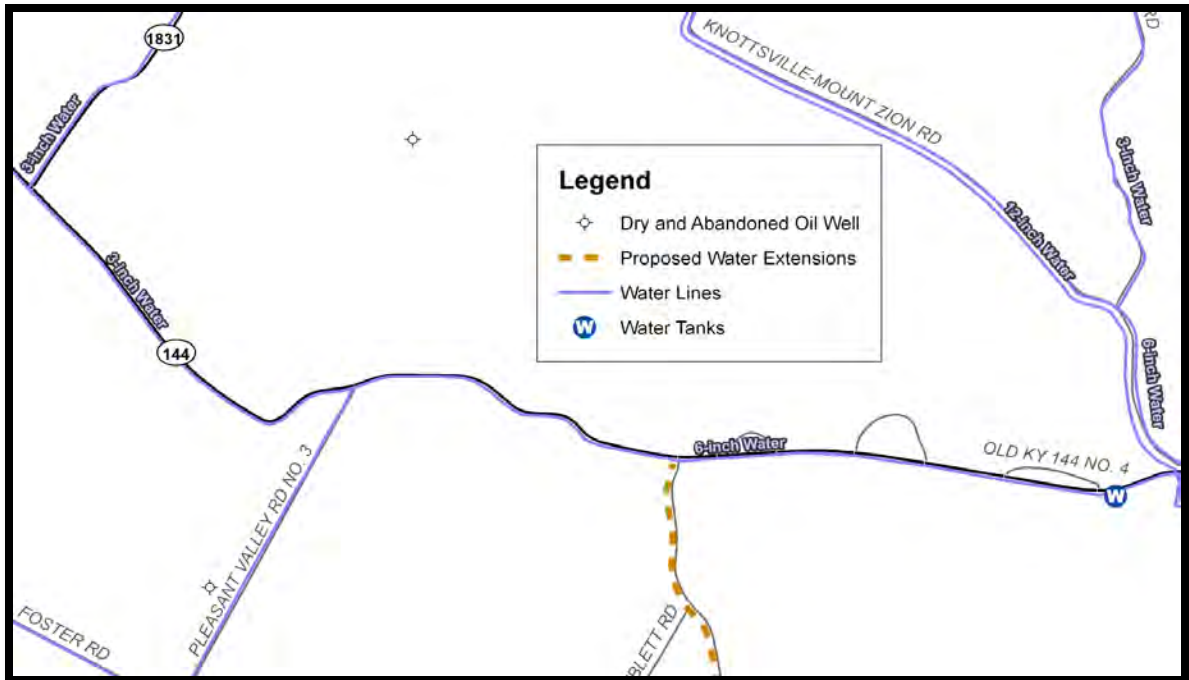
**IV. PRELIMINARY PROJECT INFORMATION**

**A. Utilities**

A summary of possible utility contacts in the project area is below.

Kenergy JR Robey 270-689-6100	East Daviess County Water Frankie Fulkerson 270-281-5187
AT&T Larry Crabtree 270-685-7609	Time Warner Cable Brent Rafferty 270-222-0861

A preliminary sketch of the approximate location of some of the utilities in the project area can be viewed in **Figure 8**. This information was obtained from a GIS database. The location of utilities will need to be verified as the project survey is completed in Phase I Design.



**Figure 8 : Utility Locations**

## **B. Agency Coordination**

The Project Team met on April 18, 2011 to review and discuss the project and the DNA. Existing conditions information was discussed. Some alternatives were also discussed. The minutes of this meeting can be reviewed in **Appendix H**.

## **V. PROJECT PURPOSE AND NEED STATEMENT**

A Purpose and Need Statement is the foundation for project decision-making and is needed for projects requiring NEPA documentation. Based upon the information presented in Section II of this report and discussion of the project team, the following Purpose and Need Statement was drafted for this project:

KY 144 has several horizontal curves that do not meet recommended guidelines for rural collectors. The lane and shoulder widths of KY 144 also do not meet the recommended guidelines for rural collectors. There are collisions occurring in the proximity of the deficient horizontal curves. **The purpose of this study on KY 144 is to address the geometric deficiencies and to improve the safety and connectivity between Owensboro and Knottsville.**



## VI. POSSIBLE ALTERNATIVES

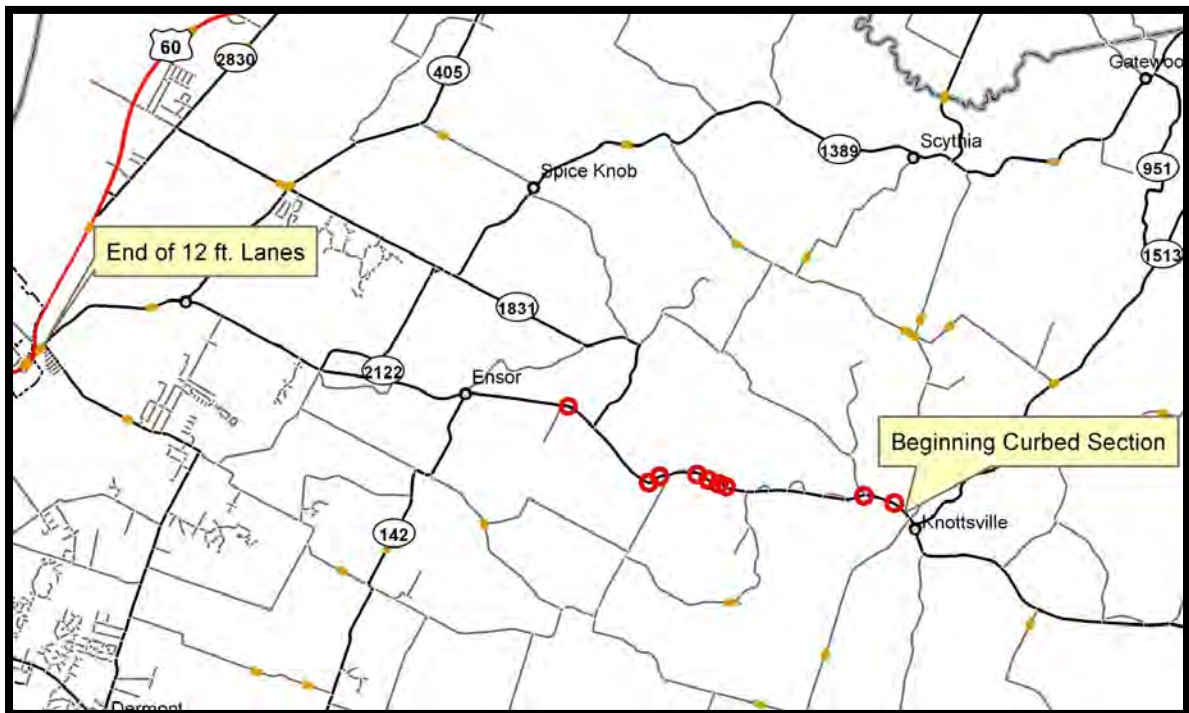
The following are possible alternatives analyzed and discussed during the development of this study.

### A. Alternative #1 - No Build

This alternative does not adequately address the purpose and need of the project.

### B. Alternative #2 – Reconstruct KY 144

This alternative would widen KY 144 from 10 ft lanes to 12 ft lanes and from 2 ft shoulders to 8 ft shoulders. This would also require the improvements of 9 horizontal curves (see red circles in **Figure 9** below) from MP 0.95 to MP 8.863 (7.913 miles).



**Figure 9: Alternative #2**

Alternative #2 would result in the most impact to right-of-way and utilities. The project team also noted the cost of this alternative, roughly estimated to be over \$10 million, is significantly more than the funding allocated in the highway plan.

**C. Alternative #3 – Improve Curves Near Pleasant Valley Road**

This alternative addresses 6 of the 9 substandard curves identified in **Figure 9** by reconstructing and partially realigning approximately 1 mile of roadway. The proposed curve improvements would occur between MP 6.3 and MP 7.4 near Pleasant Valley Road (see **Figure 10**). Some preliminary design has been done on these curves and can be viewed in **Appendix I**. The alignment of the preliminary design is subject to change during future phases of project development.



**Figure 10: Alternative #3**

The following is the preliminary cost estimated for Alternative #3:

<u>Phase</u>	<u>Estimate</u>
Design	\$400,000
Right of Way	\$750,000
Utilities	\$500,000
Construction	<u>\$1,000,000</u>
<b>Total</b>	<b>\$2,650,000</b>

It should be noted that in the past there was discussion of the local government helping with the acquirement of right of way. If this occurs, the cost estimate for this alternative will change.

## **VII. SUMMARY**

This study is a Data Needs Analysis (DNA) of a roadway project for the KY 144 corridor in Daviess County, Item Number 2-194.00. Through analysis of the existing roadway geometrics, crash data, site visits, and discussion with the project team, needs were identified within the project limits. The following were identified as project needs:

- KY 144 has several horizontal curves that do not meet recommended guidelines for rural collectors.
- There are collisions occurring in the proximity of these horizontal curves.
- The lane and shoulder width of KY 144 do not meet the recommended guidelines for rural collectors.

The purpose of this study on KY 144 is to address the geometric deficiencies and to improve the safety and connectivity between Owensboro and Knottsville.

Included in the alternatives were a no build recommendation, an alternative to widen almost 8 miles of the corridor and bring it up to the recommended geometric guidelines, and an alternative to improve approximately 1 mile of the roadway near Pleasant Valley Road which would address most of the deficient horizontal curves along the corridor.

Currently, the funding appropriated for the project is \$1,180,000 if funding for Item #2-8631.00 and Item #2-194.00 are combined. The preliminary cost estimate for Alternate #2 is well over \$10 million, and the preliminary cost estimate for all phases of Alternative #3 is \$2,650,000. Funding for additional phases will need to be allocated in the highway plan to further this project.

## Appendix A - Exhibits

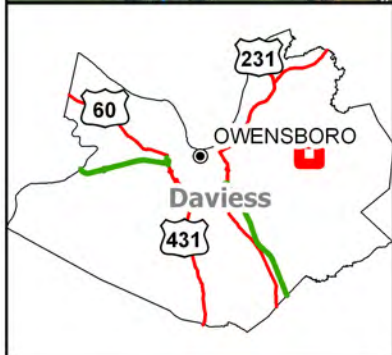
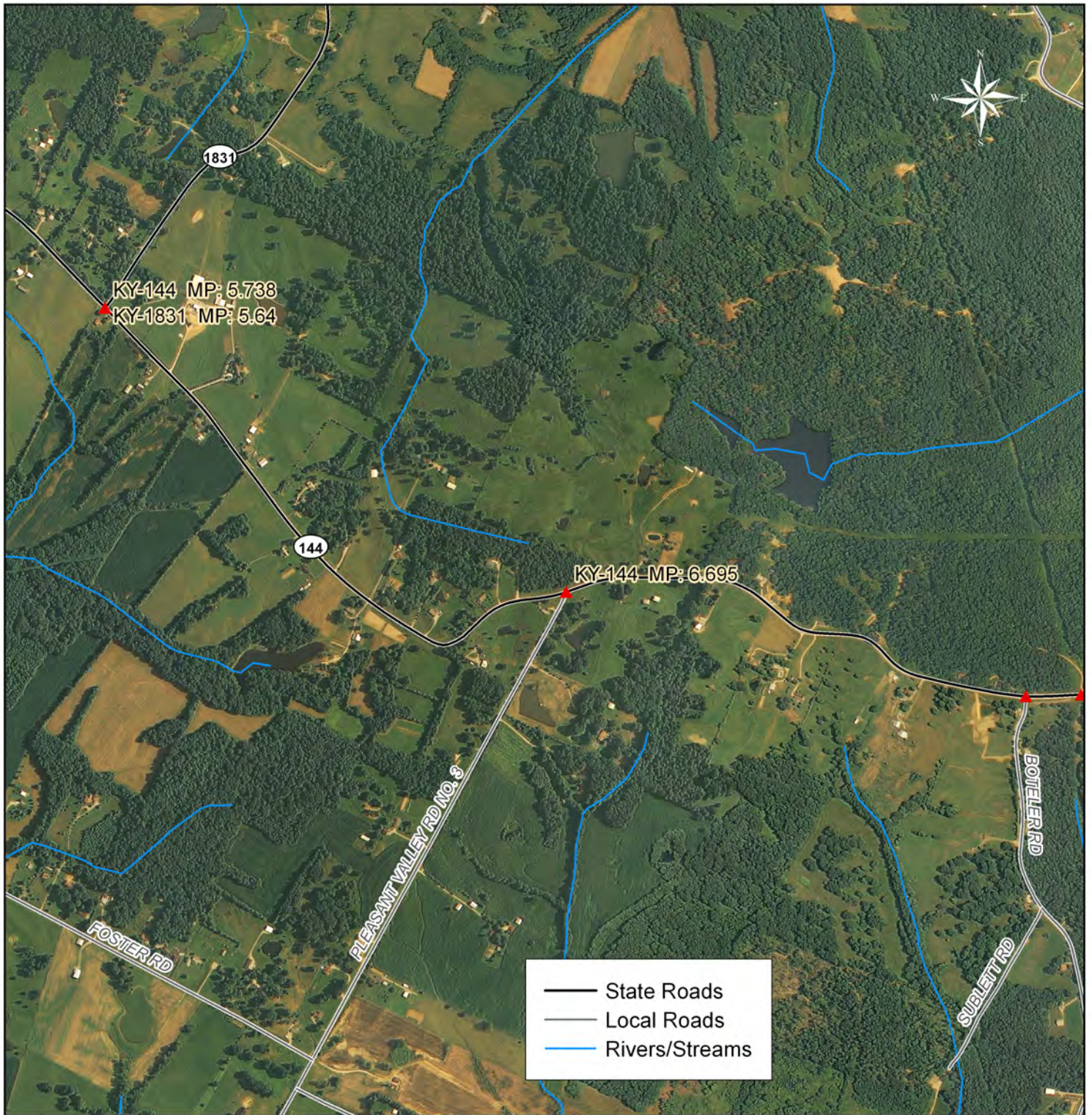


Exhibit 1: Location Map  
 Davies County  
 Item # 2-8631.00  
 KY 144

0.10.05 0 0.1 0.2 Miles



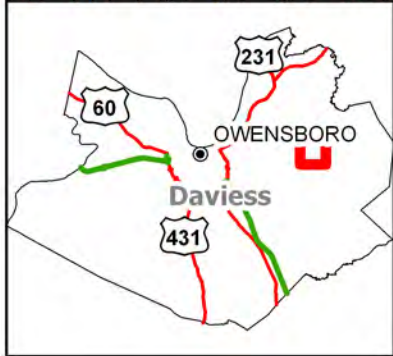
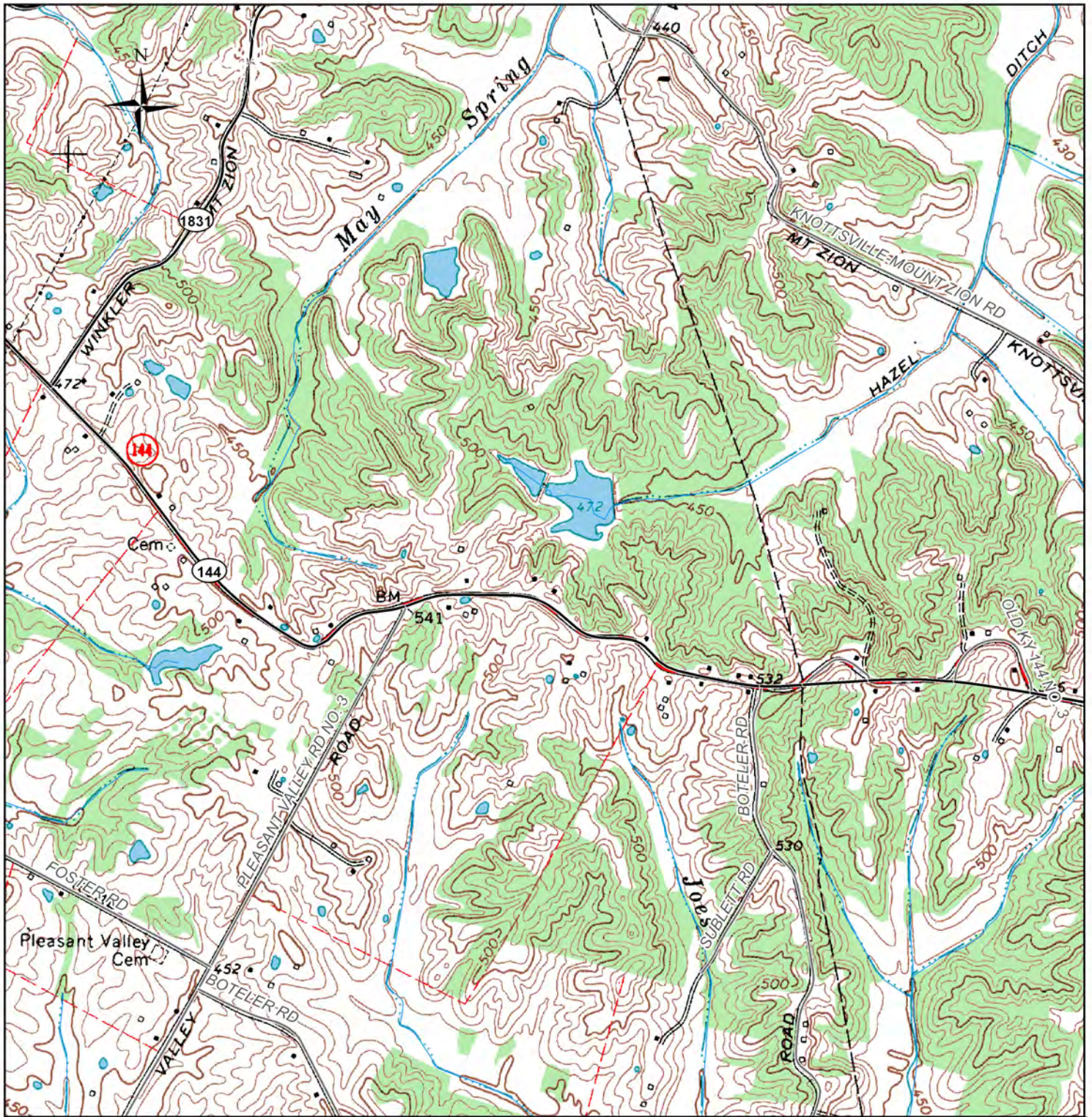
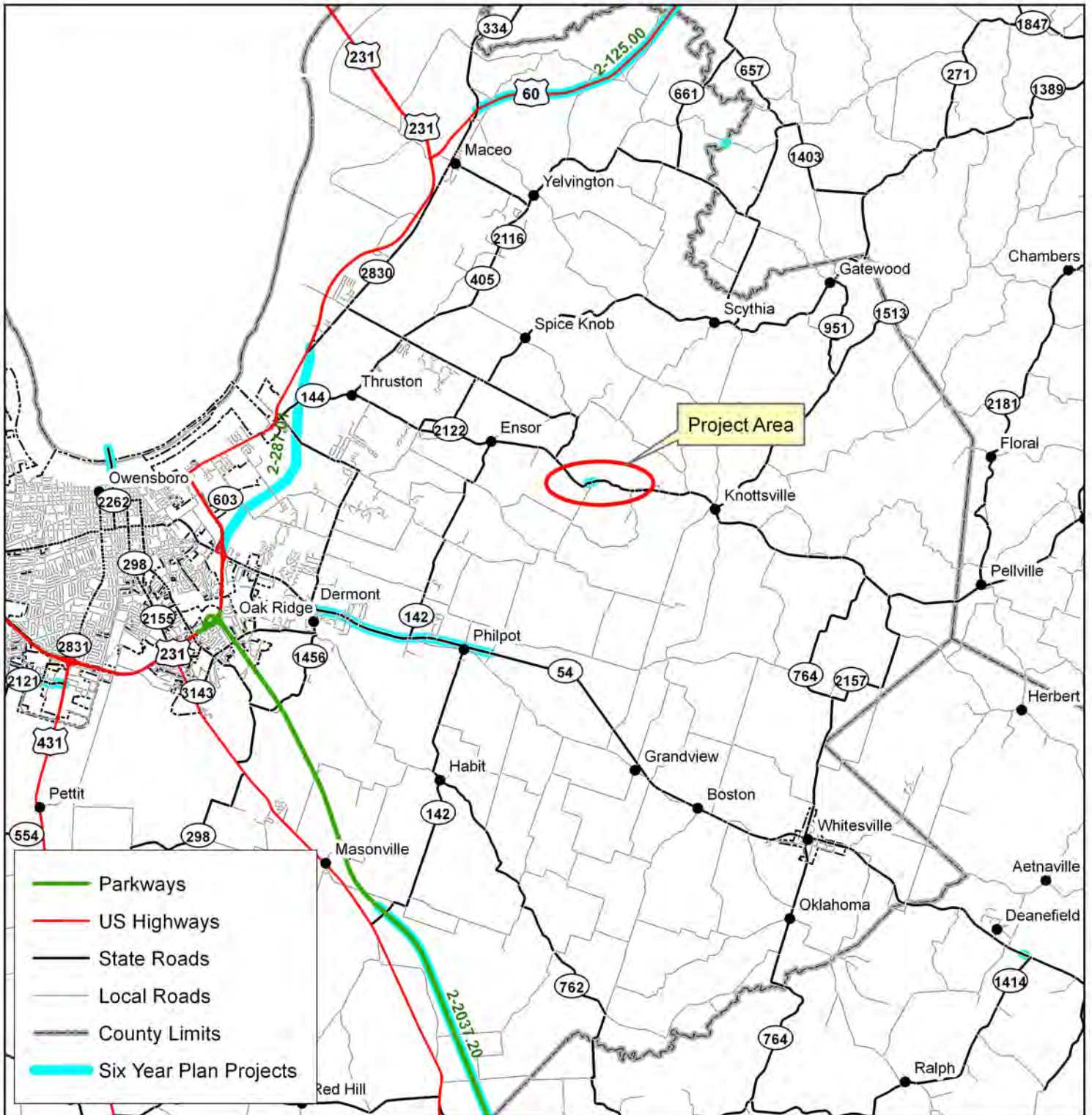


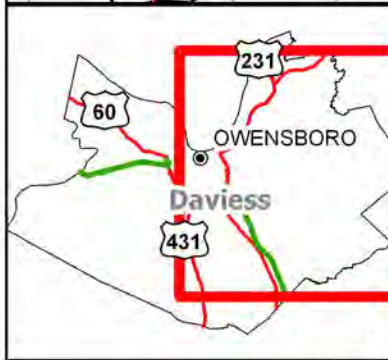
Exhibit 2: Topographic Map  
 Davies County  
 Item # 2-8631.00  
 KY 144

0.2 0.1 0 0.2 0.4 Miles

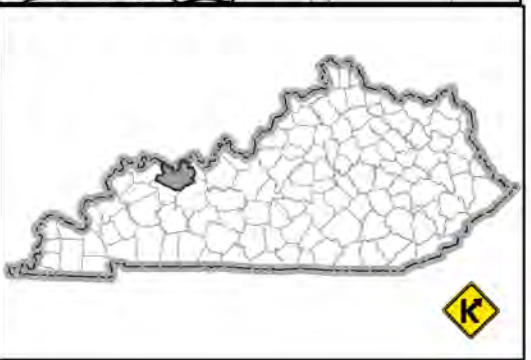




- Parkways
- US Highways
- State Roads
- Local Roads
- County Limits
- Six Year Plan Projects

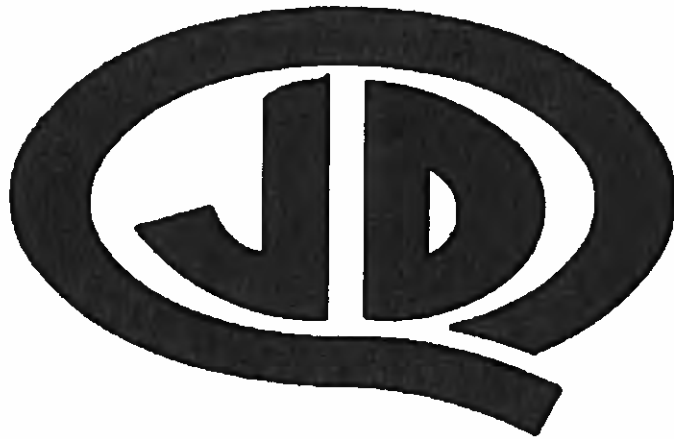


**Exhibit 3: Systems Linkage Map**  
**Daviess County**  
**Item # 2-8631.00**  
**KY 144**



# 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.

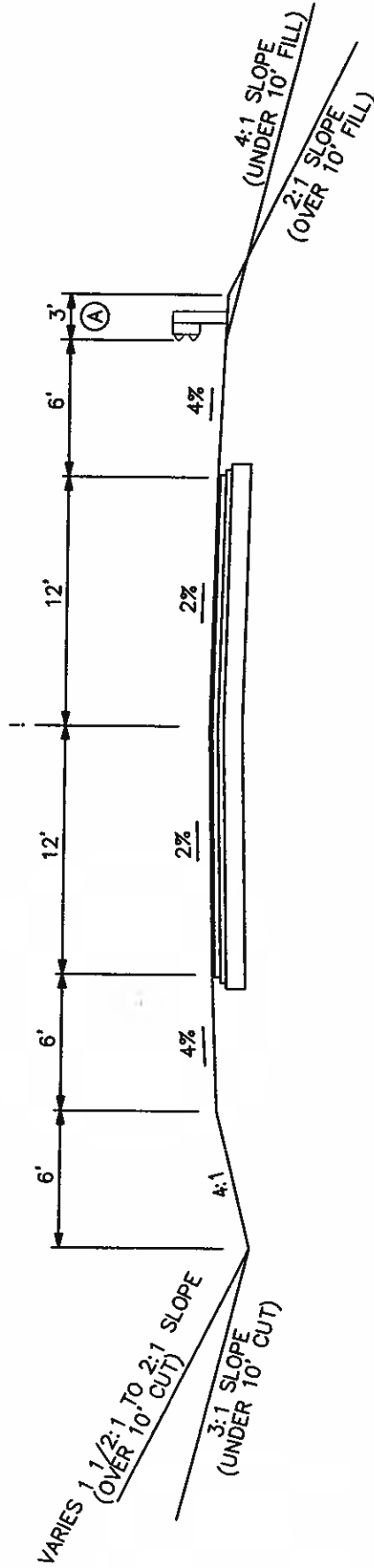
Four 50 mph horizontal curves with some straightening of the alignment are proposed to replace the existing 8 curves. The first curve replaces a sharp 90 degree curve and a flatter reverse curve. The last curve replaces three curves that follow the ridgeline. The 50 mph design speed matches the past 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
SITework: 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		
	<b>TOTAL ALTERNATE #1 COST</b>	<b>\$1,052,000</b>



# KENTUCKY HIGHWAY NO. 144

## COST ESTIMATE

DAVISS 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
--------------------	-------------------------	---------

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
----------	-------------------------	---------

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

SITWORK: 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





## Appendix C – UPL Project Information Form

# piF Project Identification Form UNSCHEDULED NEEDS



NEW PIF <> SEARCH <> STATUS

DIVISION OF PLANNING

ADMIN <> HELP <> LOGOUT

GENERAL INFO ROW/UTIL ECO/SOCIAL ENV/AIRQLTY COST EST HIGHWAY ATT PIF STATUS RANKING

## GENERAL INFORMATION

The PIF has an attachment. Click this Image for PDF: 

**Control No:** 02 030 D0144 32.00

**Requestor Name:**

**Requestor Title:**

**Requested By Date:** 06/01/2008

**Form Completed By:** Keith Harpole

**Title/Organization:** Owensboro MPO

**Form Completed Date:** 07/17/2007

**District:** 2

**County:** Daviess

**Prefix:** KY

**Route No:** 144

**Route Type:** D

**Suffix:**

**BMP:** 5.738

**Length:** 1.723

**Status:** Active

**Mode:** Highways

**Type:** Reconstruction

**ADD:** GREEN RIVER

**MPO:** Owensboro

**Urban Area:** Owensboro KY

**Parent Control No:** 02 030 D0144 32.00

**RSE Unique No:** 030-KY-0144 -000

<b>State System:</b>	BMP	EMP	SPRS
	0	14.3390	State Secondary

<b>Functional System:</b>	BMP	EMP	FC
	3.08	14.3390	Rural Major Collector

**EMP:** 7.461

**Existing Studies:** NONE

**Project Description:**

The county has asked for a cost estimate for construction of this project. This project will begin at KY-1831 (MP 5.738) and end at Boteler Rd (MP 7.461).

**Regional Goal:**

The county has gained right-of-way and is willing to participate in this project to eliminate the eight curves that are causing problems on KY 144.

**Last Updated By:** jennifer.wedding **Last Updated Date:** 6/24/2010 9:57:27 AM

**Possible Funding source:**  IM  NH  HES  BR  STP  SP  TE  CMAQ  PLH

**Other:**

**Highway Network:**  Non NHS  NHS  NN  Scenic Way  Coal Haul  Bike  Forest  Strahnet  Ext Weight  ADHS

[Cancel](#)



# UNSCHEDULED NEEDS



NEW PIF <> SEARCH <> STATUS

DIVISION OF PLANNING

ADMIN <> HELP <> LOGOUT

GENERAL INFO ROW/UTIL ECO/SOCIAL ENV/AIRQLTY COST EST HIGHWAY ATT PIF STATUS RANKING

## COST ESTIMATE

PIF #: 02 030 D0144 32.00

Revision #: 1

BMP: 5.738

EMP: 7.461

Last Updated By: 6/24/2010 10:14:29 AM

Last Updated Date: jennifer.wedding

Estimate Class: Requires Further Study

Per Mile

<b>Terrain:</b>	<b>BMP</b>	<b>EMP</b>	<b>TERRAIN</b>
	3.08	14.3390	Flat

Detailed Estimate with Calculations Attached

Estimate Assumptions:

Assume super 2.  
C = (1.8mi) (2.5M/mi) = 4.5M

Planning: No Records

Design: No Records

Right of Way: No Records

Utilities: No Records

Construction: No Records

Original Estimate:	Planning:	00.00
	Design:	500,000.00
	Right of Way:	500,000.00
	Utilities:	1,000,000.00
	Construction:	4,500,000.00
<b>Total Cost:</b>	<b>6,500,000.00</b>	

Estimate Procedure Used:

Attachments:  Location Map  Photograph(s)  Others: Sheet showing Cost Estimate

Comments:





UNUS SCHEDULED NEEDS



NEW PIF <> SEARCH <> STATUS

DIVISION OF PLANNING

ADMIN <> HELP <> LOGOUT

GENERAL INFO ROW/UTIL ECO/SOCIAL ENV/AIRQLTY COST EST HIGHWAY ATT PIF STATUS RANKING

HIGHWAY ATTRIBUTES

PIF #: 02 030 D0144 32.00

BMP: 5.738

EMP: 7.461

Last Updated By: jennifer.wedding

Last Updated Date: 6/24/2010 10:15:18 AM

Adequacy Rating Range

	From	To	Problem Statement
Adequacy Rating:	81.90	81.90	This section of KY 144 has 8 curves that are a cause for concern with the possibility that the coal mines will open, thereby bringing coal truck traffic back onto KY 144. KY 144 is narrow, 10 foot lanes, 2 foot shoulders, and blind curves. The CRF is near 1 in some sections, while the V/SF is low.
CRF:	0.6150	0.7990	
IRI:	81.43	148.57	
V/SF:	0.11	0.11	
ADT:	2240	2240	
% Trucks (Single):	12.40	12.40	
% Trucks (Combination):	3.70	3.70	
Speed Limit:	55	55	
Projected ADT (HDO)/Year:	Coming Soon	% Growth: Coming Soon	Projected ADT: Coming Soon

Miscellaneous Roadway Conditions

Access Control:	BMP	EMP	TYPE
	0	14.3390	None

Proposed Access Control:  \*

Lane Width:	BMP	EMP	WIDTH	LANES
	2.2010	8.8730	10	2

Proposed Lane Width:  \*

Proposed Lanes:  \*

Median Type:	BMP	EMP	WIDTH	TYPE
	0	14.3390		None

Proposed Median Type:  \*

Proposed Median Width:  \*

Shoulders:	BMP	EMP	WIDTH	TYPE	X SECT
	0	8.6760	2	Paved w/ Bituminous Material	NR



UNRESCHEDULED NEEDS



NEW PIF &lt;&gt; SEARCH &lt;&gt; STATUS

DIVISION OF PLANNING

ADMIN &lt;&gt; HELP &lt;&gt; LOGOUT

GENERAL INFO ROW/UTIL ECO/SOCIAL ENV/AIRQLTY COST EST HIGHWAY ATT PIF STATUS RANKING

## RANKING

Click the 'Add Rank' button below to Rank this PIF

RANK TYPE	YEAR	PRIORITY	RANK	TIER	OVERALL	UPDATED BY	UPDATED DATE
LOCAL	2001	NONE	0			sowjanya.burugupalli	3/10/2010 12:53:50 PM
REGIONAL	2001	NONE	0			sowjanya.burugupalli	3/10/2010 12:54:17 PM
DISTRICT	2001	NONE	0			sowjanya.burugupalli	3/10/2010 12:55:15 PM
LOCAL	2003	NONE	0	2		sowjanya.burugupalli	3/10/2010 2:10:17 PM
REGIONAL	2003	NONE	0	2		sowjanya.burugupalli	3/10/2010 2:26:12 PM
DISTRICT	2003	NONE	0	2		sowjanya.burugupalli	3/10/2010 2:29:01 PM
LOCAL	2005	MEDIUM	0			sowjanya.burugupalli	4/5/2010 11:21:25 AM
REGIONAL	2005	MEDIUM	6			sowjanya.burugupalli	4/5/2010 11:27:35 AM
DISTRICT	2005	MEDIUM	0			sowjanya.burugupalli	4/5/2010 12:37:55 PM
LOCAL	2007	HIGH	0			jennifer.wedding	6/24/2010 10:26:27 AM
REGIONAL	2007	HIGH	20			sowjanya.burugupalli	4/5/2010 1:29:02 PM
DISTRICT	2007	HIGH	0			sowjanya.burugupalli	4/5/2010 1:37:38 PM
LOCAL	2009	NONE	6	2			6/24/2010 2:14:41 PM
REGIONAL	2009	HIGH	6			sowjanya.burugupalli	4/5/2010 4:30:32 PM
DISTRICT	2009	HIGH	0			sowjanya.burugupalli	4/5/2010 4:31:01 PM
LOCAL	2011	HIGH	7	2	10	jennifer.wedding	6/7/2011 2:13:39 PM



02 030 D0144

5.64

5.738

144

5.69

7.547

7.679

7.061

FOSTER RD

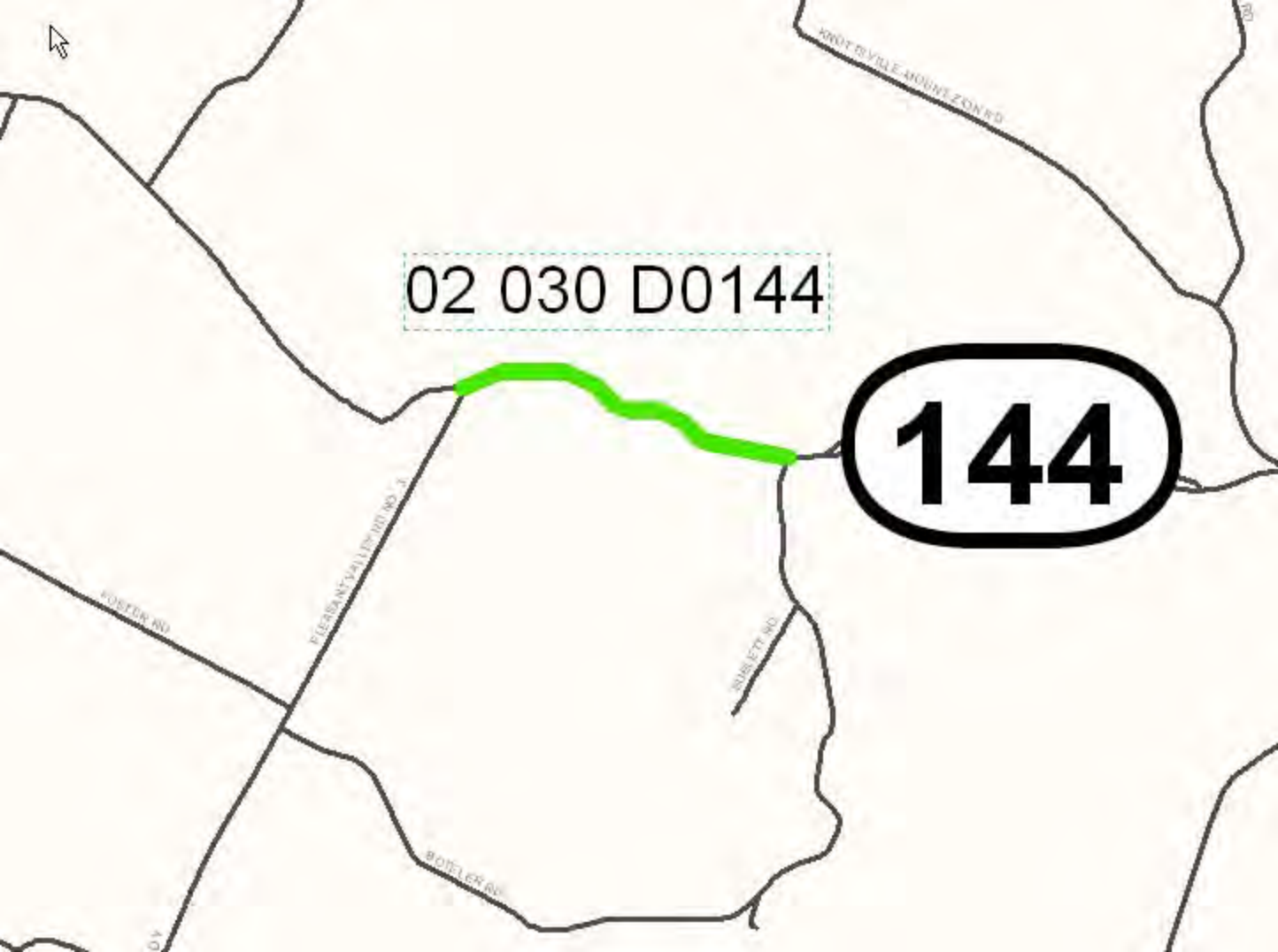
PLEASANT VALLEY ROAD NO. 3

SUBETT RD

BOTELER RD

02 030 D0144

144

















W. Zion  
Lutheran  
Church





## Appendix D – Collision Data



MASTER FILE NUMBER	ROADWAY NUMBER	ROADWAY NAME	LATITUDE	LONGITUDE	MILEPOINT DERIVED	COLLISION DATE	COLLISION TIME	INTERSECTION ROADWAY NAME	INTERSECTION ROADWAY SFX	UNITS INVOLVED	MOTOR VEHICLES INVOLVED	KILLED	INJURED	WEATHER	ROADWAY CONDITION	COLLISION ANALYSIS	DIRECTION OF COLLISION	ROADWAY CHARACTER	LIGHT CONDITION
70529281	KY544	KY544	37.786096	-86.953747	6.544	1/24/2009	0948			1	1	0	0	CLOUDY	WET	COLLISION WITH FIXED OBJECT NON - INTERSECTION - FIRST EVENT COLLISION 09 - 32 EXCLUDING SINGLE VEHICLE	REAR END	CURVE & GRADE	DAUGHT
70543825	KY544	KY544	37.7794958	-86.9527653	6.24	3/8/2008	1210			1	0	0	0	CLEAR	SNOW/SLUSH	COLLISION WITH FIXED OBJECT NON - INTERSECTION - FIRST EVENT COLLISION 09 - 32 EXCLUDING SINGLE VEHICLE	STRAIGHT & LEVEL	DAUGHT	
70540228	KY544	KY544	37.7777376	-86.9486487	6.485	4/12/2008	1735			1	0	0	0	CLEAR	DRY	OTHER COLLISIONS ON SHOULDER	CURVE & LEVEL	DAUGHT	
70564147	KY544	KY544	37.7788795	-86.9457771	6.556	2/12/2009	0750	PLEASANT VALLEY	RD	2	2	0	0	CLEAR	DRY	REAR END - OTHER	STRAIGHT & LEVEL	DAUGHT	
70678977	KY544	KY544	37.7786794	-86.9438273	6.571	3/15/2009	1543			2	2	0	0	CLEAR	DRY	OTHER ROADWAY OR MID-BLOCK COLLISION	CROSSING LEFT TURN	STRAIGHT & LEVEL	DAUGHT
70774006	KY544	KY544	37.7789543	-86.9411205	6.953	5/6/2009	1001			1	1	0	0	SEVERE CROSSWINDS	DRY	COLLISION WITH FIXED OBJECT NON - INTERSECTION - FIRST EVENT COLLISION 09 - 32 EXCLUDING SINGLE VEHICLE	CURVE & LEVEL	DAUGHT	
70531684	KY544	KY544	37.7782566	-86.9398286	7.091	2/6/2008	2055			1	0	0	0	SEVERE CROSSWINDS	DRY	REAR END - OTHER	CURVE & LEVEL	DARK-HVY NOT LIGHTED	
70549701	KY544	KY544	37.7789332	-86.939415	7.046	12/29/2005	0540			1	1	0	0	CLEAR	DRY	REAR END - OTHER	STRAIGHT & LEVEL	DARK-HVY LIGHT/OFF	
70549261	KY544	KY544	37.7779374	-86.9391178	7.064	3/27/2008	2015			1	1	0	0	CLEAR	DRY	COLLISION WITH ANIMAL	STRAIGHT & LEVEL	DARK-HVY NOT LIGHTED	
70612150	KY544	KY544	37.7778775	-86.9359887	7.247	9/5/2008	1521			1	1	0	0	RAINING	WET	REAR END - OTHER	CURVE & LEVEL	DAUGHT	
70732228	KY544	KY544	37.7765549	-86.9348651	7.451	1/27/2009	1704	BOLEER	RD	2	2	0	0	CLEAR	DRY	REAR END - ONE VEHICLE TURNING RIGHT	STRAIGHT & LEVEL	DAUGHT	
70626695	KY544	KY544	37.7766209	-86.9317396	7.48	11/5/2008	0144			1	1	0	0	CLEAR	DRY	COLLISION WITH ANIMAL	STRAIGHT & LEVEL	DARK-HVY NOT LIGHTED	
70738008	KY544	KY544	37.7766132	-86.9316256	8.179	4/21/2009	0221			1	1	0	0	CLEAR	DRY	COLLISION WITH ANIMAL	STRAIGHT & LEVEL	DARK-HVY NOT LIGHTED	
70630242	KY544	KY544	37.7760064	-86.9195181	8.191	2/19/2010	1835			1	1	0	0	CLEAR	DRY	COLLISION WITH ANIMAL	STRAIGHT & LEVEL	DARK-HVY NOT LIGHTED	
70639883	KY544	KY544	37.7759598	-86.9158869	8.393	10/29/2009	1835			1	1	0	0	CLEAR	DRY	COLLISION WITH ANIMAL	STRAIGHT & LEVEL	DARK-HVY NOT LIGHTED	
70649448	KY544	KY544	37.7761137	-86.9131767	8.534	1/11/2008	2115			1	1	0	0	CLOUDY	WET	REAR END - OTHER	CURVE & HILLCREST	DARK-HVY LIGHT/OFF	
70601796	KY544	KY544	37.7762109	-86.9123668	8.50	9/17/2010	2225	KNOTTSVILLE MTZON	RD	1	1	0	0	CLEAR	DRY	NON-COLLISION OBJECT COLLISION	STRAIGHT & LEVEL	DARK-HVY NOT LIGHTED	
70609100	KY544	KY544	37.7762112	-86.9123669	8.601	1/26/2010	1420			1	1	0	0	CLOUDY	DRY	COLLISION WITH FIXED OBJECT NON - INTERSECTION - FIRST EVENT COLLISION 09 - 32 EXCLUDING SINGLE VEHICLE	CURVE & LEVEL	DAUGHT	
70624513	KY544	KY544	37.7759884	-86.9097028	8.793	3/6/2010	0208			1	1	0	0	CLEAR	DRY	COLLISION WITH ANIMAL	STRAIGHT & LEVEL	DARK-HVY NOT LIGHTED	
70661137	KY544	KY544	37.7759514	-86.9076247	8.863	4/24/2010	1555			2	2	0	0	CLEAR	DRY	OTHER ROADWAY OR MID-BLOCK COLLISION	CROSSING LEFT TURN	DAUGHT	
70543245	KY544	KY544	37.7735469	-86.9056729	9.04	3/7/2008	0600	MONARCH	RD	2	2	0	0	CLEAR	DRY	ANGLE COLLISION - OTHER	STRAIGHT & LEVEL	DAWN	
70514865	KY544	KY544	37.7735466	-86.9056748	9.04	4/14/2008	0722	MONARCH	RD	2	2	0	0	SHOWING WET	WET	ANGLE COLLISION - BOTH VEHICLES GOING STRAIGHT	STRAIGHT & LEVEL	DAUGHT	
70574593	KY544	KY544	37.7722691	-86.9045448	9.125	6/2/2008	1722			2	2	0	0	CLEAR	DRY	1 VEHICLE PARKED POSITION (NOT PARKING LOT/DRIVEWAY)	BACKING	STRAIGHT & LEVEL	DAUGHT

# Appendix E – KYTC Common Geometric Practice Guidelines

## COMMON GEOMETRIC PRACTICES RURAL COLLECTOR ROADS

		TRAFFIC VOLUME									
		TERRIAN	UNDER 400 A.D.T.			400-2000 A.D.T.			OVER 2000 A.D.T.		
MINIMUM DESIGN SPEED (M.P.H.) ⑦	LEVEL		40			50			60		
	ROLLING		30			40			50		
	MOUNTAIN		20			30			40		
PAVEMENT WIDTH (FEET) ① ⑧	DESIGN SPEED		UNDER 400 A.D.T.			400-1500 A.D.T.		1500-2000 A.D.T.		OVER 2000 A.D.T.	
	20 MPH	20 ⑨	20		22		24		24		
	25 MPH										
	30 MPH										
	35 MPH										
	40 MPH	20	22		24		24				
	45 MPH										
	50 MPH	22	22		24		24				
55 MPH											
60 MPH		22		24		24					
MINIMUM GRADED SHOULDER WIDTH (FEET) ⑥	ALL SPEEDS		2			5 ⑩		6		8	
MIN. CLEAR ROADWAY WIDTH OF NEW AND RECONSTRUCTED BRIDGES	ALL SPEEDS		APPROACH ROADWAY WIDTH								
	DESIGN SPEED		eMAX. 4%			eMAX. 6%			eMAX. 8%		
MINIMUM RADIUS (FEET)	20 MPH		125			115			105		
	25 MPH		205			185			170		
	30 MPH		300			275			250		
	35 MPH		420			380			350		
	40 MPH		565			510			465		
	45 MPH		730			660			600		
	50 MPH		930			835			760		
	55 MPH		1190			1065			965		
60 MPH		1505			1340			1205			
NORMAL PAVEMENT CROSS SLOPES ④	RATE OF CROSS SLOPE = 2%										
NORMAL SHOULDER CROSS SLOPES	EARTH = 8%					PAVED = 4%					
MAXIMUM GRADE (PERCENT) ⑤	M.P.H.	20	25	30	35	40	45	50	55	60	
	LEVEL	7			8			6		5	
	ROLLING	10		9		8		7		6	
MINIMUM STOPPING SIGHT DISTANCE ②	MOUNTAIN	12	11	10			9		8		
	(FEET)	115	155	200	250	305	360	425	495	570	
MINIMUM PASSING SIGHT DISTANCE ③	(FEET)	710	900	1090	1280	1470	1625	1835	1985	2135	

- ① WIDEN PAVEMENT ON CURVES IN ACCORDANCE WITH APPROVED DESIGN STANDARDS. REFER TO CURRENT STANDARD DRAWING FOR ADDITIONAL DETAIL.
- ② MINIMUM STOPPING SIGHT DISTANCE BASED ON HEIGHT OF EYE OF 3.5 FT AND HEIGHT OF OBJECT OF 2.0FT. CONSIDER BOTH HORIZONTAL AND VERTICAL ALIGNMENTS.
- ③ MINIMUM PASSING SIGHT DISTANCES BASED ON HEIGHT OF EYE 3.5 FT AND HEIGHT OF OBJECT OF 3.5 FT. CONSIDER BOTH HORIZONTAL AND VERTICAL ALIGNMENTS.
- ④ NORMAL PAVEMENT CROSS SLOPES ON BRIDGES IS 2%.
- ⑤ MAY USE ONE PERCENT STEEPER MAXIMUM GRADES ON SHORT LENGTHS (LESS THAN 500 FT) AND ON ONE-WAY DOWN GRADES.
- ⑥ WIDEN 3 FT FOR GUARDRAIL.
- ⑦ DOCUMENT AND RETAIN JUSTIFICATION FOR A DESIGN SPEED LESS THAN THE REGULATORY OR POSTED SPEED IN THE PROJECT FILES.
- ⑧ ON ROADWAYS TO BE RECONSTRUCTED, A 22 FT TRAVELLED WAY MAY BE RETAINED WHERE THE SAFETY RECORDS AND ALIGNMENT ARE SATISFACTORY.
- ⑨ 18 FT MINIMUM WIDTH MAY BE USED FOR ROADWAYS WITH DESIGN VOLUMES UNDER 250 A.D.T.
- ⑩ SHOULDER WIDTH MAY BE REDUCED FOR DESIGN SPEEDS GREATER THAN 30 MPH PROVIDED A MINIMUM ROADWAY WIDTH OF 30 FT IS MAINTAINED.

## Appendix F – FIRM Map of the Study Area

# LEGEND



**SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**

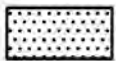
The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevation determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance of greater flood event.
- ZONE A99** Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.



**FLOODWAY AREAS IN ZONE AE**

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.



**OTHER FLOOD AREAS**

- ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.



**OTHER AREAS**

- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.

Insurance Program at 1-800-638-6620.



**MAP SCALE 1" = 500'**



**NFIP**

**PANEL 0239D**

**NATIONAL FLOOD INSURANCE PROGRAM**

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
**BELL COUNTY,**  
**KENTUCKY**  
**AND INCORPORATED AREAS**

**PANEL 239 OF 360**  
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

**CONTAINS:**

COMMUNITY	NUMBER	PANEL	SUFFIX
BELL COUNTY	210010	0239	□
MIDDLESBORO, CITY OF	215190	0239	□

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.



**MAP NUMBER**  
**21013C0239D**  
**EFFECTIVE DATE**  
**SEPTEMBER 29, 2006**

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

**ZONE D** Areas in which flood hazards are undetermined, but possible.



COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS



OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.



1% annual chance floodplain boundary



0.2% annual chance floodplain boundary



Floodway boundary



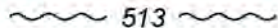
Zone D boundary



CBRS and OPA boundary



Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.



Base Flood Elevation line and value; elevation in feet\*

(EL 987)

Base Flood Elevation value where uniform within zone; elevation in feet\*

\* Referenced to the North American Vertical Datum of 1988 (NAVD 88)



Cross section line



Transect line

97°07'30", 32°22'30"

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

4275<sup>000</sup> M

1000-meter Universal Transverse Mercator grid ticks, zone 17

6000000 FT

5000-foot grid values: Kentucky State Plane coordinate system, South Zone (FIPZONE = 1602), Lambert projection

DX5510<sub>X</sub>

Bench mark (see explanation in Notes to Users section of this FIRM panel)

● M1.5

River Mile

**MAP REPOSITORY**

Refer to listing of Map Repositories on Map Index

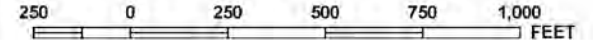
EFFECTIVE DATE OF COUNTYWIDE  
FLOOD INSURANCE RATE MAP  
SEPTEMBER 29, 2006

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 500'



NFIP

PANEL 0239D

NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**

**FLOOD INSURANCE RATE MAP  
BELL COUNTY,  
KENTUCKY  
AND INCORPORATED AREAS**

**PANEL 239 OF 360**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BELL COUNTY	210010	0239	□
MIDDLESBORO, CITY OF	215190	0239	□

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



**MAP NUMBER  
21013C0239D**

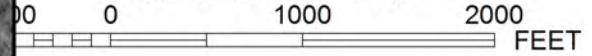
**EFFECTIVE DATE  
SEPTEMBER 29, 2006**

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



MAP SCALE 1" = 1000'



NFIP

PANEL 0165D

NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**  
FLOOD INSURANCE RATE MAP

**DAVIESS COUNTY,  
KENTUCKY  
AND INCORPORATED AREAS**

**PANEL 165 OF 435**  
(SEE LOCATOR DIAGRAM OR MAP INDEX FOR  
FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DAVIESS COUNTY	210062	0165	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

**MAP REVISED**      **MAP NUMBER**  
**APRIL 16, 2009**      **21059C0165D**



State of Kentucky  
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

## Appendix G – Photographs









## Appendix H – Project Team Meeting Minutes

## MEETING MINUTES

**Project:** Pre-Design Scoping Study for 2-8300, 2-8631, 2-8632

**Purpose:** Project Team Meeting

**Place:** Kentucky Transportation Cabinet (KYTC), District 2 Conference Room, Madisonville, Ky.

**Meeting Date:** April 18, 2011

**In Attendance:**

Nick Hall	KYTC-D2 Planning
Kevin McClearn	KYTC-D2 C.D.E.
Everett T. Green	KYTC-D2 Project Development
John Rudd	KYTC-D2 Design
Steve Ross	KYTC-CO Planning
Jill Asher	KYTC-CO Planning

**INTRODUCTIONS:** Jill opened the Project Team Meeting by discussing the purpose of the DNA Studies. Similar studies to these, formerly known as First Look Studies and Pre-Design Scoping Studies, have been done in the past by some of the districts. It is anticipated that a study of this type will be done for every project preceding the design phase if there is no planning study associated with the project. The nine elements of Purpose and Need as defined by NEPA will be addressed and used to create a purpose and need statement for each project. Pre-Design Scoping Studies will also provide more defined project scopes, cost estimates for possible alternatives, potential environmental impacts, and other information that will be of assistance in the Phase I Design process. This study was done for Item Numbers 2-8300, 2-8631, 2-8632 in Daviess County. A handout of the meeting presentation was given to all meeting attendees. A copy of the information presented is attached to the meeting notes. A sign-in sheet was also passed around.

During the meeting, each project was discussed separately. The meeting notes will also present each project separately. Please refer to the attached presentations for each project for information discussed. The following is information from discussions during the meeting that are not documented on the attached presentations.

### **Item #2-8300, KY 54 in Daviess County**

- Kevin McClearn gave a brief overview of some of the work planned at the ramps of the US 60/KY 54 intersection and the US 60 Extension that is currently under construction. These projects have separate funding sources than Item #2-8300. The SE quadrant of the US 60/KY 54 intersection has developed rapidly and 67 acres are currently being developed in the SW quadrant
- There is congestion in the area of the five-lane section of KY 54 near the bypass especially in the area of the Highland Elementary School. When school is in session, the back-up from the school reduces the roadway to one through lane. In

the past the ramp backed up to US 60(formerly US 60 Bypass) during school time. A loop was put in place to give added green time to the signal in the afternoons to eliminate back-ups onto US 60.

- Of the three projects discussed, this one is most likely to be designed first.
- There was a drop in ADT for what is referenced as Section 2 in the attached presentation. Nick stated that this may be due to a back way to Wal-Mart opening up for local residents.

#### **Item #2-8631, KY 144 in Daviess County**

- In 2005, coal was being hauled regularly on this road. There was a safety concern, especially for school busses, sharing this road with large coal haul trucks.
- In 2005 The Daviess County Fiscal Court asked KYTC if they could provide construction funds if the county used its coal severance money for design, property acquisition, and utility relocation to straighten out eight curves near Pleasant Valley Road. Since then, the amount and frequency of coal hauled on the road has decreased. It is unknown if the County is still willing to provide money for the project.
- Item #2-8631 is additional funds for Item #2-194.
- The preferred alternative for this project is the revision of the curves that have been identified. There is not enough money allocated to improve the length of the corridor.

#### **Item #2-8631, KY 1554 in Daviess County**

- This project was probably placed in the Highway Plan by a former Legislator from Sorgho.
- Although the project calls for a new route, the crash and traffic data do not support the need. The probable location of the new corridor may result in property owner disputes.
- Widening the existing corridor would result in major impacts to residents in the study area.
- This project has a PIF, but Nick believes it is on the inactive list.
- Improvements to the intersection of KY 1554/KY 56 may be a more logical approach.

**NEXT STEPS:** The district agreed to provide planning level, phased cost estimates for the alternates they would like to see move forward.

The meeting was followed by a visit to the site by Central Office Planning staff.

**END OF MINUTES**

**KY 144  
Daviness County  
Item #2-8631.00**



**Data Needs Analysis  
April 18, 2011**

**Project Limits**



Beginning and Ending MPs have not been established for this project.

## Legislation

### 2010 General Assembly's Enacted Roadway Plan

▶ **Item #2-8631.00, Daviess County**

<u>Phase</u>	<u>Fund</u>	<u>Year</u>	<u>Estimate</u>
D	SB2	2012	\$660,000

REALIGN KY-144 TO KNOTTSVILLE

Purpose and Need: RELIABILITY/ RECONSTRUCTION

▶ **Item # 2-194.00, Daviess County**

<u>Phase</u>	<u>Fund</u>	<u>Year</u>	<u>Estimate</u>
C	SPP	2010	\$520,000

RECONSTRUCT KY-144 IN THE VICINITY OF PLEASANT VALLEY ROAD

Milepoints: 6.6 to 6.7

Purpose and Need: Reliability / Major Widening

## Project Status

- ▶ Design funds are not yet authorized. Design funds were reestimated to be \$500,000.
- ▶ It is believed that Item #2-8631.00 is additional funds for Item #2-194.00.
- ▶ JDQ produced a KY 144 Improvement Report in 2005 for the Daviess County Fiscal Court. It proposed replacing eight curves with four 50 MPH horizontal curves with some straightening of the alignment. The estimate for the preferred alternative was \$873,000. Daviess County's Local Government Economic Development (LGED) funds would provide all design, property acquisition, and utility relocation costs and a small amount of constructions costs. An estimated \$800,000 would be required from KYTC.



## Project Status (cont.)

**Preconstruction Information for: 2-194.00**  
**Project Status: Active**

Type of Work: RECONSTRUCTION(D) Description: RECONSTRUCT KY-144 IN THE VICINITY OF PLEASANT VALLEY ROAD, DESIGN PHASE MONEY WAS MOVED FROM 2-9531.00(10CCR)

Location:

Route	County	Route	BMP	FMP
Route 1	DAVESS	KY-144	5.6	5.7
Route 2		-		

Length: Mi.

**Current Phase Info:**

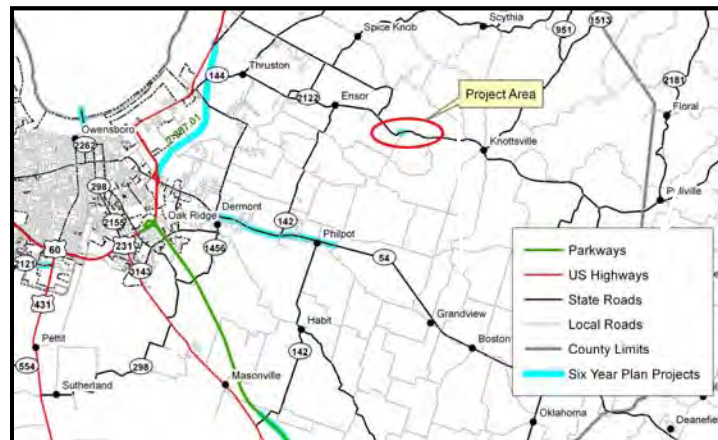
Phase	Fund Code	Estimated Cost	Scheduled FY	Phase Funding Status	Authorized Date	Authorized Amount
Design	SB2	\$500,000.00	2011	ESTIMATED		\$0.00
Construction	SPP	\$520,000.00	2010	ESTIMATED		\$0.00

**Highway Plan Phase Info:**

Phase	Funding	FY	Amount
Construction	SPP	2010	\$520,000.00



## System Linkage



KY 144 connects Knottsville to Owensboro.

## KY 54 Road Classifications

- Functional Classification – Rural Major Collector
- State System – State Secondary
- Truck Weight Classification – AA
- Coal Haul Route – Approximately 407,034 tons annually
- Access – By Permit

## Modal Interrelationships

- ▶ Public Transit
  - GRITS – on call service
- ▶ Coal Haul Route

## Social Demands & Economic Development

### Social Demands

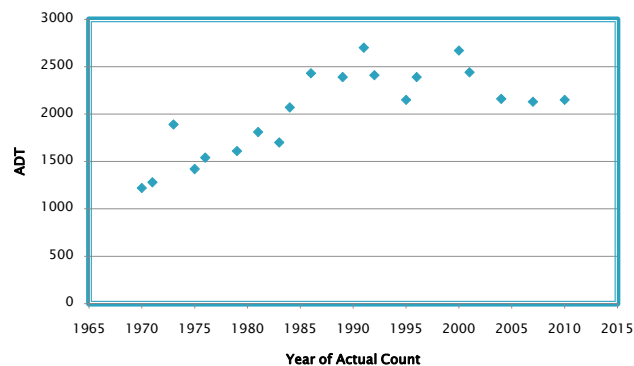
- ▶ New Hospital
- ▶ Schools

### Economic Development

- ▶ Coal Haul Route

## Transportation Demand

The current ADT is approximately 2150 along this corridor.

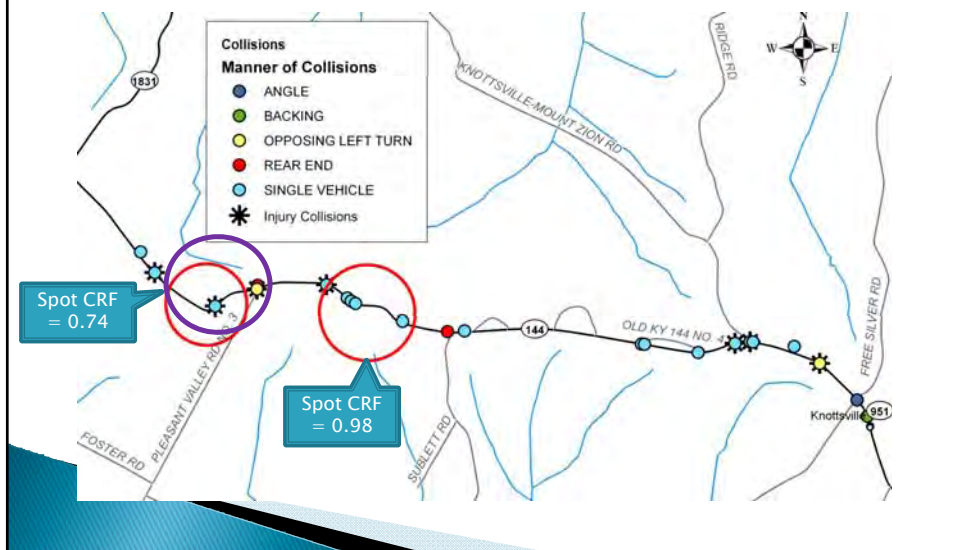


## Capacity

- ▶ The current VSF is 0.11. Capacity does not appear to be an issue at this time.

## Safety

Collision Locations (January 1, 2008 to December 31, 2010)



## Safety

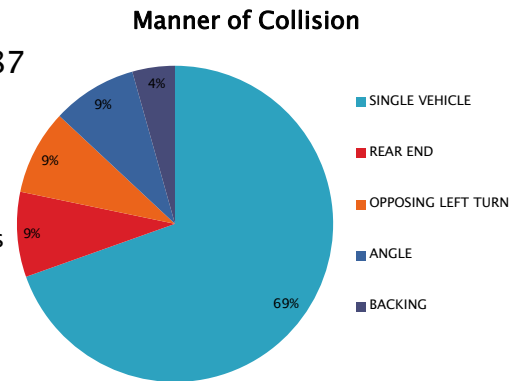
January 1, 2008 to December 31, 2010

From MP 6.0 To MP 9.2

### ▶ Summary:

- 0 Fatalities
- 7 Injury collisions
- 23 Total collisions
- Segment CRF = 0.87

Note: 6 of the 16 single vehicles collisions were with animals.



## Roadway Deficiencies

### ▶ Existing Roadway Data

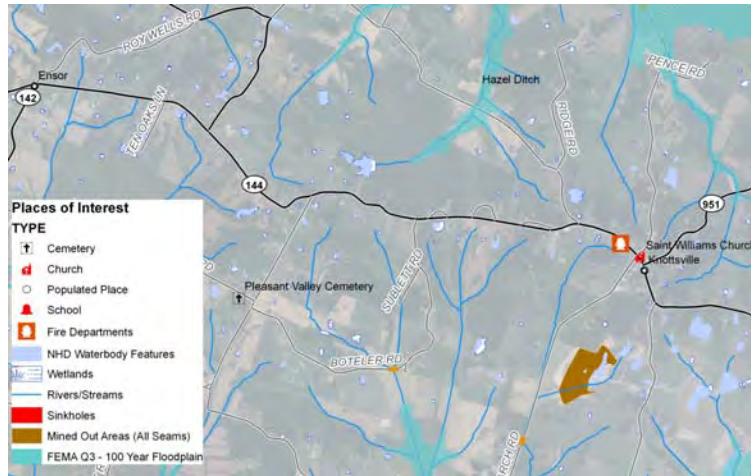
- 10 Ft. Lanes
- 2 Ft. Shoulders w/ Rumble strip
- Max Grade = <2.4%
- Min Radius = <400 Ft.
- 55 MPH posted speed limit
- 82<sup>nd</sup> percentile Adequacy Ratings

### • Geometric Practices for Rural Collectors

- Min. 12 Ft. Lanes
- Min. 8 Ft. Shoulders
- Max Grade = 7%
- Min Radius = 965 Ft. for 55 mph Design Speed & eMax=8%

Note: There are no bridges in the project location.

## Environmental Considerations

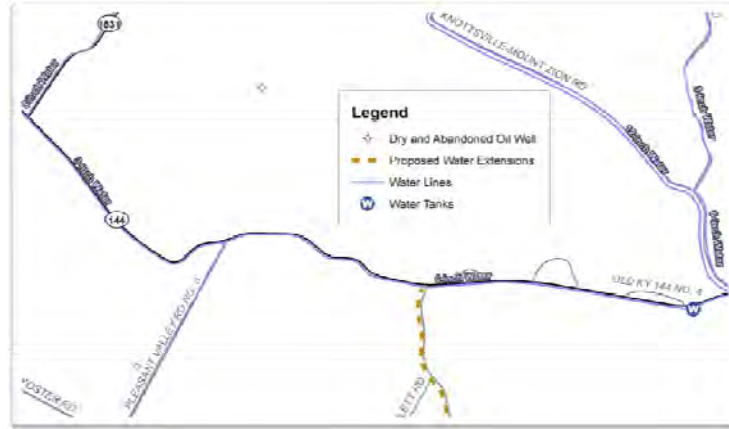


## Environmental Considerations Cont.



Environmental concerns include potential habitats for the bats and several homes are within the viewshed of the project that are 50 years old or older.

# Utilities



**Water**  
Southeast Daviess County Water  
East Daviess County Water Assoc.

**Phone/Cable**  
KDL Communications  
Time Warner Cable  
ATT

**Electric**  
Big Rivers Electric  
OMU Electric  
KU  
Kenergy

**Oil**  
Marathon Oil  
**Gas**  
Atmos Energy

# Observations

(Video & Pictures)

### **KY 144 Entering 1<sup>st</sup> Curve**



### **Pleasant Valley Road Intersection with KY 144**





### **KY 144 Curves East of Pleasant Valley Road**



### **KY 144 Curve East of Pleasant Valley Road**



## Possible Alternatives

- ▶ No Build
- ▶ Widen KY 144 to 12 ft lanes and 8 ft shoulders from MP 0.95 to MP 8.8629 improving alignment of 9 horizontal curves
- ▶ Improve curves just east and west of Pleasant Valley Road

## Widen KY 144, 9 Curve Revisions



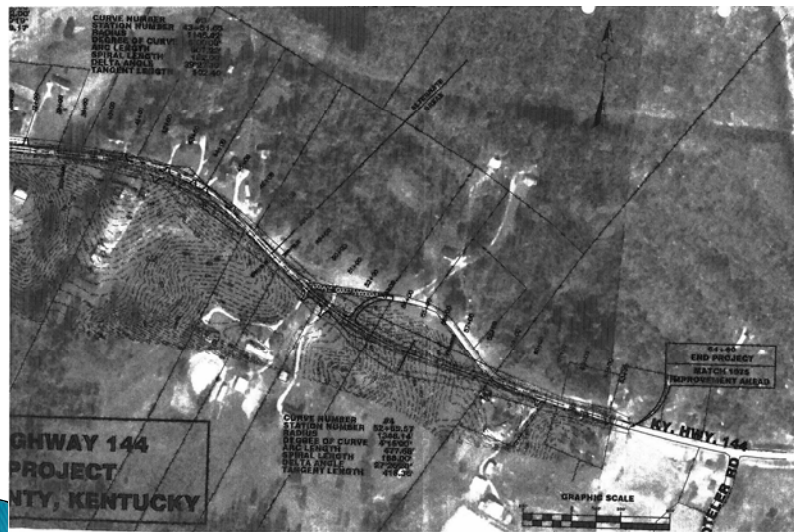
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○ identifies deficient horizontal curve

# Improve Curves just east and west of Pleasant Valley Road



# Improve Curves just east and west of Pleasant Valley Road



## Potential Conflicts

- ▶ Utilities
- ▶ R/W issues
- ▶ Environmental Impacts

## Purpose & Need Statement(s)

- ▶ Needs
  - KY 144 has several horizontal curves that do not meet recommended guidelines for rural collectors.
  - The lane and shoulder width of KY 144 do not meet the recommended guidelines for rural collectors.
  - There are collisions occurring in the proximity of these horizontal curves.
- ▶ Purpose
  - The purpose of this study on KY 144 is to address the geometric deficiencies and to improve the safety and connectivity between Owensboro and Knottsville.

## Appendix H – Project Team Meeting Minutes

## MEETING MINUTES

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**Purpose:** Project Team Meeting

**Place:** Kentucky Transportation Cabinet (KYTC), District 2 Conference Room, Madisonville, Ky.

**Meeting Date:** April 18, 2011

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**NEXT STEPS:** The district agreed to provide planning level, phased cost estimates for the alternates they would like to see move forward.

The meeting was followed by a visit to the site by Central Office Planning staff.

**END OF MINUTES**

**KY 144  
Daviness County  
Item #2-8631.00**



**Data Needs Analysis  
April 18, 2011**

**Project Limits**



Beginning and Ending MPs have not been established for this project.



## Legislation

### 2010 General Assembly's Enacted Roadway Plan

▶ **Item #2-8631.00, Daviess County**

<u>Phase</u>	<u>Fund</u>	<u>Year</u>	<u>Estimate</u>
D	SB2	2012	\$660,000

REALIGN KY-144 TO KNOTTSVILLE

Purpose and Need: RELIABILITY/ RECONSTRUCTION

▶ **Item # 2-194.00, Daviess County**

<u>Phase</u>	<u>Fund</u>	<u>Year</u>	<u>Estimate</u>
C	SPP	2010	\$520,000

RECONSTRUCT KY-144 IN THE VICINITY OF PLEASANT VALLEY ROAD

Milepoints: 6.6 to 6.7

Purpose and Need: Reliability / Major Widening

## Project Status

- ▶ Design funds are not yet authorized. Design funds were reestimated to be \$500,000.
- ▶ It is believed that Item #2-8631.00 is additional funds for Item #2-194.00.
- ▶ JDQ produced a KY 144 Improvement Report in 2005 for the Daviess County Fiscal Court. It proposed replacing eight curves with four 50 MPH horizontal curves with some straightening of the alignment. The estimate for the preferred alternative was \$873,000. Daviess County's Local Government Economic Development (LGED) funds would provide all design, property acquisition, and utility relocation costs and a small amount of constructions costs. An estimated \$800,000 would be required from KYTC.

## Project Status (cont.)

**Preconstruction Information for: 2-194.00**  
**Project Status: Active**

Type of Work: RECONSTRUCTION(D) Description: RECONSTRUCT KY-144 IN THE VICINITY OF PLEASANT VALLEY ROAD, DESIGN PHASE MONEY WAS MOVED FROM 2-9531.00(10CCR)

Location:

Route	County	Route	BMP	FMP
Route 1	DAVESS	KY-144	5.6	5.7
Route 2		-		

Length: Mi.

**Current Phase Info:**

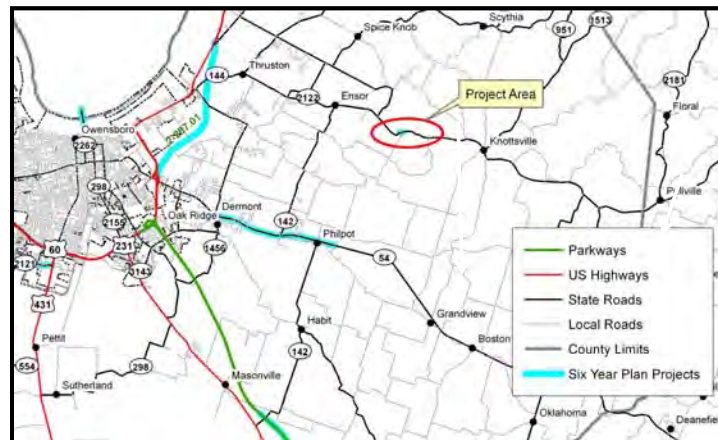
Phase	Fund Code	Estimated Cost	Scheduled FY	Phase Funding Status	Authorized Date	Authorized Amount
Design	SB2	\$500,000.00	2011	ESTIMATED		\$0.00
Construction	SPP	\$520,000.00	2010	ESTIMATED		\$0.00

**Highway Plan Phase Info:**

Phase	Funding	FY	Amount
Construction	SPP	2010	\$520,000.00



## System Linkage



KY 144 connects Knottsville to Owensboro.

## KY 54 Road Classifications

- Functional Classification – Rural Major Collector
- State System – State Secondary
- Truck Weight Classification – AA
- Coal Haul Route – Approximately 407,034 tons annually
- Access – By Permit

## Modal Interrelationships

- ▶ Public Transit
  - GRITS – on call service
- ▶ Coal Haul Route

## Social Demands & Economic Development

### Social Demands

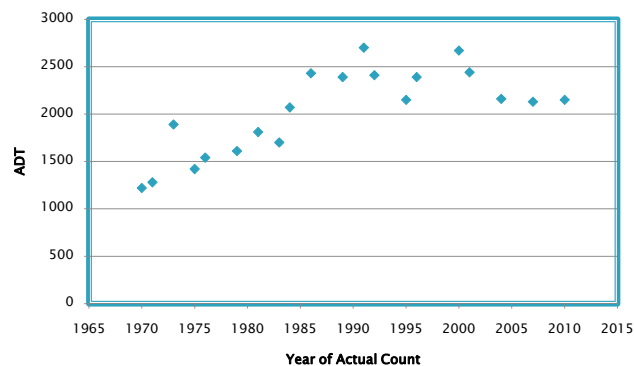
- ▶ New Hospital
- ▶ Schools

### Economic Development

- ▶ Coal Haul Route

## Transportation Demand

The current ADT is approximately 2150 along this corridor.

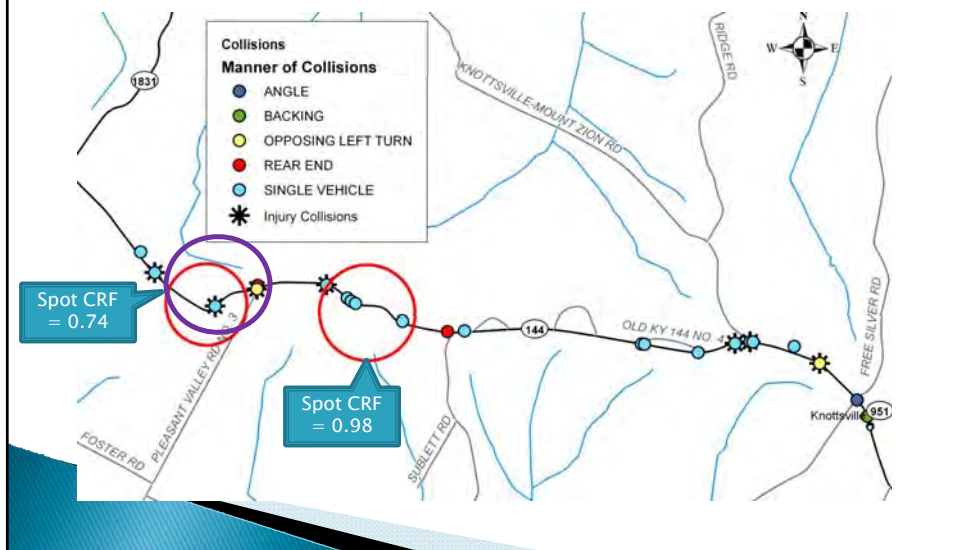


## Capacity

- ▶ The current VSF is 0.11. Capacity does not appear to be an issue at this time.

## Safety

Collision Locations (January 1, 2008 to December 31, 2010)



## Safety

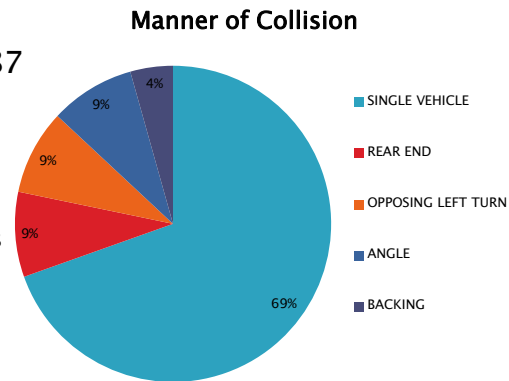
January 1, 2008 to December 31, 2010

From MP 6.0 To MP 9.2

### ▶ Summary:

- 0 Fatalities
- 7 Injury collisions
- 23 Total collisions
- Segment CRF = 0.87

Note: 6 of the 16 single vehicles collisions were with animals.



## Roadway Deficiencies

### ▶ Existing Roadway Data

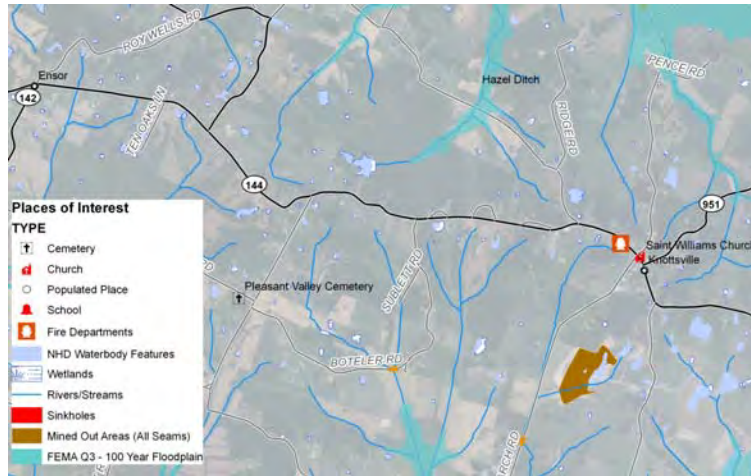
- 10 Ft. Lanes
- 2 Ft. Shoulders w/ Rumble strip
- Max Grade = <2.4%
- Min Radius = <400 Ft.
- 55 MPH posted speed limit
- 82<sup>nd</sup> percentile Adequacy Ratings

### • Geometric Practices for Rural Collectors

- Min. 12 Ft. Lanes
- Min. 8 Ft. Shoulders
- Max Grade = 7%
- Min Radius = 965 Ft. for 55 mph Design Speed & eMax=8%

Note: There are no bridges in the project location.

## Environmental Considerations

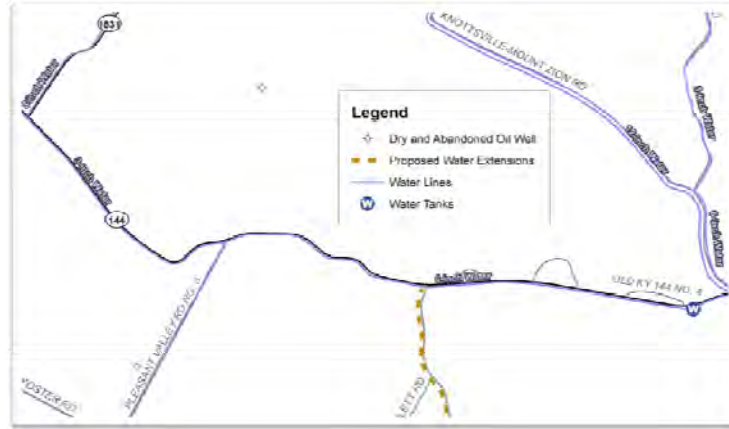


## Environmental Considerations Cont.



Environmental concerns include potential habitats for the bats and several homes are within the viewshed of the project that are 50 years old or older.

# Utilities



**Water**  
Southeast Daviess County Water  
East Daviess County Water Assoc.

**Phone/Cable**  
KDL Communications  
Time Warner Cable  
ATT

**Electric**  
Big Rivers Electric  
OMU Electric  
KU  
Kenergy

**Oil**  
Marathon Oil  
**Gas**  
Atmos Energy

# Observations

(Video & Pictures)



**KY 144 Entering 1<sup>st</sup> Curve**



**Pleasant Valley Road Intersection with KY 144**



### KY 144 Curves East of Pleasant Valley Road



### KY 144 Curve East of Pleasant Valley Road



## Possible Alternatives

- ▶ No Build
- ▶ Widen KY 144 to 12 ft lanes and 8 ft shoulders from MP 0.95 to MP 8.8629 improving alignment of 9 horizontal curves
- ▶ Improve curves just east and west of Pleasant Valley Road

## Widen KY 144, 9 Curve Revisions



This option would widen the lanes to 12 ft., the shoulders to 8 ft., approximately from MP 0.95 to MP 8.86. Nine horizontal curves would be improved.

○ identifies deficient horizontal curve

## Improve Curves just east and west of Pleasant Valley Road



## Improve Curves just east and west of Pleasant Valley Road



## Potential Conflicts

- ▶ Utilities
- ▶ R/W issues
- ▶ Environmental Impacts

## Purpose & Need Statement(s)

- ▶ Needs
  - KY 144 has several horizontal curves that do not meet recommended guidelines for rural collectors.
  - The lane and shoulder width of KY 144 do not meet the recommended guidelines for rural collectors.
  - There are collisions occurring in the proximity of these horizontal curves.
- ▶ Purpose
  - The purpose of this study on KY 144 is to address the geometric deficiencies and to improve the safety and connectivity between Owensboro and Knottsville.

# Appendix I – Preliminary Plans for Curve Improvements

10+00  
GIN PROJECT

KY. HWY. 144

ALTERNATE  
BRIE

CURVE NUMBER	#2
STATION NUMBER	33+72.28
RADIUS	1041.74
DEGREE OF CURVE	5°30'00"
ARC LENGTH	112.03'
SPIRAL LENGTH	182.00'
DELTA ANGLE	16°10'19"
TANGENT LENGTH	239.17'

CURVE NUMBER	#1
STATION NUMBER	16+59.28
RADIUS	881.47'
DEGREE OF CURVE	6°30'00"
ARC LENGTH	658.59'
SPIRAL LENGTH	192.00'
DELTA ANGLE	55°09'31"
TANGENT LENGTH	557.29'

PLEASANT VALLEY ROAD

CURVE  
STATION  
RADIUS  
DEGREE OF CURVE  
ARC LENGTH  
SPIRAL LENGTH  
DELTA ANGLE  
TANGENT LENGTH

1.00  
049'  
9.17

CURVE NUMBER	#3
STATION NUMBER	43+51.63
RADIUS	1145.82'
DEGREE OF CURVE	51°00'00"
ARC LENGTH	607.22'
SPIRAL LENGTH	142.00'
DELTA ANGLE	39°27'39"
TANGENT LENGTH	502.40'

**HIGHWAY 144  
PROJECT  
COUNTY, KENTUCKY**

CURVE NUMBER	#4
STATION NUMBER	52+65.57
RADIUS	1348.14'
DEGREE OF CURVE	4°15'00"
ARC LENGTH	477.68'
SPIRAL LENGTH	168.00'
DELTA ANGLE	27°26'38"
TANGENT LENGTH	418.36'

64+60  
END PROJECT  
MATCH 1975  
IMPROVEMENT AHEAD

GRAPHIC SCALE

