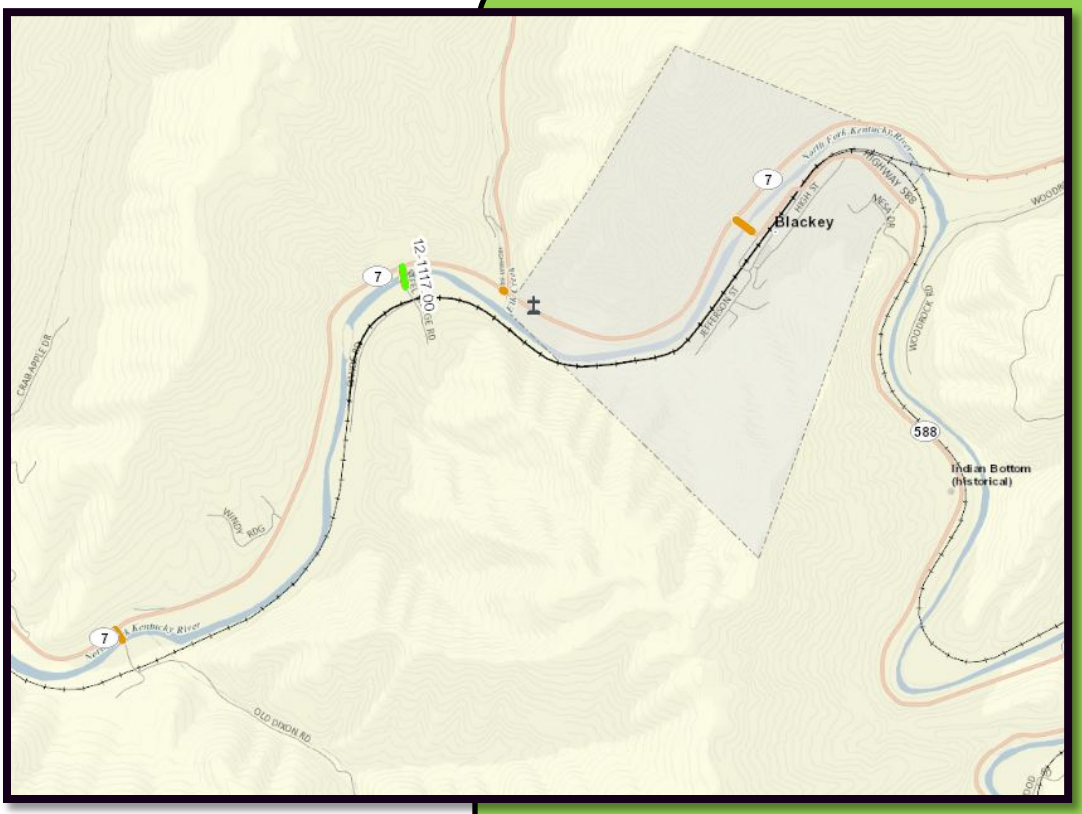
Data Needs Analysis



Scoping Study

Bridge Replacement
Letcher County
Replace Bridge on Steel Bridge Rd. over North Fork of Kentucky River at JCT with Highway 7 (KY 7)(SR 24) C00080N
Item Number 12-1117.00

Prepared by KYTC
Division of Planning
District 12

April 2013

KENTUCKY TRANSPORTATION CABINET

I. PRELIMINARY PROJECT INFORMATION

County: Letcher **Item No.:** 12-1117.00
Route Number(s): CR 1359Q4 **Road Name:** Steel Bridge Road
Program No.: 8750901D **UPN:** FD 52 067 1359 000-001
Federal Project No.: BRZ 1203 (355) **Type of Work:** Bridge Replacement

2012 **Highway Plan Project Description:**

Replace bridge on Steel Bridge Road (CR 1359Q4) over North Fork of Kentucky River at Junction with Highway 7 (KY 7)(SR 24) C00080N

Beginning MP: 0.002 **Ending MP:** 0.042 **Project Length:** 0.04 Miles

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): 30 (2012) **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): N/A
KYTC Guidelines Preliminarily Based on : 20 **MPH Proposed Design Speed**

Roadway Data:	**EXISTING**	**COMMON GEOMETRIC PRACTICES***
No. of Lanes	1	1
Lane Width	9'	11'
Shoulder Width	N/A	2'
Max. Superelevation**	N/A	4%
Minimum Radius**	N/A	125'
Maximum Grade	N/A	16%
Minimum Sight Dist.	N/A	115'
Sidewalk Width(urban)	N/A	N/A
Clear-zone***	N/A	N/A

Existing Rdwy. Plans available? ☐ Yes ☑ No
Year of Plans:
☐ Traffic Forecast Requested
Date Requested:
☐ Mapping/Survey Requested
Date Requested:
Type:

Project Notes/Design Exceptions?:

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

Bridge No.*:	067C00080N	(Bridge #2)
Sufficiency Rating	24	
Total Length	164'	
Width, curb to curb	10'	
Span Lengths	30'	
Year Built	1927	
Posted Weight Limit	4 tons	
Structurally Deficient?	Yes	
Functionally Obsolete?	Yes	
Existing Bridge Type	Steel Stringer	

Existing Geotech data available? ☐ Yes ☑ No

Detour Length(s):

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

II. PROJECT PURPOSE AND NEED

A. Legislation

This following funding was listed in the 2012 General Assembly's Enacted Highway Plan

Funding	*Phase*	*Year*	*Amount*
BRZ	D	2013	$300,000
BRZ	R	2014	$250,000
BRZ	U	2014	$50,000
BRZ	C	2015	$875,000

B. Project Status

Design funds for this project have been authorized.

C. System Linkage

CR 1359Q4 is a Rural Local road located in the western part of Letcher County that connects Canoe Road to KY 7. It serves as a connection for 10 residences located across the North Fork of the Kentucky River to KY 7. CR 1359 is currently the only connection for these residence, so it is critical for this connection to remain open.

D. Modal Interrelationships

There are presently no bike or pedestrian facilities along this section of highway.

E. Social Demands & Economic Development

There is no economic development anticipated in this area.

F. Transportation Demand

The bridge located on CR 1359Q4 is the only connection for the residences located across the North Fork of the Kentucky River to access other parts of the county. No other projects are scheduled for this area. Access to the residences must remain open and a bridge repair or replacement must be completed.

II. PROJECT PURPOSE AND NEED (cont.)

G. Capacity

There are no congestion issues that would contribute to the need of this project.

H. Safety

A ten year review of collisions was conducted of the project area finding (0) zero total.

I. Structure Deficiencies

The abutments have stairstep cracking with some missing mortar and the columns have surface rust with some scaling. Drift is causing scour around the piers and needs removed. Trees are crossways at piers, restricting channel flow. On May 26, 2009, it was recommended to close the bridge due to the load rating of the steel beams. In 2010, beams were added to span #6.

Draft Purpose and Need Statement:

Need: Replace (1) one-lane bridge that has a Sufficiency Rating of 24.0 and is structurally deficient.

Purpose: Improvements through replacement that will address the structure deficiency concerns associated with the project.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW

A. Air Quality

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

STIP Pg.#: 81 of 127 **TIP Pg.#:**

FY 2013-2016

B. Archeology/Historic Resources

☐ Known Archeological or Historic Resources are present

No Section 106 notifications have been generated from the District at this point. If the historical survey indicates that there may be an impact to historical sites, then the 106 process will be started.

C. Threatened and Endangered Species

The Indiana Bat (Myotis Sodalis), Gray Bat (Myotis Grisescens), and Blackside Dace (Phoxinus Cumberlandensis) are listed as threatened or endangered species in the project area. A BA may be required to satisfy Section 7 requirements for all species or an IBCMOA or tree-cutting restrictions may be utilized to compensate for any potential habitat loss for the Indiana Bat.

D. Hazardous Materials

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

At the time of the Environmental Overview, no UST/HAZMAT issues were noted in the project area.

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

ACE LON will be required from impacts associated with bridge replacement

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

G. Socioeconomic

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

Possible relocations associated with project. Relocation surveys will need to be completed to see if any low income or minority populations are affected.

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

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

No anticipated 4(f) or 6(f) impacts associated with project.

Anticipated Environmental Document: CE Level 1

IV. PROJECT SCOPING

One alignment has been considered for this project.

Alternate 1 Estimate

Phase	Estimate
Planning	
Design	$300,000
R/W	$71,000
Utilities	$50,000
Const	$875,000
Total	**$1,296,000**

The alternative would allow for construction of a new one-lane structure at a location that is adjacent to the existing bridge on the upstream side. By changing the location of the bridge, the existing bridge would be used as access for residents and removed upon completion of the new structure. Advantages of this alternative are that the existing bridge would stay open to traffic and the costs associated with creating a detour could be avoided. There could be one (1) relocation possible depending on the location chosen.

Exhibit 1

V. Summary

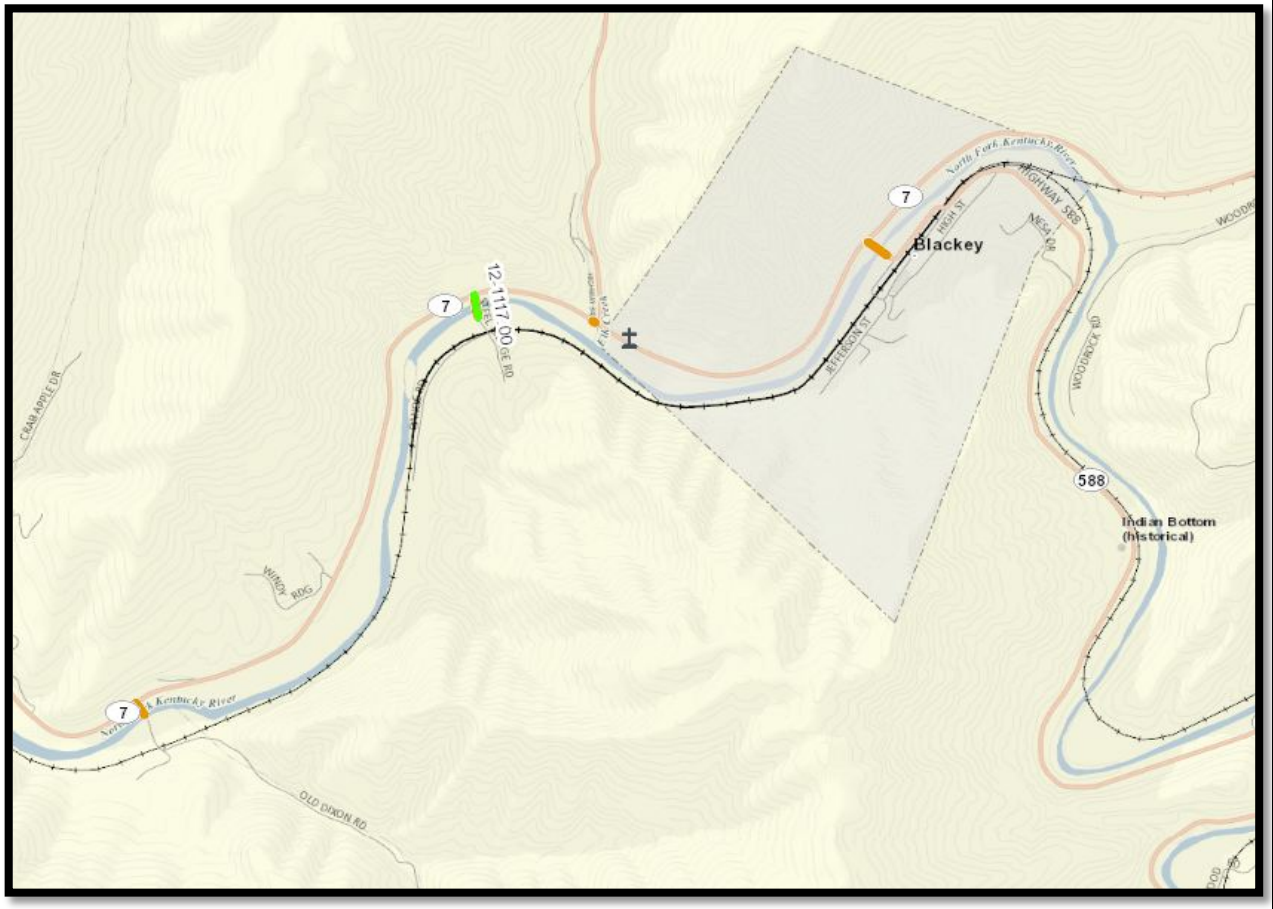
This study is a Data Needs Analysis (DNA) of a reconstruction project to address structure and functional deficiencies of Steel Bridge in Letcher County, Item Number 12-1117.00. Through analysis of the existing roadway geometrics, crash data, site visits, and discussion with the Project Team, several needs were identified within the project limits. The following were identified as project needs:

- The No Build Alternative is not feasible due to the poor Sufficiency Rating of the bridge.
- The proposed design shall be a one-lane bridge.
- Improvement of the bridge approach from KY 7 should be made if possible.
- Maintenance of traffic will be a critical component of the proposed design.

VI. Tables and Exhibits

Exhibits 2 & 3

VI. Tables and Exhibits



Location Map

VI. Tables and Exhibits