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

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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**.

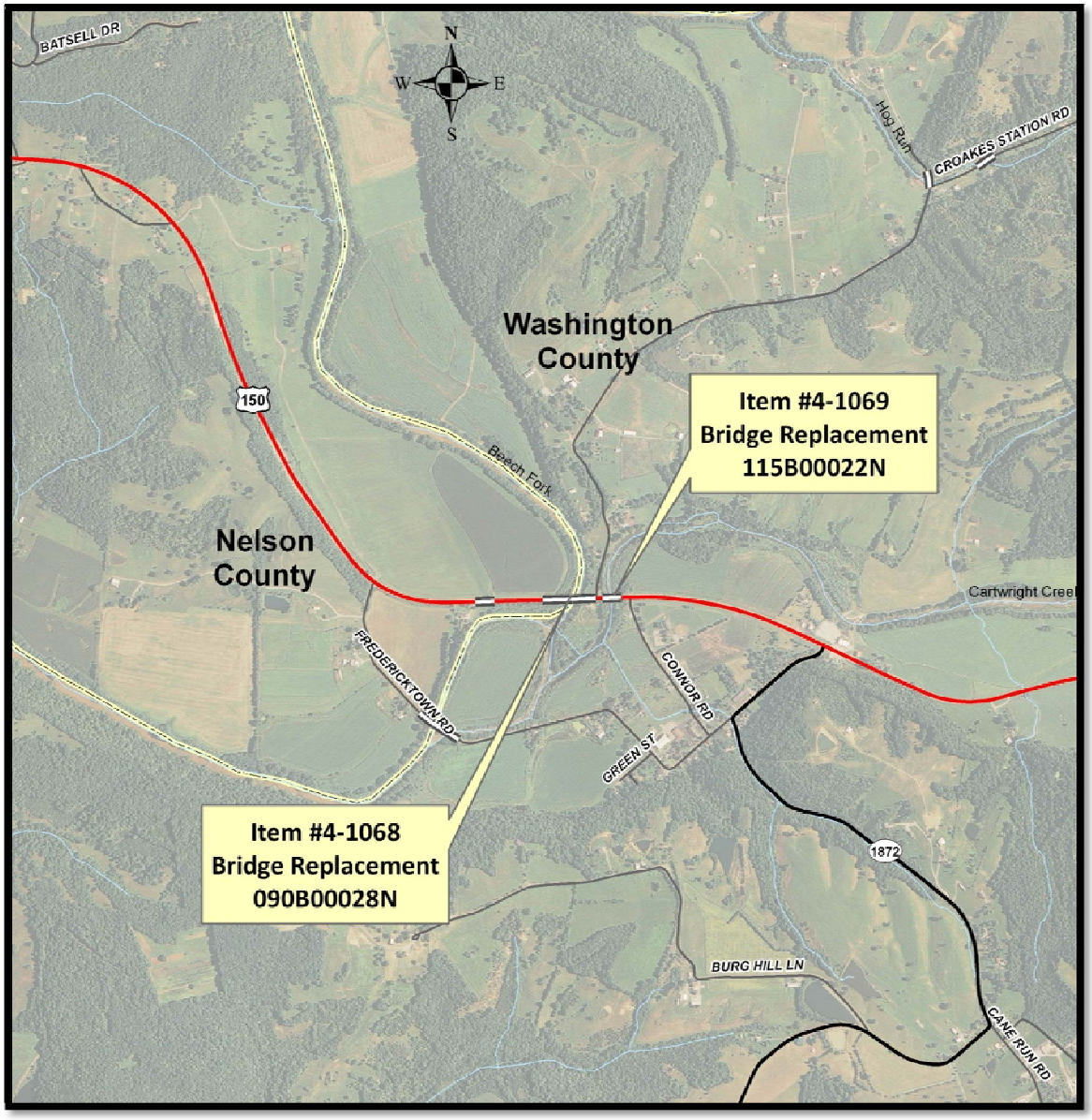


Figure 1: Project Location Map

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**

Phase	Fund	Year	Estimate
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**

Phase	Fund	Year	Estimate
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.

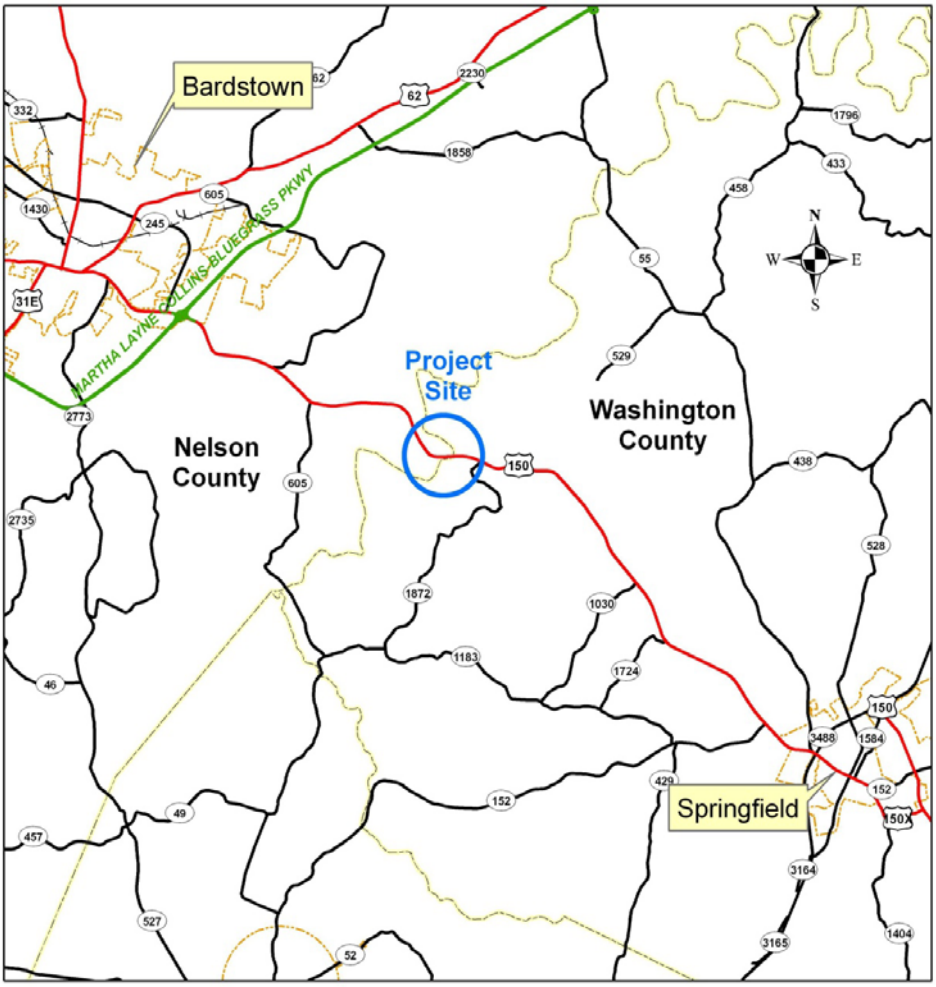


Figure 2: System Linkage Map

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.

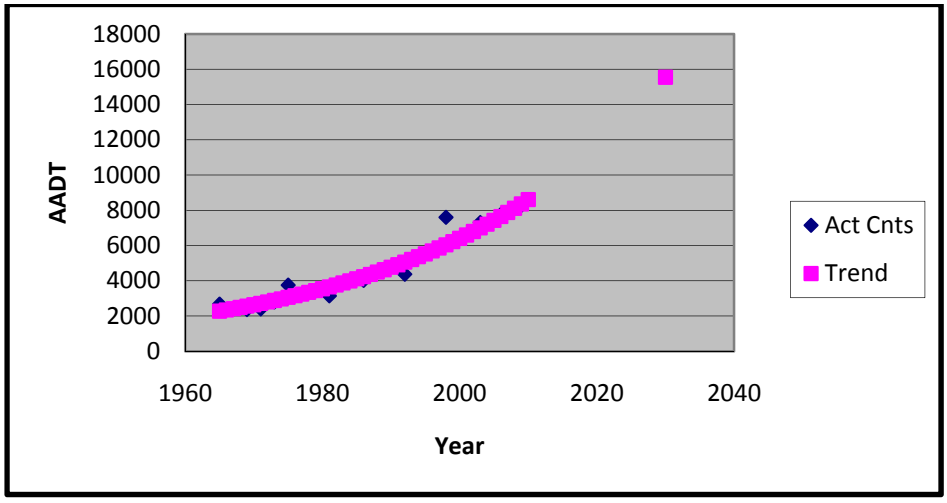


Figure 3: US 150 Traffic Projection

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**.

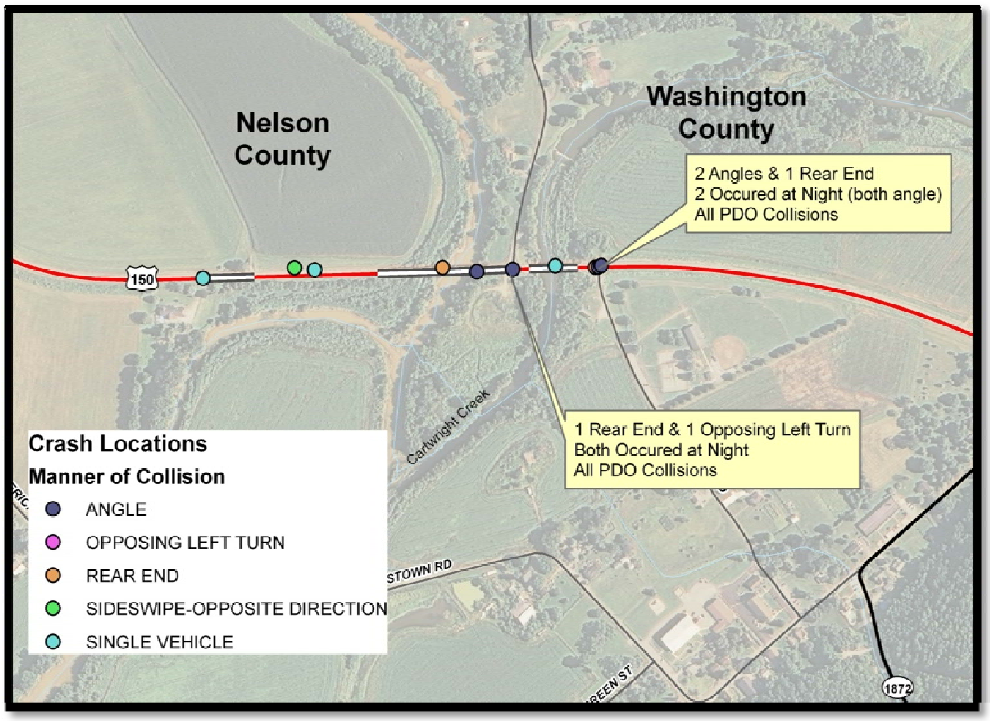


Figure 4: Collision Locations

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

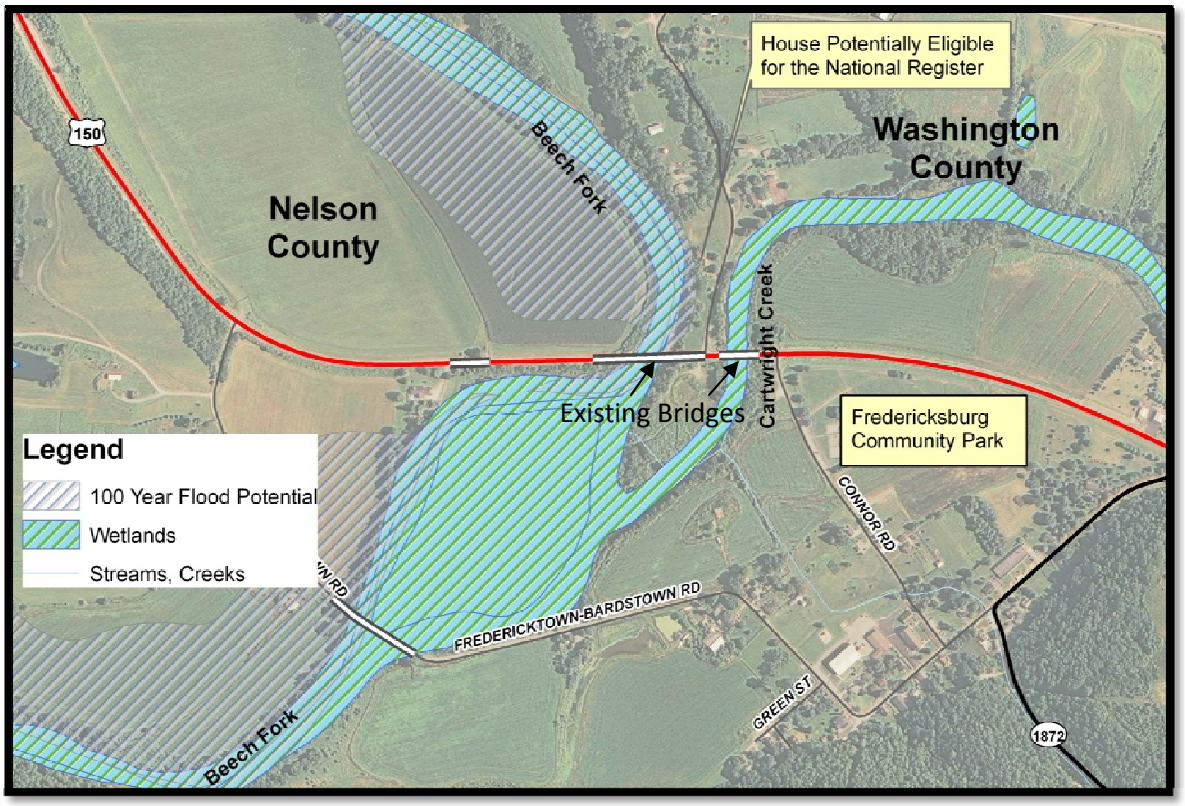


Figure 14: Preliminary Environmental Footprint

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

Roadway Data:

	Existing Conditions	Design Citeria*
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:

	090B00028N	115B00022N
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 5th 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.

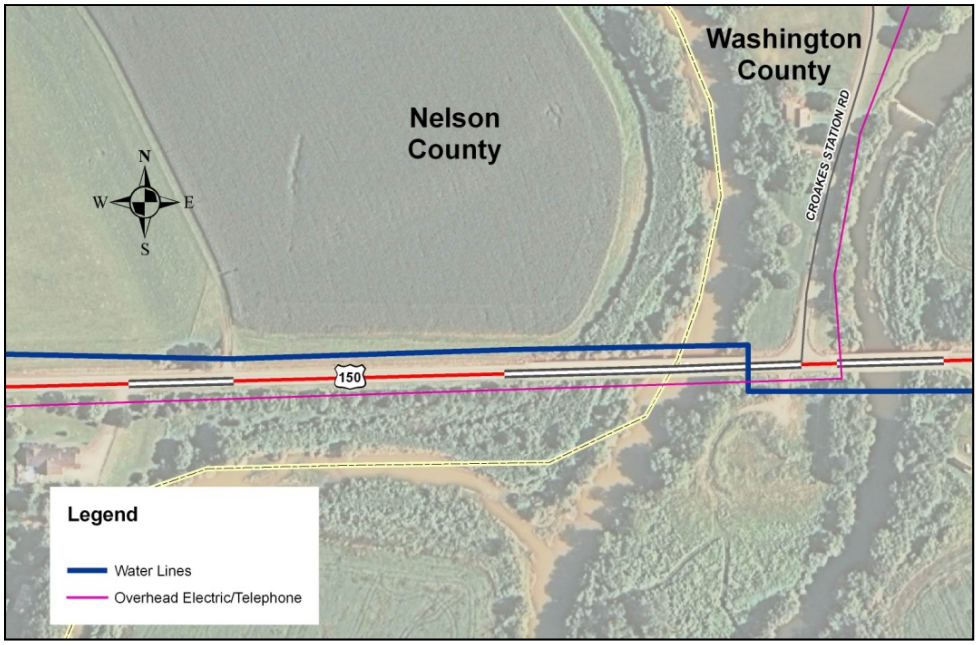


Figure 15: Utility Locations

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 if 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***.

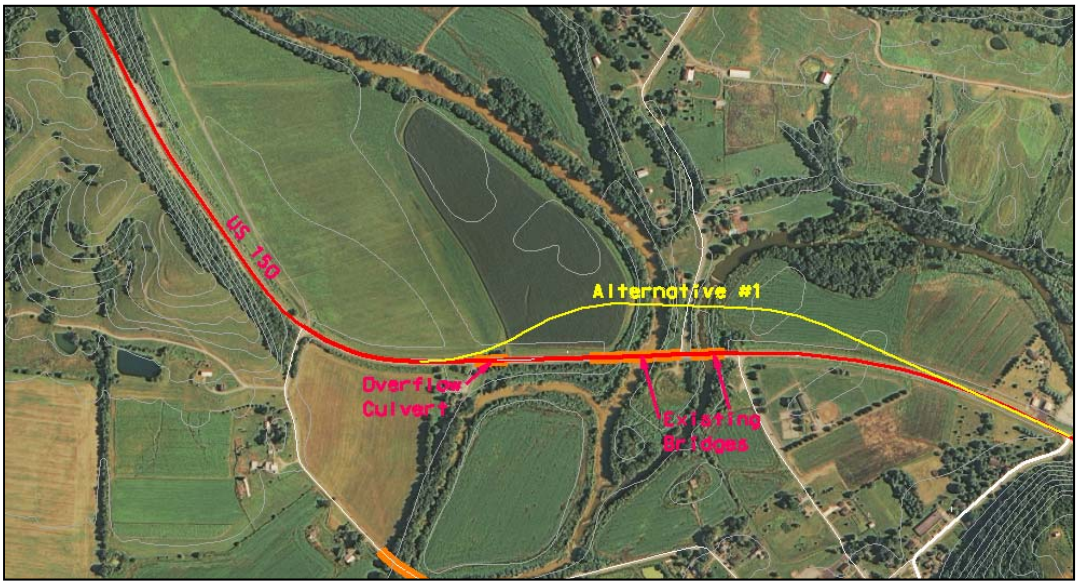


Figure 16: Alternative #1

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

Phase	**Estimate**
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).

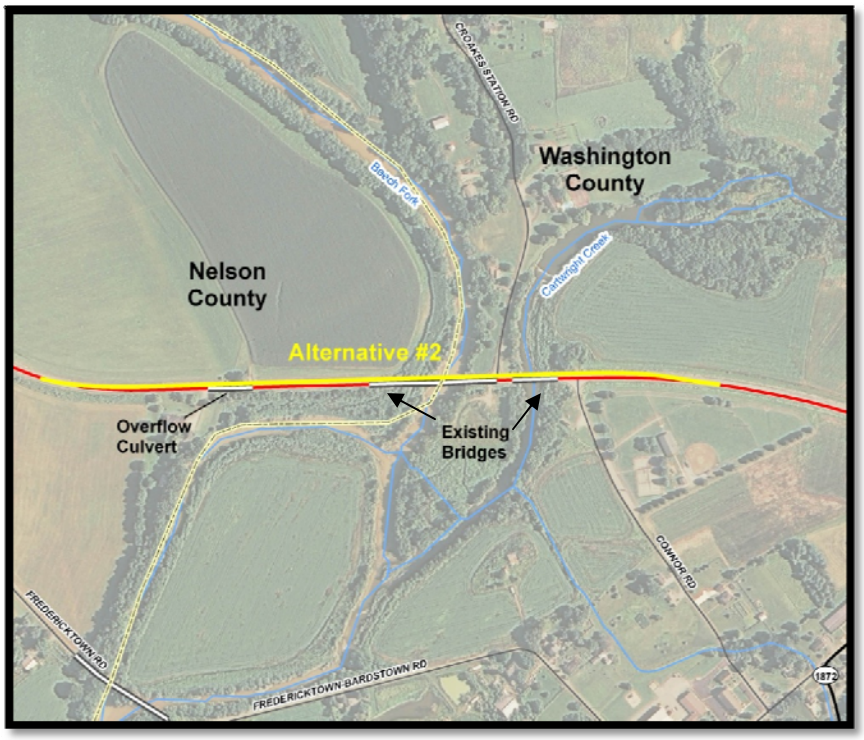


Figure 17: Alternative #2

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

Phase	**Estimate**
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.

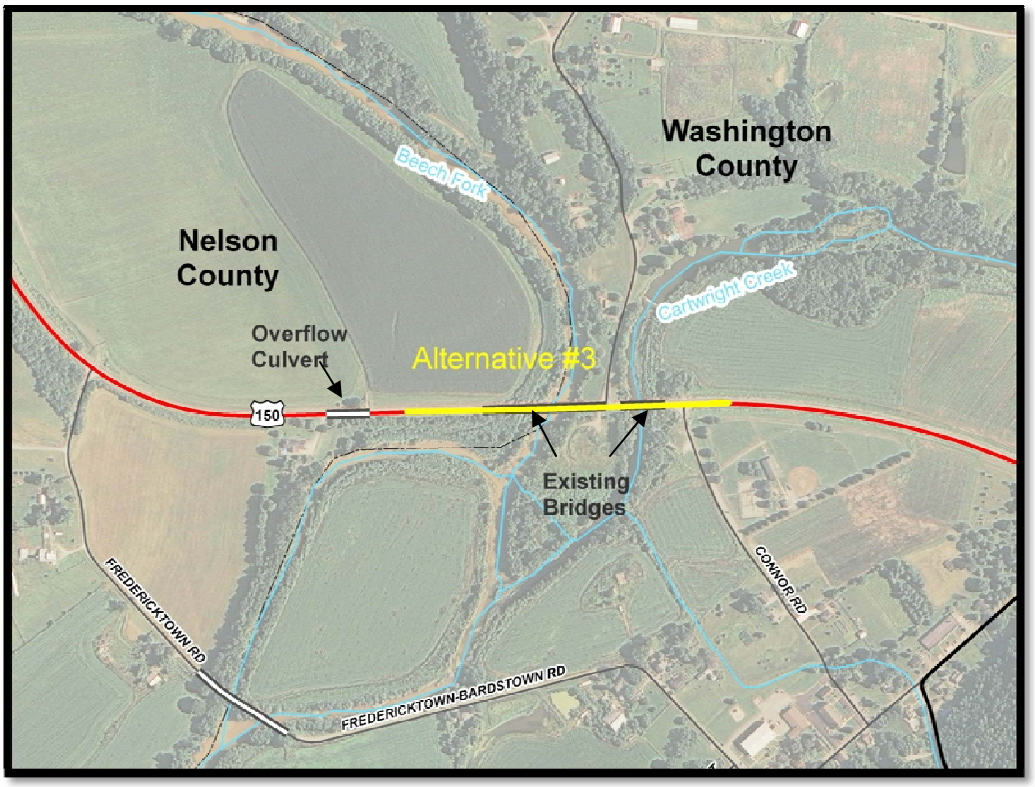


Figure 18: Alternative #3

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

Phase	**Estimate**
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.

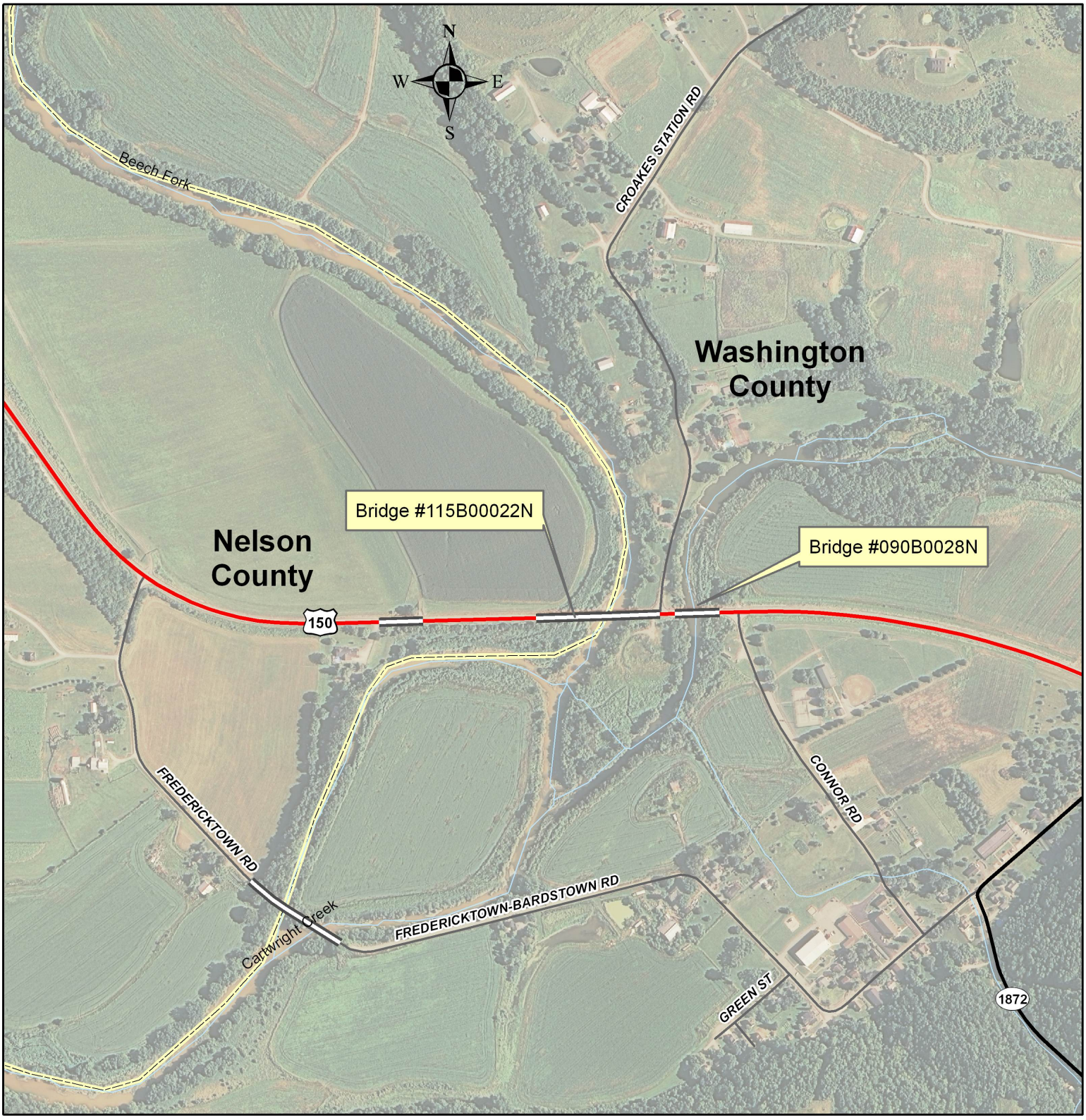
The purpose of this project is to address the structural deficiencies and conveyance issues of the bridges and the occurrence of collisions at the intersections in order to provide safety, mobility and connectivity between Springfield and Bardstown.

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

Appendix A - Exhibits



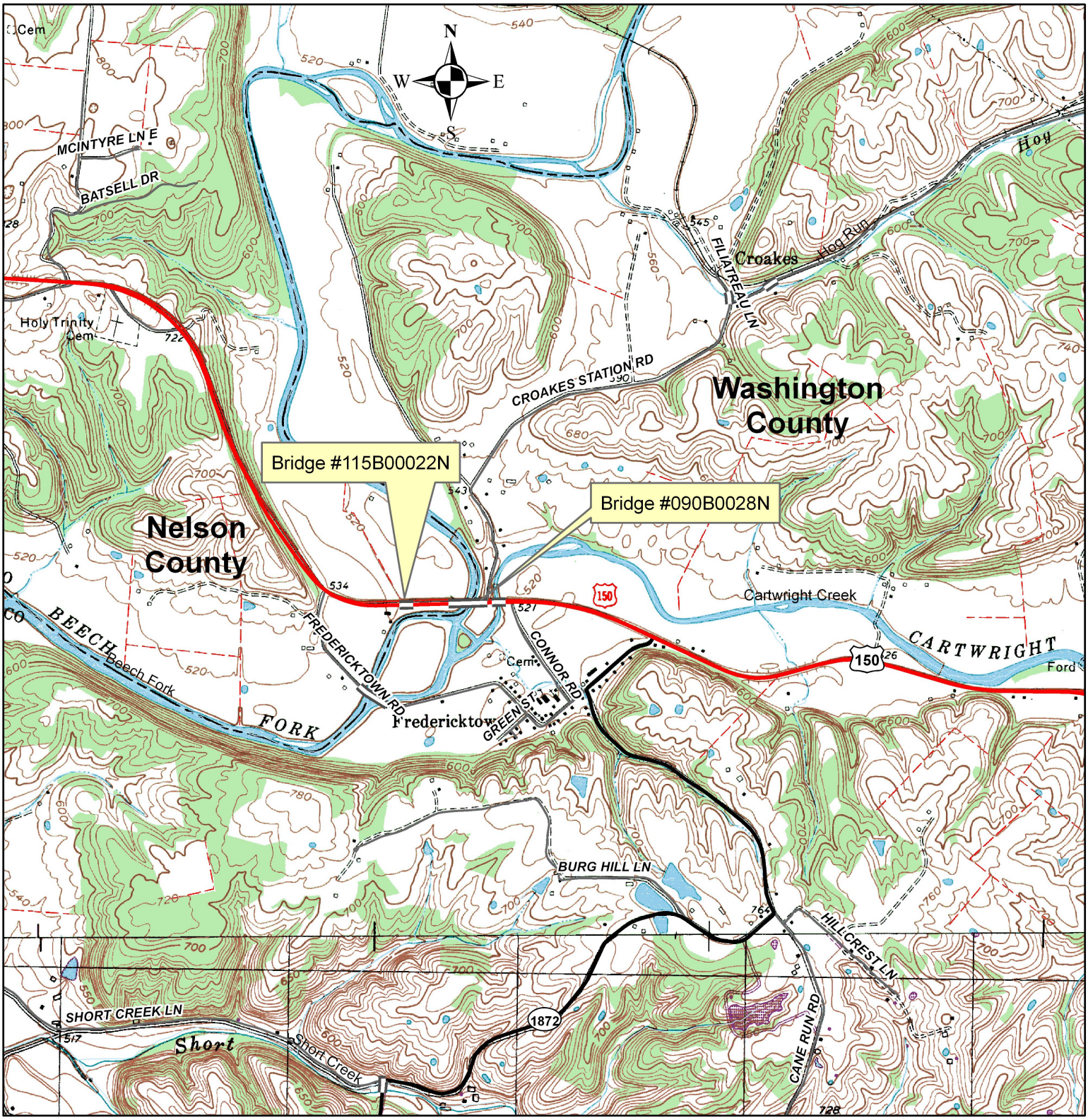
Legend

- Bridge
- US Highways
- State Roads
- Local Roads
- County Boundary Lines

Exhibit 1: Location Map
Nelson & Washington County
Item # 4-1068.00 & 4-1069.00

0 300 600 1,200 Feet

KENTUCKY TRANSPORTATION CABINET



Legend

- Bridge
- US Highways
- State Roads
- Local Roads
- County Boundary Lines

Exhibit 2: Topographic Map
Nelson & Washington County
Item # 4-1068.00 & 4-1069.00

0 1,000 2,000 4,000 Feet

KENTUCKY TRANSPORTATION CABINET

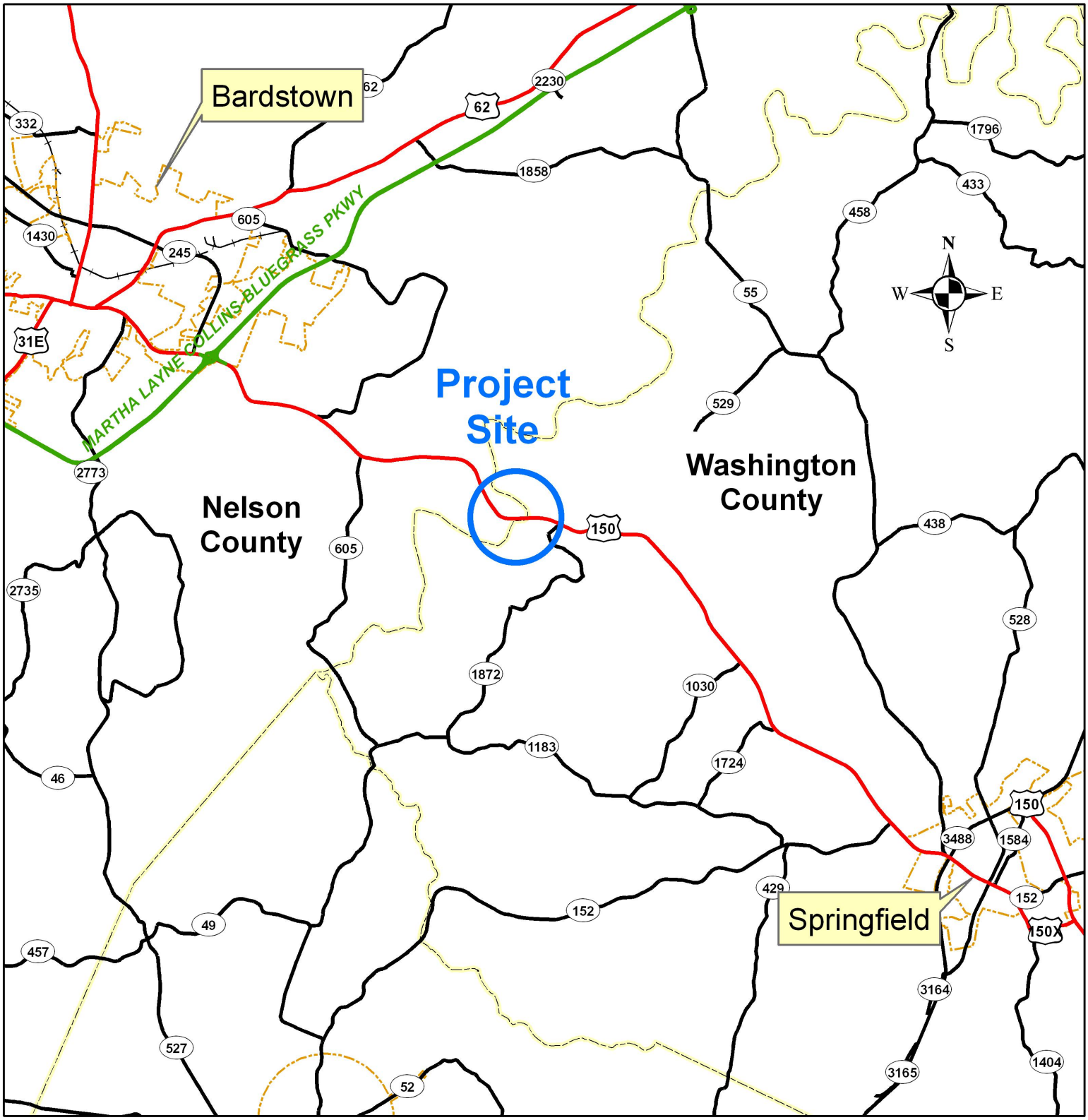


Exhibit 3: System Linkage Map
Nelson & Washington Counties
Item # 4-1068.00 & 4-1069.00

Legend

- Parkways
- US Highways
- State Roads
- County Boundary Lines
- Corporate Boundary Lines

0 5,000 10,000 20,000 Feet

KENTUCKY TRANSPORTATION CABINET

Appendix B – UPL Project Information Forms

KYTC Project Identification Form

PIF Revised: Aug. 2004

Cycle Year: **07**

Priority: L : ___ R: **Med** D: **Hi**
Tier: ____
Tier Rank: R: ___ D: ___
Overall Top Ten: R: ___ D: ___

Section I – General Information

Requested by:	**Judge Settles**
Title/Organization:	**Washington Co.**
Date:	**12/20/06**
Form Completed by:	**Malham/**
Title/Organization:	**LTADD/KYTC-D4**
Date:	**12/21/06**
Revision 1 by:	**Malham/**
Title/Organization:	**LTADD**
Date:	**11/28/07**
Revision 2 by:	
Title/Organization:	
Date:	

UPL Control #: **04 090 B0150 12.00** Co. #: **090**
Parent Control #: **04 115 B0150 118.00**
RSE Unique Number: **090 US-150**

District: **4** County: Nelson Route: **US-150**
ADD: **LTADD** MPO: **n/a** SUA: **n/a**

Mode: **Highway** State System: **State Primary**
Type: **Reconstruction** Funct'l Class: **Rural Min Art**

Project Length: 5.382 **Total Cost Estimate: $ 36,800,000**
(P:300 D:3,000 R:2,500 U:1,000 C:30000)

Possible Funding Sources (Check all that apply):
☐IM ☐NH ☐HES ☐BR ☒STP ☒SP ☐TE ☐CMAQ
☐PLH ☐Other: ____

Highway Networks (Check all that apply):
☒Non NHS ☐NHS
☒NN ☐Scenic Byway ☒Coal Haul ☐Bike ☐Forest
☒Defense ☐Strahnet ☐Ext. Wt. ☐ADHS ( )

Existing Project Studies (Year):

Section II – Problem Statement

Route Number: **US-150**
Beginning MP: **2.300**
Ending MP: **7.682**
Total Length: **5.382**

Primary Purpose: **Upgrade Existing System(Major)**

(Use Report Year)	Original	Rev. 1	Rev. 2
AdequacyRating:	**87.50**: (**05**)	**87.50**: (**06**)	: ( )
• CRF: (Year)	**0.89**: (**05**)	**0.56**: (**06**)	: ( )
• IRI: (Year)	**107**: (**05**)	**106**: (**06**)	: ( )
• V/SF: (Year)	**0.46**: (**05**)	**0.47**: (**06**)	: ( )
Current ADT: (Year):	**10,900**: (**06**)	**11300**: (**07**)	: ( )
Percent Trucks: (Year):	: ( )	: ( )	: ( )
Projected ADT (HDO): Year:	%Growth:	ADT:	

Please provide a clear problem statement for this project:

US-150 is the primary roadway from the Bluegrass Parkway to the City of Springfield located in Washington County. The IRI is 106 indicating potential pavement concerns. Current ADT ranges from 7,940 to 11,300. The Horizontal and Vertical Alignment values are both a substandard 3 indicating infrequent curves and possible sight distance and speed issues. The Six-Year Plan contains a project (4-8309) to widen US-150 from near KY 245 through the Bluegrass Parkway bridge to just past the Leslie Ballard Road (MP 2.3).

Section III – Project Description

Project Description Narrative:

Reconstruction of US 150 from Leslie Ballard Rd to the Washington County Line.

Regional Goals/Objectives Addressed: **III-Preserve, maintain, and enhance the existing transportation system to ensure safe, efficient, and effective mobility.**

UPL #: 04 090 B0150 12.00
County: Nelson Co. #: 090 Route: US-150

Section IV – Project Area Information:

1. Miscellaneous Roadway Conditions

Access Control:	Existing: **Permit** Proposed: _____	Median Type:	Existing: _____ Proposed: _____	Width: **0'** Width: _____
Lane No./Width:	Existing: **2/11'** Proposed: **2/12'**	Shoulders:	Existing: **Asphalt** Proposed: **Asphalt**	Width: **4-8'** Width: **2-10'**
No. of Bridges:	Existing: **1** Proposed: **1**	Other Improvement Projects in Area:	☐None ☒SYP ☐Resurface ☐Other _____	

Comments:

2. Right of Way

Avg. Width: Existing: **100'** Source: ☒ HIS ☐Plans ☐Microfilm ☐Other _____

Current Primary Use: ☐Industrial ☒Commercial ☒Residential ☐Farmland ☐Other: _____

☐ No ☒ Yes Project may require additional R/W. | Possible Relocations : Homes: _____ Businesses: _____

Comments:

3. Utilities

Existing Utilities: ☒Power ☐Gas ☒Telephone ☐Cable ☐Sewer ☒ Water ☐ ITS ☐None ☐ Other: _____

☐ No ☒ Yes Project may require Utility Relocations. | Comments:

4. Environmental Impacts

(Check all that apply):

☐Blueline Streams	☐Wetlands	☐Floodplain	☐Wildlife Managed Areas	☐Historic Properties
☒Cemeteries	☐Schools	☒Churches	☐Endangered Species	☐Public Land/Park
☐Noise Impact	☐Arch. Sites	☐NR Properties	☐Potential NR Properties	☐Other:

☒ Potential Contaminated sites: ☒ Gas Stations ☐ Landfills ☒ Auto Repair ☒ Junkyards ☐Other

Comments:

5. Air Quality

☒No ☐Yes	Project is located in a Maintenance or Nonattainment Area	☐ Ozone ☐ PM 2.5
☒No ☐Yes	Project adds through lane capacity	
☒No ☐Yes	Project results from a Congestion Management Plan	
☒No ☐Yes	Project is included in TIP/STIP	TIP Page # STIP Page #

Comments:

6. Economic Impacts

☐No ☒Yes Planning/Zoning Regulations exist in Community

☐No ☒Yes Project may affect established Business, Commercial or Industrial Districts.

☐ No ☒ Yes This project has economic impacts on regional/local economy:
☒ Development ☐Tax Revenues ☐Employment Opportunity ☒Retail Sales ☐ Other
Please Describe:

☐ No ☒ Yes This project provides direct access to major points of interest:
☒ Nat'l/State Parks ☐Monuments ☐Historic Sites ☐Amusement Parks ☐US Public Land ☐ Other
Please Describe: **My Old Kentucky Home State Park**

☐ No ☒ Yes This project provides direct access to major traffic generators:
☒ Shopping Centers ☒Schools ☐Industries ☐Military Installations ☐ Other
Please Describe:

Filename: 04 090 B0150 12^00

7. Multimodal Opportunities	This project is a candidate for: (check all that apply)	☐ Bicycle Paths ☐ Sidewalks ☐ Shared-Use Paths ☐ Park/Ride Lots ☒ N/A
	This project improves direct access to: (check all that apply)	☐ Airports ☐ Railways ☐ Riverports ☒ Trucking Routes ☐ N/A
	Type of Public Transportation available:	☐ Fixed Route ☒ Demand Response
	Comments:	
8. Social Impacts	This project may affect: (Check all that apply)	☐ Neighborhood or Community Cohesion ☐ Travel Patterns (Vehicular, commuter, bicycle, pedestrian) ☐ Household Relocations ☐ Elderly, disabled, nondrivers, minorities, low-income persons ☒ No adverse effects to neighborhoods apparent.
	Comments/Impact Descriptions:	

Section V – Cost Estimate Information (to be completed by Hwy District Office):

Cost Estimate by Phase:

Phase	Original Estimate	By:	Revision 1	Date	By:	Revision 2	Date	By:
Planning	$300,000	JH						
Design	$3,000,000	JH						
ROW	$2,500,000	JH						
Utilities	$1,000,000	JH						
Construction	$30,000,000	JH						
Total Cost	**$36,800,000**	**JH**						

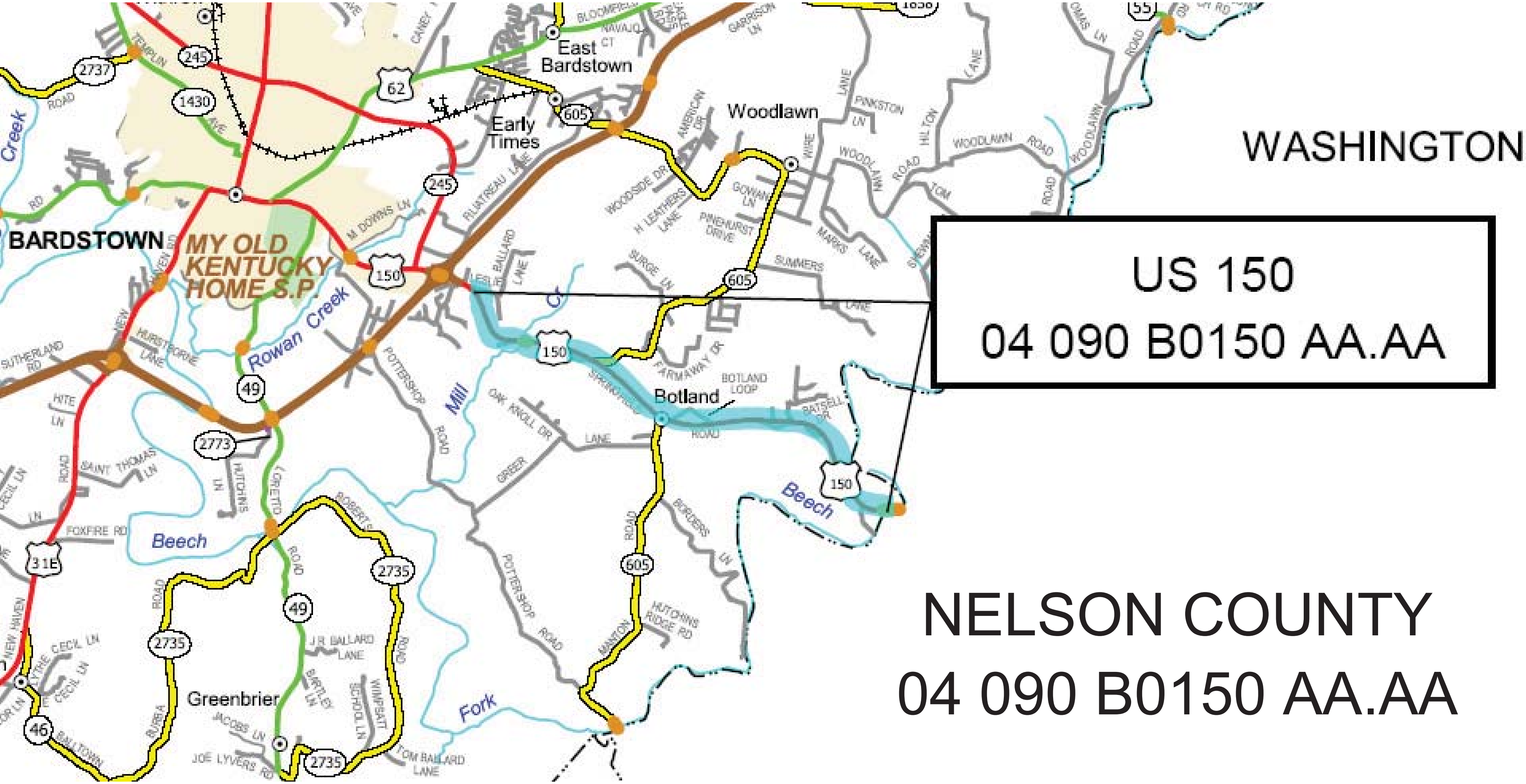
Estimate Procedure Used:

Original Estimate:	Revision 1:	Revision 2:
☐ Per Mile@ $ _____ Terrain: _____	☐ Per Mile@ $ _____ Terrain: _____	☐ Per Mile@ $ _____ Terrain: _____
☐ Detailed Estimate with Calculations Attached	☐ Detailed Estimate with Calculations Attached	☐ Detailed Estimate with Calculations Attached
Estimate Assumptions: **See Rev. 1**	Estimate Assumptions: **-Project should widen lanes and shoulders, provide turn lanes and truck climbing lanes where needed, and improve alignment.**	Estimate Assumptions:
Estimate Class: **E-Requires further study**	Estimate Class: _____	Estimate Class: _____

Section VI – Attachments:

The following items are attached to this document: ☒ Location Map ☒ Photograph(s) ☐ Other:

Comments:


US 150
04 090 B0150 AA.AA
WASHINGTON
BARDSTOWN
MY OLD KENTUCKY HOME S.P.
East Bardstown
Early Times
Woodlawn
Botland
Greenbrier
Rowan Creek
Beech
Beech
Mill
Fork
Creek
150
150
150
62
245
245
605
605
605
49
49
2735
2735
2735
2737
1430
2773
31E
46
55
BOTLAND LOOP
POTTERSHOP ROAD
OAK KNOLL DR
GREER
FARMAWAY DR
SUMMERS
PINEHURST DRIVE
H LEATHERS LANE
WOODSIDE DR
WOODLAWN ROAD
HUTCHINS RIDGE RD
BORDERS LN
FOXFIRE RD
SAINT THOMAS LN
HURSTBORNE LANE
SUTHERLAND RD
M DOWNS LN
JACOBS LN
JOE LYVERS RD
TOM BALLARD LANE
J R BALLARD LANE

NELSON COUNTY
04 090 B0150 AA.AA


FREDERICKSTOWN RD

KYTC Project Identification Form

PIF Revised: Aug. 2004

Cycle Year: **07**

Priority: L : ___ R: **Hi** D: **Hi**
Tier: ____
Tier Rank: R: ___ D: ___
Overall Top Ten: R: **5** D: ___

Section I – General Information

Requested by:	**Judge Settles**
Title/Organization:	**Washington Co.**
Date:	**12/20/06**
Form Completed by:	**Malham/**
Title/Organization:	**LTADD/KYTC-D4**
Date:	**12/21/06**
Revision 1 by:	**Malham/K Young**
Title/Organization:	**LTADD/KYTC-D4**
Date:	**11/24/08**
Revision 2 by:	
Title/Organization:	
Date:	

UPL Control #: **04 115 B0150 121.00** Co. #: **115**
Parent Control #: **04 115 B0150 118.00**
RSE Unique Number: **115 US-150**

District: **4** County: Washington Route: **US-150**
ADD: **LTADD** MPO: **n/a** SUA: **n/a**

Mode: **Highway** State System: **State Primary**
Type: **Reconstruction** Funct'l Class: **Rural Min Art**

Project Length: 4.232 **Total Cost Estimate: $ 28,750**
(P:250 D:2,500 R:2,000 U:1,000 C:23000)

Possible Funding Sources (Check all that apply):
☐IM ☐NH ☐HES ☐BR ☒STP ☒SP ☐TE ☐CMAQ
☐PLH ☐Other: ____

Highway Networks (Check all that apply):
☒Non NHS ☐NHS
☒NN ☐Scenic Byway ☒Coal Haul ☐Bike ☐Forest
☒Defense ☐Strahnet ☐Ext. Wt. ☐ADHS ( )

Existing Project Studies (Year):

Section II – Problem Statement

Route Number: **US-150**
Beginning MP: **0.000**
Ending MP: **4.232**
Total Length: **4.232**

Primary Purpose: **Upgrade Existing System(Major)**

(Use Report Year)	Original	Rev. 1	Rev. 2
AdequacyRating:	**85.50**: (**05**)	**91.00**: (**06**)	: ( )
• CRF: (Year)	**0.48**: (**05**)	**0.42**: (**06**)	: ( )
• IRI: (Year)	**107**: (**05**)	**114**: (**06**)	: ( )
• V/SF: (Year)	**0.39**: (**05**)	**0.41**: (**06**)	: ( )
Current ADT: (Year):	**7,760**: (**06**)	**7940**: (**07**)	: ( )
Percent Trucks: (Year):	: ( )	: ( )	: ( )
Projected ADT (HDO): Year:	%Growth:	ADT:	

Please provide a clear problem statement for this project:

This section of US-150 is the primary roadway from the Bluegrass Parkway to the City of Springfield located in Washington County. This section extends from the Nelson County line to Cartwright Creek. Current ADT is 7,940. The Horizontal and Vertical Alignment Adequacy values are both 3. The roadway has two 11' lanes with very narrow shoulders.

Section III – Project Description

Project Description Narrative:

Reconstruction from Nelson Co Line to Cartwright Creek.

Regional Goals/Objectives Addressed: **III-Preserve, maintain, and enhance the existing transportation system to ensure safe, efficient, and effective mobility.**

UPL #: 04 115 B0150 121.00
County: Washington Co. #: 115 Route: US-150

Section IV – Project Area Information:

1. Miscellaneous Roadway Conditions

Access Control:	Existing: **Permit** Proposed: _____	Median Type:	Existing: _____ Proposed: _____	Width: **0'** Width: _____
Lane No./Width:	Existing: **2/11'** Proposed: **2/12'**	Shoulders:	Existing: **Asphalt** Proposed: **Asphalt**	Width: **1'** Width: **10'**
No. of Bridges:	Existing: **2** Proposed: **2**	Other Improvement Projects in Area:	☐None ☐SYP ☐Resurface ☒Other **UPL**	

Comments:

2. Right of Way

Avg. Width: Existing: **120'** Source: ☒ HIS ☐Plans ☐Microfilm ☐Other _____

Current Primary Use: ☐Industrial ☒Commercial ☒Residential ☒Farmland ☐Other: _____

☐ No ☒ Yes Project may require additional R/W. | Possible Relocations : Homes: _____ Businesses: _____

Comments:

3. Utilities

Existing Utilities: ☒Power ☐Gas ☒Telephone ☐Cable ☐Sewer ☒ Water ☐ ITS ☐None ☐ Other: _____

☐ No ☒ Yes Project may require Utility Relocations. | Comments:

4. Environmental Impacts

(Check all that apply):

☒Blueline Streams	☒Wetlands	☒Floodplain	☐Wildlife Managed Areas	☐Historic Properties
☐Cemeteries	☐Schools	☒Churches	☐Endangered Species	☐Public Land/Park
☐Noise Impact	☐Arch. Sites	☐NR Properties	☐Potential NR Properties	☐Other:

☒ Potential Contaminated sites: ☒ Gas Stations ☐ Landfills ☒ Auto Repair ☒ Junkyards ☐Other

Comments:

5. Air Quality

☒No ☐Yes	Project is located in a Maintenance or Nonattainment Area	☐ Ozone ☐ PM 2.5
☒No ☐Yes	Project adds through lane capacity	
☒No ☐Yes	Project results from a Congestion Management Plan	
☒No ☐Yes	Project is included in TIP/STIP	TIP Page # STIP Page #

Comments:

6. Economic Impacts

☐No ☒Yes Planning/Zoning Regulations exist in Community

☐No ☒Yes Project may affect established Business, Commercial or Industrial Districts.

☐ No ☒ Yes This project has economic impacts on regional/local economy:
☒ Development ☐Tax Revenues ☐Employment Opportunity ☐Retail Sales ☐ Other
Please Describe:

☐ No ☒ Yes This project provides direct access to major points of interest:
☒ Nat'l/State Parks ☐Monuments ☐Historic Sites ☐Amusement Parks ☐US Public Land ☐ Other
Please Describe: **My Old Kentucky Home State Park**

☐ No ☒ Yes This project provides direct access to major traffic generators:
☒ Shopping Centers ☒Schools ☐Industries ☐Military Installations ☐ Other
Please Describe:

Filename: 04 115 B0150 121^00

7. Multimodal Opportunities	This project is a candidate for: (check all that apply)	☐ Bicycle Paths ☐ Sidewalks ☐ Shared-Use Paths ☐ Park/Ride Lots ☒ N/A
	This project improves direct access to: (check all that apply)	☐ Airports ☐ Railways ☐ Riverports ☒ Trucking Routes ☐ N/A
	Type of Public Transportation available:	☐ Fixed Route ☒ Demand Response
	Comments:	
8. Social Impacts	This project may affect: (Check all that apply)	☐ Neighborhood or Community Cohesion ☐ Travel Patterns (Vehicular, commuter, bicycle, pedestrian) ☐ Household Relocations ☐ Elderly, disabled, nondrivers, minorities, low-income persons ☒ No adverse effects to neighborhoods apparent.
	Comments/Impact Descriptions:	

Section V – Cost Estimate Information (to be completed by Hwy District Office):

Cost Estimate by Phase:

Phase	Original Estimate	By:	Revision 1	Date	By:	Revision 2	Date	By:
Planning	$250,000	JH						
Design	$2,500,000	JH						
ROW	$2,000,000	JH						
Utilities	$1,000,000	JH						
Construction	$23,000,000	JH						
Total Cost	**28,750,000**	**JH**						

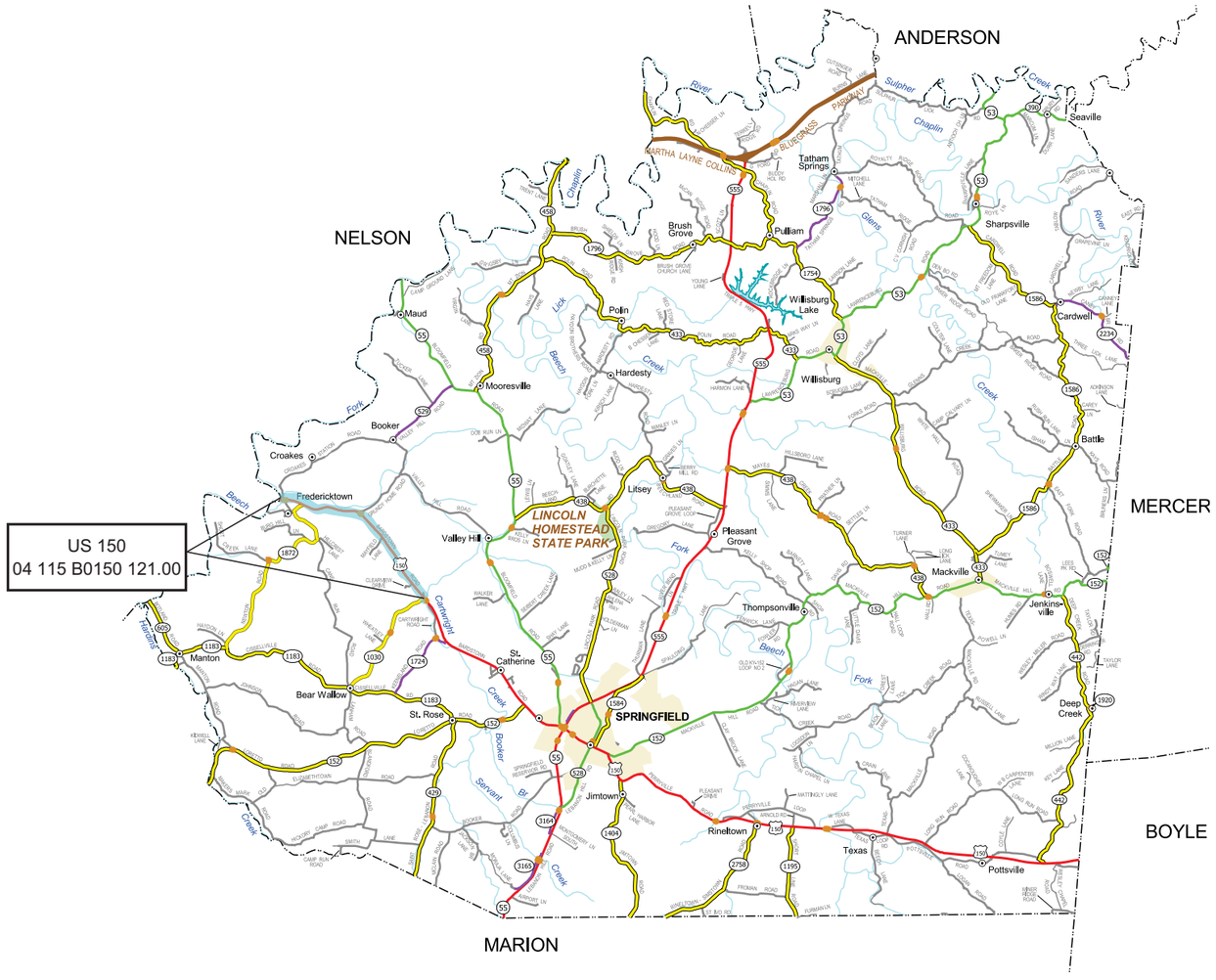
Estimate Procedure Used:

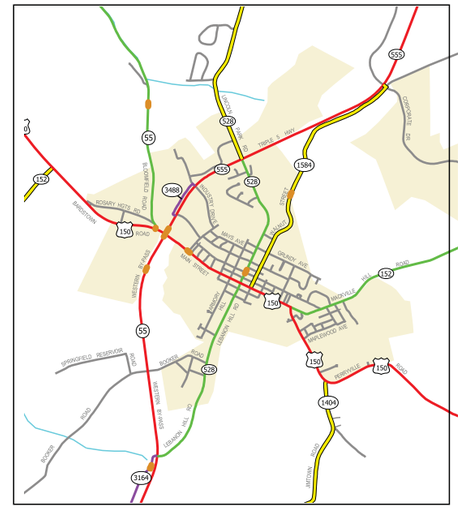
Original Estimate:	Revision 1:	Revision 2:
☐ Per Mile@ $ _____ Terrain: _____	☐ Per Mile@ $ _____ Terrain: _____	☐ Per Mile@ $ _____ Terrain: _____
☐ Detailed Estimate with Calculations Attached	☐ Detailed Estimate with Calculations Attached	☐ Detailed Estimate with Calculations Attached
Estimate Assumptions: **See Rev. 1**	Estimate Assumptions: **-Project should widen lanes and shoulders, provide turn lanes and truck climbing lanes where needed, and improve alignment.**	Estimate Assumptions:
Estimate Class: **E-Requires further study**	Estimate Class: _____	Estimate Class: _____

Section VI – Attachments:

The following items are attached to this document: ☒ Location Map ☒ Photograph(s) ☐ Other:

Comments:



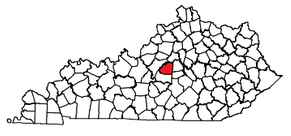


SPRINGFIELD

State Primary Road System
Interstate
Parkway
Other State Primary
State Secondary
Rural Secondary
Supplemental Road

Local Road System
Unimproved
Crushed Stone or Gravel
Paved

Other Features
Stream
Railroad
Bridge
City/Town
Incorporated Area
Lake
Wildlife Management Area



Kentucky UNBRIDLED SPIRIT

Division of Planning

State Primary Road System
WASHINGTON COUNTY

2 0 2 4 6 Miles

3 0 3 6 9 Kilometers

Last map revision: August 2005

Road centerlines collected using GPS technology
Kentucky State Plane Coordinate System (NAD-83)

www.transportation.ky.gov/planning/index2.asp

State Primary Road System WASHINGTON COUNTY KENTUCKY 115

Appendix C – Collision Data

INVESTIGAT	COUNTY_NAM	ROADWAY_NU	ROADWAY_NA	ROADV	ROAD	LATITUDE1	LONGITUDE1	MILEPOINT_	COLLISION1	TIME	INTERSECT1	INTEF	UNITS_INVO	MOTOR_VEHI	KILLED	INJURED	WEATHER	ROADWAY_C	DIRECTION1	MANNER_OF1	LIGHT_CON1
BARDSTOWN POLICE DEPARTMENT	090	US0150	SPRINGFIELD	RD	E	37.76310000	-85.34870000	7.4730	3/22/2009	0335			1	1	0	0	CLEAR	DRY	COLLISION WITH FIXED OBJECT NON - INTERSECTION - FIRS	SINGLE VEHICLE	DARK-HWY NOT LIGHTED
NELSON COUNTY SHERIFF DEPT.	090	US0150	SPRINGFIELD	RD		37.76320000	-85.34740000	7.5420	12/21/2007	0208			2	2	0	1	RAINING	WET	SIDESWIPE COLLISION - OPPOSITE DIRECTION	SIDESWIPE-OPPOSITE DIRECTION	DARK-HWY NOT LIGHTED
NELSON COUNTY SHERIFF DEPT.	090	US0150	SPRINGFIELD	RD		37.76320000	-85.34710000	7.5580	4/7/2009	1514			1	1	0	0	CLOUDY	DRY	COLLISION WITH FIXED OBJECT NON - INTERSECTION - FIRS	SINGLE VEHICLE	DAYLIGHT
NELSON COUNTY SHERIFF DEPT.	090	US0150	SPRINGFIELD	RD		37.76320000	-85.34530000	7.6650	6/21/2009	1440			2	2	0	0	CLEAR	DRY	REAR END IN TRAFFIC ONE VEHICLE STOPPED	REAR END	DAYLIGHT
KY STATE POLICE, POST 15	115	US0150	BARDSTOWN	RD		37.76320000	-85.34480000	0.0190	11/25/2009	2018			2	2	0	2	CLOUDY	DRY	1 VEHICLE ENTERING/LEAVING ENTRANCE	ANGLE	DARK-HWY NOT LIGHTED
WASHINGTON CTY SHERIFF DEPT	115	US0150	BARDSTOWN	RD		37.76320000	-85.34430000	0.0500	12/20/2008	1810	CROAKES STATION	RD	2	2	0	0	CLOUDY	DRY	OPPOSING LEFT TURN	OPPOSING LEFT TURN	DARK-HWY NOT LIGHTED
WASHINGTON CTY SHERIFF DEPT	115	US0150	BARDSTOWN	RD		37.76320000	-85.34430000	0.0500	12/4/2009	1910			2	2	0	0	CLEAR	DRY	1 VEHICLE ENTERING/LEAVING ENTRANCE	ANGLE	DARK-HWY NOT LIGHTED
KY STATE POLICE, POST 15	115	US0150	BARDSTOWN	RD		37.76330000	-85.34370000	0.0870	11/11/2009	1600			1	1	0	0	CLOUDY	DRY	OCCUPANT FELL FROM MOVING VEHICLE	SINGLE VEHICLE	DAYLIGHT
KY STATE POLICE, POST 15	115	US0150	BARDSTOWN	RD		37.76320000	-85.34310000	0.1210	4/20/2009	1619	CONNOR	RD	2	2	0	0	CLEAR	DRY	REAR END - OTHER	REAR END	DAYLIGHT
WASHINGTON CTY SHERIFF DEPT	115	US0150	BARDSTOWN	RD		37.76320000	-85.34300000	0.1240	11/20/2009	1954			2	2	0	0	CLEAR	DRY	1 VEHICLE ENTERING/LEAVING ENTRANCE	ANGLE	DARK-HWY NOT LIGHTED
WASHINGTON CTY SHERIFF DEPT	115	US0150	BARDSTOWN	RD		37.76330000	-85.34300000	0.1260	5/16/2009	2159	CONNOR	RD	2	2	0	0	CLEAR	DRY	ANGLE COLLISION - ONE VEHICLE TURNING LEFT	ANGLE	DARK-HWY NOT LIGHTED

Crash Calculations for 0.3 mile Spots

County:	Nelson/Washington
Route:	US150
Period:	6/30/2007 to 5/31/2010

The procedure used below is from The Kentucky Transportation Center, University of Kentucky, College of Engineering, Research Report KTC-09-16/KSP2--09-1F titled "Analysis of Traffic Crash Data in Kentucky (2004-2008).

MV = Million Vehicles = $\frac{(AADT)*(No.\ of\ Years)*(365\ days/yr.)}{(10^6)}$

Functional Class Rate (See table Below)

RC = Critical Accident Rate = (Functional Class Rate) + K*sqrt((Functional Class Rate)/(MV)) + 1/(2*(MV))

Total Accident Rate = $\frac{Total\ Number\ of\ Accidents}{MVM}$

Critical Rate Factor = $\frac{Total\ Accident\ Rate}{RC}$

INPUT

Number of Years = 3

K = 2.576

*****Functional Class Rates are for 2004 thru 2008*****

Functional Class Rate Table 3-Year Period		
Highway Type	Rural Acc. Rates	Urban Acc. Rates
One-Lane	0.74	
Two-Lane	0.64	0.94
Three-Lane	0.42	1.44
Four-Lane Divided	0.32	0.88
Four-Lane Undivided	0.69	1.48
Interstate	0.15	0.3
Parkway	0.18	0.31
All	0.44	0.82

Note: Crash rates are in terms of crashes per million vehicles.

INPUT					OUTPUT			
Begin Milepoint	End Milepoint	AADT	Functional Class Rate	Total No. Accidents	MV	RC	Total Acc. Rate	Critical Rate Factor
Nelson Co. 7.512	Washington Co. 23.2	8430	0.64	10	9.23	1.37	1.1	0.79

Appendix D – KYTC's Common Geometric Practices for Rural Arterial Roads

COMMON GEOMETRIC PRACTICES
RURAL ARTERIAL ROADS (OTHER THAN FREEWAYS) (4)

		TRAFFIC VOLUME			
		UNDER 400 A.D.T.	400-1500 A.D.T.	1500-2000 A.D.T.	OVER 2000 A.D.T.
	DESIGN SPEED (6)	40-50 M.P.H.	40-70 M.P.H.	40-70 M.P.H.	40-70 M.P.H.
PAVEMENT WIDTH (FEET)	40 MPH	22	22	22	24
	45 MPH				
	50 MPH			24	
	55 MPH				
	60 MPH	24	24		
	65 MPH				
	70 MPH				
MINIMUM GRADED SHOULDER WIDTH (FT) (5)	ALL SPEEDS	4	6	6	8
MINIMUM CLEAR ROADWAY WIDTH OF NEW AND RECONSTRUCTED BRIDGES	ALL SPEEDS	APPROACH ROADWAY WIDTH			

MINIMUM RADIUS (FEET)	DESIGN SPEED	eMAX. 4%	eMAX. 6%	eMAX. 8%
	30 MPH	300	275	250
	35 MPH	420	380	350
	40 MPH	565	510	465
	45 MPH	730	660	600
	50 MPH	930	835	760
	55 MPH	1190	1065	965
	60 MPH	1505	1340	1205
	65 MPH	—	1660	1485
	70 MPH	—	2050	1820

NORMAL PAVEMENT CROSS SLOPES (3)	RATE OF CROSS SLOPE = 2%											
NORMAL SHOULDER CROSS SLOPES	EARTH = 8%							PAVED = 4%				
MAXIMUM GRADE (PERCENT)	M.P.H.	30	35	40	45	50	55	60	65	70	75	80
	LEVEL	-		5		4		3				
	ROLLING	-		6		5		4				
	MOUNTAIN	-		8	7		6		5			
MINIMUM STOPPING SIGHT DISTANCE (1)	(FEET)	200	250	305	360	425	495	570	645	730	820	910
MINIMUM PASSING SIGHT DISTANCE (2)	(FEET)	1090	1280	1470	1625	1835	1985	2135	2285	2480	2580	2680

(1) MINIMUM STOPPING SIGHT DISTANCES ARE BASED ON HEIGHT OF EYE OF 3.5 FT AND HEIGHT OF OBJECT OF 2.0FT. BOTH HORIZONTAL AND VERTICAL ALIGNMENTS ARE CONSIDERED.

(2) MINIMUM PASSING SIGHT DISTANCES ARE BASED ON HEIGHT OF EYE 3.5 FT AND HEIGHT OF OBJECT OF 3.5 FT. BOTH HORIZONTAL AND VERTICAL ALIGNMENTS ARE CONSIDERED.

(3) NORMAL PAVEMENT CROSS SLOPES ON BRIDGES SHALL BE 2%.

(4) FOR GUIDANCE ON FREEWAYS, REFER TO AASHTO, "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS", CURRENT EDITION.

(5) WIDEN 3 FT FOR GUARDRAIL.

(6) JUSTIFICATION FOR A DESIGN SPEED LESS THAN THE REGULATORY OR POSTED SPEED MUST BE DOCUMENTED AND AVAILABLE FOR REVIEW IN THE PROJECT FILES.

Appendix E – Existing Roadway Plans

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS

PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY

NELSON – WASHINGTON COUNTIES
F 222 (5)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	LAYOUT SHEET
2 - 2A	TYPICAL SECTIONS—SUMMARY OF QUANTITIES
	LIST OF STANDARD DRAWINGS
3.11	CURVE WIDENING, SUPER ELEVATION, ROCK SECTIONS
3.12	STANDARD STRUCTURES
3.13	MISCELLANEOUS STANDARDS
3.16	PRIVATE ENTRANCES & ROAD INTERSECTIONS
3.31	CEMENT CONCRETE PAVEMENT.
B.R.-5	GUARD RAIL
10-12	PLAN AND PROFILE SHEETS
13-14	DETAIL SHEETS
15	REFERENCE SHEETS
16-17	DRAINAGE SHEETS
18-69	CROSS SECTION SHEETS
41	BRIDGE SHEETS

NELSON – WASHINGTON CO. F 222(5)
BARDSTOWN - SPRINGFIELD

FED. ROAD DIST. NO.	STATE		FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.		1955	1	69

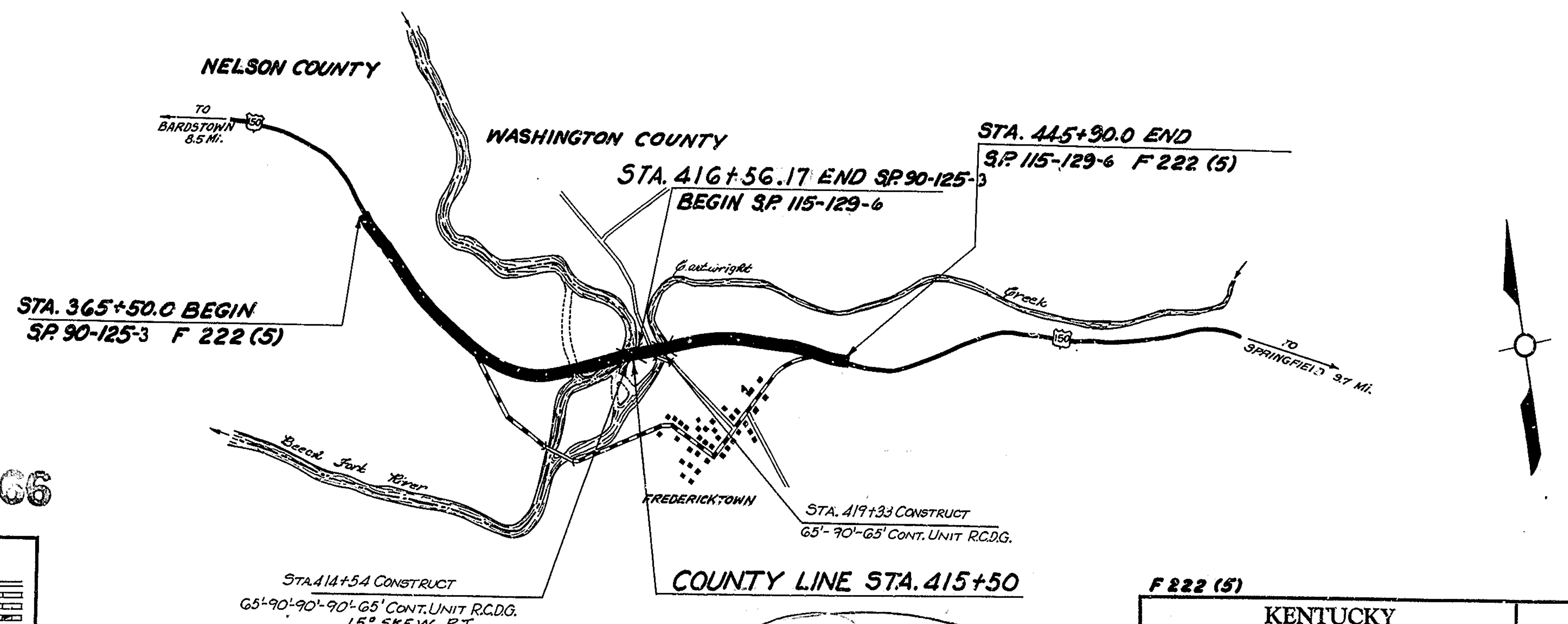
SUBSECTIONS OF CONTRACT FOR

NELSON COUNTY
F 222 (5) SP 90-125-3

90-125-3CA	Grade, Drain, and Surface from Sta. 365+50 to Sta. 416+56.17
90-125-3B1	Bridge (Triple 14'x11'x43' R.C. Culvert – 0° skew) at Sta. 406+00
90-125-3B2	Bridge (65'-90'-90'-90'-65' Cont. R.C.D.G. Spans – 15° skew) at Sta. 414+54

WASHINGTON COUNTY
F 222 (5) SP 115-129-6

115-129-6CA	Grade, Drain and Surface from Sta. 416+56.17 to Sta. 445+90
115-129-6B1	Bridge (65'-90'-65' Cont. R.C.D.G. Spans – 0° skew) at Sta. 419+33

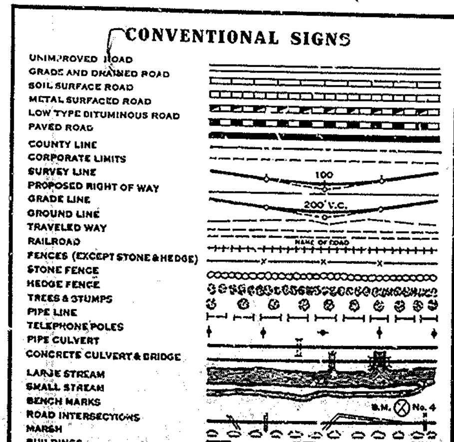


MICROFILMED-66

X-Sections sent to Dist office 7-9-56 D.H.

GRAPHIC SCALE IN feet
0 1000 2000 3000 4000

LAYOUT MAP



	S.P. 90-125-3	S.P. 115-129-6	TOTAL F 222 (5)
GROSS LENGTH ___ LIN. FT. ___ MILES	GROSS LENGTH 5106.2' LIN. FT. 0.967 MILES	GROSS LENGTH 2933.8' LIN. FT. 0.555 MILES	GROSS LENGTH 8040.0 LIN. FT. 1.522 MILES
ADDED/DEDUCTED FOR EQUALITIES ___ LIN. FT.	ADDED/DEDUCTED FOR EQUALITIES 0 LIN. FT.	ADDED/DEDUCTED FOR EQUALITIES 0 LIN. FT.	ADDED/DEDUCTED FOR EQUALITIES 0 LIN. FT.
NET LENGTH ___ LIN. FT. ___ MILES	NET LENGTH 5106.2' LIN. FT. 0.967 MILES	NET LENGTH 2933.8' LIN. FT. 0.555 MILES	NET LENGTH 8040.0 LIN. FT. 1.522 MILES
NOT INCLUDED	NOT INCLUDED	NOT INCLUDED	NOT INCLUDED
RAILROAD CROSSINGS NO. ___ LIN. FT.	RAILROAD CROSSINGS NO. ___ LIN. FT.	RAILROAD CROSSINGS NO. ___ LIN. FT.	RAILROAD CROSSINGS NO. ___ LIN. FT.
BRIDGES ___ LIN. FT.	BRIDGES ___ LIN. FT.	BRIDGES ___ LIN. FT.	BRIDGES ___ LIN. FT.

F 222 (5)

KENTUCKY DEPARTMENT OF HIGHWAYS
COUNTY OF
NELSON – WASHINGTON
BARDSTOWN - SPRINGFIELD
ROAD
STATE PROJECT No. 90-125-3 & 115-129-6
DATE 1955

SURVEYED	1954 BY A. J. Fuller	
SURVEY APPROVED 11-7	1955 BY J. J. Pellitte	CHIEF LOCATING ENGINEER
PLAN CHECKED 10-20	1955 BY L. C. Olmsworth	CHIEF DRAFTSMAN
SURVEY AND PLAN APPROVED 11-7	1955 BY [signature]	DIRECTOR OF DESIGN
SURVEY AND PLAN APPROVED 11/7	1955 BY D. H. Bray	STATE HIGHWAY ENGINEER

APPROVED 11/7 1955
BY: [signature]
COMMISSIONER OF HIGHWAYS

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
RECOMMENDED FOR APPROVAL:
DISTRICT ENGINEER DATE
APPROVED:
DIVISION ENGINEER DATE

SENT FOR FEDERAL APPROVAL / RECORD PLANS / CONSTRUCTION PLANS — KC. SH. DATE

Filed 11-7-55

REVIEWED BY ___ DIVISION OF CONSTRUCTION

PLANS TRACED BY: FIELD
PLANS COMPLETED BY: A.J.G. E.O.W.
PLANS CHECKED BY: BOUTH
FINAL CHECK BY: E.B.B.
CHECKED FOR DESIGN: K.R.

LETTING DATE 11-30-55 Copy file 7-9-56

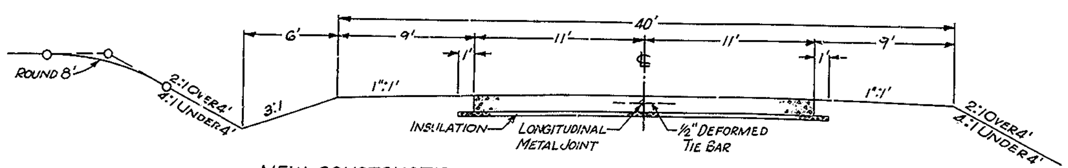
SP 90 – 125 – 3

Linen cross-section sheets are suitable for final quantities.

NELSON CO. & WASHINGTON CO. F 222(3)
BARDSTOWN-SPRINGFIELD RD.

FED. ROAD DIST. NO.	STATE		FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.		1953	2	69

TYPICAL SECTION



NEW CONSTRUCTION: Grade, Drain, and Surface, USING

CEMENT CONCRETE PAVEMENT

3" Insulation — Compacted Crushed Limestone Size No. 6 and No. 10 (50% each).
8" Surface — Uniform Cement Concrete Pavement. (Type C or D for mix.)

NOTES FOR CEMENT CONCRETE PAVEMENT

Coarse aggregate shall be limestone.

Transverse joints will not be required except at end of runs, where butt type construction joints with load transfer will be required, and at bridges where expansion joints will be required as indicated in these plans.

Base plates (subgrade or sand plates) will not be required with load transfer installations.

All load transfer devices must be approved by the Department and the Bureau of Public Roads before installation.

Standard longitudinal metal joints with ties will be required.

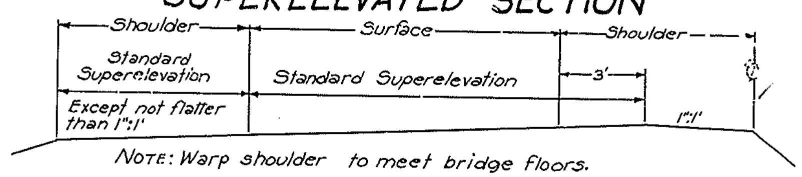
All joints shall be filled with hot poured rubber or a cold applied mastic type crack and joint filler compound.

Subgrade paper will not be required.

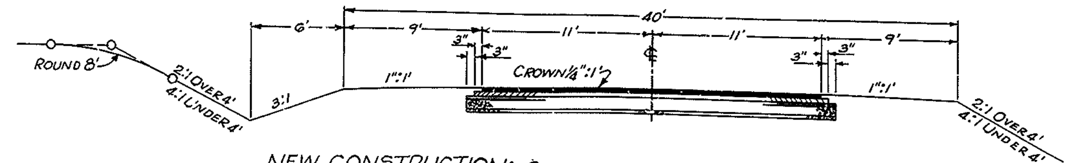
NOTE: The 3" insulation course shall be laid in two courses on the grade prepared and shaped generally to the cross-section of the bottom of the pavement. Sufficient screenings shall be held in reserve (approximately 50#/S.Y.) to be applied to the top of the insulation course for final shaping ahead of the paving operations. The insulation course shall be watered and compacted in conformity with the specifications for waterbound macadam, Article 3.7.3. Final watering and rolling of screenings will be required as described for preparation of subgrade, Article 2.8.2-(c), except that screenings shall be substituted for earth in the removal of irregularities.

On all but the final shaping of screenings, the Contractor, if he elects, may use a pneumatic roller of a type approved by the Engineer, instead of a steel wheeled roller.

SUPERELEVATED SECTION



NOTE: Warp shoulder to meet bridge floors.



NEW CONSTRUCTION: Grade, Drain, and Surface, USING

BITUMINOUS CONCRETE SURFACE CLASS I

2" Insulation — Compacted Crushed Limestone Size No. 6 and No. 10 (50% each).
7" Sub Base — Compacted Crushed Limestone Size No. 2 Waterbound. Construct in two 3½" courses. 30% (of 7" compacted) additional Limestone screenings Size No. 10.
3" Base — Bituminous Concrete Base.
Prime (Tack) — 0.10 Gal. per Sq. Yd. Asphalt Cement R.A.C.-5. Apply by fogging.
1½" Binder — Bituminous Concrete Binder, Type B.
Prime (Tack) — 0.10 Gal. per Sq. Yd. Asphalt Cement R.A.C.-5. Apply by fogging.
1¼" Surface — Bituminous Concrete Surface, Type B.

Prime (Tack) between Base and Binder and between Binder and Surface to be used if directed on construction.

Asphalt Cement R.A.C.-5 shall be used in all Class "I" Mixtures.

Fine aggregate used in Class "I" Bituminous Concrete Surface Type B shall be natural sand meeting the requirements of Article 7.3.4-D-2 of the Departments 1945 Standard Specifications.

Side forms may be eliminated on all base courses except the first course, provided results satisfactory to the Engineer are obtained. On courses where side forms are not used the base stone shall be spread with an approved type self-propelled mechanical stone spreader, and a 2' minimum width earth shoulder placed firmly against the loose stone prior to the initial rolling.

The 2" insulation course shall be laid in two applications. The first application shall be Size No. 6 stone and the second Size No. 10. The course shall be shaped to the cross-section of the pavement. The insulation course shall be watered and compacted in conformity with the specifications for water bound macadam Article 3.7.3. On all but the final rolling of the screenings the Contractor may use a pneumatic roller of a type approved by the Engineer.

BASIS FOR CLASS "I" ESTIMATE

COURSE	LIMESTONE
	POUNDS PER SQ. YD.
1¼"	126
1½"	151
3"	303

GENERAL SUMMARY

SHEET NO.	STATION TO STATION	CLEARING AND GRUBBING	EXCAVATION: ROADWAY	EXCAVATION: STRUCTURE: UNCLASSIFIED	STRUCTURE: COMMON	STRUCTURE: SOLID ROCK	OVERHAUL	REMOVING: HEADWALL	REMOVING: STONE MASONRY	REMOVING:	REMOVING: PIPE	RELAYING PIPE	PROJECT MONUMENT	RIGHT OF WAY MARKER	① WATER	FINAL DRESSING	CONCRETE: CLASS "A"	CONCRETE: CLASS "D"	STEEL REINFORCEMENT	② BEAM TYPE GUARD RAIL	STRUCTURAL STEEL	REMOVAL OF EXISTING STRUCTURE		SEEDING & PROTECTION WITH BLOWN-ON BITUMINOUS TREATED STRAW MULCH.	AGRICULTURAL GROUND LIMESTONE	12-12-12 GRANULATED COMMERCIAL FERTILIZER	④ ENTRANCE PIPE 15"	ENTRANCE PIPE 18"	ENTRANCE PIPE 24"
UNIT TO BID ON		ACRE	CU. YD.				YD. STA.	EACH	CU. YD.		LIN. FT.		EACH		100 GAL.	100' STA.	CU. YD.		LB.	LIN. FT.	LB.	LUMP SUM		SQ. YD.	TON	TON	LIN. FT.		
	S.P. 90-125																												
10	365+50 to 400+50	13.51	73308				11567	1	12		56		1	22															
11	400+50 to 415+56.17	7.04	18460				224006							10														32	
	ADDED FOR CONTINGENCIES		7300																										24
	FROM DRAINAGE SUMMARIES		101	305	900	130							1				1595.2	37.7	302451		21755								
	TOTAL NELSON CO.	20.55	③	305	900	130	235573	1	12		56	24	2	32	4032	47.0	1595.2	37.7	302451	7350	21755			52815	23.8	4.8		32	24
	S.P. 115-129																												
11	415+56.17 - 420+44.5	4.02	15204				59833							5															
12	420+44.5 to 445+90	8.33	4131				527614	1			3		1	17															
	ADDED FOR CONTINGENCIES		1500																								24		64
	FROM DRAINAGE SUMMARIES		11	5	500	150											717.9	22.4	135478		11743	1							
	TOTAL WASHINGTON CO.	12.35	③	5	500	150	587447	1			3		1	22	1646	27.1	717.9	22.4	135478	3900	11743	1		36480	16.4	3.3	24		64
	TOTAL F 222(3)	32.90	③	310	1400	280	823020	2	12		59	24	3	54	5618	74.1	2313.1	60.1	437929	11250	33498	1		89295	40.2	8.1	24	32	88

① Estimated 10 Gallon per Cubic Yard of common excavation used in embankment.

② Beam Type Guard Rail shall be installed where directed on construction, in conformity with the requirements of Standard Drawing B.R.-5.

③ See Surfacing Quantities for Roadway Excavation, and note that quantities have been adjusted to reflect the difference in design thickness of the two types of surfaces.

④ Alternate types of Entrance Pipe.
Reinforced Concrete, Standard Strength.
Corrugated Metal.

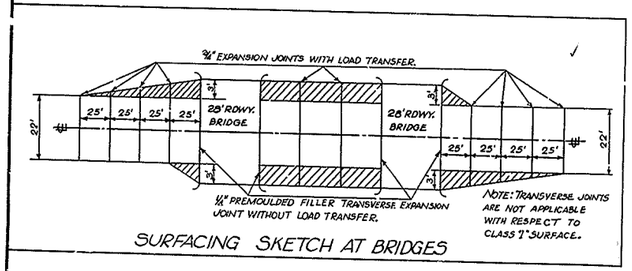
SP 90 - 125 - 3

CULVERT PIPE SUMMARY

SHEET NO.	STATION	SKEW	① CULVERT PIPE 18"	① CULVERT PIPE 24"	CLASS "A" CONCRETE	EXCAVATION STRUCTURE UNCLASSIFIED.	EXCAVATION ROADWAY (DITCH)	REMARKS
UNIT TO BID ON			LIN. FT.		CU. YD.	CU. YD.		
S.P. 90-125								
10	366+00	30°	64		3.17	46	10	1-STD, 1-ELL.
	370+22	30°	64		3.17	30	8	1-STD, 1-ELL.
	375+35	30°		68	4.23	45	18	1-STD, 1-ELL.
	379+50	30°	64		3.17	32	18	1-STD, 1-ELL.
	383+50	30°	68		3.17	32	16	1-STD, 1-ELL.
	387+00	30°	68		3.17	30	16	1-STD, 1-ELL.
	390+75	30°	112		3.17	70	5	1-STD, 1-ELL.
	394+00	30°	140		2.98	20	10	2-STD.
TOTAL NELSON CO.			580	68 ②	26.23 ②	305 ②	101	
S.P. 115-129								
12	443+00		48		2.98	3	1	2-STD.
	446+66			8	2.00	2	—	1-STD.
TOTAL WASHINGTON CO.			48	8 ②	4.98 ②	5 ②	1	
TOTAL F 222(5)			628	76 ②	31.21 ②	310 ②	102	

②Included in general summary.

①Alternate types of Culvert Pipe,
- Reinforced Concrete, Standard Strength.
- Triple Strength Vitrified Clay.
- Cast Iron.



SURFACING SKETCH AT BRIDGES

GENERAL NOTES

All curves to be banked and widened according to Standards or as directed. Superelevation for special cases to be authorized by the District Engineer.

The Contractor is not to order material for drainage structures until the quantities have been checked by the Engineer.

For typical sections in solid rock cuts, see Standard Drawings on Sheet No. 3.11 of these plans.

Drawings for standard warning signs for the protection of traffic will be furnished by the District Engineer.

Extra compaction in conformity with Art. 2.5.0 of the Departments 1945 Standard Specifications will be required throughout the project.

Guard Rail Posts and Cable to be removed and stored on right-of-way as directed by the Engineer.

Low-bearing soils, identified herein as Soils No. 1, 2, and 3, shall not be used in the top 12" of subgrade in fill sections, and when encountered within the top 12" of subgrade in cut sections shall be removed and replaced with Selected Soils having a C.B.R. value of 8.2 or greater, identified herein as Soils No. 4, 5, 6, and 7.

The Standard Specifications for State and Federal Road and Bridge Construction, edition of 1945, as amended by the amendments published in Pamphlet No. 3 of Approved Provisions, Specifications, and Amendments, with the following Provisions, Special Specifications and Amendments, will apply on this project.

Amendment	No. 34-R	Bituminous Fiber or Bituminous Cork Expansion Joint Filler.
Amendment	No. 36	Asphalt Cement.
Amendment	No. 39-R	Measurement of Bituminous Materials.
Amendment	No. 41	Composition of Mixtures (Bituminous).
Amendment	No. 42-R	Grading Requirements for Aggregates.
Emergency Provision	No. 13	Deferment or Cancellation.
Special Specification	No. 36-R-2	Membrane Curing. (May be used on Cement Concrete Pavement Only)
Special Specification	No. 43-R-1	Hot-Poured Rubber-Type Crack and Joint Filler Compound.
Special Specification	No. 46-R-1	Cold-Applied Mastic-Type Crack and Joint Sealer Compound.
Special Specification	No. 49-R	Grass and Agricultural Seed for Seeding.
Special Specification	No. 52	Roadside Improvement.
Special Specification	No. 45-R	Surface Finish Exposed Concrete.

EROSION CONTROL NOTES.

Required Contract Provisions for Federal Aid Primary, Urban, and Interstate Projects.

The road may be closed to through traffic.

BRIDGE AND CULVERT SUMMARY

SHEET NO	STATION	SIZE	SKEW	INLET ELEVATION	INLET LENGTH	OUTLET ELEVATION	OUTLET LENGTH	GRADE	DRAWING NUMBER	STANDARD OR SPECIAL	FILL ON CULVERT	CONCRETE CLASS "A"	CONCRETE CLASS "D"	STEEL REINFORCEMENT	STRUCTURE EXCAVATION COMMON	STRUCTURE EXCAVATION SOLID ROCK	STRUCTURAL STEEL	REMOVE EXISTING STRUCTURE	EXISTING STRUCTURE		CHANNEL CHANGE
UNIT TO BID ON												CU. YD.		LB.	CU. YD.		LB.	LUMP SUM			
S.P. 90-125																					
11	406+00	Triple 14'-11" x 13' R.C. Culvert.		372.5	21'-6"	372.2	21'-6"	387.65	12240	Spcl.	3.4'	335.4		470881	125						
11	⑤ 414+54	65'-90°-90°-90°-65' Cont. Unit R.C.D.G. Bridge	15°						12238	Spcl.		1233.6	37.7	255363	775	130	21755				See Road Plans
TOTAL NELSON CO.												④ 1569.0	④ 37.7	④ 302451	④ 900	④ 130	21755				See Road Plans
S.P. 115-129																					
11	⑤ 419+33	65'-90°-65' Cont. Unit R.C.D.G. Bridge							12239	Spcl.		712.9	22.4	135478	500	150	11743	1	83'-62.5'-78'-67½' Truss Spans Wet Stone Mas. Piers & Abuts.		See Road Plans
TOTAL WASHINGTON												④ 712.9	④ 22.4	④ 135478	④ 500	④ 150	11743				
TOTAL F 222 (5)												④ 2281.9	④ 60.1	④ 437929	④ 1400	④ 280	④ 33498	④ 1			

④Included in general summary.

⑤Rock fills to be made around abutments, as shown on bridge plans and indicated in distribution on plan sheets No. 11 and No. 12.

NELSON CO. & WASHINGTON CO. F 222(5)
BARDSTOWN-SPRINGFIELD RD.

FED. ROAD DIST. NO.	STATE		FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.		1955	2A	69

FOR SURFACING

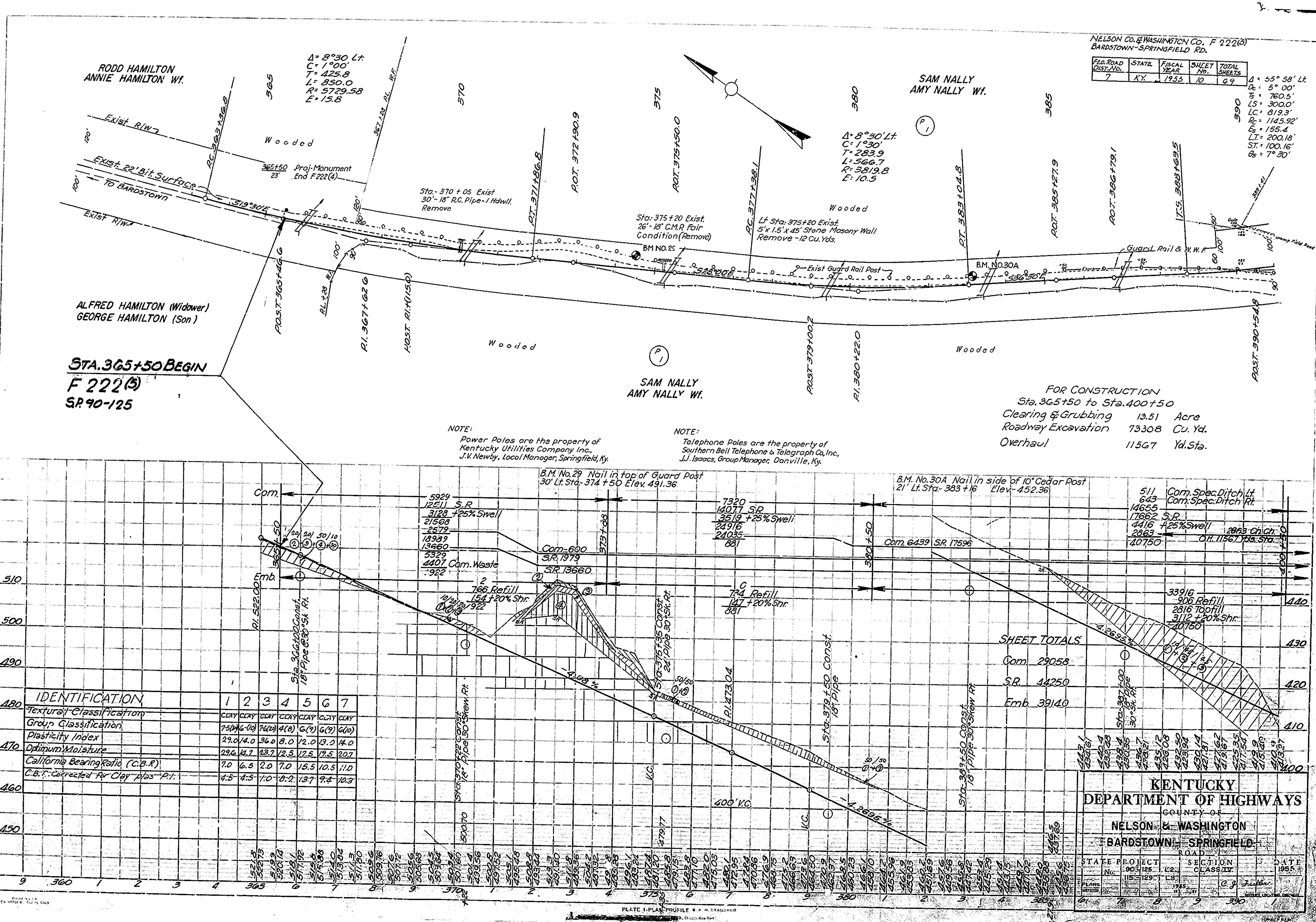
	LIN. FT.	SQ. YDS.	MILES
S.P. 90-125			
GROSS LENGTH	5106.2		0.967
NET LENGTH 404.3' DEDUCTED FOR BRIDGE	4701.9		0.890
ADDED FOR CURVE WIDENING AND APPROACHES		834 @ 22' 849 @ 22.5' 864 @ 23' 894 @ 24'	
TOTAL AREA NELSON COUNTY		12327 @ 22' 12604 @ 22.5' 12880 @ 23' 13432 @ 24'	
S.P. 115-129			
GROSS LENGTH	2933.8		0.555
NET LENGTH 224.0' DEDUCTED FOR BRIDGE	2709.8		0.513
ADDED FOR APPROACHES		2685 @ 22' 2752 @ 22.5' 2820 @ 23' 2954 @ 24'	
TOTAL AREA WASHINGTON COUNTY		9310 @ 22' 9326 @ 22.5 9744 @ 23' 10180 @ 24'	
TOTAL PROJECT F 222(5)			
GROSS LENGTH	8040.0		1.522
NET LENGTH G28.3' DEDUCTED FOR BRIDGES	7411.7		1.403
ADDED FOR CURVE WIDENING AND APPROACHES		3519 @ 22' 3601 @ 22.5' 3684 @ 23' 3848 @ 24'	
TOTAL AREA F 222 (5)		21637 @ 22' 22130 @ 22.5' 22624 @ 23' 23612 @ 24'	

SURFACING QUANTITIES

ITEM	UNIT	S.P. 90-125	S.P. 115-129	TOTAL F 222(5)
CEMENT CONCRETE PAVEMENT				
Crushed Limestone Size No. 6 for Insulation.	Ton	960	730	1690
Crushed Limestone Size No. 10 for Insulation.	Ton	960	730	1690
8" Uniform Cement Concrete Pavement.	Sq. Yd.	12327	9310	21637
Crushed Limestone Size No. 610 for Entrance & Mail Turnouts.	Ton	325	160	③ 485
Roadway Excavation	Cu. Yd.	99055	20794	119849
BITUMINOUS CONCRETE SURFACE CLASS I				
Crushed Limestone No. 2	Ton	4295	3245	7540
Crushed Limestone No. 6	Ton	615	465	1080
Crushed Limestone No. 10	Ton	1905	1435	3340
Bituminous Concrete Base	Ton	1950	1480	3430
Bituminous Concrete Binder, Type B	Ton	950	720	1670
Bituminous Concrete Surface, Type B	Ton	775	590	1365
Asphalt Cement, P.A.C.-5	Gal.	2550	1930	4480
Crushed Limestone Size No. 610 for Entrance & Mail Turnouts.	Ton	325	160	③ 485
Roadway Excavation	Cu. Yd.	99802	20894	120694
Bituminous Conc. Binder Type B and/or Surf. Type B (for leveling)	Ton	160	120	280

③Includes 140 tons for maintenance of local traffic.

SP 90 - 125 - 3



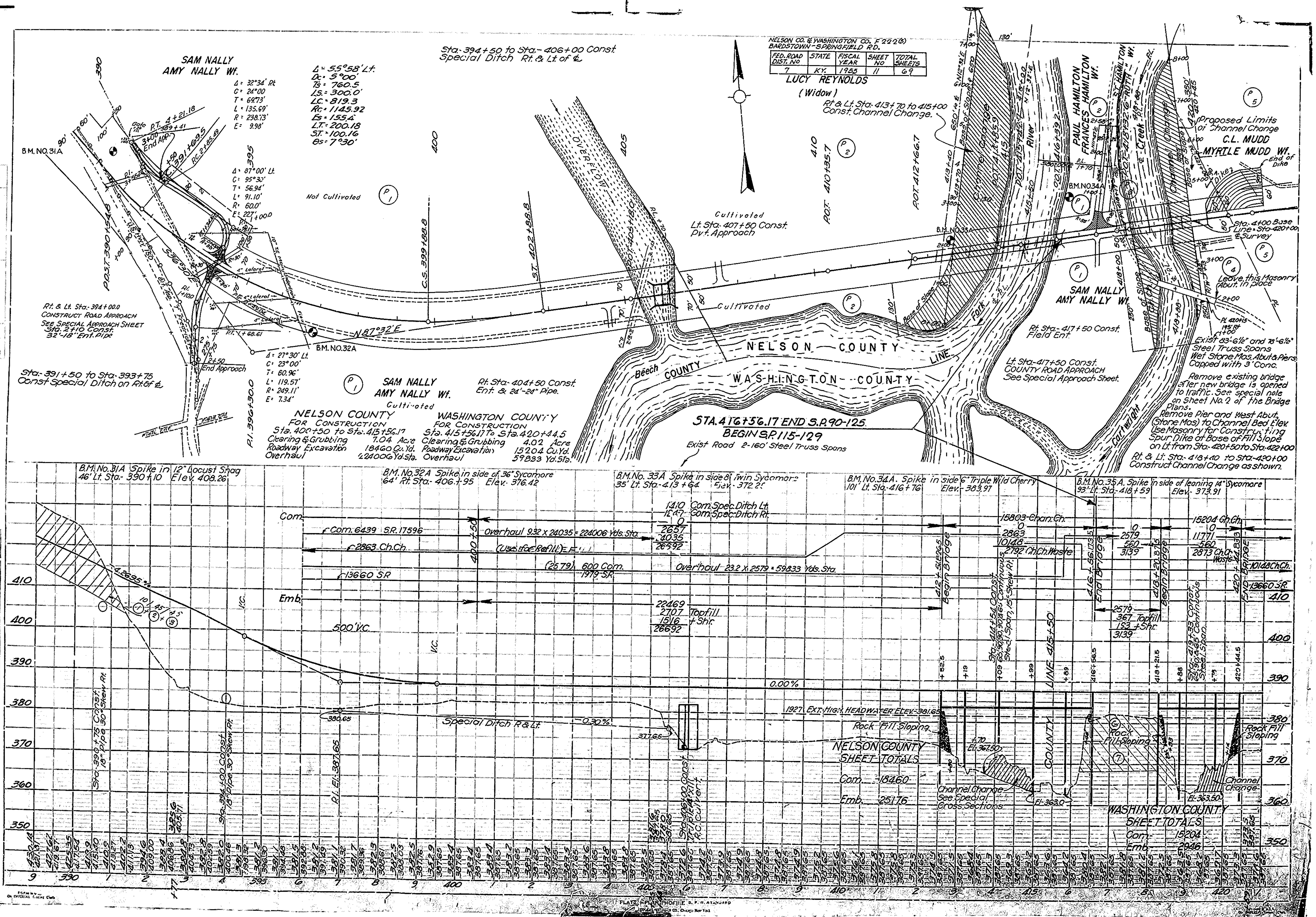
NELSON CO. & WASHINGTON CO. F 222(5)
BARDSTOWN-SPRINGFIELD RD.
FED. ROAD DIST. NO. 7 | STATE KY. | FISCAL YEAR 1955 | SHEET NO. 10 | TOTAL SHEETS 69
RODD HAMILTON
ANNIE HAMILTON Wf.
Δ = 8°30' Lt.
C = 1°00'
T = 425.8
L = 850.0
R = 5729.58
E = 15.8
SAM NALLY
AMY NALLY Wf.
Δ = 8°30' Lt.
C = 1°30'
T = 283.9
L = 566.7
R = 3819.8
E = 10.5
Δ = 55° 58' Lt.
Dc = 5° 00'
Ts = 760.5'
LS = 300.0'
LC = 819.3'
Rc = 1145.92'
Es = 155.4
L.T. = 200.18'
S.T. = 100.16'
θs = 7° 30'
Exist. R/W
Exist. 22' Bit Surface
TO BARDSTOWN
Wooded
365+50 Proj. Monument End F 222(4)
Sta. 370 + 05 Exist. 30" - 18" R.C. Pipe - 1 Hdwll. Remove
Sta. 375 + 20 Exist. 26' - 18" C.M.P. Fair Condition (Remove)
Lt. Sta. 375+20 Exist. 5' x 1.5' x 45' Stone Masonry Wall Remove - 12 Cu. Yds.
B.M. NO. 29
B.M. NO. 30A
Exist. Guard Rail Post
Guard Rail & W. W. F.
P.C. 363+36.8
P.O.S.T. 365+46.6
P.I. 367+62.0
P.O.S.T. 371+15.0
P.T. 371+86.8
P.O.T. 372+90.9
P.O.T. 375+50.0
P.C. 377+38.1
P.O.S.T. 379+00.2
P.I. 380+22.0
P.T. 383+04.8
P.O.T. 385+27.9
P.O.T. 386+79.1
T.S. 388+69.5
P.O.S.T. 390+54.8
ALFRED HAMILTON (Widower)
GEORGE HAMILTON (Son)
STA. 365+50 BEGIN
F 222(5)
S.P. 90-125
FOR CONSTRUCTION
Sta. 365+50 to Sta. 400+50
Clearing & Grubbing 13.51 Acre
Roadway Excavation 73308 Cu. Yd.
Overhaul 11567 Yd. Sta.
NOTE: Power Poles are the property of Kentucky Utilities Company Inc., J.V. Newby, Local Manager, Springfield, Ky.
NOTE: Telephone Poles are the property of Southern Bell Telephone & Telegraph Co. Inc., J.J. Isaacs, Group Manager, Danville, Ky.
B.M. No. 29 Nail in top of Guard Post 30' Lt. Sta. 374 + 50 Elev. 491.36
B.M. No. 30A Nail in side of 10" Cedar Post 21' Lt. Sta. 383 + 16 Elev. 452.36
Com.
Emb.
5929
1251 S.R.
3128 +25% Swell
21568
2579
18989
13660
5329
4407 Com. Waste
922
Com. 600
S.R. 1979
S.R. 13660
766 Refill
154 +20% Shr.
922
7320
14077 S.R.
3519 +25% Swell
24916
24035
881
784 Refill
147 +20% Shr.
881
Com. 6439 S.R. 17596
511 Com. Spec. Ditch Lt.
643 Com. Spec. Ditch Rt.
14655
17662 S.R.
4416 +25% Swell
2863
40750
2863 Ch. Ch.
O.H. 11567 Yd. Sta.
33916
906 Refill
2816 Topfill
3112 +20% Shr.
40750
SHEET TOTALS
Com. 29058
S.R. 44250
Emb. 39140
P.I. 522.00
Sta. 366+02 Const. 18" Pipe @ 30° Sk. Rt.
Sta. 370+22 Const. 18" Pipe @ 30° Skew Rt.
Sta. 375+35 Const. 24" Pipe 30° Sk. Rt.
Sta. 379+50 Const. 18" Pipe
Sta. 383+50 Const. 18" Pipe 30° Skew Rt.
Sta. 387+00 18" Pipe 30° Sk. Rt.
P.I. 473.04
-4.98%
-4.2695%
400' V.C.
V.C.
510
500
490
480
470
460
450
440
430
420
410
400
9 360 1 2 3 4 365 6 7 8 9 370 1 2 3 4 375 6 7 8 9 380 1 2 3 4 385 6 7 8 9 390 1

IDENTIFICATION	1	2	3	4	5	6	7
Textural Classification	CLAY	CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
Group Classification	7-5(20)	6-(10)	7-6(20)	4(8)	6(9)	6(9)	6(10)
Plasticity Index	29.0	14.0	36.0	8.0	12.0	13.0	14.0
Optimum Moisture	29.6	14.7	23.7	12.5	17.5	19.5	20.7
California Bearing Ratio (C.B.R)	7.0	6.5	2.0	7.0	15.5	10.5	11.0
C.B.R. Corrected for Clay plas P.I.	4.5	4.5	1.0	8.2	13.7	9.4	10.3

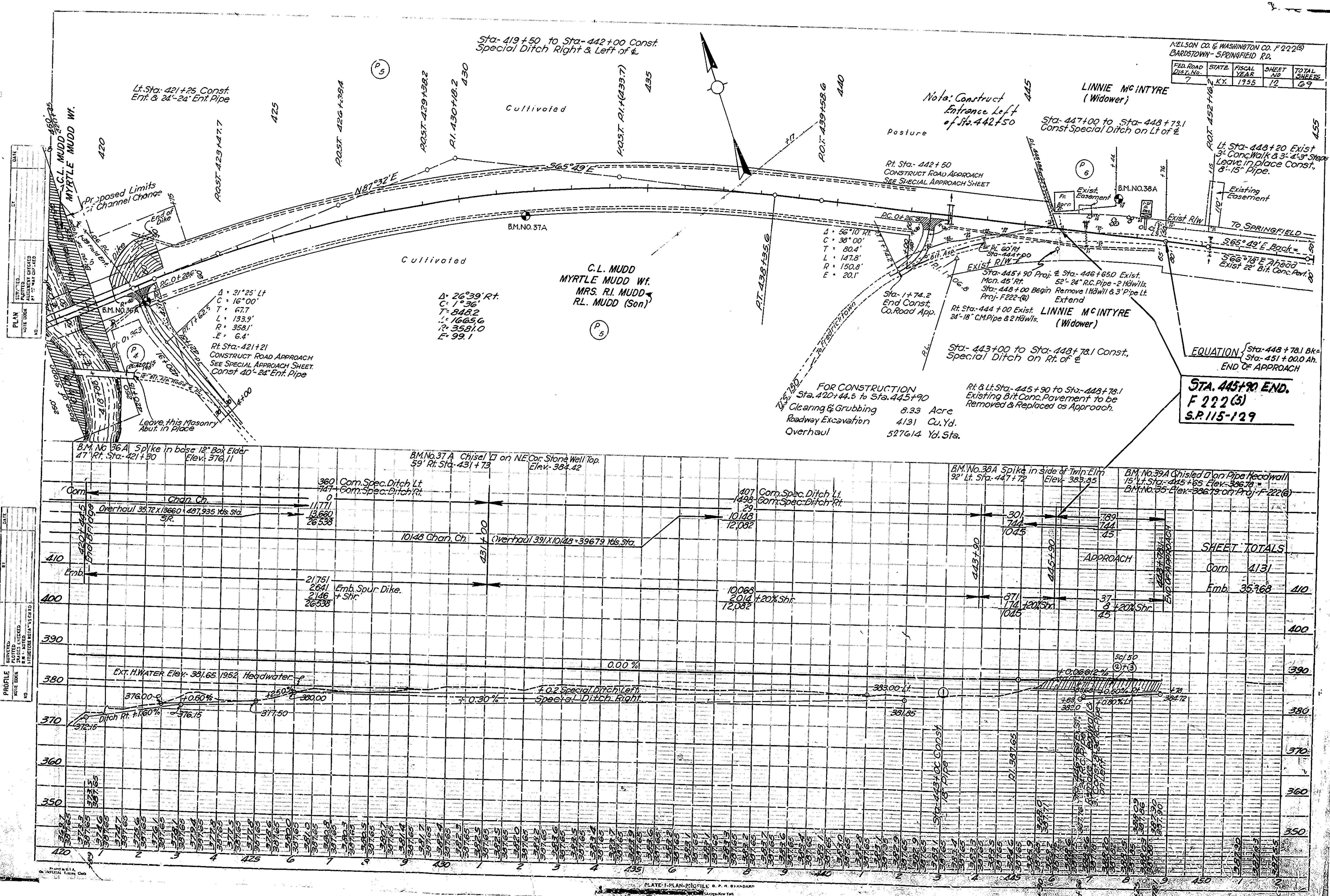
KENTUCKY
DEPARTMENT OF HIGHWAYS
COUNTY OF NELSON & WASHINGTON
BARDSTOWN - SPRINGFIELD ROAD
STATE PROJECT No. 90-125, 115-129 | SECTION L2, L3 CLASS IV | DATE 1955

PLATE 1 - PLAN-PROFILE

SP 90 - 125 - 3


NELSON CO. & WASHINGTON CO. F 222(6)
BARDSTOWN-SPRINGFIELD RD.
FED. ROAD DIST. NO | STATE | FISCAL YEAR | SHEET NO | TOTAL SHEETS
7 | KY. | 1955 | 11 | 69
SAM NALLY
AMY NALLY Wf.
Sta.-394+50 to Sta.-406+00 Const. Special Ditch Rt. & Lt. of ℄
LUCY REYNOLDS
(Widow)
Rt. & Lt. Sta. 413+70 to 415+00 Const. Channel Change.
PAUL HAMILTON
FRANCES HAMILTON Wf.
Proposed Limits of Channel Change
C.L. MUDD
MYRTLE MUDD Wf.
B.M. NO. 31A
B.M. NO. 32A
B.M. NO. 33A
B.M. NO. 34A
B.M. NO. 35A
Not Cultivated
Cultivated
Lt. Sta. 407+50 Const. Pvt. Approach
OVERFLOW
Sta.- 4+00 Base Line - Sta.-420+00 ℄ Survey
Leave this Masonry Abut. in place
Rt. & Lt. Sta.- 394+00.0 Construct Road Approach
See Special Approach Sheet
Sta.- 391+50 to Sta.- 393+75 Const. Special Ditch on Rt. of ℄
N 87°32' E
NELSON COUNTY
WASHINGTON COUNTY
COUNTY LINE
Beech Fork
Rt. Sta.- 404+50 Const. Ent. & 24'-24" Pipe.
Rt. Sta.- 417+50 Const. Field Ent.
Lt. Sta.- 417+50 Const. COUNTY ROAD APPROACH
See Special Approach Sheet.
NELSON COUNTY FOR CONSTRUCTION
Sta. 400+50 to Sta. 415+56.17
Clearing & Grubbing 7.04 Acre
Roadway Excavation 18460 Cu. Yd.
Overhaul 224006 Yd. Sta.
WASHINGTON COUNTY FOR CONSTRUCTION
Sta. 415+56.17 To Sta. 420+44.5
Clearing & Grubbing 4.02 Acre
Roadway Excavation 15204 Cu. Yd.
Overhaul 59833 Yd. Sta.
STA. 416+56.17 END S.P. 90-125
BEGIN S.P. 115-129
Exist Road 2-160' Steel Truss Spans
Exist 83'-6 1/2" and 78'-6 1/2" Steel Truss Spans
Wet Stone Mas. Abut. & Piers Capped with 3' Conc.
Remove existing bridge after new bridge is opened to traffic. See special note on Sheet No. 2 of the Bridge Plans.
Remove Pier and West Abut. (Stone Mas.) to Channel Bed Elev. Use Masonry for Constructing Spur Dike at Base of Fill Slope on Lt. from Sta. 420+50 to Sta. 422+00
Rt. & Lt. Sta. 418+40 to Sta. 420+00 Construct Channel Change as shown.
Cartwright Creek
B.M. No. 31A Spike in 12" Locust Snag 46' Lt. Sta.- 390+10 Elev. 408.26
B.M. No. 32A Spike in side of 36" Sycamore 64' Rt. Sta.- 406+95 Elev. 376.42
B.M. No. 33A Spike in side of Twin Sycamore 35' Lt. Sta.- 413+64 Elev. 372.25
B.M. No. 34A Spike in side 6" Triple Wild Cherry 101' Lt. Sta.- 416+76 Elev. 383.97
B.M. No. 35A Spike in side of leaning 14" Sycamore 93' Lt. Sta.- 418+59 Elev. 373.91
Com.
Emb.
Overhaul 9.32 x 24035 = 224006 Yds. Sta.
Overhaul 23.2 x 2579 = 59833 Yds. Sta.
500' V.C.
0.00%
-0.30%
Special Ditch R & Lt.
1927 EXT. HIGH HEADWATER ELEV. 381.65
Rock Fill Sloping
NELSON COUNTY SHEET TOTALS
Com. 18460
Emb. 25176
WASHINGTON COUNTY SHEET TOTALS
Com. 15204
Emb. 2946
Channel Change See Special Cross Sections
412+51.96 Begin Bridge
416+56.135 End Bridge
418+20.875 Begin Bridge
420+44.83 End Bridge
COUNTY LINE 415+50
PLAN
PROFILE

SP 90 - 125 - 3


NELSON CO. & WASHINGTON CO. F 222(5)
BARDSTOWN - SPRINGFIELD RD.
FED. ROAD DIST. NO. 7 | STATE KY. | FISCAL YEAR 1955 | SHEET NO. 12 | TOTAL SHEETS 69
Sta- 419+50 to Sta- 442+00 Const. Special Ditch Right & Left of ℄
Lt. Sta- 421+25 Const. Ent. & 24'-24" Ent. Pipe
C.L. MUDD MYRTLE MUDD Wf.
Proposed Limits of Channel Change
End of Dike
Cultivated
Pasture
N87°32'E
S65°49'E
B.M. NO. 37A
B.M. NO. 36A
B.M. NO. 38A
C.L. MUDD
MYRTLE MUDD Wf.
MRS. R.I. MUDD
R.L. MUDD (Son)
Δ = 21°25' Lt
C = 16°00'
T = 67.7
L = 133.9'
R = 358.1'
E = 6.4'
Δ = 26°39' Rt.
C = 1°36'
T = 848.2
L = 1665.6
R = 3581.0
E = 99.1
Rt. Sta- 421+21 Construct Road Approach See Special Approach Sheet. Const 40'-24" Ent. Pipe
Leave this Masonry Abut. in Place
Note: Construct Entrance Left of Sta. 442+50
LINNIE McINTYRE (Widower)
Sta- 447+00 to Sta- 448+73.1 Const Special Ditch on Lt of ℄
Lt. Sta- 448+20 Exist 3' Conc. Walk & 3'-4'-3" Steps Leave in place Const. 8'-15" Pipe.
Existing Easement
Exist. Easement
Exist R/W
To SPRINGFIELD
S65°49'E Back
S66°18'E Ahead
Exist 22' Bit. Conc. Pavt.
Rt. Sta- 442+50 Construct Road Approach See Special Approach Sheet
Δ = 56°10' Rt.
C = 38°00'
T = 80.4'
L = 147.8'
R = 150.8'
E = 20.1'
Sta- 1+74.2 End Const. Co. Road App.
To Fredericktown
Sta- 445+90 Proj. ℄ Mon. 45' Rt. Sta- 448+00 Begin Proj. F222-(6)
Sta- 446+50 Exist. 52'-24" R.C. Pipe - 2 Hdwls. Remove 1 Hdwl & 3' Pipe Lt. Extend
Rt. Sta- 444+00 Exist. 24'-18" C.M. Pipe & 2 Hdwls.
LINNIE McINTYRE (Widower)
Sta- 443+00 to Sta- 448+78.1 Const. Special Ditch on Rt. of ℄
EQUATION Sta- 448+78.1 Bk= Sta- 451+00.0 Ah. END OF APPROACH
FOR CONSTRUCTION Sta. 420+44.5 to Sta. 445+90
Clearing & Grubbing 8.33 Acre
Roadway Excavation 4131 Cu. Yd.
Overhaul 52761.4 Yd. Sta.
Rt. & Lt. Sta- 445+90 to Sta- 448+78.1 Existing Bit. Conc. Pavement to be Removed & Replaced as Approach.
STA. 445+90 END. F 222(5) S.P. 115-129
B.M. No. 36A Spike in base 12" Box Elder 47' Rt. Sta- 421+30 Elev- 376.11
B.M. No. 37A Chisel □ on N.E. Cor. Stone Well Top. 59' Rt. Sta- 431+73 Elev- 384.42
B.M. No. 38A Spike in Side of Twin Elm 92' Lt. Sta- 447+72 Elev- 383.85
B.M. No. 39A Chisled □ on Pipe Headwall 15' Lt. Sta- 445+65 Elev- 386.79
B.M. No. 35 Elev- 386.79 on Proj. F-222(6)
Com. Spec. Ditch Lt.
Com. Spec. Ditch Rt.
Chan. Ch.
Overhaul 35.72 x 13660 = 487,935 Yds. Sta.
10148 Chan. Ch.
Overhaul 3.91 x 10148 = 39679 Yds. Sta.
Emb. Spur Dike. + Shr.
+20% Shr.
APPROACH
SHEET TOTALS
Com. 4131
Emb. 35368
End Bridge
Ext. H. WATER Elev- 381.65 1952 Headwater
Ditch Rt. +1.60%
+0.60%
0.00%
Special Ditch Left
Special Ditch Right
Sta- 443+00 Const. 18" Pipe
PLATE 1 - PLAN-PROFILE

SP 80 - 128 - 3

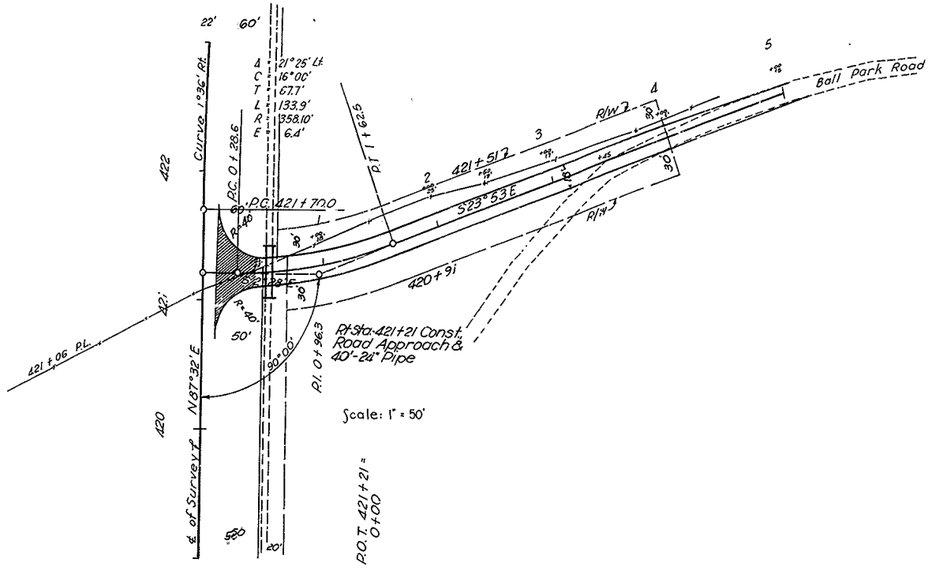
NELSON CO. & WASHINGTON CO. F 222(5)
BARDSTOWN-SPRINGFIELD RD.

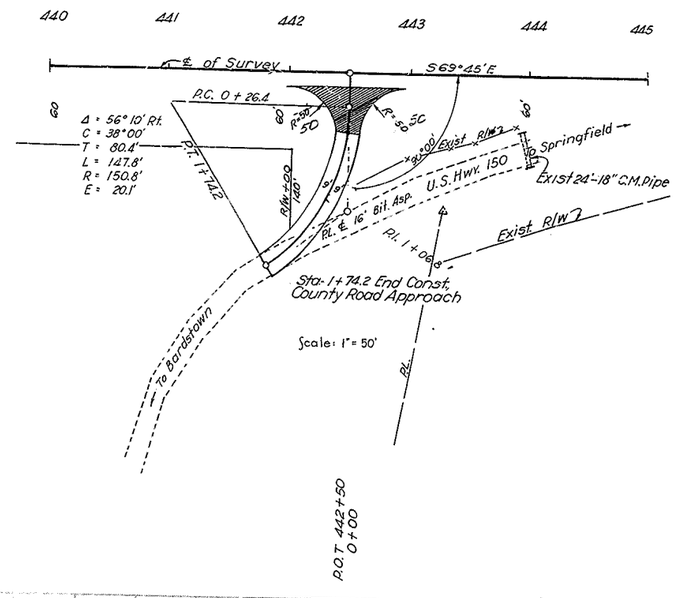
FED. ROAD DIST. No.	STATE	FISCAL YEAR	SHEET No.	TOTAL SHEETS
7	KY.	1955	13	69

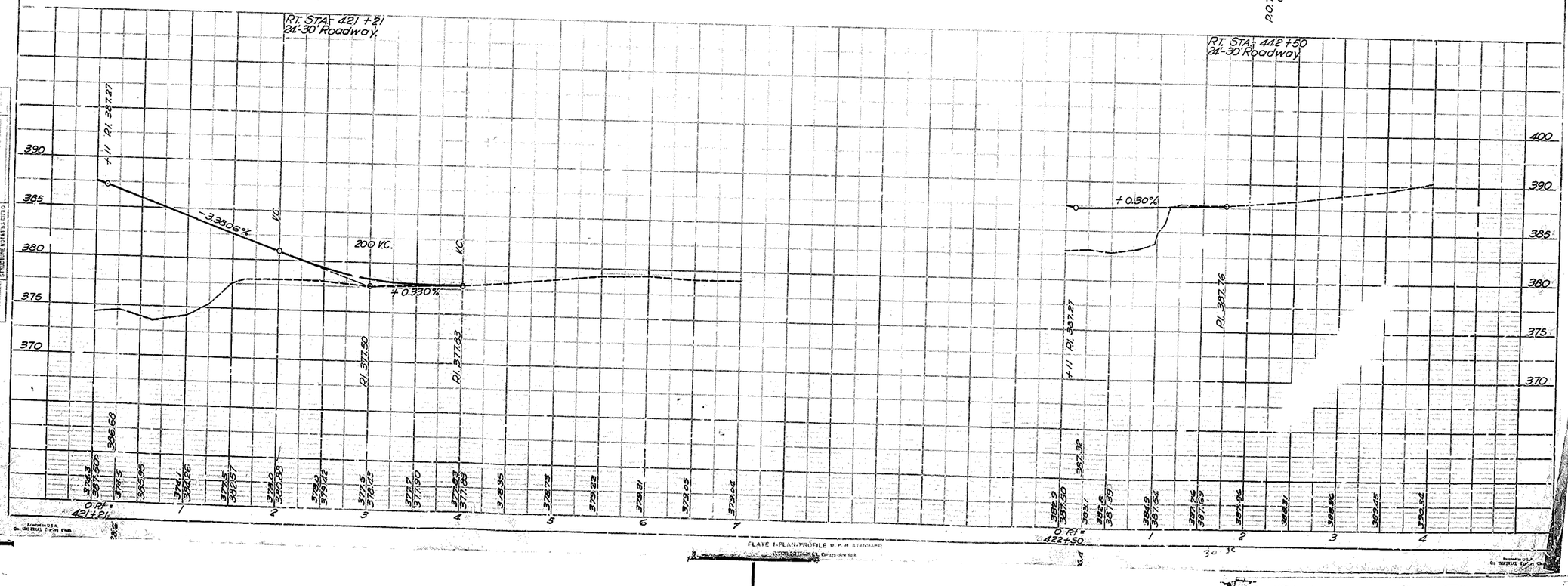
SP 90 - 125 - 3

NELSON Co. & WASHINGTON Co. F 222(4)
BARDSTOWN - SPRINGFIELD RD.

FED. ROAD DIST. NO.	STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	1955	14	69







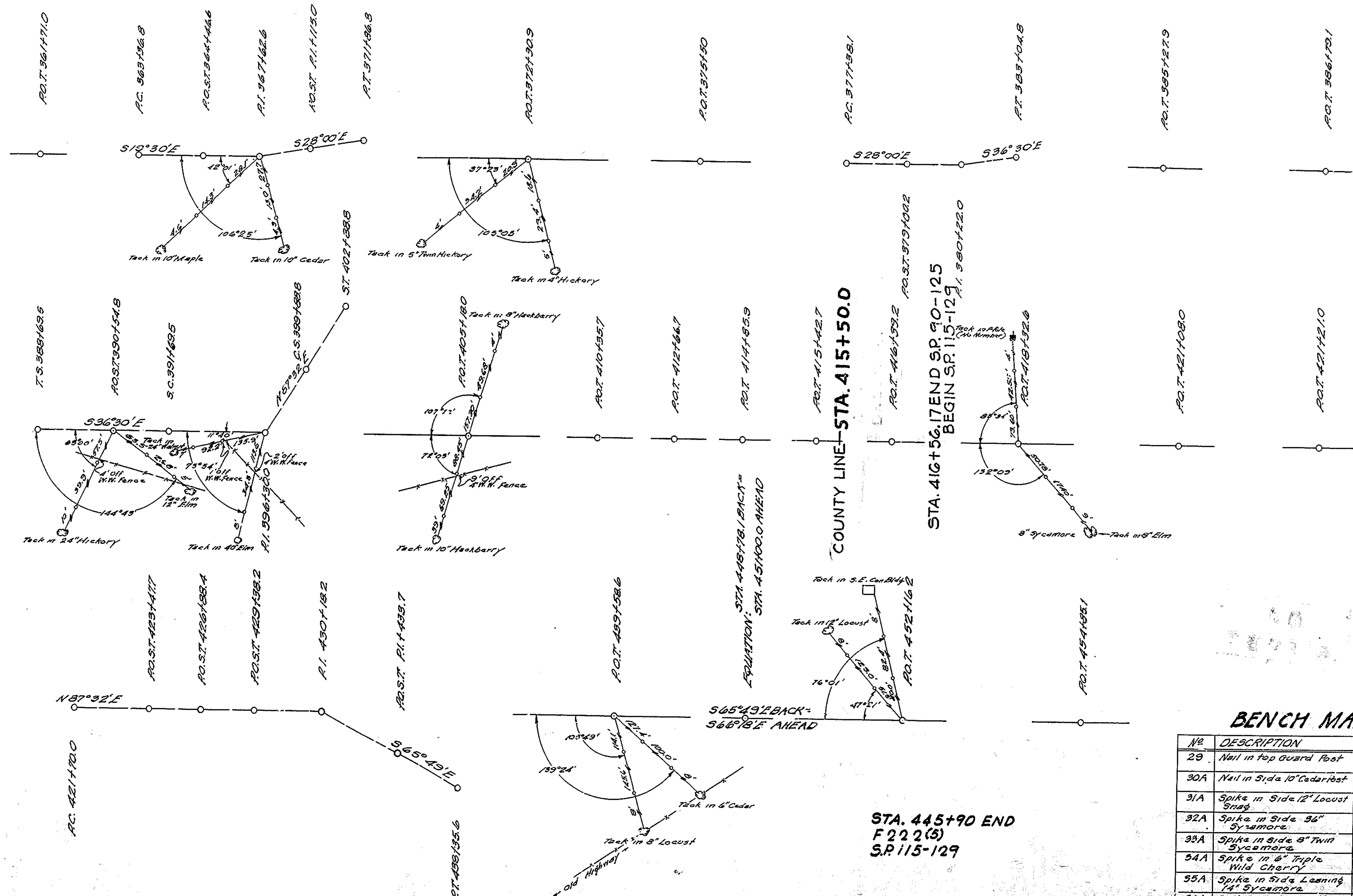
SP 90-125-8

STA. 365+50 BEGIN
F 222 (5)
S.P. 90-125

REFERENCE SHEET 1 OF 1

NELSON CO. & WASHINGTON CO. F 222 (5)
BARDSTOWN - SPRINGFIELD RD.

FED. ROAD DIST. No.	STATE	FISCAL YEAR	SHEET NO	TOTAL SHEETS
7	KY.	1955	15	69



P.O.T. 361+71.0
P.C. 363+36.8
P.O.S.T. 364+44.6
P.I. 367+62.6
P.O.S.T. P.I. 1+15.0
P.T. 371+86.8
P.O.T. 372+30.9
P.O.T. 375+50
P.C. 377+38.1
P.T. 383+04.8
P.O.T. 385+27.9
P.O.T. 386+79.1
S19°30'E
S28°00'E
S36°30'E
Tack in 10" Maple
Tack in 10" Cedar
Tack in 5" Twin Hickory
Tack in 4" Hickory
P.O.S.T. 379+00.2
P.I. 380+22.0
T.S. 388+63.5
P.O.S.T. 390+54.8
S.C. 391+69.5
C.S. 399+88.8
S.T. 402+38.8
P.O.T. 405+18.0
P.O.T. 410+35.7
P.O.T. 412+46.7
P.O.T. 414+85.9
P.O.T. 415+42.7
P.O.T. 416+93.2
P.O.T. 418+32.6
P.O.T. 421+08.0
P.O.T. 421+21.0
P.I. 396+13.0
Tack in 8" Hackbarry
Tack in 10" Hackbarry
Tack in 24" Hickory
Tack in 40" Elm
Tack in 12" Elm
W.W. Fence
COUNTY LINE—STA. 415+50.0
STA. 416+56.17 END S.P. 90-125
BEGIN S.P. 115-129
8" Sycamore
Tack in 8" Elm
P.C. 421+10.0
P.O.S.T. 423+41.7
P.O.S.T. 426+88.4
P.O.S.T. 429+38.2
P.I. 430+18.2
P.O.S.T. P.I. 4+33.7
P.O.T. 439+58.6
P.T. 439+95.6
EQUATION: STA. 438+78.1 BACK = STA. 451+00.0 AHEAD
P.O.T. 452+16.2
P.O.T. 454+85.1
N87°32'E
S65°43'E
S65°49'2 BACK =
S66°18'E AHEAD
Tack in S.E. Cor. Bldg.
Tack in 12" Locust
Tack in 6" Cedar
Tack in 8" Locust
Old Highway

STA. 445+90 END
F 222 (5)
S.P. 115-129

BENCH MARK SUMMARY

№	DESCRIPTION	LOCATION	ELEV.
29	Nail in top Guard Post	30' Lt. Sta. 374+50	491.36
30A	Nail in Side 10" Cedar Post	21' Lt. Sta. 383+16	452.36
31A	Spike in Side 12" Locust Snag	46' Lt. Sta. 390+10	408.27
32A	Spike in Side 36" Sycamore	64' Rt. Sta. 406+95	376.49
33A	Spike in Side 8" Twin Sycamore	35' Lt. Sta. 413+64	372.25
34A	Spike in 6" Triple Wild Cherry	101' Lt. Sta. 416+76	383.97
35A	Spike in Side Leaning 14" Sycamore	98' Lt. Sta. 418+59	373.91
36A	Spike in Side 12" Box-Elder	47' Rt. Sta. 421+30	376.11
37A	Chisled "□" on Corner of Stone Well Top	59' Rt. Sta. 431+73	384.42
38A	Spike in Side 10" Twin Elm	92' Lt. Sta. 447+72	383.85
39 A	Chisled □ on Pipe Hdw BM No 9 Orig Line and	15' Lt Sta. 445+65 = BM No 35 Proj. F 222 (6)	386.78 386.79

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Appendix F – Structure Inventory and Appraisal Sheets

Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 10843 Agency ID: 090B00028N SR: 45.5 SD/FO: SD

IDENTIFICATION

State 1:	21 Kentucky	Struc Num 8:	090B00028N
Facility Carried 7:	US-150	Location 9:	ON WASHINGTON - NELSON CL
Rte.(On/Under)5A:	Route On Structure	Rte. Signing Prefix 5B:	2 U.S. Numbered Hwy
Level of Service 5C:	1 Mainline	Rte. Number 5D:	00150
Directional Suffix 5E:	0 N/A (NBI)	% Responsibility :	Unknown
SHD District 2:	District 4	County Code 3:	Nelson (090)
Place Code 4:	FIPS 0000	Mile Post 11:	7.656 mi
Feature Intersected 6:	BEECH FORK		
Latitude 16:	37d 45' 47"	Longitude 17:	085d 20' 43"
Border Bridge Code 98:	Unknown (P)		
Border Bridge Number 99:			

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46: 0 Number of Spans Main Unit 45: 5

Main Span Material/Design 43A/B:

2 Concrete Continuous 04 Tee Beam

Deck Type 107:	1 Concrete-Cast-in-Place
Wearing Surface 108A:	3 Latex Concrete/Similar
Membrane 108B:	0 None
Deck Protection 108C:	None

AGE AND SERVICE

Year Built 27: 1957 Year Reconstructed 106: 0

Type of Service on 42A: 1 Highway

Type of Service under 42B: 5 Waterway

Lanes on 28A: 2 Lanes Under 28B: 0 Detour Length 19: 8.1 mi

ADT 29: 8,290 Truck ADT 109: % Year of ADT 30: 2009

GEOMETRIC DATA

Length Max Span 48: 89.9 ft Structure Length 49: 404.9 ft

Curb/Sdwlk Width L 50A: 2.5 ft Curb/Sidewalk Width R 50B: 2.5 ft

Width Curb to Curb 51: 27.9 ft Width Out to Out 52: 33.1 ft

Approach Roadway Width 32: 25.9 ft (w/ shoulders) Median 33: 0 No median

Deck Area: 13,415.5 sq. ft

Skew 34: 15.00 ° Structure Flared 35: 0 No flare

Vertical Clearance 10: 99.99 ft Horiz. Clearance 47: 27.89 ft

Minimum Vertical Clearance Over Bridge 53: 328.1 ft

Minimum Vertical Underclearance Reference 54A: N Feature not hwy or RR

Minimum Vertical Underclearance 54B: 0.0 ft

Minimum Lateral Underclearance Reference R 55A: N Feature not hwy or RR

Minimum Lateral Underclearance R 55: 0.0 ft

Minimum Lateral Underclearance L 56: 0.0 ft

INSPECTION

Frequency 91:	24 months	Inspection Date 90:	2/22/2010	Next Inspection:	02/22/2012
FC Frequency 92A:	NA	FC Inspection Date 93A:	NA	Next FC Inspection:	NA
UW Frequency 92B:	NA	UW Inspection Date 93B:	NA	Next UW Inspection:	NA
SI Frequency 92C:	NA	SI Date 93C:	NA	Next SI:	NA
Element Frequency:	24 months	Element Inspection Date:	02/22/2010	Next Elem. Insp. Due:	02/22/2012

CLASSIFICATION

Defense Highway 100:	0 Not a STRAHNET hwy	Parallel Structure 101:	No || bridge exists
Direction of Traffic 102:	2 2-way traffic	Temporary Structure 103:	Not Applicable (P)
Highway System 104:	0 Not on NHS	NBIS Length 112:	Long Enough
Toll Facility 20:	3 On free road	Functional Class 26:	06 Rural Minor Arterial
Defense Hwy 110:	0	Historical Significance 37:	5 Not eligible for NRHP
Owner 22:	01 State Highway Agency		
Custodian 21:	01 State Highway Agency		

CONDITION

Deck 58: 6 Satisfactory Super 59: 4 Poor Sub 60: 6 Satisfactory

Culvert 62: N N/A (NBI) Channel/Channel Protection 61: 7 Minor Damage

LOAD RATING AND POSTING

Inventory Rating Method 65: 2 AS Allowable Stress Operating Rating Method 63: 2 AS Allowable Stress

Inventory Rating 66:	HS22.2	Operating Rating 64:	HS22.2
Design Load 31:	4 M 18 (H 20)	Posting 70:	5 At/Above Legal Loads
Posting status 41:	A Open, no restriction		

APPRAISAL

Bridge Rail 36A:	0 Substandard	Approach Rail 36C:	1 Meets Standards
Transition 36B:	1 Meets Standards	Approach Rail Ends 36D:	1 Meets Standards
Str. Evaluation 67:	4	Deck Geometry 68:	4 Tolerable
Underclearance, Vertical and Horizontal 69:	N Not applicable (NBI)		
Waterway Adequacy 71:	7 Above Minimum	Approach Alignment 72:	6 Equal Min Criteria
Scour Critical 113:	4 Stable, needs action		

PROPOSED IMPROVEMENTS

Bridge Cost 94:	$ 0	Type of Work 75:	Unknown (P)
Roadway Cost 95:	$ 0	Length of Improvement 76:	0.0 ft
Total Cost 96:	$ 0	Future ADT 114:	12,352
Year of Cost Estimate 97:	Unknown	Year of Future ADT 115:	2029

NAVIGATION DATA

Navigation Control 38: 0 0

Vertical Clearance 39: 0.0 ft Horizontal Clearance 40: 0.0 ft

Pier Protection 111: 1 Not Required Lift Bridge Vertical Clearance 116:

ELEMENT CONDITION STATE DATA

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
1	18/1	P Conc Deck/Thin Ovl	(SF)	11,969	0 %	0	100 %	11,969	0 %	0	0 %	0	0 %	0
1	110/1	R/Conc Open Girder	(LF)	1,612	0 %	0	0 %	0	99 %	1,600	1 %	12	0 %	0
1	205/1	R/Conc Column	(EA)	12	100 %	12	0 %	0	0 %	0	0 %	0	0 %	0
1	215/1	R/Conc Abutment	(LF)	75	0 %	0	76 %	57	24 %	18	0 %	0	0 %	0
1	234/1	R/Conc Cap	(LF)	141	100 %	141	0 %	0	0 %	0	0 %	0	0 %	0
1	302/1	Compressn Joint Seal	(LF)	59	100 %	59	0 %	0	0 %	0	0 %	0	0 %	0

Structure Inventory and Appraisal Sheet (English Units)

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
1	311/1	Moveable Bearing	(EA)	20	0 %	0	60 %	12	40 %	8	0 %	0	0 %	0
1	313/1	Fixed Bearing	(EA)	4	100 %	4	0 %	0	0 %	0	0 %	0	0 %	0
1	331/1	Conc Bridge Railing	(LF)	806	1 %	6	74 %	595	25 %	205	0 %	0	0 %	0
1	359/1	Soffit Smart Flag	(EA)	1	0 %	0	100 %	1	0 %	0	0 %	0	0 %	0
1	361/1	Scour Smart Flag	(EA)	1	0 %	0	100 %	1	0 %	0	0 %	0	0 %	0
1	363/1	Section Loss SmFlag	(EA)	1	0 %	0	100 %	1	0 %	0	0 %	0	0 %	0
1	503/1	RC Curb	(LF)	806	7 %	56	50 %	400	43 %	350	0 %	0	0 %	0
1	505/1	RC Sidewalk	(LF)	806	26 %	206	74 %	600	0 %	0	0 %	0	0 %	0
1	606/1	Drains	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0

Str Unit	Elm/Env	Description	Element Notes
1	18/1	Concrete Deck - Protected w/ Thin	< none >
1	110/1	Reinforced Conc Open Girder/Bea	Concrete beams have been retofitted with a void filling material, High Strength Steel Sheets, Resin, and Coating. There was three (3) twelve (12) inch wide by sixty (60)-ft long high strength steel wire sheets applied on each girder. Girder 2 & 3 span 1 hardwire is debonding in small areas from the bottom and a small area from the inside of Girder 3 span 1. Girder 3 span 3, hardwire is debonding in small areas from the bottom of the girders.
1	205/1	Reinforced Conc Column or Pile E	< none >
1	215/1	Reinforced Conc Abutment	Abutments have minor to moderate cracking with leaching and minor spalls.
1	234/1	Reinforced Conc Cap	< none >
1	302/1	Compression Joint Seal	< none >
1	311/1	Moveable Bearing (roller, sliding, e	Rockers at Abutment 1 are slightly expanded. Bearings at abutments have minor section loss.
1	313/1	Fixed Bearing	
1	331/1	Reinforced Conc Bridge Railing	Concrete railing have moderate cracking, scaling, and minor spalls.
1	359/1	Soffit of Concrete Deck or Slab	Deck underside has minor cracking with leaching. Span 1 and span 5 has hardwire placed on soffit near abutment 1 and abutment 5.
1	361/1	Scour	Moderate sour at piers 2, 3, and 4.
1	363/1	Section Loss	Minor section loss at the abutment bearings.
1	503/1	Reinforced Concrete Curb	Curbs have moderate cracking, scaling and minor spalls.
1	505/1	Reinforced Concrete Sidewalk	Sidewalk has minor cracking and scaling.
1	606/1	Drains	< none >

BRIDGE NOTES

All of the repairs made to the girders will maintain the weight capacity at the current level before the repairs were made. Crack gauges were installed on this structure where vertical cracks were repaired on the girders. Diaphragms over piers 4 & 5 have hardwire applied to them.

Structure Inventory and Appraisal Sheet (English Units)

PAST INSPECTION

Inspection Date: 02/22/2010 Type: 2 Standard (24 months)

Inspector: TLAWLER Pontis User Key: TLAWLER - Todd

Scope:

NBI: ü Other: ☐ Element: ü

Underwater: ☐ Fracture Critical: ☐

INSPECTION NOTES

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PAST INSPECTION

Inspection Date: 03/12/2008 Type: 2 Standard (24 months)

Inspector: EHARDIN Pontis User Key: EHARDIN - Ernest

Scope:

NBI: ü Other: ☐ Element: ü

Underwater: ☐ Fracture Critical: ☐

INSPECTION NOTES

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Structure Inventory and Appraisal Sheet (English Units)

PAST INSPECTION

Inspection Date: 02/01/2006 Type: 2 Standard (24 months)

Inspector: DKEMPER Pontis User Key: DKEMPER - David

Scope:

NBI: ☑ Other: ☐ Element: ☐

Underwater: ☐ Fracture Critical: ☐

INSPECTION NOTES

–

INSPECTOR WORK CANDIDATES

Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 13486 **Agency ID:** 115B00022N **SR:** 40.8 **SD/FO:** SD

IDENTIFICATION

State 1:	21 Kentucky	Struc Num 8:	115B00022N
Facility Carried 7:	US-150	Location 9:	.1 MI E OF NELSON CL
Rte.(On/Under)5A:	Route On Structure	Rte. Signing Prefix 5B:	2 U.S. Numbered Hwy
Level of Service 5C:	1 Mainline	Rte. Number 5D:	00150
Directional Suffix 5E:	0 N/A (NBI)	% Responsibility :	Unknown
SHD District 2:	District 4	County Code 3:	Washington (115)
Place Code 4:	FIPS 0000	Mile Post 11:	0.085 mi
Feature Intersected 6:	CARTWRIGHT CREEK		
Latitude 16:	37d 45' 48"	Longitude 17:	085d 20' 37"
Border Bridge Code 98:	Unknown (P)		
Border Bridge Number 99:			

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46: 0 Number of Spans Main Unit 45: 3

Main Span Material/Design 43A/B:

2 Concrete Continuous 04 Tee Beam

Deck Type 107:	1 Concrete-Cast-in-Place
Wearing Surface 108A:	3 Latex Concrete/Similar
Membrane 108B:	0 None
Deck Protection 108C:	None

AGE AND SERVICE

Year Built 27:	1951	Year Reconstructed 106:	0
Type of Service on 42A:	1 Highway		
Type of Service under 42B:	5 Waterway		
Lanes on 28A:	2	Lanes Under 28B: 0	Detour Length 19: 8.7 mi
ADT 29:	8,290	Truck ADT 109: %	Year of ADT 30: 2009

GEOMETRIC DATA

Length Max Span 48:	89.9 ft	Structure Length 49:	225.1 ft
Curb/Sdwlk Width L 50A:	2.6 ft	Curb/Sidewalk Width R 50B:	2.6 ft
Width Curb to Curb 51:	27.6 ft	Width Out to Out 52:	30.5 ft
Approach Roadway Width 32: (w/ shoulders)	25.9 ft	Median 33:	0 No median
Deck Area:	6,867.2 sq. ft		
Skew 34:	0.00 °	Structure Flared 35:	0 No flare
Vertical Clearance 10:	99.99 ft	Horiz. Clearance 47:	27.56 ft

Minimum Vertical Clearance Over Bridge 53: 328.1 ft

Minimum Vertical Underclearance Reference 54A: N Feature not hwy or RR

Minimum Vertical Underclearance 54B: 0.0 ft

Minimum Lateral Underclearance Reference R 55A: N Feature not hwy or RR

Minimum Lateral Underclearance R 55: 0.0 ft

Minimum Lateral Underclearance L 56: 0.0 ft

INSPECTION

Frequency 91:	24 months	Inspection Date 90:	3/3/2010	Next Inspection:	03/03/2012
FC Frequency 92A:	NA	FC Inspection Date 93A:	NA	Next FC Inspection:	NA
UW Frequency 92B:	NA	UW Inspection Date 93B:	NA	Next UW Inspection:	NA
SI Frequency 92C:	NA	SI Date 93C:	NA	Next SI:	NA
Element Frequency:	24 months	Element Inspection Date:	03/03/2010	Next Elem. Insp. Due:	03/03/2012

CLASSIFICATION

Defense Highway 100:	0 Not a STRAHNET hwy	Parallel Structure 101:	No || bridge exists
Direction of Traffic 102:	2 2-way traffic	Temporary Structure 103:	Not Applicable (P)
Highway System 104:	0 Not on NHS	NBIS Length 112:	Long Enough
Toll Facility 20:	3 On free road	Functional Class 26:	06 Rural Minor Arterial
Defense Hwy 110:	0	Historical Significance 37:	5 Not eligible for NRHP
Owner 22:	01 State Highway Agency		
Custodian 21:	01 State Highway Agency		

CONDITION

Deck 58: 5 Fair Super 59: 4 Poor Sub 60: 6 Satisfactory

Culvert 62: N N/A (NBI) Channel/Channel Protection 61: 7 Minor Damage

LOAD RATING AND POSTING

Inventory Rating Method 65: 2 AS Allowable Stres Operating Rating Method 63: 2 AS Allowable Stress

Inventory Rating 66:	HS22.2	Operating Rating 64:	HS22.2
Design Load 31:	4 M 18 (H 20)	Posting 70:	5 At/Above Legal Loads
Posting status 41:	A Open, no restriction		

APPRAISAL

Bridge Rail 36A:	0 Substandard	Approach Rail 36C:	1 Meets Standards
Transition 36B:	1 Meets Standards	Approach Rail Ends 36D:	1 Meets Standards
Str. Evaluation 67:	4	Deck Geometry 68:	3 Intolerable - Correct
Underclearance, Vertical and Horizontal 69:	N Not applicable (NBI)		
Waterway Adequacy 71:	7 Above Minimum	Approach Alignment 72:	7 Above Min Criteria
Scour Critical 113:	8 Stable Above Footing		

PROPOSED IMPROVEMENTS

Bridge Cost 94:	$ 861,000	Type of Work 75:	34 Widen w/ Deck Rehe
Roadway Cost 95:	$ 0	Length of Improvement 76:	22.6 ft
Total Cost 96:	$ 860,000	Future ADT 114:	12,352
Year of Cost Estimate 97:	1995	Year of Future ADT 115:	2029

NAVIGATION DATA

Navigation Control 38: 0 0

Vertical Clearance 39: 0.0 ft Horizontal Clearance 40: 0.0 ft

Pier Protection 111: 1 Not Required Lift Bridge Vertical Clearance 116:

ELEMENT CONDITION STATE DATA

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
1	18/1	P Conc Deck/Thin Ovl	(SF)	6,160	0 %	0	100 %	6,160	0 %	0	0 %	0	0 %	0
1	110/1	R/Conc Open Girder	(LF)	880	0 %	0	100 %	876	0 %	4	0 %	0	0 %	0
1	205/1	R/Conc Column	(EA)	6	100 %	6	0 %	0	0 %	0	0 %	0	0 %	0
1	215/1	R/Conc Abutment	(LF)	110	0 %	0	0 %	0	100 %	110	0 %	0	0 %	0
1	234/1	R/Conc Cap	(LF)	70	100 %	70	0 %	0	0 %	0	0 %	0	0 %	0
1	302/1	Compressn Joint Seal	(LF)	66	100 %	66	0 %	0	0 %	0	0 %	0	0 %	0

Structure Inventory and Appraisal Sheet (English Units)

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
1	311/1	Moveable Bearing	(EA)	12	33 %	4	67 %	8	0 %	0	0 %	0	0 %	0
1	313/1	Fixed Bearing	(EA)	4	100 %	4	0 %	0	0 %	0	0 %	0	0 %	0
1	331/1	Conc Bridge Railing	(LF)	440	0 %	0	0 %	0	100 %	440	0 %	0	0 %	0
1	359/1	Soffit Smart Flag	(EA)	1	0 %	0	100 %	1	0 %	0	0 %	0	0 %	0
1	503/1	RC Curb	(LF)	440	0 %	0	100 %	438	0 %	2	0 %	0	0 %	0

Str Unit	Elm/Env	Description	Element Notes
1	18/1	Concrete Deck - Protected w/ Thin	Minor cracking and potholes.
1	110/1	Reinforced Conc Open Girder/Bea	Girders have minor to moderate cracking. Repairs have been made to deter any further cracking. Hardwire has been added to the bottoms and sides of all beams in each span. Girder 4 at abutment 4 bearing has a large spall exposing rebar which has moderate section loss.
1	205/1	Reinforced Conc Column or Pile E	< none >
1	215/1	Reinforced Conc Abutment	Abutments have minor to moderate cracking, spalling, and scaling exposing rebar.
1	234/1	Reinforced Conc Cap	< none >
1	302/1	Compression Joint Seal	
1	311/1	Moveable Bearing (roller, sliding, e	Abutment bearings have minor to moderate deterioration with minor to moderate section loss.
1	313/1	Fixed Bearing	
1	331/1	Reinforced Conc Bridge Railing	Rails have moderate deterioration.
1	359/1	Soffit of Concrete Deck or Slab	Deck underside has minor to moderate cracking with leaching. Hardwire has been added to the soffit in spans 1 and 3 from the abutments to 30' out, also added to the pier diaphrams.
1	503/1	Reinforced Concrete Curb	Curbs have minor to moderate cracking and spalling.

BRIDGE NOTES

PAST INSPECTION

Inspection Date: 03/03/2010 Type: 2 Standard (24 months)

Inspector: DKEMPER Pontis User Key: DKEMPER - Davic

Scope:

NBI: ☑ Other: ☐ Element: ☑

Underwater: ☐ Fracture Critical: ☐

INSPECTION NOTES

Structure Inventory and Appraisal Sheet (English Units)

PAST INSPECTION

Inspection Date: 03/17/2008 Type: 1 SIA (Initial Inventory)

Inspector: JNOBLIN Pontis User Key: JNOBLIN - Jim Nc

Scope:

NBI: ☑ Other: ☐ Element: ☑

Underwater: ☐ Fracture Critical: ☐

INSPECTION NOTES

PAST INSPECTION

Inspection Date: 03/01/2006 Type: 2 Standard (24 months)

Inspector: DKEMPER Pontis User Key: DKEMPER - Davic

Scope:

NBI: ☑ Other: ☐ Element: ☐

Underwater: ☐ Fracture Critical: ☐

INSPECTION NOTES

INSPECTOR WORK CANDIDATES

Appendix G – FIRM Map(s) of the Study Area

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevation determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance of greater flood event.

ZONE A99 Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

surance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 250 500 750 1,000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0239D

FIRM

FLOOD INSURANCE RATE MAP

BELL COUNTY, KENTUCKY

AND INCORPORATED AREAS

PANEL 239 OF 360

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BELL COUNTY	210010	0239	D
MIDDLESBORO, CITY OF	215190	0239	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 21013C0239D

EFFECTIVE DATE SPETEMBER 29, 2006

Federal Emergency Management Agency

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

513 — Base Flood Elevation line and value; elevation in feet*

(EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A — Cross section line

23 — 23 — Transect line

97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

4275000 M
6000000 FT — 1000-meter Universal Transverse Mercator grid ticks, zone 17
5000-foot grid values: Kentucky State Plane coordinate system, South Zone (FIPSZONE = 1602), Lambert projection

DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)

M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
SEPTEMBER 29, 2006

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

surance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 250 500 750 1,000
FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0239D

FIRM

FLOOD INSURANCE RATE MAP

BELL COUNTY, KENTUCKY

AND INCORPORATED AREAS

PANEL 239 OF 360

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

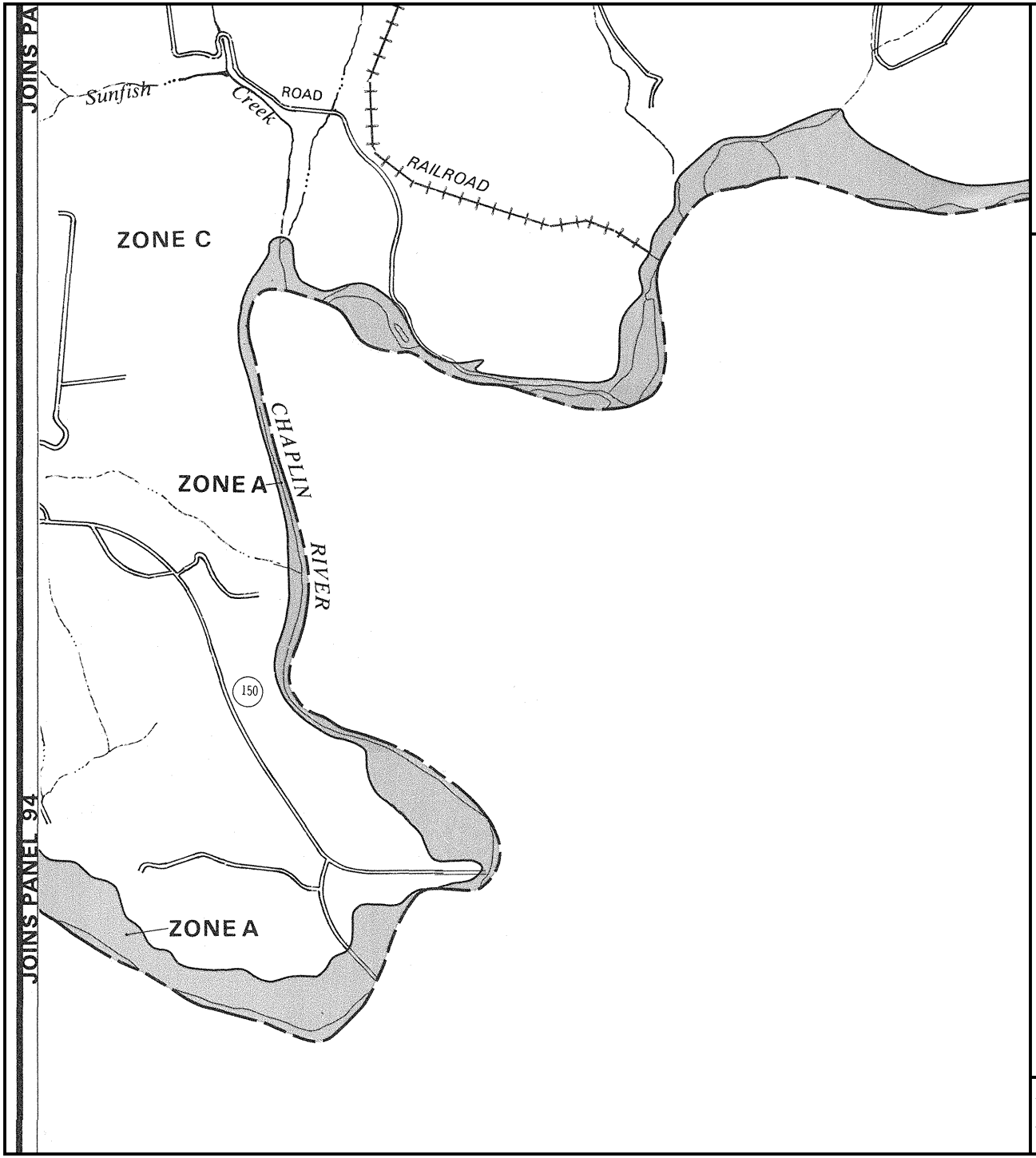
COMMUNITY	NUMBER	PANEL	SUFFIX
BELL COUNTY	210010	0239	D
MIDDLESBORO, CITY OF	215190	0239	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
21013C0239D

EFFECTIVE DATE
SPETEMBER 29, 2006

Federal Emergency Management Agency



APPROXIMATE SCALE

2000 0 2000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

NELSON COUNTY, KENTUCKY

(UNINCORPORATED AREAS)

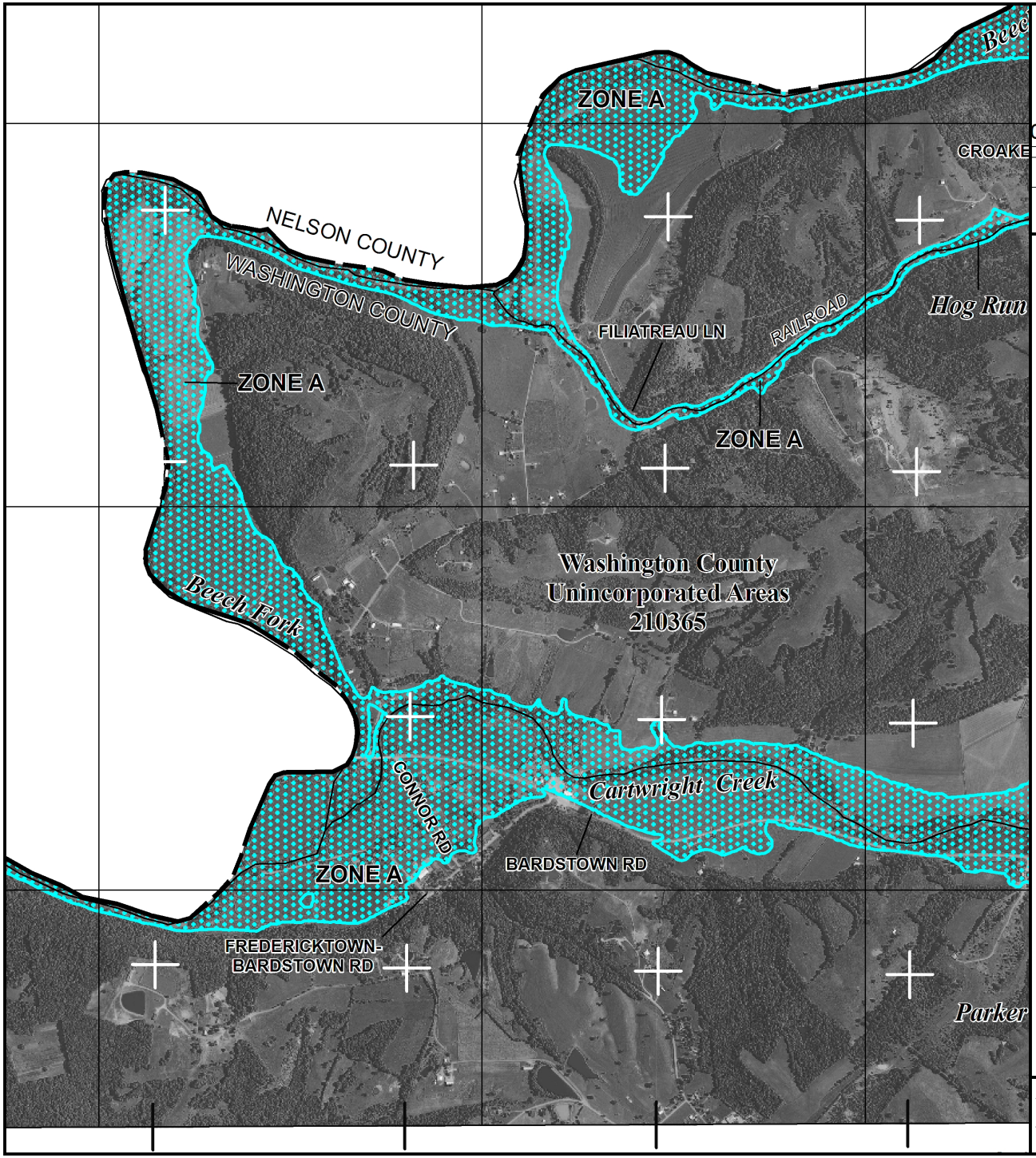
PANEL 125 OF 200

(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
210177 0125 B

EFFECTIVE DATE:
NOVEMBER 5, 1980

federal emergency management agency
federal insurance administration



MAP SCALE 1" = 2000'

00 0 2000 4000

CROAKE FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0100C

FIRM

FLOOD INSURANCE RATE MAP

WASHINGTON COUNTY, KENTUCKY

AND INCORPORATED AREAS

PANEL 100 OF 250

(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
WASHINGTON COUNTY	210365	0100	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

EFFECTIVE DATE
FEBRUARY 17, 2010

MAP NUMBER
21229C0100C

Kentucky UNBRIDLED SPIRIT

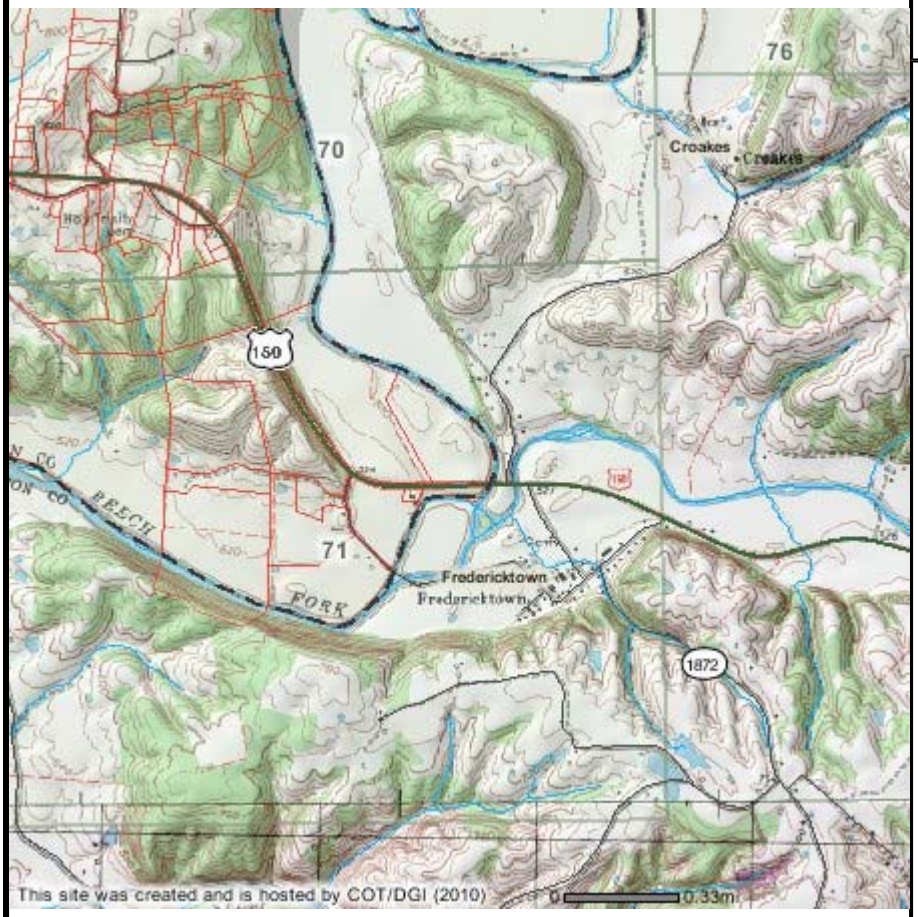
U.S. DEPARTMENT OF HOMELAND SECURITY

State of Kentucky
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Appendix H – Nelson County PVA Map

Nelson County PVA Map



Symbology

- Incorporated Cities
- County Boundary
- Time Zone Boundary
- City Boundaries
- Populated Places (GNIS)
- State Roads
- KY
- US
- PKWY
- I
- Local Roads
- MapBook Index
- Parcels
- NHD (24k)
- County Boundaries
- City Boundaries
- Shaded Relief
- KRGs
- Counties

Appendix I – Pictures

Bridge Over Beech Fork West Approach

Bridge Over Beech Fork East Approach

Bridge over Cartwright Creek looking East

Intersection with Connor Road

Croakes Station Road

Looking left from Croakes Station Road

Fredericksburg Park on the Right

Cartwright Creek

Collection of Debris (Cartwright Creek)

View from Bridge over Cartwright Creek looking West

Bridge over Cartwright Creek

Debris

Field Entrance

Under Bridge over Beech Fork

Bridge Rail

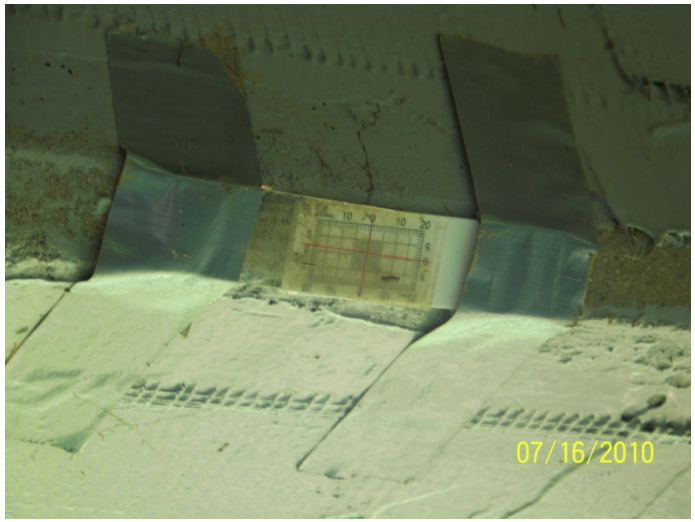
Three Span Culvert (Beech Fork Overflow)

Top of Culvert

Wingwall & Culvert

Headwall Separation at Culvert

Headwall at Culvert (Roadway Drainage Problems)



Appendix J – Project Team Meeting Minutes

MEETING MINUTES

Project:	Pre-Design Scoping Study for 4-1068 & 4-1069
Purpose:	Project Team Meeting
Place:	Kentucky Transportation Cabinet (KYTC), District 4 Conference Room, Elizabethtown, Ky.
Meeting Date:	July 16, 2010, 9:30 am EST

In Attendance:

Kevin Young	KYTC-D4 Planning
Jared Clemons	KYTC-D4 Design/Planning
Josh Hornbeck	KYTC-D4 PD&P
Patty Dunaway	KYTC-D4 CDE
David Kemper	KYTC-D4 Structures
Jude Filiatreau	KYTC-D4 PD&P, Bardstown
Chad Filiatreau	KYTC-D4 PD&P, Bardstown
John Edwards	KYTC-D4 Utilities
Kevin Blain	KYTC-D4 Traffic
Joseph Ferguson	KYTC-D4 Environmental
John Moore	KYTC-D4 Project Development
Brad Eldridge	KYTC-CO Highway Design
Charlie Spalding	KYTC-CO Planning
Sreenu Gutti	KYTC-CO Planning
Scott Thomson	KYTC-CO Planning
Jill Asher	KYTC-CO Planning

INTRODUCTIONS: Jill opened the Project Team Meeting by discussing the purpose of the Pre-Design Scoping Studies. These studies, formerly known as First Look Studies, are not new to D4 or some of the other districts. It is anticipated that a study of this type will be done for every project preceding the design phase if there is no planning study associated with the project. The nine elements of Purpose and Need as defined by NEPA will be addressed and used to create a purpose and need statement for each project. Pre-Design Scoping Studies will also provide more-defined project scopes, cost estimates for possible alternatives, potential environmental impacts, and other information that will be of assistance in the Phase I Design process. This study was done for Item Numbers 4-1068.00 and 4-1069.00 which are bridge replacement projects on US 150 in Nelson and Washington Counties. A handout of the meeting presentation was given to all meeting attendees. A sign-in sheet was also passed around.

NINE ELEMENTS OF A PURPOSE AND NEED STATEMENT: A checklist of the nine elements was displayed and the importance of each of the elements as they relate to the subject projects was discussed:

Legislation – The Design and Right-of-Way phases are scheduled in the 2010 Highway Plan. They are both funded with BRO funding. The description in the Highway Plan states that the bridges are to be replaced.

Project Status – Both the Bridges are structurally deficient. Bridge 090B00028N has a SR of 45.8, and Bridge 115B00022N has a SR of 41.1. Design funds have not yet been authorized. The Highway Plan design year is 2010. The Right of Way phase is scheduled for 2012. The district is unsure if the design of the approaches will be done in-house.

System Linkage – US 150 in this area connects Springfield to Bardstown. It is a route used by truck traffic coming off of the Bluegrass Parkway. St. Catharine College is also on this route. The project team stated that the completion of US 150 in Rockcastle County may increase traffic from I-75. The road classifications of US 150 in the project area was discussed.

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. The project team does not believe that separate bike/pedestrian facilities are needed in this area.

Social Demands & Economic Development – There is a park located just southeast of the project site. There is another route into the park area. The greatest potential for development that would impact the project site is a 200 acre industrial park on the south side of the Bluegrass Parkway in Bardstown. Currently, there is a bakery there with more room for development.

Transportation Demand – Since no design money is currently authorized, traffic forecasts were not requested. Traffic projections are based on historic trends for this road. This section of US 150 has generally followed a 3% annual growth rate. The current ADT is approximately 8,500. If the historic 3% growth rate continues, the anticipated 2030 ADT will be near 15,000.

Capacity – According to the Division of Planning's data, the current V/SF is 0.46. If traffic volumes continue to follow a 3% growth rate, consideration may need to be given to increasing the number of through lanes on this corridor to accommodate the 2030 projection. There is a project in the UPL that is supported by local officials in Washington County to add lanes to this road.

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 period of time. 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 project team agreed that this is more of a problem at night because

the bridge rail blocks the headlights of the oncoming vehicles at these intersections. The manner and location of other collisions were discussed. The project team did not believe that there is a significant traffic queue to turn into any of these entrances and turn lanes were not recommended.

Roadway Deficiencies – The roadway currently has 11 feet lanes, 4-8 feet 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 this type of road recommends 12 feet lanes for a 60 MPH Design Speed and 8 feet shoulders. Both bridges are structurally deficient with a rating of "Poor" for their Superstructure. Both bridges are between 27 to 28 feet wide, curb to curb. 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.

David Kemper, D4 Structures, stated that he is not aware of the bridges flooding, but 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. 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 to allow for a longer span (currently 90 feet) may also be helpful.

ENVIRONMENTAL CONSIDERATIONS: The bridges cross over Beech Fork and Cartwright Creek, which are blue line streams. It was noted during the site visit that the streams may contain a threatened species of Mussels. There is also some indication that there are wetlands located just southwest of the bridge over Beech Fork. The flood plain will need to be considered. The bridges are stamped as being built in 1955 and may be historically significant. According to the project team, the school located at the corner of Connor Road and Fredericktown Road in the GIS database is no longer open. Joseph Ferguson, D4 Environmental Coordinator, stated that there will be 6(f) issues with Fredericktown Park, which is adjacent to the project site. An EA will probably be required for this project. Joseph agreed to write a short Environmental Overview to include in the study report.

UTILITIES: A list of utility providers and contact information was given to Jill by John Edwards, D4 Utilities. The location of the overhead lines was noted during the site visit. The project team confirmed that there are no gas or sewer lines near the project site. Someone mentioned the possibility of a fiber optic cable in the area, but no markers could be seen during the site visit.

POSSIBLE OPTIONS: The following are some of the alternates that were discussed:

- No Build – not a feasible option due to the structural deficiency of the bridges
- Build in Place

- Temporary Crossing – At the site visit it was noted that the terrain is not favorable for a low-water crossing.
- Detour – A detour using state routes would require motorists to go several miles out of their way.

- Move the Alignment north or south of the existing structures
  - Moving the alignment to the south would have greater impacts to utilities, would impact Fredericktown Park creating 6(f) issues, and possibly have a much greater impact on Beech Fork and wetlands near the roadway than moving the alignment to the north.
  - There were a couple of options discussed to move the alignment to the north of the existing alignment:
    - Moving the new structure several feet north of the existing alignment to create a separate structure. This would require an extension 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 headwalls from the culvert and some exposure of rebar. These issues can be addressed if the culvert is extended. In addition, it is suggested that the alignment be raised 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 bridge to be 40 ft. curb to curb. The district did not recommend widening the bridge to accommodate any potential future widening of the roadway.

      This option would allow for 2 lanes of traffic to remain open while constructing the bridges.
    - Another option is partial width construction of the new bridge 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. This would allow shorter tie-ins to the approaches, and would probably eliminate the need to extend the culvert. Raising the elevation of the alignment would still be possible.

      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 feet lane width + 2 feet for the barrier + 3 feet for the overhang).

OTHER ISSUES: There are three field entrances and two entrances to county roads, Croakes Station Road and Connor Road, in the project area, next to the end of the bridges that will need to be considered. Recommended widening of the shoulders should allow for greater sight distance for cars pulling out of these entrances onto US 150.

PURPOSE & NEED: After some discussion the project team agreed that the purpose and need statement should read similar to the following:

US 150 provides a vital connection between the city of Bardstown and Springfield. 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 due to poor visibility caused by the bridge railings. 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 the areas of Springfield and Bardstown.**

NEXT STEPS: The district agreed to provide planning level estimates for the alternates they would like to see move forward. They will provide estimates for the approaches, but the estimate for the structures would be a square foot cost provided by the Division of Structural Design. The project team recommended that other roadway projects near the site and UPL projects in the area be included in the report. The interchange at the Bluegrass Parkway and the Springfield Bypass are the nearest projects. It was also requested that Jill check and see if any of the PVA information for the site is available online and that the vertical climb on the Nelson County side of the project be mentioned in the report.

Jill stated that she plans on having a draft report available by Mid-August. The meeting was followed by a visit to the site.

END OF MINUTES

Appendix K – Preliminary Cost Estimate Calculations

Project: 4-1068 & 4-1069

Alternate #1	Deck Area (sq. yds)		(sq. ft.)	$/sq. ft.	Cost
4-1068 Bridge:	1980		17820	$110	$1,960,200
4-1069 Bridge:	1110		9990	$110	$1,098,900
	Unit	Quantity		Unit Price	
New Box Culvert:	LF	50		$6,000	$300,000
Remove Structures	LS	1		$200,000	$200,000
Asphalt Surf. (1 1/4")	Tons	1000		$65	$65,000
Aspahlt Base (9")	Tons	7000		$65	$455,000
DGA (6")	Tons	4600		$20	$92,000
Embankment	Cu. Yds	11000		$10	$110,000
MOT (3%)		3.00%			$128,433
Mobilization (5%)		5.00%			$214,055
Demob (1.5%)		1.50%			$64,217
30% Contingency		30.00%			$1,284,330
				Construction Total:	$5,972,135

Alternate #2 or 3	Deck Area (sq. yds)		(sq. ft.)	$/sq. ft.	Cost
4-1068 Bridge:	1980		17820	$110	$1,960,200
4-1069 Bridge:	1110		9990	$110	$1,098,900
	Unit	Quantity		Unit Price	
Box Culvert Ext.	LF	20		$6,000	$120,000
Remove Structures	LS	1		$200,000	$200,000
Asphalt Surf. (1 1/4")	Tons	170		$65	$11,050
Aspahlt Base (9")	Tons	1200		$65	$78,000
DGA (6")	Tons	900		$20	$18,000
Embankment	Cu. Yds	2000		$10	$20,000
MOT (10%)		10.00%			$350,615
Mobilization (5%)		5.00%			$175,308
Demob (1.5%)		1.50%			$52,592
30% Contingency		30.00%			$1,051,845
				Construction Total:	$5,136,510