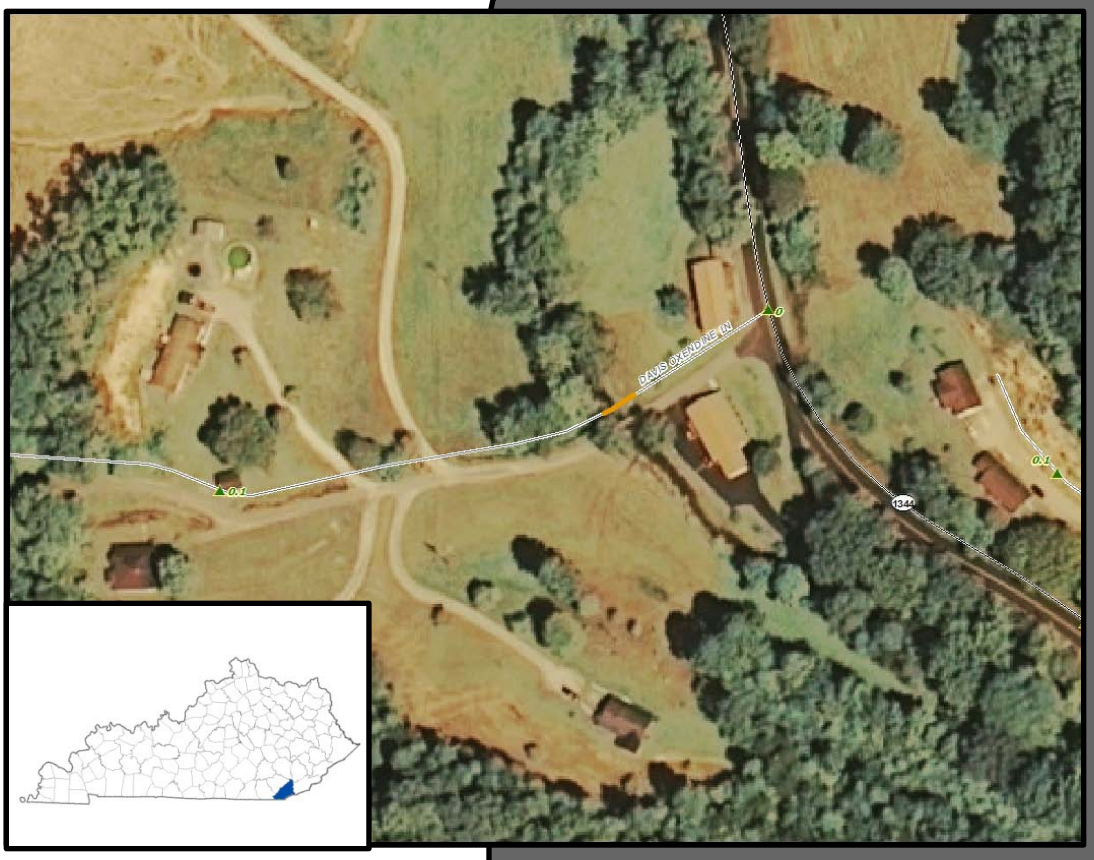
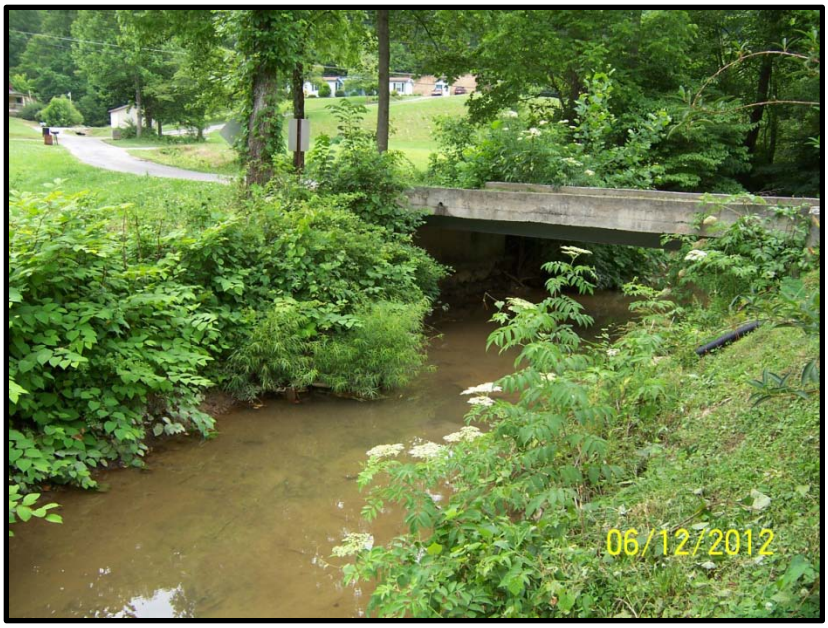
Data Needs Analysis



Scoping Study



CR 1184, Bell County
Replace Bridge on Davis Oxendine Road over Hances Creek at Junction with KY 1344
Item No. 11-1093.00

Prepared by the KYTC
Division of Planning District 11

July 2012

KENTUCKY TRANSPORTATION CABINET

I. PRELIMINARY PROJECT INFORMATION

County:	Bell	**Item No.:**	11-1093
Route Number(s):	CR-1184	**Road Name:**	Davis Oxendine Road
Program No.:	86552	**UPN:**	007 1184 000-001
Federal Project No.:	BRZ 1103 (252)	**Type of Work:**	BRIDGE REPLACEMENT

2012 **Highway Plan Project Description:**

REPLACE BRIDGE ON DAVIS OXENDINE ROAD (CR 1184) OVER HANCES CREEK AT JCT WITH KY 1344

Beginning MP: 0 **Ending MP:** 0.1 **Project Length:** 0.1

Functional Class.: ☐ Urban ☑ Rural

State Class.: ☐ Primary ☑ Secondary

Route is on: ☐ NHS ☐ NN ☐ Ext Wt

MPO Area: Not Applicable

Truck Class.:

In TIP: ☐ Yes ☐ No

% Trucks:

ADT (current): 50 2006

Terrain:

Access Control: ☑ None ☐ Permit ☐ Fully Controlled ☐ Partial Spacing:

Median Type: ☐ Undivided ☐ Divided (Type):

Existing Bike Accommodations:

Ped: ☐ Sidewalk

Posted Speed: ☐ 35 mph ☐ 45 mph ☐ 55 mph ☑ Other (Specify): 15 mph

KYTC Guidelines Preliminarily Based on : **MPH Proposed Design Speed**

Roadway Data:	**EXISTING**	**COMMON GEOMETRIC PRACTICES***
No. of Lanes	1	2
Lane Width	9	9
Shoulder Width	0	2
Max. Superelevation**	n/a	n/a
Minimum Radius**	n/a	n/a
Maximum Grade	n/a	n/a
Minimum Sight Dist.	n/a	n/a
Sidewalk Width(urban)	0	0
Clear-zone***		10

Existing Rdwy. Plans available?
☐ Yes ☑ No
Year of Plans:

☑ Traffic Forecast Requested
Date Requested: 6/4/2012

☐ Mapping/Survey Requested
Date Requested:

Type:

Project Notes/Design Exceptions?: Expected bridge width to match mainline

*Based on proposed Design Speed, **AASHTO's A Policy on Geometric Design of Highways and Streets, ***AASHTO's Roadside Design Guide

Bridge No.*:	007C00061N
Sufficiency Rating	12.9
Total Length	27
Width, curb to curb	10'10"
Span Lengths	25
Year Built	1936
Posted Weight Limit	3 tons
Structurally Deficient?	Yes
Functionally Obsolete?	Yes

Existing Geotech data available?
☐ Yes ☑ No

*If more than two bridges are located on the project, include additions sheets.

II. PROJECT PURPOSE AND NEED

A. Legislation

The following funding was listed in the FY 2012-FY 2018 Highway Plan.

Funding	*Phase*	*Year*	*Amount*
BRZ	D	2013	$250,000
BRZ	R	2014	$50,000
BRZ	U	2014	$50,000
BRZ	C	2015	$400,000

B. Project Status

Design funds for this project have been requested.

C. System Linkage

CR 1184 connects several residents southeast of the Calvin community to US 119.

D. Modal Interrelationships

This section of KY 72 has no known modal interrelationships.

E. Social Demands & Economic Development

CR 1184 provides local residents access to KY 1344 and US 119 in Bell County.

F. Transportation Demand

There is no known traffic count information for this county route.

II. PROJECT PURPOSE AND NEED (cont.)

G. Capacity

Although this bridge has a very low ADT, currently it is one lane.

H. Safety

There are no known accidents on this route, however the bridge is classified as structurally deficient and functionally obsolete.

I. Roadway Deficiencies

The bridge is classified as structurally deficient and functionally obsolete. According to the Structure Inventory and Appraisal Sheet, the one lane bridge received an intolerable rating for the deck geometry.

Draft Purpose and Need Statement:

Need: This bridge is structurally deficient and functionally obsolete. It has a sufficiency rating of 12.9.

Purpose: By replacing the bridge, CR 1184 in Bell County will allow more safe and reliable access for the local community to access KY 1344.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW

A. Air Quality

Project is in: ☑ Attainment area ☐ Nonattainment or Maintenance Area ☐ PM 2.5 County

STIP Pg.#: 11 **TIP Pg.#:**

Bell Co is attainment for all monitored air pollutants. This project is a bridge replacement and no increase in traffic is expected. Air quality during construction will be controlled with good construction practices.

B. Archeology/Historic Resources

☐ Known Archeological or Historic Resources are present

A phase I archaeological survey will determine cultural significance and if eligible sites are located in the project footprint. No historic resources have been identified.

C. Threatened and Endangered Species

The USGS Quadrangle is Varilla and Stream crossing is Hances Creek. Current species listed for Bell County are Myotis sodalis, Indiana bat , Epioblasma torulosa rangiana, Northern riffleshell, Lampsilis abrupta, pink mucket, Obovaria retusa, ring pink, Plethobasus cooperianus, orangefoot pimpleback, Plethobasus cyphyus, sheepnose, Pleurobema clava, clubshell, Cyprogenia stegaria, fanshell, Pleurobema plenum, rough pigtoe, Alasmidonta atropurpurea, Cumberland elktoe, Trifolium stoloniferum, running buffalo clover, Phoxinus cumberlandensis, blackside dace, Etheostoma susanae, Cumberland darter, Pseudanopthalmus frigidus, icebox cave beetle. Project is in a USFWS Indiana bat polygon. Future study will address the requirements of USFWS and prevent detriment to the protected species.

D. Hazardous Materials

☐ Potentially Contaminated Sites are present ☑ Potential Bridge or Structure Demolition

Fueling stations or where petroleum products have been used can be identified for hazardous materials during phase I investigations and determine if phase II will be necessary. Asbestos and lead are possible hazardous materials in structures and these will be assessed during the environmental phase.

E. Permitting

Check all that may apply: ☑ Waters of the US ☐ MS4 area ☐ Floodplain Impacts ☐ Navigable Waters of the US Impacts

Are 401/404 Permits likely to be required? ☑ Yes ☐ No Impacts to: ☐ Wetlands ☐ Stream/Lake/Pond

☑ ACE LON ☑ ACE NW ☐ ACE IP ☐ DOW IWQC ☐ Special Use Waters

The USGS Quadrangle is Varilla. Wetlands are not identified on the project. A water of the United States with impacts below ordinary high water will require coordination with the officers of the CORP and DOW. Construction activities may need a USACE 404 permit and a DOW 401 permit. Additionally, a surface water KYR 10 permit may be required for construction disturbance.

F. Noise

Are existing or planned noise sensitive receptors adjacent to the proposed project? ☑ Yes ☐ No

Is this considered a "Type I Project" according to the KYTC Noise Analysis and Abatement Policy? ☐ Yes ☑ No

Noise issues will be temporary and limited to those associated with construction activity. It does not appear there are noise receptors within 150 feet of the project. Project will not increase capacity or through travel lanes.

G. Socioeconomic

Check all that may apply: ☐ Low Income/Minority Populations affected ☑ Relocations ☐ Local Land Use Plan available

Relocations are possible as the geometrics of the road are addressed along with the bridge replacement. There appears to be no impacts to prime farmland.

H. Section 4(f) or 6(f) Resources

The following are present on the project: ☐ Section 4(f) Resources ☐ Section 6(f) Resources

Should structures be accepted as eligible for the National Register of Historic Places, they could 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 bridges, or using 'de minimus' guidance for properties with minor strip takings

Anticipated Environmental Document: CE Level 1

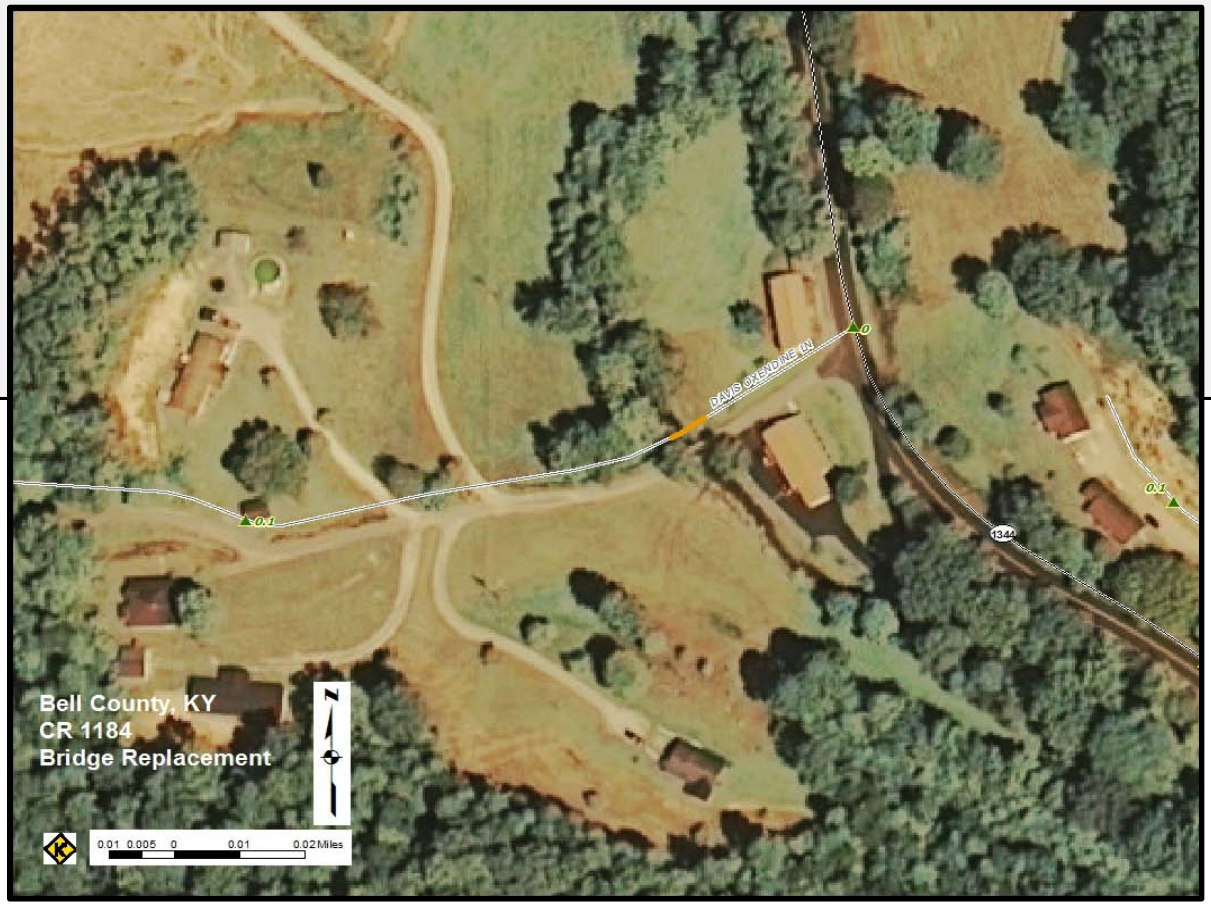
IV. POSSIBLE ALTERNATIVES

A. Alternative 1: No Build

This alternate could be carried forward, but does not address the need that the bridge is functionally obsolete and structurally deficient.

B. Alternative 2: Build In-Place with Diversion

Alternate 2 will replace the bridge in the same location as it is now. It will require a diversion parallel to the existing structure. Right of way and utilities should be minimal.



C. Alternative 2a: Study of Best Suited Structure

Alternate 2a would like to explore all structures that would accommodate this stream crossing and best suit the location. Structures to consider include, but are not limited to, box culvert, three sided culvert, precast structure, and box beam bridge.

V. Summary

This study is a Data Needs Analysis (DNA) of a bridge replacement over Hances Creek on CR 1184 in Bell County, Item Number 11-1093. Through analysis of the existing roadway geometrics, site visits, and discussion with the project team, several needs were identified within the project limits. The following were identified as project needs:

- The bridge needs replaced.
- This one lane road has a low ADT volume.
- There are no apparent deficiencies in the existing roadway tying into the bridge.

Included in the alternates were a no build recommendation and replacing the bridge in its current location.

Alt #	Description	D ($)(BRZ)	R ($)(BRZ)	U ($)(BRZ)	C ($)(BRZ)	Total
1	No Build	-	-	-	-	-
2	Build In-Place with Diversion	250,000	50,000	50,000	206,000	556,000
-	Current Hwy Plan Estimated Cost	250,000	50,000	50,000	400,000	750,000
-	Current Pre-Con Estimated Cost	250,000	50,000	50,000	206,000	556,000

Tables and Exhibits

Exhibit 1: Mainline Westbound

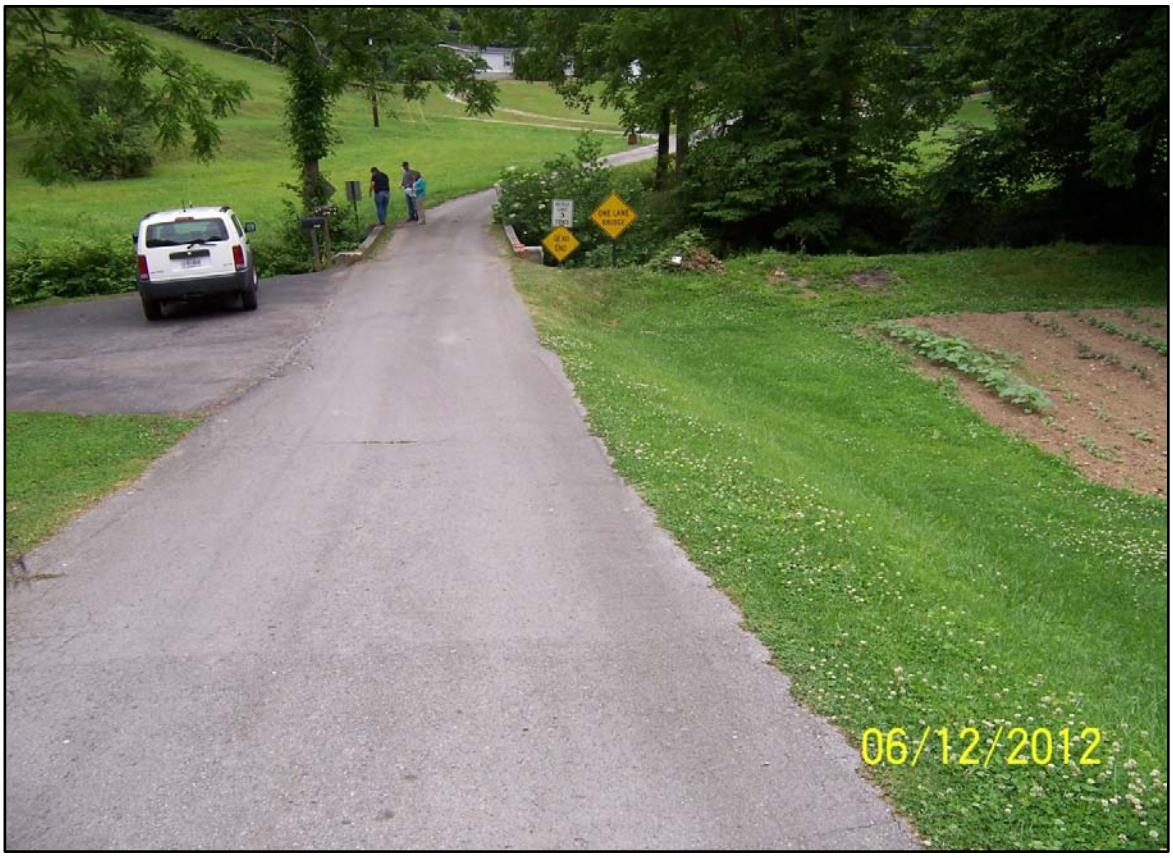


Exhibit 2: Vicinity Map