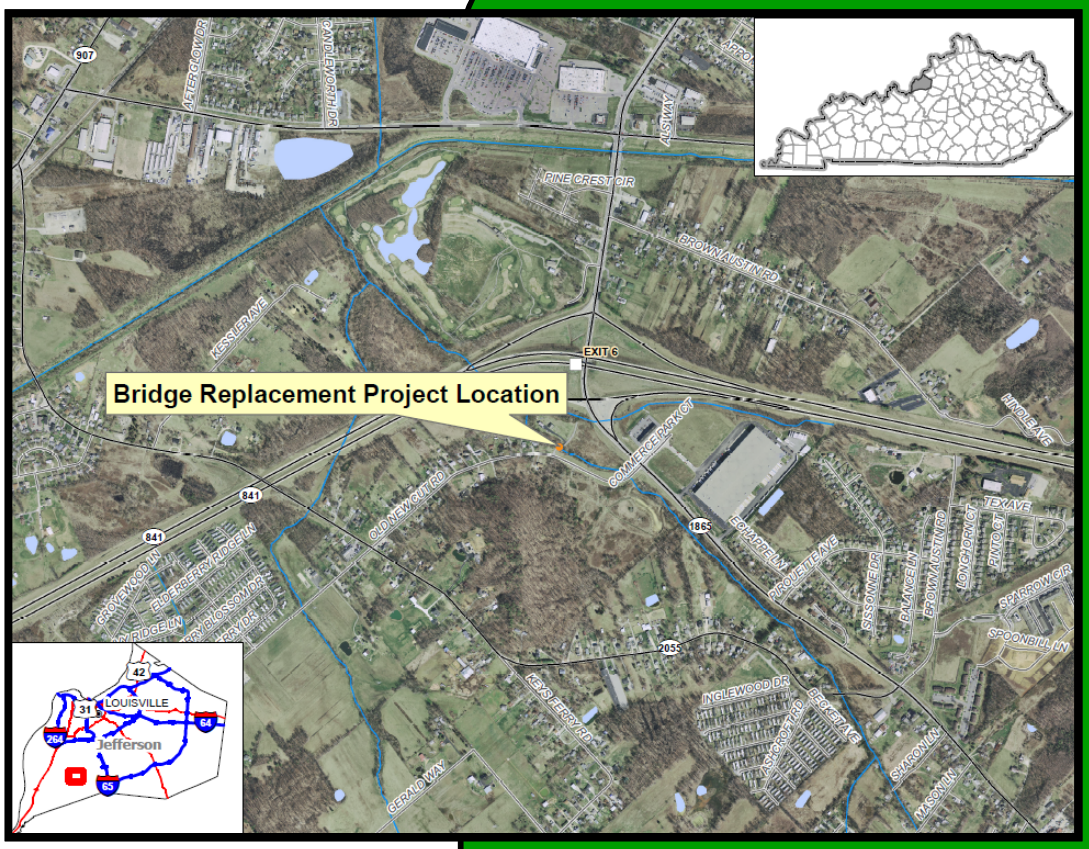
Data Needs Analysis



Scoping Study

KENTUCKY TRANSPORTATION CABINET

Bridge Replacement on
CR 1038L
Over Bee Lick Creek
Jefferson County
MP 0.000 to 0.080
Item No. 5-1061.00

Prepared by the KYTC
Division of Planning and
KYTC District 5

February 2013

I. PRELIMINARY PROJECT INFORMATION

County: Jefferson | Item No.: 5-1061.00
Route Number(s): CR-1038L (See Appx.) | Road Name: N/A
Program No.: 86648 01D | UPN: FD52 056 1038 000 - 001
Federal Project No.: BRZ 0503 223 | Type of Work: Bridge Replacement
2010 Highway Plan Project Description:

Replace Bridge on CR-1019L (MP 0.179) over Bee Lick Creek; 0.4 MI NE-Manslick Rd-KY 2055; (Structurally Deficient, SR = 4) 056C00104N

Beginning MP: 0.129 | Ending MP: 0.229 | Project Length: 0.1

Functional Class.: ☑ Urban ☐ Rural — Local
State Class.: ☐ Primary ☐ Secondary
Route is on: ☐ NHS ☐ NN ☑ Ext Wt
MPO Area: KIPDA
Truck Class.:
In TIP: ☑ Yes ☐ No
% Trucks: Unknown
ADT (current): 10 (2012)
Terrain: Level
Access Control: ☐ None ☑ Permit ☐ Fully Controlled ☐ Partial
Spacing:
Median Type: ☑ Undivided ☐ Divided (Type):
Existing Bike Accommodations: Shared Lane
Ped: ☐ Sidewalk
Posted Speed: ☐ 35 mph ☐ 45 mph ☐ 55 mph ☑ Other (Specify): No posted Speed
KYTC Guidelines Preliminarily Based on : 30 MPH Proposed Design Speed

Roadway Data:	EXISTING	COMMON GEOMETRIC PRACTICES*
No. of Lanes	2	2
Lane Width	7'	9' min
Shoulder Width	0	2'
Max. Superelevation**	N/A	8%
Minimum Radius**	N/A	250'
Maximum Grade	N/A	7%
Minimum Sight Dist.	N/A	200'
Sidewalk Width(urban)	N/A	N/A
Clear-zone***	N/A	N/A

Existing Rdwy. Plans available? ☑ Yes ☐ No
Year of Plans: 1983
☐ 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.*:	056C00104N
Sufficiency Rating	4
Total Length	29'
Width, curb to curb	19'
Span Lengths	25'
Year Built	1940
Posted Weight Limit	10 Tons
Structurally Deficient?	Yes
Functionally Obsolete?	No
Existing Bridge Type	Concrete T Beam

Existing Geotech data available? ☐ Yes ☐ No
Detour Length(s): N/A

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

Funding	Phase	Year	Amount
BRZ	D	2012	$200,000
BRZ	R	2014	$30,000
BRZ	U	2014	$20,000
BRZ	C	2016	$250,000

B. Project Status

Initial design funds of $200,000 were authorized by TC-10 No. 86648-0 on 6/10/2012. There are no projects within the vicinity of CR-1038L or on Old New Cut Rd. (CR-1019L) listed in the Unscheduled Needs List (UNL) or the District Transportation Plan (DTP). Lastly, this project is ready to be advertised and is grouped with two other bridge replacement projects in Jefferson County (5-1064.00 and 5-1068.00).

C. System Linkage

Old New Cut Rd. (Route that collects from CR-1038L) is a local connector that connects W Manslick Rd. (KY 2055) to New Cut Rd. (KY 1865) and is approximately 0.5 miles in length. This route is primarily used for motorists that are traveling along W Manslick Rd. and other routes to the West and need to access the Gene Snyder Freeway (KY 841) by way of New Cut Rd. However, the segment that this bridge (056C00104N) is located on is spurred off of the main line of Old New Cut Rd. (CR-1019L) and dead ends prior to the New Cut/Gene Snyder Freeway interchange, serving three parcels of land (resulting in an ADT of 10).

D. Modal Interrelationships

N/A

E. Social Demands & Economic Development

N/A

F. Transportation Demand

N/A

II. PROJECT PURPOSE AND NEED (cont.)

G. Capacity

This bridge is currently restricted in lane width due to the western part of the bridge being blocked off by the use of guardrail. See H. Safety section below.

H. Safety

There are no records of significant crash data due to the fact that CR-1038L only serves one residence/three total parcels. The safety issues related to the geometrics of the roadway are due to the bridge being reduced to one lane. Otherwise, there would be no geometric or apparent sight distance safety issues. The major concern is that the bridge has a sufficiency rating of 4 (See Attached: Structure Inventory and Appraisal Sheet). NOTE: The restricted lane width across the bridge area that produced a substructure rating of 3 is not being loaded, and a 10 ton weight limit has been posted.

I. Roadway Deficiencies

This portion of roadway has no shoulder width and the lane width is too narrow (this is due to the restricted lane width on the western side of the bridge which is structurally unsafe).

Draft Purpose and Need Statement:

Need: This project is necessary to rehabilitate a two lane bridge (056C00104N) that is structurally deficient. The asphalt surface is cracked and deteriorated, the beams have critical spalling with exposed resteel and heavy efflorescence, and the abutments also have large cracks and deterioration that resulted in the closing of a portion of the deck.

Purpose: To eliminate the structural deficiency of a 73 year old, concrete T-beam bridge (056C00104N) that is 30 feet in length, running over Bee Lick Creek; and to improve the approaches.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW

A. Air Quality

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

STIP Pg.#: FY 2011-2014 p. 50 TIP Pg.#: FY 2011-2015 p. 49 of 80

PM 2.5 coordination with the IAC group and MSAT statement would be required for this project.

B. Archeology/Historic Resources

☑ Known Archeological or Historic Resources are present

It is anticipated that much of the area is previously disturbed by road, residential, and utility construction and the likelihood of impacting an archaeological site is very low. Some homes in the viewshed of the project area are >50 years old and would require an architectural historian to review for potential eligibility for the NRHP. Bridge not anticpated to be elgible for the National Register of Historic Places even though it is >50 years old..

C. Threatened and Endangered Species

Threatened and endangered species are listed in Jefferson County. The list includes; Indiana bat, Gray bat, Running Buffalo Clover, Interior Least Tern, Clubshell mussel, Fanshell mussel, Fat pocketbook mussel, Ring Pink mussel, Pink Mucket mussel, Orangefoot pimpleback mussel, Sheepnose mussel, Rough pigtoe mussel. The potential for T&E habitat in the project area exists for the two bats species. There is no habitat for any of the listed mussel species, running buffalo clover, or interior least tern in the project area. Project area outside of a priority area for Indiana bats thus not requiring special coordination with USFWS.

D. Hazardous Materials

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

UST/HAZ concern is minor, but an asbestos review of the existing concrete in the bridge will need to be done prior to demolition as the Division of Air Quality is now requiring. No gas stations or service marts. Very rural project location. NOI submittal to Division of Air Quality prior to structure demolition.

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 project crosses one perennial stream (Bee Lick Creek) that will require a new bridge and impacts to waters of the U.S. Impacts should be small enough to fall under the Corps LON. No wetlands identified on NWI maps.

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 replacement, thus not a type I project. No noise survey required.

G. Socioeconomic

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

No impacts anticipated with the replacement of this one bridge that provides access to three parcels.

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

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

Bridge is probably not eligible for NRHP so no 4(f) resources directly affected. No 6(f) resources in project area.

Anticipated Environmental Document: CE Level 1

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 bridge on a new alignment to the East. This alternative would be the most costly but not by a significant amount. The construction of new approaches, acquiring of some right-of-way and the possible interference to utility poles/overhead lines would result in the relatively higher overall cost. The estimate is shown below along with the location of the proximate new alignment. In addition, this alternative would be the most cost effective if the entire segment of CR-1038L were resurfaced. No funding sources are believed to be in place to resurface this route anytime in the near future.

Alternative 2 - New Alignment

Planning Level Cost Estimate:

Phase	Estimate
Design	$200,000
R/W	$20,000
Utilities	$30,000
Const	$240,000
Total	$490,000

IV. POSSIBLE ALTERNATIVES (cont.)

C. Alternative 3

Alternative 3 proposes to replace the bridge in its existing location. Due to the segment of roadway that this bridge is located being the only access for three parcels of land, a detour option would not be available if this Alternative is chosen. To accommodate the need for access, part-width construction would need to be utilized. The construction estimate listed below may vary depending on the difficulty to construct the bridge using part-width construction. This alternative also proposes to resurface the entire segment of CR-1038L. Overall, this Alternative would be most affordable with respect to Utilities and Right-of-Way but by not a significant amount. *Note: A diversion Alternative is not suggested for it would be virtually the same cost to construct a new structure on a new, and possibly improved alignment.

Planning Level Cost Estimate:

Phase	Estimate
Design	$200,000
R/W	$10,000
Utilities	$10,000
Const	$190,000
Total	$410,000

V. Summary

This is a DNA scoping study for a bridge replacement (056C00104N) located on CR-1038L over Bee Lick Creek, item number 5-1061.00. After analysis of the roadway's and the bridge's geometrics, reviewing of the last inspection report, and a site visit, the project team has decided that the purpose and need of this project is to improve the safety of CR-1038L by eliminating the structural deficiency of this bridge. Alternatives 2 and 3 are recommended to be carried forward, as they both meet the purpose of this project. The highway plans cost estimate adequately covers the estimates of both alternatives.

Alt #	Description	D ($)(Fund)	R ($)(Fund)	U ($)(Fund)	C ($)(Fund)	Total ($mil)
1	No build	-	-	-	-	-
2	Replace Bridge on New Alignment	$200,000	$20,000	$30,000	$240,000	$490,000
3	Replace Bridge in Existing Location	$200,000	$10,000	$10,000	$190,000	$410,000
-	Current Hwy Plan Estimated Cost	$200,000	$30,000	$20,000	$250,000	$500,000
-	Current Pre-Con Estimated Cost					

VI. Tables and Exhibits

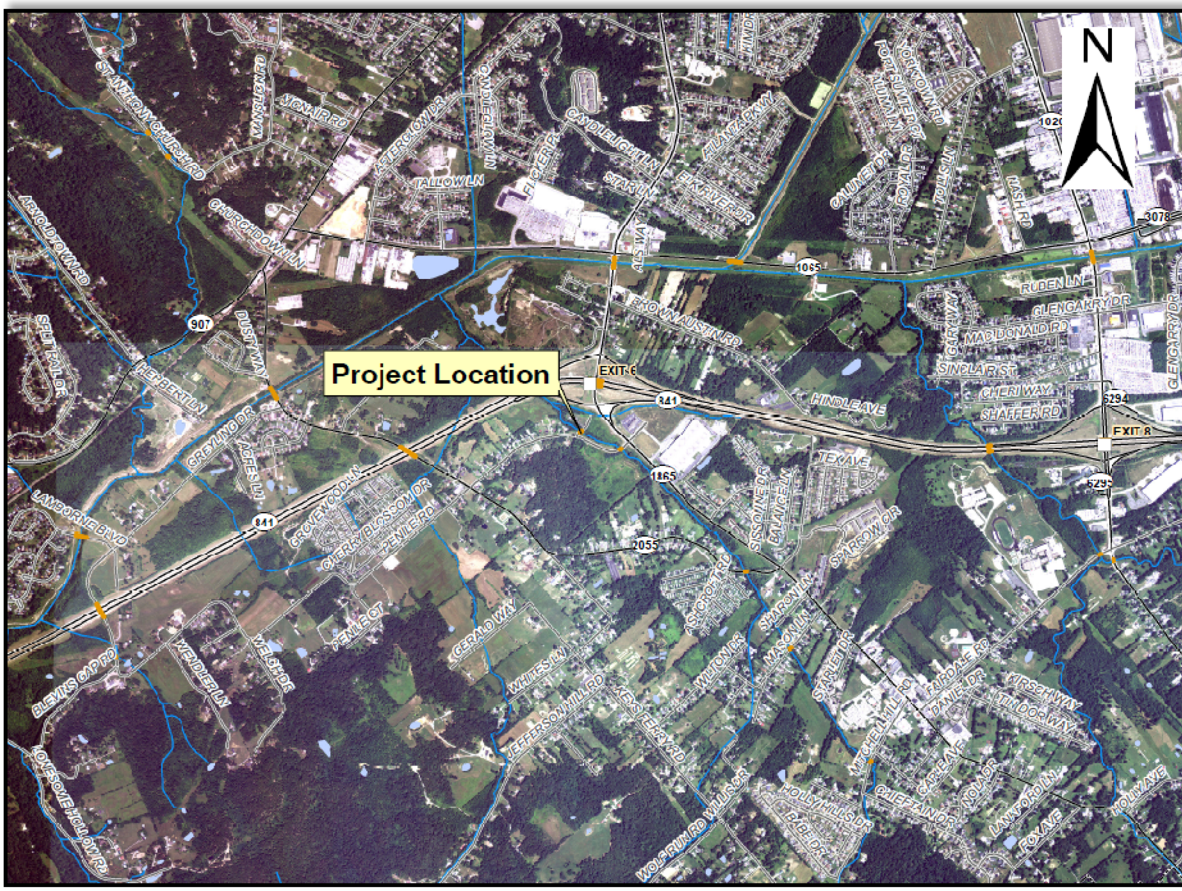


Exhibit 1: Project Location Map

VI. Tables and Exhibits (cont.)

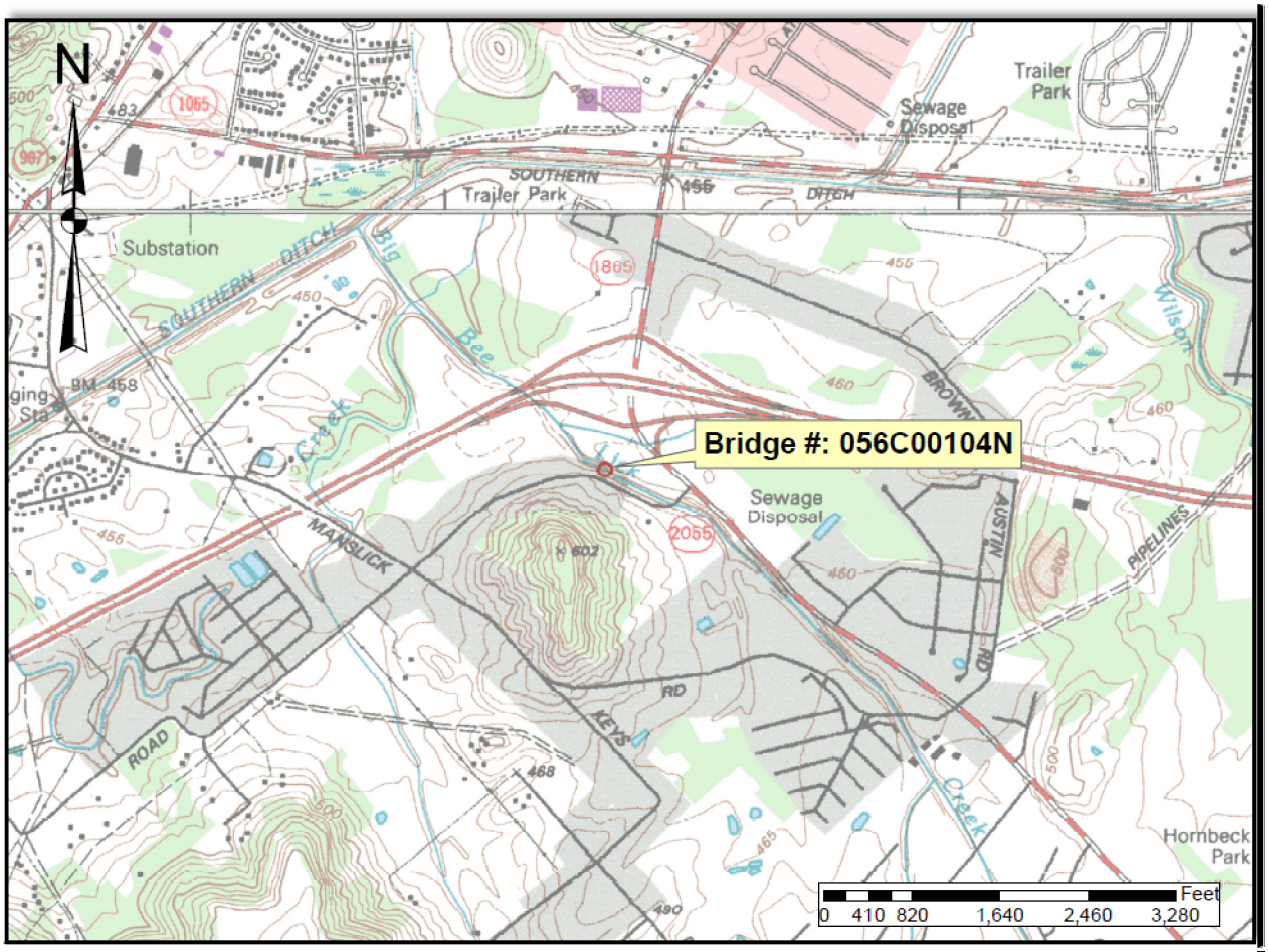


Exhibit 2: Topographic Map

VI. Tables and Exhibits (cont.)

Figure 1: Looking North

Figure 2: Looking East