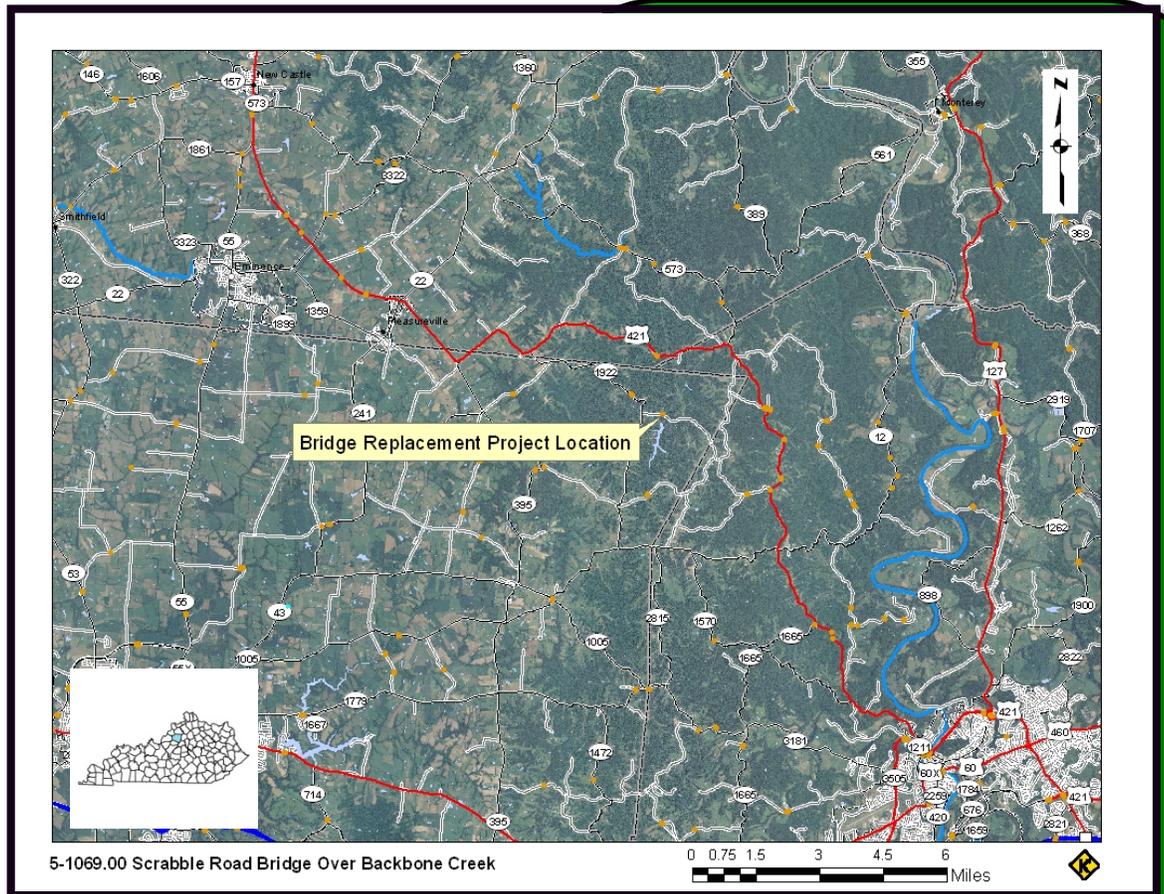




# Data Needs Analysis



## Scoping Study



Bridge Replacement on  
Scrabble Road  
Over Backbone Creek  
Shelby County  
0.47 Miles East of  
Cedarmore Rd (KY 1922)  
Item No. 5-1069.00

Prepared by the KYTC  
Division of Planning and  
KYTC District 5  
October 2012

I. PRELIMINARY PROJECT INFORMATION			
<b>County:</b>	Shelby	<b>Item No.:</b>	5-1069.00
<b>Route Number(s):</b>	CR-1036	<b>Road Name:</b>	Scrabble Rd
<b>Program No.:</b>		<b>UPN:</b>	
<b>Federal Project No.:</b>		<b>Type of Work:</b>	Bridge Replacement
2012 <b>Highway Plan Project Description:</b>			
Replace Bridge on Scrabble Rd (CR 1036) Over Backbone Creek 0.47 Mile E of Cedarmore Rd (KY 1922)(SR 44.2) 106C00055N			
<b>Beginning MP:</b>	0.462	<b>Ending MP:</b>	0.502
		<b>Project Length:</b>	0.04 MI
<b>Functional Class.:</b>	<input type="checkbox"/> Urban <input checked="" type="checkbox"/> Rural Local <input type="checkbox"/>	<b>State Class.:</b>	<input type="checkbox"/> Primary <input type="checkbox"/> Secondary
<b>MPO Area:</b>	Not Applicable	<b>Route is on:</b>	<input type="checkbox"/> NHS <input type="checkbox"/> NN <input type="checkbox"/> Ext Wt
In TIP: <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Truck Class.:</b>	
<b>ADT (current):</b>	200 2010	<b>Terrain:</b>	Rolling
<b>Access Control:</b>	<input type="checkbox"/> None <input type="checkbox"/> Permit <input type="checkbox"/> Fully Controlled <input type="checkbox"/> Partial	<b>Spacing:</b>	
<b>Median Type:</b>	<input checked="" type="checkbox"/> Undivided <input type="checkbox"/> Divided (Type):		
<b>Existing Bike Accommodations:</b>	Shared Lane	<b>Ped:</b>	<input type="checkbox"/> Sidewalk
<b>Posted Speed:</b>	<input type="checkbox"/> 35 mph <input type="checkbox"/> 45 mph <input type="checkbox"/> 55 mph	<input checked="" type="checkbox"/> Other (Specify):	30
<b>KYTC Guidelines Preliminarily Based on :</b>	See Project Notes.	<b>MPH Proposed Design Speed</b>	
<b>COMMON GEOMETRIC</b>			
<b>Roadway Data:</b>	<b>EXISTING</b>	<b>PRACTICES*</b>	
No. of Lanes	2	Min. 2	<a href="#">Existing Rdwy. Plans available?</a>
Lane Width	16.7' (Single Lane)	16'	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Shoulder Width	0'	NA	Year of Plans: _____
Max. Superelevation**	N/A	NA	<input checked="" type="checkbox"/> <a href="#">Traffic Forecast Requested</a>
Minimum Radius**	N/A	NA	Date Requested: 6/29/2012
Maximum Grade	Unknown	11%	<input type="checkbox"/> Mapping/Survey Requested
Minimum Sight Dist.	NA	165'	Date Requested: _____
Sidewalk Width(urban)	N/A	10'	Type: _____
Clear-zone***			
<b>Project Notes/Design Exceptions:</b>	Use guidelines for Very Low Vol. Loc. Rds. TTWW-16' includes 1.5' shoulders.		
<small>*Based on proposed Design Speed, **AASHTO's A Policy on Geometric Design of Highways and Streets, ***AASHTO's Roadside Design Guide</small>			
<b>Bridge No.*:</b>	106C00055N		
Sufficiency Rating	44.2		<a href="#">Existing Geotech data available?</a>
Total Length	41'		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Width, curb to curb	16'		
Span Lengths	39'		
Year Built	1987		
Posted Weight Limit	16T		
Structurally Deficient?	Yes		
Functionally Obsolete?	Yes		
<small>*If more than two bridges are located on the project, include additions sheets.</small>			

**II. PROJECT PURPOSE AND NEED**

**A. Legislation**

This project was approved by the General Assembly as part of the Bridge Replacement Program in the 2012 Highway Plan.	<i>Funding</i>	<i>Phase</i>	<i>Year</i>	<i>Amount</i>
	BRZ	D	2014	\$150,000
	BRZ	R	2016	\$20,000
	BRZ	U	2016	\$10,000
	BRZ	C	2017	\$130,000

**B. Project Status**

The project is be combined with two other bridge replacement projects in Shelby County (5-1060.00, 5-1063.00) to be advertised under one design consultant. The project is ready for advertisement. See Alternative 2 for a map of the corridor showing the preferred alternative.

**C. System Linkage**

Scrabble Road (CR-1036) is a Rural Local Road with ADT's: Current (2012): 200, Future (2030): 350, according to the Traffic Forecast dated 9/24/2012. This Rural Local Road connects KY 1922 (Cedarmore Rd) a Rural Minor Collector in Shelby County with US-421 a Rural Minor Arterial in Franklin County. US-421 is part of a direct link to Interstate 71 that connects to the Milton-Madison Bridge, which connects Kentucky to Indiana.

**D. Modal Interrelationships**

NA

**E. Social Demands & Economic Development**

Scrabble Road links the rural area to US-421, which connects the county seat of New Castle in Henry County to the county seat of Frankfort in Franklin County. The Kentucky State Capitol of Frankfort is a travel destination for many tourists and is the site of Kentucky State University and the Frankfort Convention Center.

**F. Transportation Demand**

The ADT in 2010 was 200 and the Projected ADT in 2030 is 350 according to the Traffic Forecast.

**II. PROJECT PURPOSE AND NEED (cont.)**

**G. Capacity**

There are currently no capacity issues with the bridge and none are anticipated.

**H. Safety**

The collision data from the KY State Police Analysis Database from 9/21/2009 to 9/21/2012 indicates there was one collision with property damage in the project area. See Exhibit 2 on page 9.

**I. Roadway Deficiencies**

The bridge is a single lane rated functionally obsolete.

**Draft Purpose and Need Statement:**

Need: The project is necessary to replace the single lane bridge which is dilapidated and structurally deficient, and its approaches, to improve safety and substandard condition of the bridge. With settlement of the abutments and wings, spalling, deterioration, exposed reinforcement steel, the single lane bridge has been assessed a sufficiency rating of 44.2.

Purpose: The purpose of this project is to replace the bridge (106C00055N - 25 year old, single span, steel mesh military bridge, 41' in length) and its approaches on CR 1036 between MP 0.462 and MP 0.502 over Backbone Creek.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW	
<b>A. Air Quality</b>	
Project is in: <input checked="" type="checkbox"/> Attainment area <input type="checkbox"/> Nonattainment or Maintenance Area <input type="checkbox"/> PM 2.5 County	
STIP Pg.#: FY 2011-2014	TIP Pg.#: N/A
Administrative Modification 2010.215	
<b>B. Archeology/Historic Resources</b>	
<input checked="" type="checkbox"/> Known Archeological or Historic Resources are present	
Bridge is a single span steel stringer/girder made in 1987 and DEA architectural historian advises that the structure is not eligible for the NRHP. Stone bridge abutments not eligible due to loss of much of the stone. A site specific review by a qualified archaeologist and architectural historian will be required to complete the Section 106 review for the project.	
<b>C. Threatened and Endangered Species</b>	
Endangered species habitat exists in the project area. Most specifically, Indiana bat and gray bat habitat. Backbone Creek is probably too small to provide habitat for endangered mussel species. Additionally, the project location is just downstream from a large reservoir (Trailwood Lake) probably constructed during the 1960 by the National Resource Conservation Service for soil protection. A site specific biological review will be necessary to determine habitat for all endangered and threatened species.	
<b>D. Hazardous Materials</b>	
<input type="checkbox"/> Potentially Contaminated Sites are present <input checked="" type="checkbox"/> Potential Bridge or Structure Demolition	
A NOI will be required to be submitted to the Division of Air Quality for the demolition of the deficient bridge. Typically, the contractor is required to submit this NOI to the regional office at least 10 working days before demolition. It is a steel structure with guardrail so no ACM (Asbestos Containing Material) expected to be present. No UST's anticipated.	
<b>E. Permitting</b>	
Check all that may apply: <input checked="" type="checkbox"/> Waters of the US <input type="checkbox"/> MS4 area <input checked="" type="checkbox"/> Floodplain Impacts <input type="checkbox"/> Navigable Waters of the US Impacts	
Are 401/404 Permits likely to be required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Impacts to: <input type="checkbox"/> Wetlands <input checked="" type="checkbox"/> Stream/Lake/Pond	
<input checked="" type="checkbox"/> ACE LON <input type="checkbox"/> ACE NW <input type="checkbox"/> ACE IP <input type="checkbox"/> DOW IWQC <input type="checkbox"/> Special Use Waters	
Project lies within a FEMA zone X. Impacts to the stream are expected to be within ACE LON limits with no mitigation expected. Site specific survey will be required to determine impacts.	
<b>F. Noise</b>	
Are existing or planned noise sensitive receptors adjacent to the proposed project? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Is this considered a "Type I Project" according to the <a href="#">KYTC Noise Analysis and Abatement Policy?</a> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Typically, bridge replacement projects are not type I projects so no noise survey will be required.	
<b>G. Socioeconomic</b>	
Check all that may apply: <input type="checkbox"/> Low Income/Minority Populations affected <input type="checkbox"/> Relocations <input type="checkbox"/> Local Land Use Plan available	
No impacts anticipated with this bridge replacement.	
<b>H. Section 4(f) or 6(f) Resources</b>	
The following are present on the project: <input type="checkbox"/> Section 4(f) Resources <input type="checkbox"/> Section 6(f) Resources	
Unless the bridge is found eligible for the NRHP or there is an adjacent property identified during the architectural review to be eligible, NO Section 4(f) or 6(f) resources are anticipated for this project.	
Anticipated Environmental Document:	CE Level 1 <input type="button" value="v"/>

**IV. POSSIBLE ALTERNATIVES**

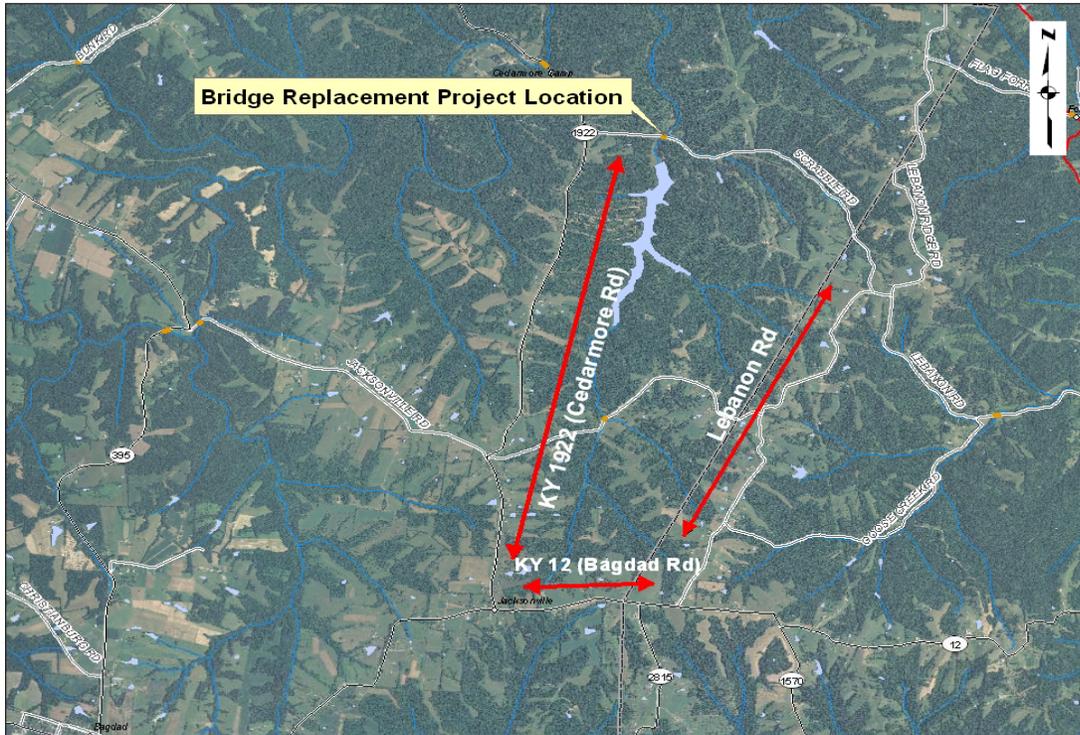
**A. Alternative 1: No Build**

This alternative should be carried forward, but does not meet the purpose and need of the project.

**B. Alternative 2**

Alternative 2 proposes to replace the bridge in its existing location. The detour route as shown below ((KY 1922 (Cedarmore Rd) to KY 12 (Bagdad Rd) to Lebanon Rd)) is approximately 4.8 miles. This alternative would require a minimum amount of Right of Way and minimize the impacts to utilities.

**Alternative 2 - Replace Bridge in Existing Location & Detour Route**



5-1069.00 Scrabble Road Bridge Over Backbone Creek

Planning Level Cost Estimate:

<u>Phase</u>	<u>Estimate</u>
Design	\$110,000
R/W	\$30,000
Utilities	\$30,000
Const	\$210,000
<b>Total</b>	<b>\$380,000</b>

**IV. POSSIBLE ALTERNATIVES (cont.)**

**C. Alternative #3**

Alternative 3 proposes to build a new bridge structure to the north of the existing bridge. The Alternative Map below shows that the alignment should be built to the north of the existing bridge as there are utility poles on the south side. A new alignment would require more roadway construction, Right of Way, and possibly have greater utility impacts, than Alternative 2, and is the most costly of the Alternatives.

**Alternative 3 - Build Using Proposed New Alignment**



5-1069.00 Scrabble Road Bridge Over Backbone Creek

Planning Level Cost Estimate:

<u>Phase</u>	<u>Estimate</u>
Design	\$110,000
R/W	\$45,000
Utilities	\$30,000
Const	\$270,000
<b>Total</b>	<b>\$455,000</b>

**V. Summary**

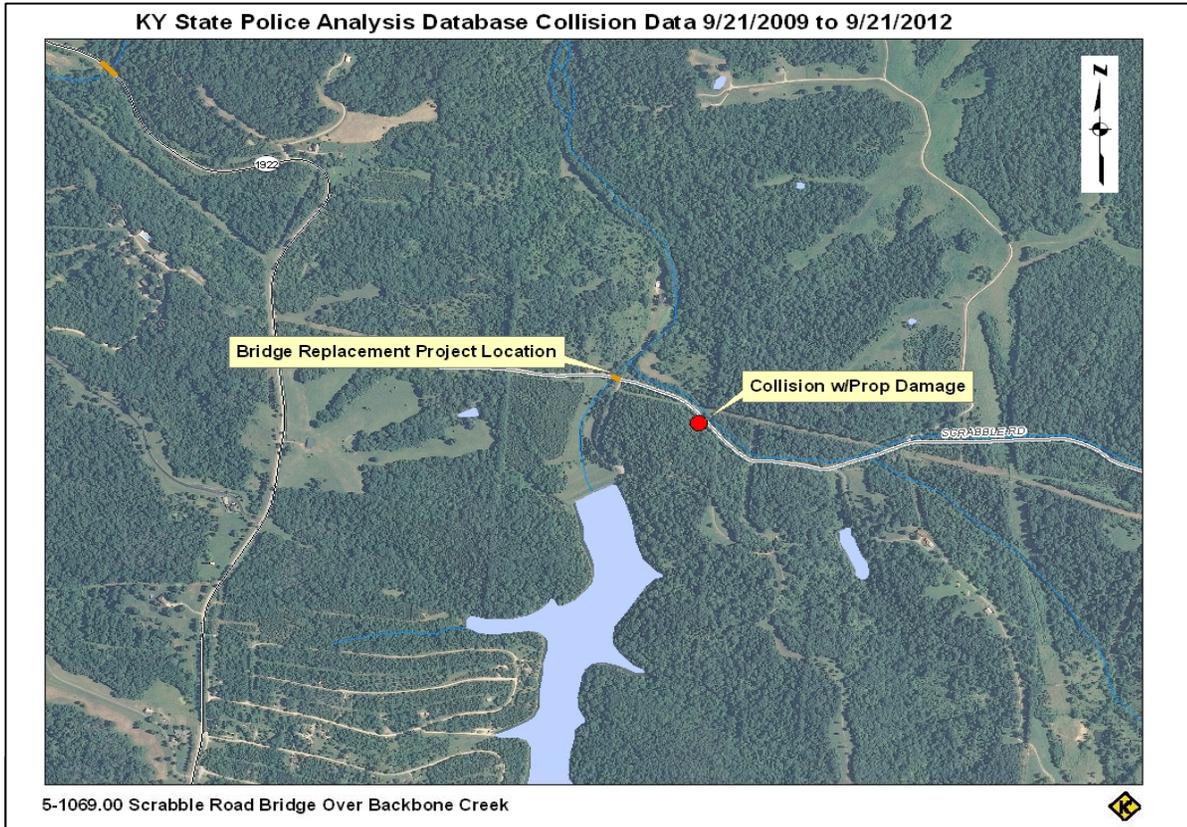
This is a DNA Study of Item #5-1069.00 Replace Scrabble Rd Bridge over Backbone Creek as authorized in the 2012 Biennial Highway Plan. Construction of the bridge should be done as much as possible over the summer months. The project team recommends that Alternative 1 and Alternative 2 be carried forward into the Design Phase.

Alt #	Description	D (\$)(Fund)	R (\$)(Fund)	U (\$)(Fund)	C (\$)(Fund)	Total (\$mil)
1	No Build	-	-	-	-	-
2	Replace Bridge in Existing Location	\$110,000	\$30,000	\$30,000	\$210,000	\$380,000
3	New Alignment	\$110,000	\$45,000	\$30,000	\$270,000	\$455,000
-	Current Hwy Plan Estimated Cost	\$150,000	\$20,000	\$10,000	\$130,000	\$310,000
-	Current Pre-Con Estimated Cost					



**VI. Tables and Exhibits (cont.)**

**Exhibit 2: Collision Data**



**VI. Tables and Exhibits (cont.)**

**Exhibit 3: Bridge Inspection Report Photos 4/2/2012**



**VI. Tables and Exhibits (cont.)**



**Helpful Links:**

**ProjectWise Link to Design Working Folders:**

<pw:\\KYTCP00W02.kytc.ds.ky.gov:KYTC-Main\Documents\Projects\District 05\05-1069.00 – SHELBY – CR 1036 - Replace Bridge On Scrabble Rd Over Backbone Creek\Working Folders\Highway Design Working Folder\Project Background Data and Requests>

**KYTC Bridge Data Miner Link:**

Bridge No. 106C00055N

<http://kytcspwf03/PONTIS/default.aspx>