

Data Needs Analysis



Scoping Study



KY 2921, Campbell County
From MP 0.4 to 0.54
Item No. 6-1078.00

Prepared by the KYTC
Division of Planning and
KYTC District 6

September 2012



I. PRELIMINARY PROJECT INFORMATION

County:	Campbell	Item No.:	7-1078.00
Route Number(s):	KY 2921	Road Name:	Painter Road
Program No.:	8664401D	UPN:	FD52 19 2921 000-001
Federal Project No.:	BRO 0603 229	Type of Work:	Bridge Replacement

2012 Highway Plan Project Description:

Replace bridge on KY 2921 over Humphrey Branch of Twelve Mile Creek 0.2 miles northwest of Washington Trace Road

Beginning MP: 0.4 **Ending MP:** 0.54 **Project Length:** 0.14

Functional Class.: ☐ Urban ☒ Rural **State Class.:** ☐ Primary ☒ Secondary

Local ▼

Route is on: ☐ NHS ☒ NN ☐ Ext Wt

MPO Area: Not Applicable ▼

Truck Class.: A ▼

In TIP: ☒ Yes ☐ No

% Trucks:

ADT (current): 247 (2009)

Terrain: Rolling ▼

Access Control: ☐ None ☒ Permit ☐ Fully Controlled ☐ Partial

Spacing: ▼

Median Type: ☒ Undivided ☐ Divided (Type):

Existing Bike Accommodations: None ▼

Ped: ☐ Sidewalk

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

KYTC Guidelines Preliminarily Based on : 45 MPH Proposed Design Speed

COMMON GEOMETRIC

Roadway Data: **EXISTING** **PRACTICES***

No. of Lanes	2	2
Lane Width	9 ft	10 ft
Shoulder Width	2 ft	2 ft
Max. Superelevation**	N/A	6%
Minimum Radius**	N/A	660 ft
Maximum Grade	0%	9%
Minimum Sight Dist.	Unknown	360 ft
Sidewalk Width(urban)	N/A	N/A
Clear-zone***		10-14 ft

[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.*: 019B00061N (Bridge #2)

Sufficiency Rating	24.3
Total Length	23.95 ft
Width, curb to curb	14.2 ft
Span Lengths	23.95 ft
Year Built	1965
Posted Weight Limit	16 tons
Structurally Deficient?	Yes
Functionally Obsolete?	No

[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 2012-2018 Six Year Plan.

<i>Funding</i>	<i>Phase</i>	<i>Year</i>	<i>Amount</i>
BRO	D	2013	\$250,000
BRO	R	2014	\$75,000
BRO	U	2014	\$50,000
BRO	C	2015	\$500,000

B. Project Status

The 2012-2018 Six-Year Highway Plan includes phases from Design through Construction. This project was identified through KYTC's bridge evaluation process and was not a legislative addition. No design work has currently been completed.

C. System Linkage

KY 2921 is a local road that connects Oneonta Road with KY 8. Along with Oneonta Road and Stonehouse Road, it is one of many routes that provide a connection between KY 8 and KY 9.

D. Modal Interrelationships

No freight generators are known that would require a significant number of trucks to use this route.

E. Social Demands & Economic Development

KY 2921 primarily provides access to local residents. It also provides access to the Hickory Sticks golf course. The bridge on KY 2921 over Twelve Mile Creek facilitates access to these properties.

F. Transportation Demand

The most recent traffic count was completed in 2009. The ADT was 247. The previous traffic count showed an ADT of 278. Traffic has decreased slightly in recent years.

II. PROJECT PURPOSE AND NEED (cont.)

G. Capacity

KY 2921 provides adequate capacity to handle existing traffic volumes.

H. Safety

Referencing the Kentucky State Police's website, there have been no reported crashes in the past 3 years along this stretch of road. The CRF is therefore 0.00, indicating that safety is not a significant concern in this area.

I. Roadway Deficiencies

The bridge is located along a relatively straight portion of road. The bridge width and approach pavement width are both lower than the Common Geometric Practices for a rural local road with a 45 MPH design speed.

Draft Purpose and Need Statement:

Need: The bridge on KY 2921 over Humphrey Branch of Twelve Mile Creek has a Sufficiency Rating of 24.30 and is classified as structurally deficient as of September 2011. The concrete girders have heavy deterioration with reinforcing steel having up to 100% section loss. The abutments are also failing due to erosion of the stream bed.

Purpose: The purpose of this project is to improve the reliability and safety of the KY 2921 corridor by addressing structural issues on the KY 2921 bridge over Humphrey Branch of Twelve Mile Creek.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW**A. Air Quality**Project is in: ☐ Attainment area ☒ Nonattainment or Maintenance Area ☒ PM 2.5 County

STIP Pg. #: 16 (2013-2016, Draft)

TIP Pg. #: 81

B. Archeology/Historic Resources☐ Known Archeological or Historic Resources are present

The construction limits of this project will likely be within previously disturbed limits. Due to this, archaeological resources are not expected to be present. The bridge may need to be cataloged as a historic resource.

C. Threatened and Endangered Species

Campbell County is listed as having several threatened and endangered species, including Indiana Bat, several mussels, and Running Buffalo Clover. The project site has Indiana Bat habitat located along the road. Tree cutting restrictions or payment to the Indiana Bat Conservation Fund will be utilized for mitigation measures. Twelve Mile Creek is not suitable for the listed mussel species because it is classified as having intermittent flow. The area is not subject to partial sunlight and, therefore, is not suitable habitat for Running Buffalo Clover.

D. Hazardous Materials☐ Potentially Contaminated Sites are present ☒ Potential Bridge or Structure Demolition

There are no potentially contaminated sites around the project location. The existing bridge will be demolished and will need to be checked for asbestos containing materials.

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

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

This project is a bridge reconstruction which is considered a Type II Project.

G. SocioeconomicCheck all that may apply: ☐ Low Income/Minority Populations affected ☐ Relocations ☐ Local Land Use Plan available

It is expected that the bridge will be reconstructed in-place. This will cause no relocations.

H. Section 4(f) or 6(f) ResourcesThe following are present on the project: ☐ Section 4(f) Resources ☐ Section 6(f) Resources

Anticipated Environmental Document:

CE Level 1

IV. POSSIBLE ALTERNATIVES

A. Alternative 1: No Build

This alternative does not satisfy the project purpose and need.

B. Alternative 2

Alternative 2 consists of reconstructing the bridge in-place. This will close a portion of the road and traffic will need to be detoured. Since KY 2921 is a rural local road that has access from both ends, traffic will not be significantly delayed. This alternative is expected to have the lowest cost while still meeting the project purpose and need, and is therefore currently the preferred alternative.



Planning Level Cost Estimate:

<u>Phase</u>	<u>Estimate</u>
Design	\$250,000
R/W	\$75,000
Utilities	\$50,000
Const	\$500,000
Total	\$875,000

IV. POSSIBLE ALTERNATIVES (cont.)

B. Alternative #3

This alternative consists of building a new bridge adjacent to the existing bridge. The road would remain open to traffic during construction and approaches would need to be constructed on a new alignment. Because of the required approach work, Alternative 3 is expected to be the most expensive of the alternatives.



Planning Level Cost Estimate:

<u>Phase</u>	<u>Estimate</u>
Design	\$250,000
R/W	\$150,000
Utilities	\$50,000
Const	\$1,000,000
Total	\$1,450,000

V. Summary

This study is a Data Needs Analysis (DNA) for a bridge replacement project on KY 2921 over Humphrey Branch of Twelve Mile Creek, Item Number 6-1078.00. The bridge is to be replaced due to its structural condition. The likely alternatives include a no-build option, replacing the bridge in its current location, and building a new bridge adjacent to the existing bridge. The current preferred alternative is Alternative 2, which is replacement of the bridge at its current location. This alternative is the most cost-effective option and is not likely to significantly delay traffic during construction.

Alt #	Description	D (\$)(Fund)	R (\$)(Fund)	U (\$)(Fund)	C (\$)(Fund)	Total (\$mil)
1		-	-	-	-	-
2		250,000	75,000	50,000	500,000	875,000
3		250,000	150,000	50,000	1,000,000	1,450,000
-	Current Hwy Plan Estimated Cost	250,000	75,000	50,000	500,000	875,000
-	Current Pre-Con Estimated Cost	250,000	75,000	50,000	500,000	875,000

VI. Tables and Exhibits

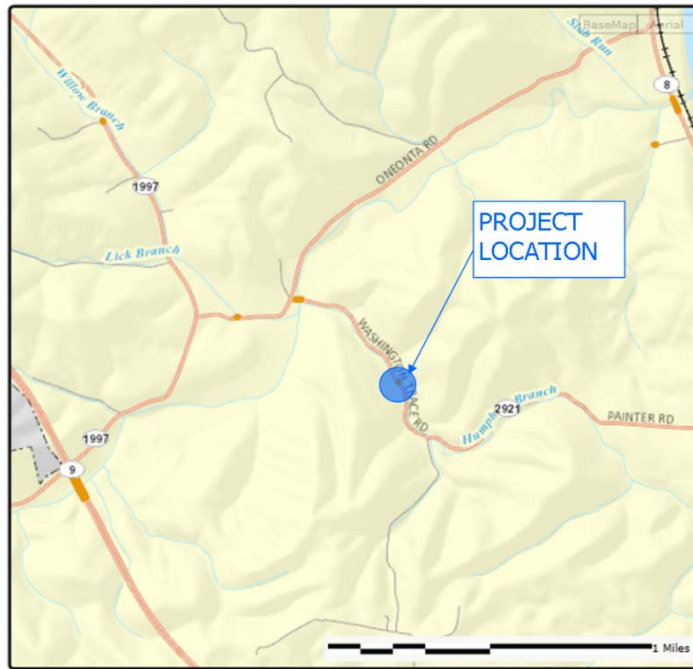


Exhibit 1: Project Location Map



Exhibit 2: View of bridge and approach roads

VI. Tables and Exhibits (cont.)



Exhibit 3: Profile view of bridge