

Data Needs Assessment

Nelson & Washington Counties

US 150

Item No. 4-1068.00 & 4-1069.00



Prepared By:
Kentucky Transportation Cabinet (KYTC)
Division of Planning & KYTC District 4

October 12, 2010

Table of Contents

I.	INTRODUCTION	1
A.	Study Purpose.....	1
B.	Location	1
II.	PROJECT PURPOSE AND NEED	2
A.	Legislation.....	2
B.	Project Status	3
C.	System Linkage	4
D.	Modal Interrelationships	5
E.	Social Demands & Economic Development	5
F.	Transportation Demand.....	5
G.	Capacity	6
H.	Safety	6
I.	Roadway Deficiencies	7
III.	PRELIMINARY ENVIRONMENTAL OVERVIEW	10
A.	Air Quality.....	10
B.	Archaeology.....	10
C.	Threatened and Endangered Species	10
D.	Hazardous Materials	11
E.	Historic Resources	11
F.	Permitting.....	13
G.	Noise	13
H.	Socioeconomic.....	13
I.	Section 4(f) Resources	13
J.	Section 6(f) Resources	13
IV.	PRELIMINARY PROJECT INFORMATION.....	13
A.	Existing Conditions/Roadway Data	13
B.	Right of Way	15
C.	Utilities.....	15
D.	Agency Coordination	16

V. PROJECT PURPOSE AND NEED STATEMENT	17
VI. POSSIBLE ALTERNATIVES.....	17
A. No Build	17
B. Build in Place	17
C. Alternative #1	18
D. Alternative #2	19
E. Alternative #3	20
VII. Summary	21

LIST OF FIGURES

Figure 1: Project Location Map	2
Figure 2: System Linkage Map	4
Figure 3: US 150 Traffic Projection.....	5
Figure 4: Collision Locations.....	6
Figure 5: Bridge over Beech Fork Looking East	7
Figure 6: Bridge over Beech Fork (Pier and Beam)	7
Figure 7: Bridge over Cartwright Creek Looking East	8
Figure 8: Under the Bridge over Cartwright Creek	8
Figure 9: Croakes Station Road Intersection.....	9
Figure 10: Culvert for Beech Fork Overflow.....	9
Figure 11: Highwater and Drift Accumulation at the Bridge over Beech Fork	10
Figure 12: Date Stamp Found on Both Bridges	12
Figure 13: Site Potentially Eligible for the National Register	12
Figure 14: Preliminary Environmental Footprint	12
Figure 15: Utility Locations.....	16
Figure 16: Alternative #1.....	18
Figure 17: Alternative #2.....	19
Figure 18: Alternative #3.....	20

Table of Contents(Continued)

LIST OF TABLES

Table 1 USWS Listing of Threatened and Endangered Species in Nelson and Washington Counties	11
Table 2 Existing Conditions and Data Summary	14

LIST OF APPENDICES

Appendix A	Exhibits
Appendix B	UPL Project Information Forms
Appendix C	Collision Data
Appendix D	KYTC's Common Geometric Practices for Rural Arterial Roads
Appendix E	Existing Roadway Plans
Appendix F	Structure Inventory and Appraisal Sheets
Appendix G	FIRM Map(s) of the Study Area
Appendix H	Pictures
Appendix I	Nelson County PVA Map
Appendix J	Project Team Meeting Minutes
Appendix K	Preliminary Cost Estimate Calculations

I. INTRODUCTION

This study includes two bridge projects, Item Numbers 4-1068.00 and 4-1069.00.

A. Study Purpose

The purpose of the Data Needs Assessment (DNA) is to address the nine elements of Purpose and Need as defined by NEPA in order to develop a draft Purpose and Need statement for the project(s). This study will also provide a more defined project scope, planning-level cost estimates for possible alternatives, an identification of potential environmental impacts, and other information that will be of assistance in the Project Development phase of this project.

B. Location

The bridge projects are located closely together near the Nelson-Washington County Line on US 150 (See **Figure 1** and Exhibit 1 in **Appendix A**). Bridge #090B00028N is located over Beech Fork which is also the location of the county line. Bridge #115B00022N is located over Cartwright Creek just east of the Nelson-Washington County Line. There are two county road approaches in the project area, Croakes Station Road and Connor Road. A topographic map of the study area, Exhibit 2, can also be viewed in **Appendix A**.

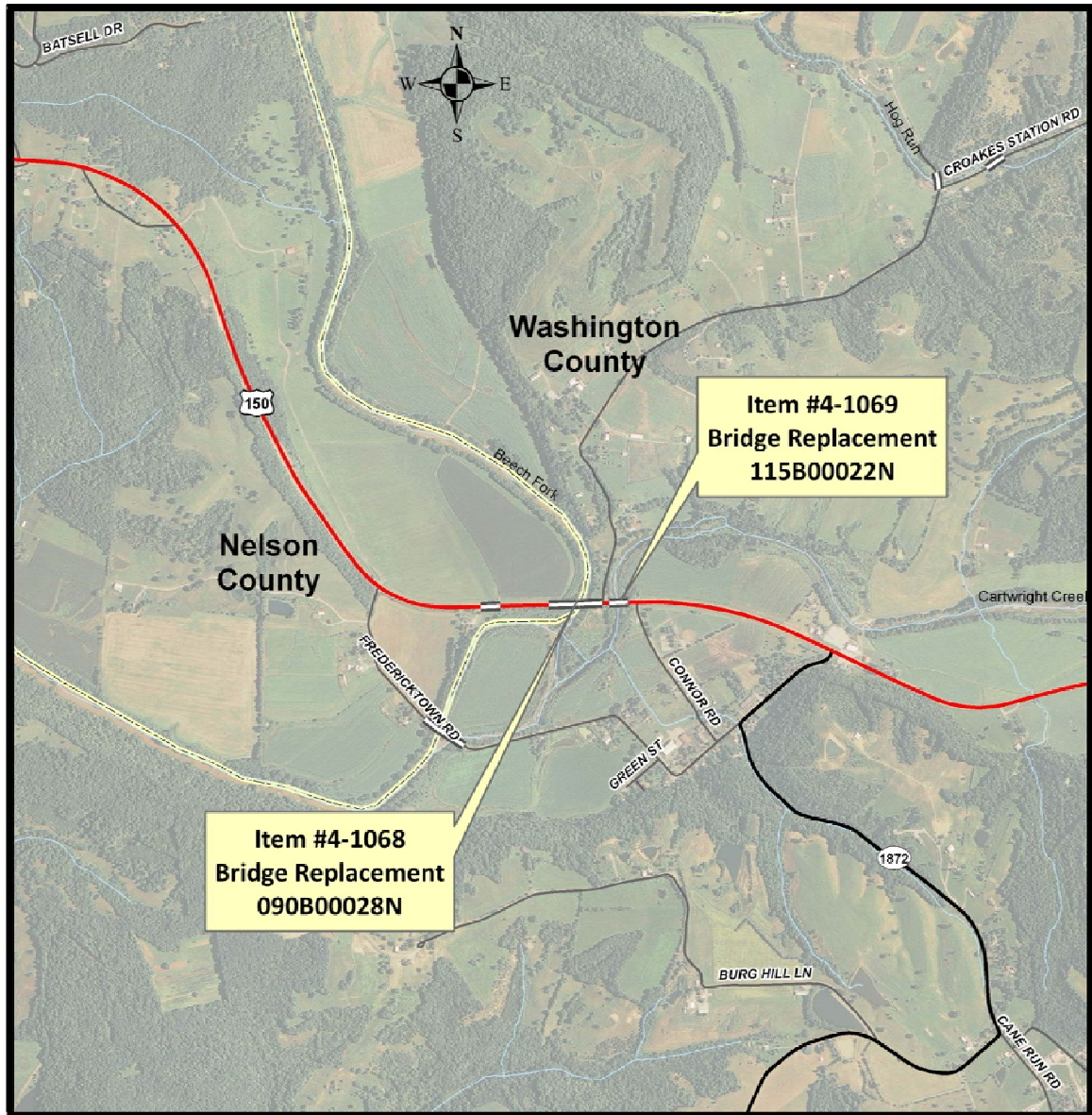


Figure 1: Project Location Map

II. PROJECT PURPOSE AND NEED

A. Legislation

The following is a description of the projects as they are listed in the 2010 General Assembly's Enacted Roadway Plan.

- **Item #4-1068.00, Nelson County**

<u>Phase</u>	<u>Fund</u>	<u>Year</u>	<u>Estimate</u>
D:	BRO	2010	\$490,000
R:	BRO	2012	\$180,000
U:	BRO	2012	\$75,000

REPLACE BRIDGE ON US-150 (MP 7.656) OVER BEECH FORK; ON WASHINGTON - NELSON CL; (STRUCTURALLY DEFICIENT, SR=45.8) 090B00028N

- **Item #4-1069.00, Washington County**

<u>Phase</u>	<u>Fund</u>	<u>Year</u>	<u>Estimate</u>
D:	BRO	2010	\$250,000
R:	BRO	2012	\$120,000
U:	BRO	2012	\$75,000

REPLACE BRIDGE ON US-150 (MP 0.085) OVER CARTWRIGHT CREEK; .1 MI EAST OF NELSON CL; (STRUCTURALLY DEFICIENT, SR=41.1) 115B00022N

The 2010 Recommended Highway Plan listed Construction cost estimates for Items # 4-1068.00 and 4-1069.00 as \$2,190,000 and \$1,200,000, respectively, for a combined total of \$3,390,000.

B. Project Status

The bridges are structurally deficient with sufficiency ratings of 45.8 and 41.1, as identified above. Design funds have not yet been authorized. The Highway Plan Design year is listed as 2010.

Other Projects in the area include:

- 4-8308.10, Nelson County - Widen US-150 from KY-245/Wal-Mart (MP 0.44 to MP 1.697). This project is in the current Highway Plan. Design is scheduled for 2010 with SP funding.
- 4-8309.10, Nelson County – Widen US-150 from near KY 245 through the Bluegrass Parkway Interchange to just Past Leslie Ballard Road (MP 1.697 to MP 2.285). This project is in the current Highway Plan. Design is scheduled for 2010 with SP funding.
- 4-307.01, Washington County – Construction of the Springfield Northwest Bypass. This project is currently under construction with an expected completion date in 2011.

Projects near the study site on the Unscheduled Projects List include:

- 04 090 B0150 12.00, Nelson County – Reconstruction of US 150 from Leslie Ballard Road to the Washington County Line (MP 2.3 to MP 7.682).
- 04 115 B0150 121.00, Washington County – Reconstruction from Nelson County Line to Cartwright Creek (MP 0.00 to MP 4.232). This project was ranked High by the district in 2009.

Project Information Forms (PIFs) for these projects can be viewed in **Appendix B**.

C. System Linkage

US 150 in this area connects Springfield to Bardstown (see **Figure 2** and Exhibit 3 in **Appendix A**). It is a route used by truck traffic coming off of the Bluegrass Parkway. St. Catharine College is also on this route. The completion of US 150 in Rockcastle County may increase traffic from I-75.

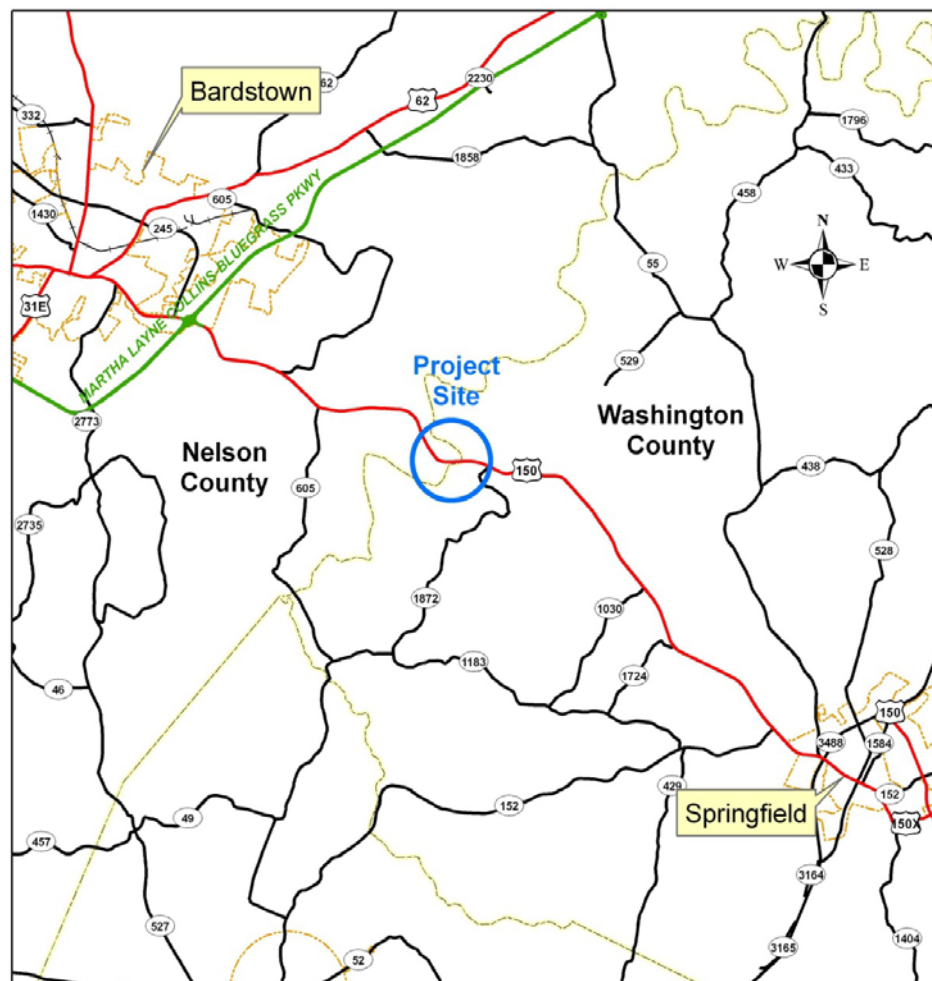


Figure 2: System Linkage Map

US 150 between Bardstown and Springfield has the following roadway classifications:

- **Functional Classification** – Rural Minor Arterial
- **State System** – State Primary
- **Scenic Byway** - Lincoln Heritage Highway
- On the National Truck Network
- **Truck Weight Classification** – AAA
- Not a designated Bike Route

D. Modal Interrelationships

There is no public transit on this route. The nearest Rail Line is RJ Corman in Bardstown. The amount of traffic generated on this route by the Rail Line is unknown, but is not thought to be substantial. Separate bike/pedestrian facilities are not needed in this area.

E. Social Demands & Economic Development

Fredericktown Community Park is located just southeast of the project site; however, there is an alternate route into the park. The greatest potential for development that may impact the project site is a 200 acre industrial park on the south side of the Bluegrass Parkway in Bardstown. Currently, only a baker is located in the industrial park.

F. Transportation Demand

The last actual traffic count at this location was an ADT of 8,290 in 2009. This section of US 150 has generally followed a 3% growth rate with a significant increase sometime between 1992 and 1998. The AADT trend is toward a count of 15,000 in 2030. A more accurate forecast can be requested during Phase I Design. **Figure 3** below displays the trend line based on previous traffic counts.

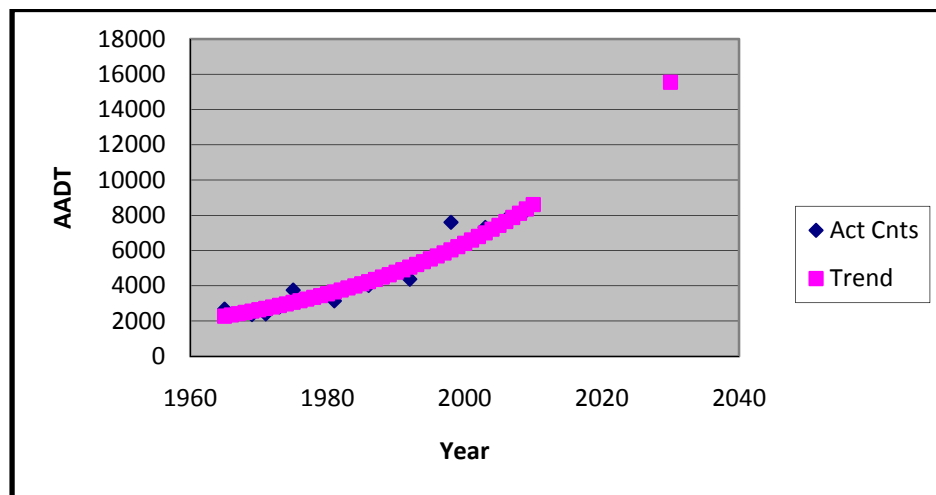


Figure 3: US 150 Traffic Projection

G. Capacity

The Vehicle/Service Flow (VSF), according to the 2010 Adequacy Rating Data for this section of US 150, is currently 0.46. If the AADT continues to grow at the current rate, consideration may need to be given to increasing the number of through lanes on this corridor to accommodate the 2030 projection.

H. Safety

Collision data was obtained from the KY State Police database of collisions for a three year period of time from June 1, 2007 to May 31, 2010. There were 12 collisions reported in the project area during this three year time period. Four of the collisions were located at the intersection with Connor Road. Two were located at the intersection with Croakes Station Road. All but one of these occurred at night and, in the description of the collisions in the reports, two of them stated that sight distance was limited by the bridge railings. The manner and location of the collisions can be viewed in **Figure 4**. Weather did not appear to be a significant factor in the collisions. A 0.3 mile spot analysis was done at the project site which resulted in a 0.79 Critical Rate Factor. A more detailed analysis of the collision data can be seen in **Appendix C**.

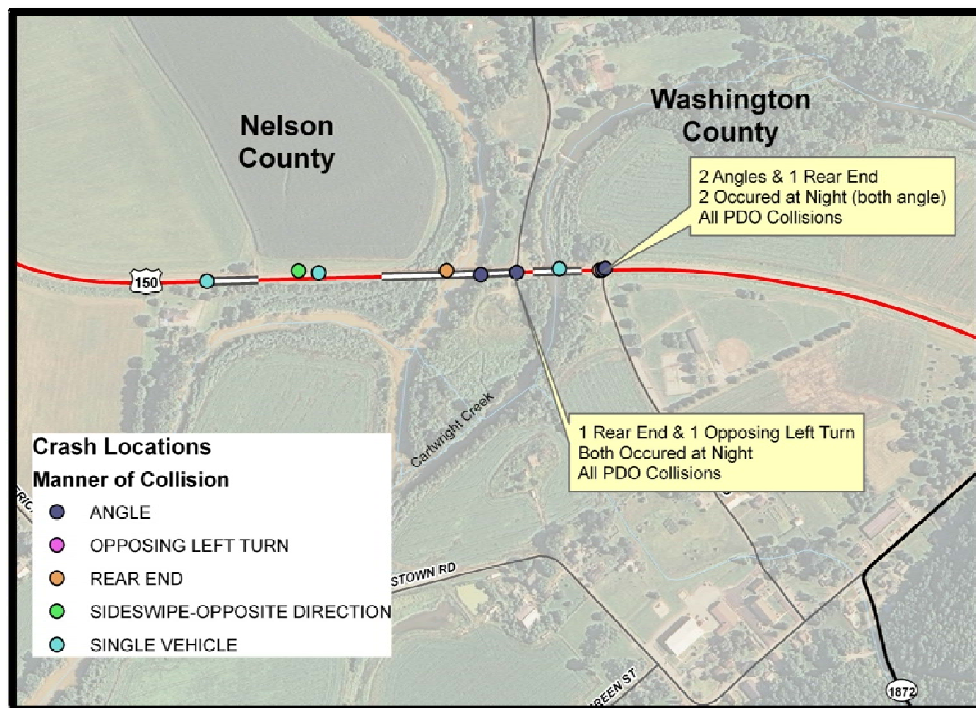


Figure 4: Collision Locations

I. Roadway Deficiencies

Within the project limits, the roadway currently has 11-ft lanes, 4-8 ft shoulders with guardrail on both sides of the road, approximately a 0% grade, a posted speed limit of 55 MPH, and an Adequacy Rating Percentile of 85.7. KYTC's Common Geometric Practices for Rural Arterial Roads (see **Appendix D**) for this type of road recommends 12-ft lanes for a 60 MPH Design Speed and 8-ft shoulders. Existing roadway plans for this roadway can be viewed in **Appendix E**.

The bridge over Beech Fork is 404.9 feet long and 33.1 feet wide out to out (27.9 feet wide curb to curb). It is structurally deficient with a sufficiency rating of 45.5 and does not meet the guidelines stated above of 12-ft lanes and 8-ft shoulders. A Structure Inventory and Appraisal Sheet for this bridge can be found in **Appendix F**. Photographs of this bridge can be seen below in **Figures 5** and **6**.



Figure 5: Bridge over Beech Fork Looking East



Figure 6: Bridge over Beech Fork (Pier and Beam)

The bridge over Cartwright Creek is 225.1 feet long and 30.5 feet wide out to out (27.6 feet wide curb to curb). It is structurally deficient with a sufficiency rating of 40.8 and does not meet the guidelines stated above of 12-ft lanes and 8-ft shoulders. A Structure Inventory and Appraisal Sheet for this bridge can be found in **Appendix F**.



Figure 7: Bridge over Cartwright Creek Looking East



Figure 8: Under the Bridge over Cartwright Creek

Although these bridges are located in a flat, tangent section of roadway, there may be sight distance problems at the intersections of each of the county roads in the project limits. As was stated in the previous section of this report, there were four collisions reported at the intersection with Connor Road and two collisions reported at the intersection with Croakes Station Road. According to the accident reports the bridge railing may have limited the sight distance for drivers turning onto US 150 from the

county roads. A picture of the Croakes Station Road intersection can be seen in **Figure 9**.



Figure 9: Croakes Station Road Intersection

It should also be noted that there is a 46-ft long, three-span culvert located approximately 500 feet west of the bridge over Beech Fork. The culvert is dry most of the time, and is used to accommodate the overflow from Beech Fork. It is not structurally deficient, but does have some issues with the wing walls separating from the culvert and some rebar exposure. A picture of the culvert can be seen in **Figure 10**.



Figure 10: Culvert for Beech Fork Overflow

Flooding over the bridges has not been reported, but, as can be seen in **Figure 11**, water has risen to the superstructure and there is a problem with conveyance. There is a problem with debris catching on the piers in this location. A floodway analysis will need to be performed in future project phases to determine the needed hydraulic opening for the water under the bridges. Flood Insurance Rate Maps (FIRM) of the project area are located in **Appendix G**. Additional pictures of the project site are in **Appendix H**.



Figure 11: Highwater and Drift Accumulation at the Bridge over Beech Fork

III. PRELIMINARY ENVIRONMENTAL OVERVIEW

A. Air Quality

Nelson and Washington County are in attainment for all monitored air pollutants.

B. Archaeology

An archaeology Phase I survey will need to be completed in order to rule out any impacts to archaeological sites.

C. Threatened and Endangered Species

The USFWS has identified the known and potential presence of threatened and endangered species in Nelson and Washington Counties (see Table 1). During a site visit

in July 2010 potential habitat was observed for the bat species in the riparian corridor. Additionally, several middens of a variety of different mussel species were observed along the bank below the Beech Fork Bridge. A biological assessment should be completed prior to construction to assess the potential impact to threatened and endangered species.

Table 1 – USFWS listing of Threatened and Endangered Species in Nelson and Washington Counties.

Group	Species	Common name	Legal* Status
Nelson County			
Mammals	<i>Myotis grisescens</i>	gray bat	E
	<i>Myotis sodalis</i>	Indiana bat	E
Mussels	<i>Pleurobema clava</i>	clubshell	E
	<i>Cyprogenia stegaria</i>	fanshell	E
	<i>Epioblasma torulosa rangiana</i>	Northern riffleshell	E
	<i>Lampsilis abrupta</i>	pink mucket	E
	<i>Plethobasus cooperianus</i>	orangefoot pimpleback	E
Plants	<i>Apios priceana</i>	Price's potato-bean	T
	<i>Trifolium stoloniferum</i>	running buffalo clover	E
Washington County			
Mammals	<i>Myotis sodalis</i>	Indiana bat	E
Mussels	<i>Pleurobema clava</i>	clubshell	E
	<i>Cyprogenia stegaria</i>	fanshell	E

*E- Endangered, T- Threatened

D. Hazardous Materials

During a site visit on July 16, 2010, no properties were observed that would have a high probability of hazardous materials. However, due to the age of the bridges the material used to seal the joints should be tested for asbestos prior to demolition.

E. Historic Resources

The two bridges were constructed during the 1950s; this allows them to meet at least the first screening requirement for listing on the National Register of Historic Places (see **Figure 12**). Additionally, during a site visit on July 16, 2010 a conversation with a local property owner revealed that the closest residence to the existing bridges was built in the 1920s making it potentially eligible for listing on the National Register of Historic Places (see **Figure 13**). It is unlikely that the house itself will be impacted, but there is a potential to impact the property on which it is located. Therefore, a thorough assessment of the eligibility of the bridges and the local residence should be completed in future project phases. **Figure 14** indicates the location of the residence and other areas of potential environmental concern.



Figure 12: Date Stamp Found on Both Bridges



Figure 13: Site Potentially Eligible for the National Register

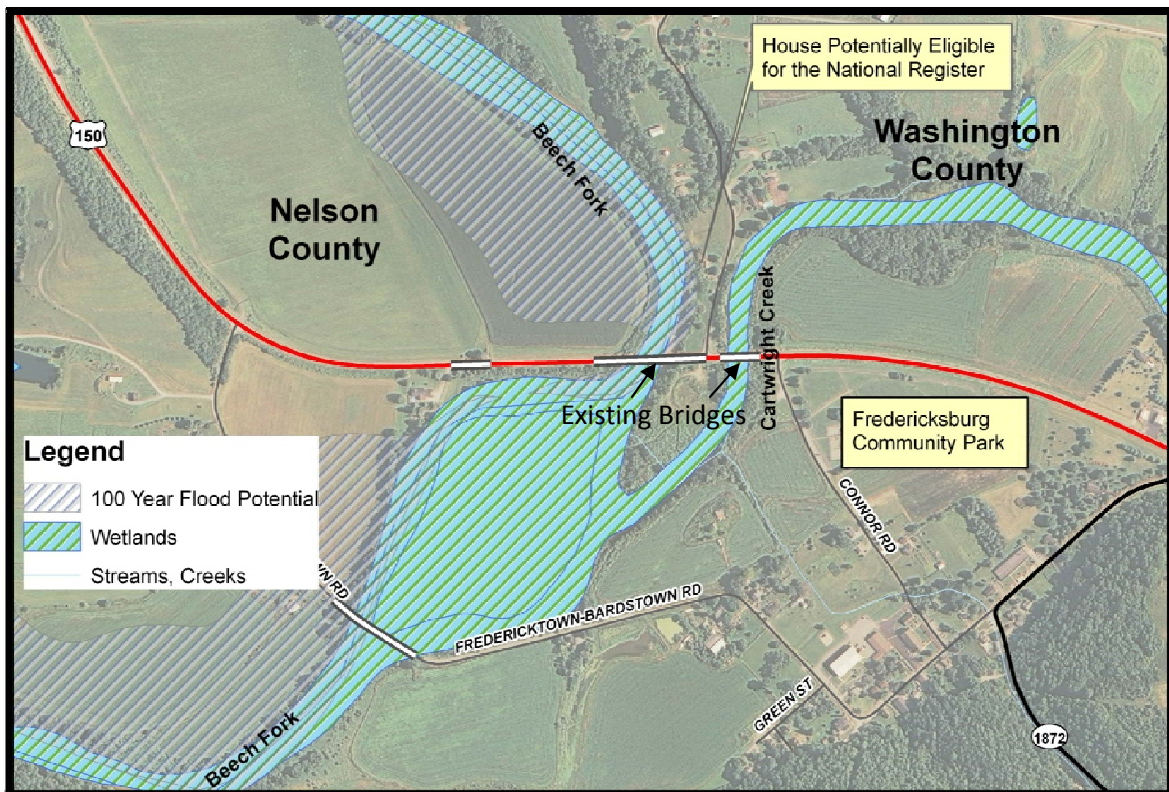


Figure 14: Preliminary Environmental Footprint

F. Permitting

Any impacts below the ordinary high water mark within either Beech Fork or Cartwright Creek will need a USACE 404 permit.

G. Noise

The scope of the project should not require additional noise analyses since there are no additional lanes of traffic planned for the facility.

H. Socioeconomic

Socioeconomic impacts could occur if significant impacts occur to the Fredericksburg Community Park.

I. Section 4(f) Resources

The Fredericksburg Community Park is protected under Section 4(f) of the Department of Transportation Act of 1966. Additionally, if either the bridges or residences located nearby are ruled as eligible for the National Register of Historic Places they could also be afforded protection under Section 4(f). The Kentucky Transportation Cabinet (KYTC) has options to mitigate and avoid impacts to section 4(f) resources including a programmatic agreement for mitigating historic bridges, using 'de minimus' guidance for minor strip takings.

J. Section 6(f) Resources

The Fredericksburg Community Park was partially funded by the Land Water Conservation Fund; therefore, is afforded protection under Section 6(f) of the Land Water Conservation Fund Act. This Act states that grant-assisted areas are to forever remain available for "public outdoor recreation use," or be replaced by lands of equal market value and recreation usefulness. If the Fredericksburg Community Park is affected by Right of Way acquisition the KYTC will be required to mitigate these impacts through additional land purchase for the park.

IV. PRELIMINARY PROJECT INFORMATION

A. Existing Conditions/Roadway Data

A summary of the existing conditions can be seen in Table 2.

Table 2: Existing Conditions and Data Summary

County(ies):	<u>Nelson, Washington</u>		
Route Number(s):	<u>US 150</u>	Road Name:	<u>Springfield/Bardstown Rd.</u>
Item No.:	<u>04-1068, 04-1069</u>		
BMP:	<u>~ 7.4 Nelson Co.</u>	EMP:	<u>~ 0.2 Washington Co.</u>
Project Length:	<u>< 1 mile</u>		
Rdwy. Class.:	<u>Rural Minor Arterial</u>	State Class.:	<u>Primary</u>
Truck Class:	<u>AAA</u>		
ADT (current):	<u>8430</u>		
Terrain:	<u>Rolling</u>	Access Control:	<u>Permit</u>
Posted Speed:	<u>55 MPH</u>	Median Type:	<u>Undivided</u>
Funding Type:	<u>BRO</u>		

Roadway Data:

	<u>Existing Conditions</u>	<u>Design Criteria*</u>
No. of Lanes	2	2
Lane Width	11 ft	12 ft
Shoulder Width	4-8 ft	8 ft
Minimum Radius	-	1205 ft
Maximum Grade	0%	4%
* 60 MPH Design Speed		
Adequacy Rating %:	85.7	

Bridge Data:

	<u>090B00028N</u>	<u>115B00022N</u>
Max. Span Length	89.9 ft	89.9 ft
Length	404.9 ft	225.1 ft
Width, out to out	33.1 ft	30.5 ft
Width, curb to curb	27.9 ft	27.6 ft
Sufficiency Rating	45.5	40.8

It should be noted that just west of the project site, the alignment follows a steep grade, approximately 4.3%, down to the project site. The project site has guardrail on both sides of the road due to steep side slopes. The section of the roadway in the project area is straight with a 0% grade.

B. Right of Way

According to the Property Value Administrator (PVA) information available online for Nelson County and the right of way information available on the set of plans for the existing roadway, there are potentially seven properties that could be impacted by this project. The PVA information available online for Nelson County can be seen in **Appendix I**.

C. Utilities

Electric:	Salt River Electric Mr. Gary Pile, Engineer 111 West Brashear Ave. Bardstown, KY 40004 502-348-3931
Telephone:	AT & T KY Ms. Brenda Richards, Specialist 1535 Twilight Trail Frankfort, KY 40601 502-875-5983
Water:	City of Bardstown Steve Hicks, Asst. Dir. Of Public Works 220 North 5 th Street Bardstown, KY 40004 502-249-1176

The project team confirmed that there are no gas or sewer lines near the project site. A preliminary sketch of the approximate location of the utilities in the project area can be viewed in **Figure 15**. This information was obtained from field inspection and an ARC GIS database. Confirmation of these locations should be verified as the project survey is completed in the Design phase.

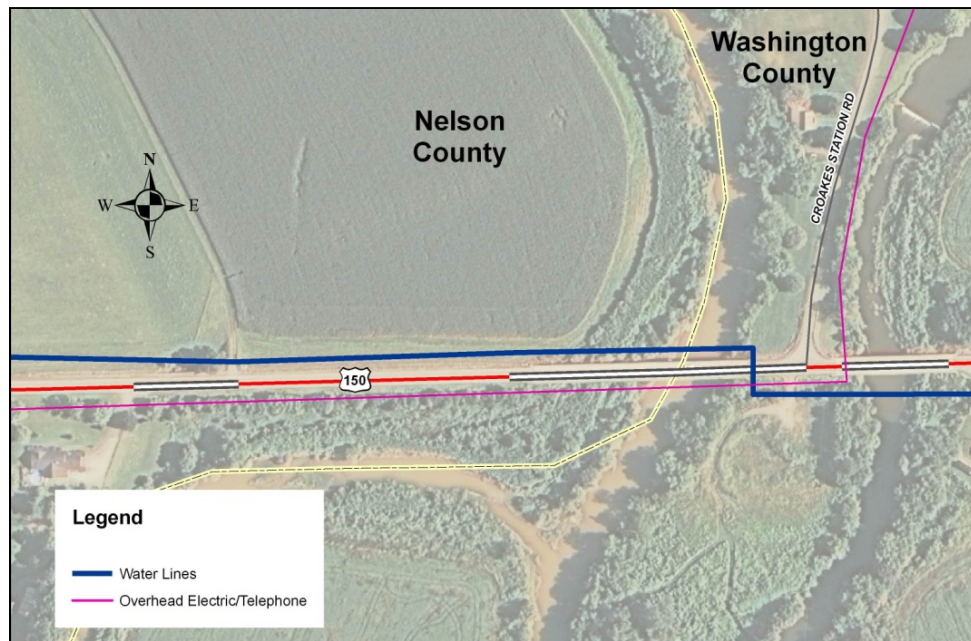


Figure 15: Utility Locations

D. Agency Coordination

The Project Team met on June 16, 2010 to review and discuss the projects and the Pre-Design Scoping Study. The team discussed alternatives. Due to the 6(f) property, Fredericktown Community Park, and the location of the tributary to Beech Fork located on the south side of the existing alignment, the project team recommended moving the alignment to the north. The project team also agreed that turning lanes were not needed for either of the intersection of the county roads with US 150. A width of 40-ft curb to curb was recommended for the bridges for estimate purposes. A typical of 12-ft lanes and 8-ft shoulders was recommended for approaches to meet the 60 mph Design Speed guidelines. Section VI of this report discusses possible alternatives that were a result of information gathered from the project team meeting, the site visit, and other information obtained for this project.

The deficiencies of the bridges were discussed. The opening will need to be studied hydraulically during Phase I Design. It was suggested that the alignment be raised to increase the size of the hydraulic opening. Moving the pier(s) to allow for a longer span (currently 90 feet) may also be helpful, and will need to be considered during the hydraulic analysis. More details of deficiencies were discussed in Section II.I. of this report.

The minutes of the meeting can be reviewed in **Appendix J**.

V. PROJECT PURPOSE AND NEED STATEMENT

Based upon the information presented in Section II of this report and discussion of the project team, the following purpose and need statement was drafted for these projects:

US 150 provides a vital connection between the city of Bardstown and Springfield. The bridges located over Beech Fork on the Nelson-Washington County Line and the bridge over Cartwright Creek just east of the County Line are structurally deficient. There are collisions occurring at the intersections of Croakes Station Road and Connor Road that appear to be occurring due to poor sight distance at the intersections. There are also conveyance problems with the existing structures and the bridge piers accumulate large amounts of debris. **The purpose of this project is to address the structural deficiencies and conveyance issues of the bridges, and the occurrence of collisions at the intersections in order to provide safety, mobility and connectivity between Springfield and Bardstown.**

VI. POSSIBLE ALTERNATIVES

The following is a description of several of the alternatives analyzed and discussed during the development of this study. Preliminary cost estimate calculations can be viewed in **Appendix K.**

A. No Build

The No Build option is not a feasible alternative due to the structural deficiency of the bridges. It would not address the draft purpose and need defined for of these projects.

B. Build in Place

There are a couple of options with the Build in Place alternatives; however, they are not feasible. The terrain is not favorable for two low-water crossings and a detour using state routes and closing US 150 would require motorists to travel more than eight additional miles.

C. Alternative #1

This alternative involves moving the new structures several feet north of the existing alignment with a new, parallel alignment. This may require a replacement of the culvert west of the bridges to accommodate the tie-in of the approaches to the new bridge. The culvert is not currently structurally deficient, but does have some issues with separation of the wing walls from the culvert headwall and some exposure of rebar. In addition, it is suggested that the alignment be raised and/or the span length be increased to increase the hydraulic opening of the bridges. It was also recommended that current design standards be used (12-ft lanes, 8-ft shoulders) on both the approaches and the bridges, which would require the bridges to be 40-ft curb to curb. This option would allow for two lanes of traffic to remain open while constructing the bridges. The length of the project will vary depending on decisions made in Phase I Design, but should be less than a mile and will include roadway widening and at least two new structures. The size of the first bridge will be approximately 40 feet curb-to-curb by 405 feet long and the second bridge will be approximately 40 feet curb-to-curb by 90 feet long. This alternative may also require construction of a new culvert depending on how far to the north the alignment is moved. The size and location of the culvert will depend on the location of the new alignment. This alternative will require the purchase of right of way, utility relocation, a significant amount of fill, and the reconstruction of two field entrances and two entrances to county roads. A sketch of this alternative can be viewed below in **Figure 16**.

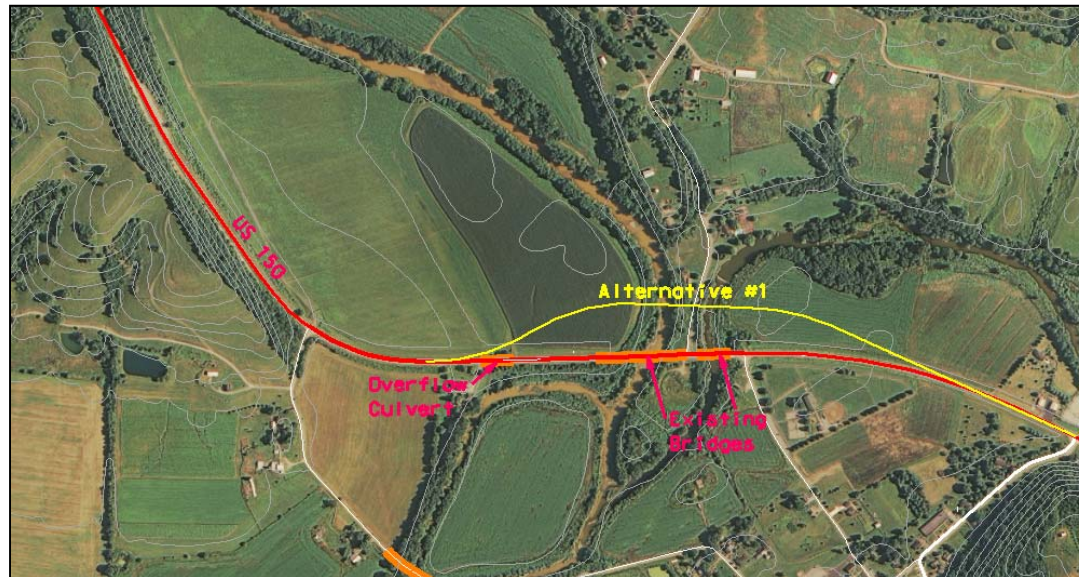


Figure 16: Alternative #1

The following is the preliminary cost estimated for Alternative #1:

<u>Phase</u>	<u>Estimate</u>
Right of Way	\$300,000
Utilities	\$75,000
Construction	\$6,000,000

D. Alternative #2

Another option is partial width construction of the new bridges which would shift the center line approximately 7 feet to the north in order to accommodate the proposed lane widths and shoulder widths of 12 feet and 8 feet, respectively (see **Figure 17**). For this alternative, the outside edge of the right (south) shoulder on the bridges would be held and all widening would occur to the north of the existing structure. This would allow shorter tie-ins to the approaches and entrances, and would require a culvert extension of approximately 11 feet to accommodate the shift in the alignment and the widening of the roadway and shoulders. Raising the elevation of the alignment would still be possible. This option would have a minor impact on right of way, and would require the road width to be reduced to one lane during construction with a temporary traffic signal to control the direction of traffic flow. The width needed for traffic is 17 feet (12-ft lane width + 2 feet for the barrier + 3 feet for the overhang). The length of the project may be approximately 3000 feet including roadway widening, a culvert extension (around 11-ft wide by 46-ft long, triple barrel), and two new structures (approximately 40 feet curb-to-curb by 405 feet long and 40 feet curb-to-curb by 90 feet long).

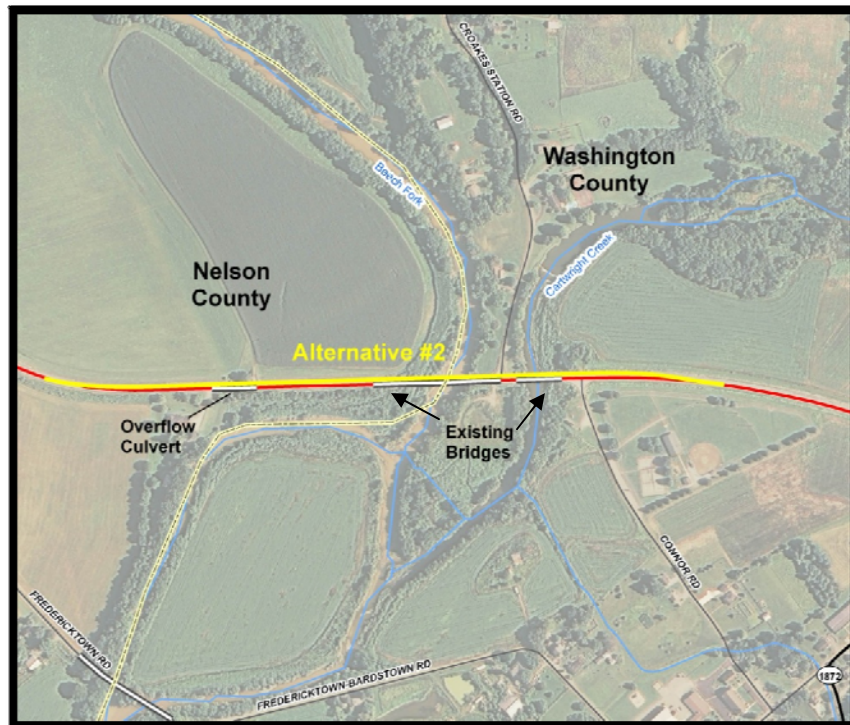


Figure 17: Alternative #2

The following is the preliminary cost estimated for Alternative #2:

<u>Phase</u>	<u>Estimate</u>
Right of Way	\$100,000
Utilities	\$150,000
Construction	\$5,000,000

E. Alternative #3

A similar option to Alternative #2, if constructible, is partial width construction of the new bridges which would keep the same center line, but would shift it with a taper temporarily for construction. For this alternative widening the roadway to accommodate 12-ft lanes and 8-ft shoulders would only occur on the two new structures and the segment of roadway between them; the widening would occur on both sides of the centerline (approximately 5 feet on each side for roadway, and 7 feet on each side for the bridge). The roadway and shoulders would taper down at the end of each approach to match existing widths. Temporarily there would need to be slight detour (50:1 taper) to the north while construction on the south side of the bridges occurs. Fill material would be required for the detour as well as the roadway widening. This would not require the extension of the culvert to the west of the bridges. This option would most likely have the least impact on right of way, but would require the road width to be reduced to one-lane during construction with a temporary traffic signal to control the direction of traffic flow. The width needed for traffic is 17 feet (12-ft lane width + 2 feet for the barrier + 3 feet for the overhang). The length of the project may be approximately 1500 feet including roadway widening between bridges and lane width tapers at each end. This alternative includes two new structures approximately 40 feet curb-to-curb by 405 feet long and 40 feet curb-to-curb by 90 feet long.

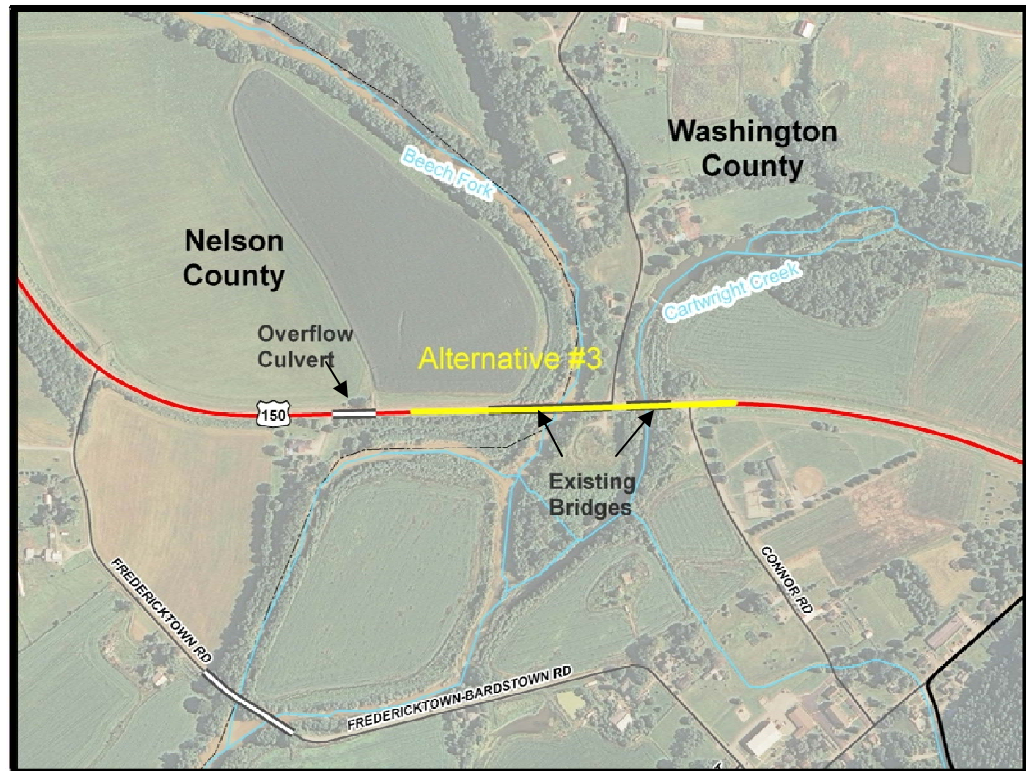


Figure 18: Alternative #3

The following is the preliminary cost estimated for Alternative #3:

<u>Phase</u>	<u>Estimate</u>
Right of Way	\$100,000
Utilities	\$150,000
Construction	\$5,000,000

VII. Summary

This study is a Data Needs Assessment (DNA) of two projects located on US 150 at or near the Nelson-Washington County Line. Bridge #090B00028N is located over Beech Fork which is also the location of the county line. Bridge #115B00022N is located over Cartwright Creek just east of the Nelson-Washington County Line. Through analysis of existing roadway geometrics, bridge ratings, crash data, site visits, and discussion with the project team the following needs were identified:

- The bridge located over Beech Fork on the Nelson-Washington County Line and the bridge over Cartwright Creek just east of the County Line are structurally deficient.
- There are collisions occurring at the intersections of Croakes Station Road and Connor Road that appear to be due to poor sight distance at the intersections near the bridges.
- There are also conveyance problems with the existing structures and the bridge piers accumulate large amounts of debris.

The purpose of this project is to address the structural deficiencies and conveyance issues of the bridges and the occurrence of collisions at the intersections in order to provide safety, mobility and connectivity between Springfield and Bardstown.

Three possible alternatives for replacing the bridge are included in this study. One alternate moves the bridge over to a slightly different alignment. Two of the alternates involve the use of partial width construction. All of the alternates include a wider typical with shoulders which would allow for more sight distance at the intersections with the county roads. Increasing or modifying the spacing of the bridge piers and raising the elevation of the beams to allow for a larger hydraulic opening was also discussed. The preliminary construction cost estimates for these alternates ranged from \$5 million to \$6 million which includes the replacement of both bridges. This should be taken into consideration when programming the construction phase of these projects in the next Highway Plan.

For more Information Contact:

Kentucky Transportation Cabinet
Division of Planning, 5th Floor West
200 Mero St.
Frankfort, KY 40622