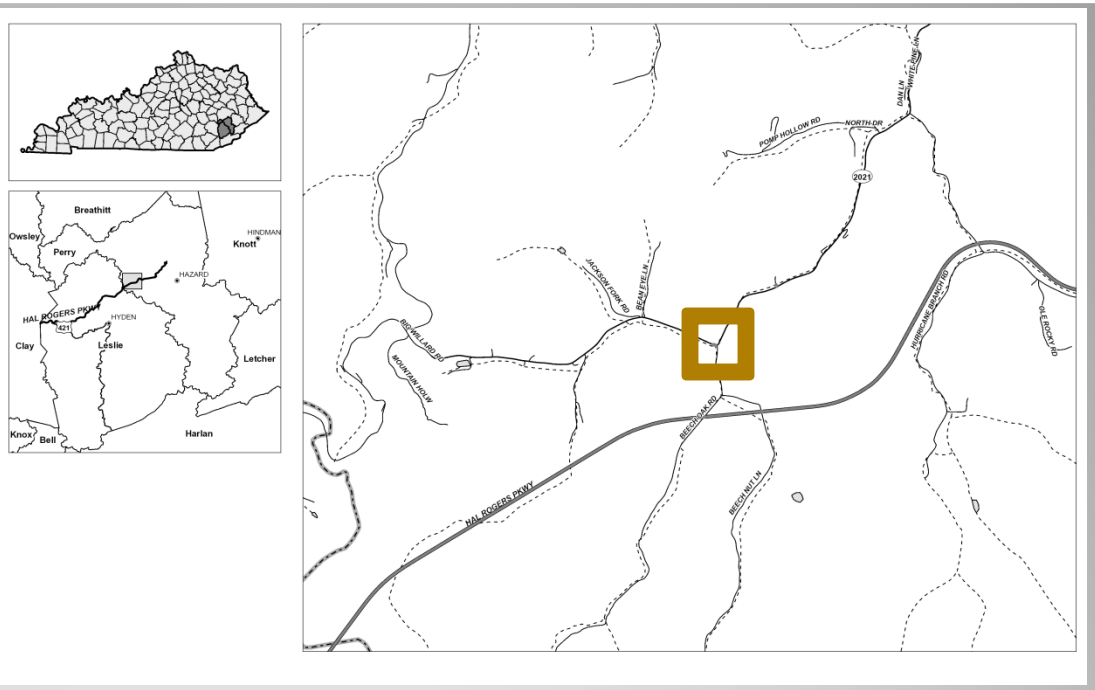
DNA
STUDY

KENTUCKY TRANSPORTATION CABINET



KY 2021
Perry County

2012 Highway Plan
Item No. 10-1103.00

Prepared by:
KYTC District 10

July 2012

I. PRELIMINARY PROJECT INFORMATION

County: Perry **Item No.:** 10-1103.00
Route Number(s): KY 2021 **Road Name:** Big Willard Road
Program No.: **UPN:** (Function) 97 2021 001-002
Federal Project No.: **Type of Work:** Bridge Replacement

2012 **Highway Plan Project Description:**

Replace Bridge on Big Willard Rd (KY 2021) over Willard Creek at Intersection with Beech Nut Lane (CR 1213) (SR 44.6) 097B00027N

Beginning MP: 1.075 **Ending MP:** 1.115 **Project Length:** 0.04 miles

Functional Class.: ☐ Urban ☑ Rural **State Class.:** ☐ Primary ☑ Secondary
Local **Route is on:** ☐ NHS ☐ Nat'l Truck Network

MPO Area: Not Applicable **Truck Class:** A
In TIP: ☐ Yes ☐ No **% Trucks:** 0

ADT (current): 600 **Terrain:** Level

Access Control: ☐ Fully Controlled ☑ Permit ☐ Partial **Detour Length:** 7.0 mi (via county road)

Median Type: ☑ Undivided ☐ Divided (Type):

Existing Bike Accommodations: Shared Lane **Ped:** ☐ Sidewalk

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

KYTC Guidelines Preliminarily Based on : 35 **MPH Proposed Design Speed**

COMMON GEOMETRIC

Roadway Data:	EXISTING	PRACTICES*
No. of Lanes	2	2
Travelled Way Width	16	22
Shoulder Width	0	4
Max. Superelevation**	NA	4%
Minimum Radius**	NA	420
Maximum Grade	NA	NA
Minimum Sight Dist.		250
Sidewalk Width(urban)	NA	NA
Clear-zone***		18

Existing Rdwy. Plans available? ☐ Yes ☑ No
Year of Plans:
☑ Traffic Forecast Requested
Date Requested: 5/10/2012
☐ Mapping Requested
Date Requested:
Type:

Project Notes/Design Exceptions?: Should use Low Volume Rural Roadway Design Manual

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

Bridge No.*:	097B00027N	(Bridge #2)
Sufficiency Rating	46.8	
Total Length	42	
Width, curb to curb	16.7	
Span Lengths	21	
Max. Span Length	21	
Year Built	1975	
Posted Weight Limit	NA	
Structurally Deficient?	YES	
Functionally Obsolete?	YES	

Existing Geotech data available? ☐ Yes ☑ No

* If more than 2 bridges are present on project, see attached sheets.

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 Biennal Highway Plan.

Funding	*Phase*	*Year*	*Amount*
BRO	D	2014	$200,000
BRO	R	2015	$100,000
BRO	U	2015	$50,000
BRO	C	2016	$600,000

B. Project Status

Design Funds have been requested but not authorized at this time. There are no other projects in this area at this time.

C. System Linkage

KY 2021 is a local road that serves residents of theBig Willard community as well as the primary access to the Little Beech Historic Site. This route connects to KY 451 and then to the Hal Rogers Parkway and KY 80 corridors.

D. Modal Interrelationships

There are currently no Modal connections in this area.

E. Social Demands & Economic Development

There are currently no new plans for further commercial or industrial type development in this area. It is anticipated that this route will continue to function as a local residential route.

F. Transportation Demand

The usage demand for this road is expected to stay the same for the foreseeable future.

II. PROJECT PURPOSE AND NEED (cont.)

G. Capacity

There are no known capacity issues at this time nor are any expected in the near future.

H. Safety

A review of the Kentucky State Police Collision Database shows no collisions along the project section.

I. Roadway Deficiencies

KY 2021 is a narrow two lane roadway with little to no shoulders. It has numerous substandard horizontal and vertical curves. The bridge is considered both structurally deficient and functionally obsolete.

Purpose and Need Statement:

Need: This project will replace a structurally deficient (SR 46.8) bridge along KY 2021. This replacement is needed to ensure a continued linkage for residents of this community to the rest of the highway system.

Purpose: The purpose of this project is to replace a Structurally deficient, functionally obsolete bridge in order to allow continued usage of the roadway for residents of the Big Willard area.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW

A. Air Quality

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

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

NA

B. Archeology/Historic Resources

☐ Known Archeological or Historic Resources are present

NA

C. Threatened and Endangered Species

Indiana Bat

D. Hazardous Materials

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

Existing Structure to be removed.

G. 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

H. Noise

Are noise sensitive receivers adjacent to the proposed project? ☐ Yes ☑ No

I. Socioeconomic

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

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

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

NA

Anticipated Environmental Document: CE Level 1

IV. POSSIBLE ALTERNATIVES

A. Alternative 1: No Build

This alternate will not address the identified purpose and need.

B. Alternative 2

This alternate proposes to reconstruct the new bridge in the same location as the existing using part width construction methods. This alternate appears to have the least impact on both RW and Utilities but would take longer to complete.

Planning Level Cost Estimate:

Phase	Estimate
Design	$200,000
R/W	$25,000
Utilities	$50,000
Const	$550,000
Total	**$825,000**

IV. POSSIBLE ALTERNATIVES (cont.)

B. Alternative #3

This alternate proposes to construct the new bridge in the same place as the existing only this alternate would utilize a temporary diversion for Maintenance of Traffic. The diversion is proposed on the north side due to lower potential cost associated with RW.

Planning Level Cost Estimate:

Phase	Estimate
Design	$200,000
R/W	$75,000
Utilities	$50,000
Const	$600,000
Total	**$925,000**

V. Summary

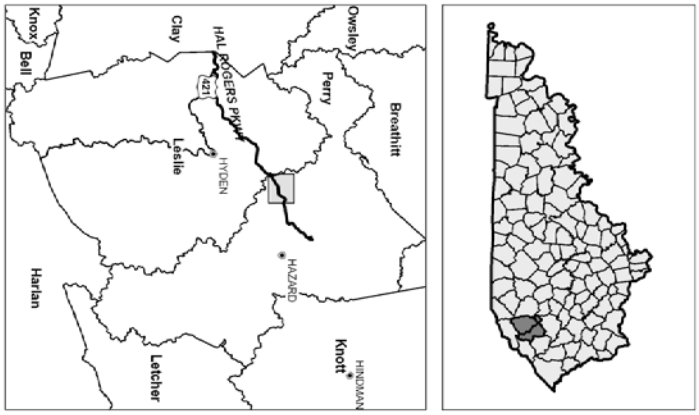
This is a DNA Study of Item # 10-1103.00 as authorized in the 2012 Biennial Highway Plan. The following are the results and recommendations by the Project team:

1. The Purpose of this project is - This project will replace a structurally deficient (SR 46.8) bridge along KY 2021. This replacement is needed to ensure a continued linkage for residents of this community to the rest of the highway system.

2. The Project Team recommends to carry Alternate 3 forward into the Design Phase.

Alt #	Description	D ($)(2014)	R ($)(2015)	U ($)(2015)	C ($)(2016)	Total ($mil)
1	No Build	-	-	-	-	-
2	Part Width	$ 200,000.00	$ 25,000.00	$ 50,000.00	$ 550,000.00	$ 825,000.00
3	Diversion	$ 200,000.00	$ 75,000.00	$ 50,000.00	$ 600,000.00	$ 925,000.00
-	Current Hwy Plan Estimated Cost	$ 200,000.00	$ 100,000.00	$ 50,000.00	$ 600,000.00	$ 950,000.00
-	Current Pre-Con Estimated Cost	$ 200,000.00	$ 100,000.00	$ 50,000.00	$ 600,000.00	$ 950,000.00

VI. Tables and Exhibits



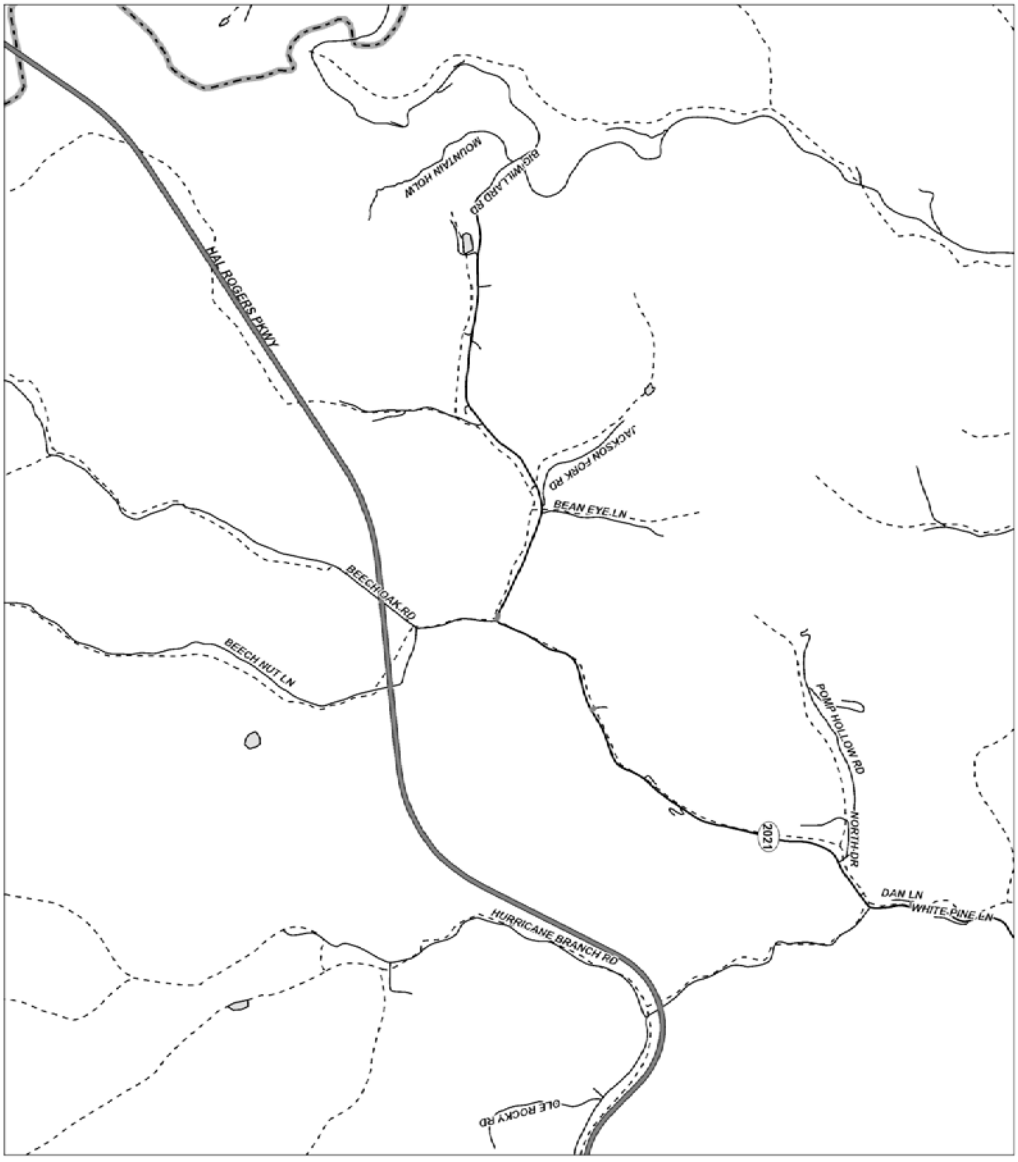


Exhibit 2:

VI. Tables and Exhibits (cont.)

Exhibit 3:

Exhibit 4