Data Needs Analysis Study

Bridge Replacement at Pevyhouse Branch
Lincoln County
Item #: 8-1049.00

January 21, 2011

Prepared by:
Division of Planning, Frankfort
District 8, Somerset
Kentucky Transportation Cabinet

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I. INTRODUCTION

A. Data Needs Analysis (DNA) Studies

A DNA Study is a Pre-Design Scoping Study performed on projects that did not have a prior Planning study. DNA Studies are shortened version of Planning studies and are conducted to better define the intent of the project before design starts. They are done to document existing data, to initiate early project requests such as Traffic Forecasting/Modeling and to accomplish early agency coordination. A preliminary environmental overview is also a part of these studies to identify potential environmental impacts due to the project. These studies help develop a project schedule and identify possible alternatives and costs. A "Purpose and Need" statement is developed by the Project team involved in the study. By investigating a project early in the process, scope changes can be kept to a minimum.

B. FHWA Recommended Elements for Purpose and Need

Federal Highway Administration (FHWA) National Environmental Policy Act (NEPA) recommends that the following nine elements may be a part of Purpose and Need statement during the transportation decision making of a project. The recommended nine elements are:

- Legislation
- Project Status
- System Linkage
- Modal Interrelationships
- Transportation Demand
- Capacity
- Safety
- Roadway Deficiencies
- Social Demands/Economic Development

As part of Purpose and Need statement for the current project, these FHWA recommendations will be addressed to the extent applicable.

C. Item 8-1049.00 DNA Study

Item 8-1049.000 is a Bridge Replacement project on Pevyhouse Branch at MP 11.216 on KY 78 in Lincoln County. This report describes a DNA Study conducted for this project.

The study investigated existing project information, developed a project scope and defined a Project Purpose and Need. A preliminary environmental overview

to identify potential impacts was conducted by the KYTC District 8 Environmental Coordinator. The Project Team discussed and developed possible alternatives and planning level cost estimates for the alternatives. Other information that will be of assistance in the Project Development Phase of this project was noted.

D. Project Location

The project is located on KY 78 at MP 11.216 in Lincoln County, approximately 0.3 mile west of JCT KY 300. (See Figure 1 and Exhibit 1 in Appendix A). A topographic map (Exhibit 2) of the study area and Route Log (Exhibit 3) can also be viewed in Appendix A.

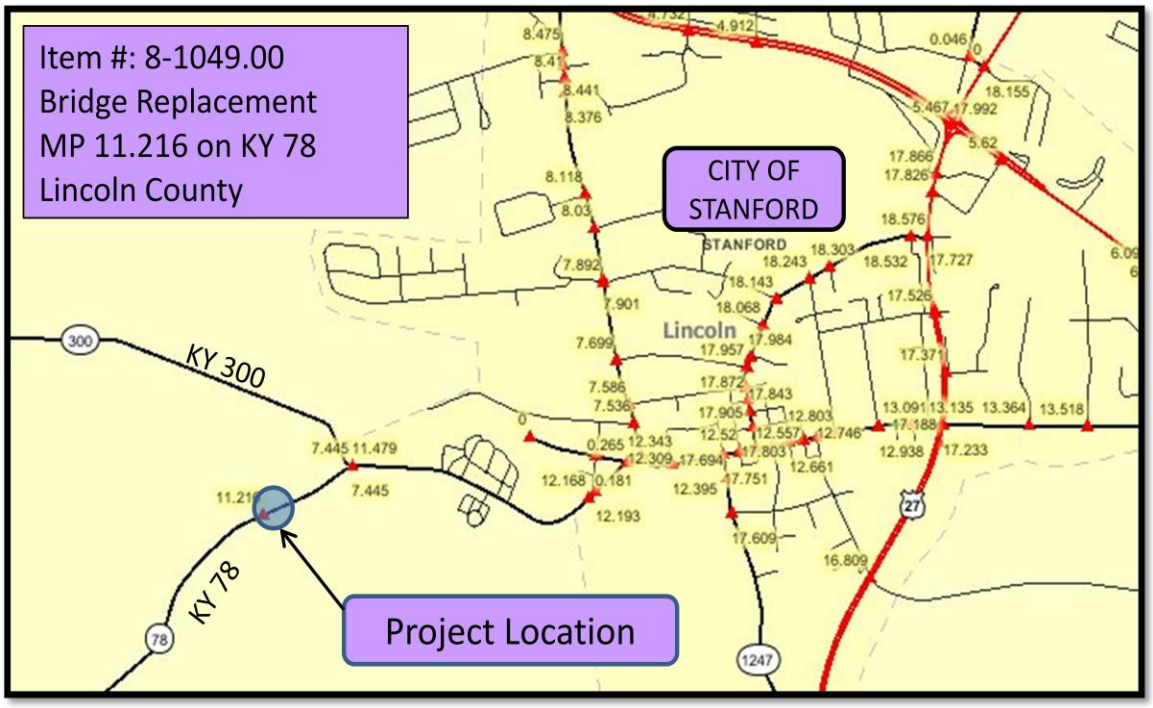


Figure 1: Project Location Map

II. PROJECT PURPOSE AND NEED

As discussed in Section IB, FHWA recommends nine elements to be considered as part of Purpose and Need for a project. For the current project, these nine elements will be discussed in the following section.

A. Legislation

The following is a description of the project as it is listed in the 2010 General Assembly's Enacted Roadway Plan. 2010 Highway Plan projects for District 8 and Lincoln County can be seen in Appendix B.

Item #8-1049.00, Lincoln County

Phase	Fund	Year	Estimate
D:	BRO	2010	$130,000
R:	BRO	2012	$75,000
U:	BRO	2012	$50,000
C:	BRO	2013	$310,000
		TOTAL	$565,000

REPLACE BRIDGE ON KY 78 (MP 11.216) OVER PEVYHOUSE BRANCH; .30 MI WEST OF JCT KY 300; (STRUCTURALLY DEFICIENT. SR = 43.3) 069B00027N

B. Project Status

The design on the project is expected to start in the near future. A second project that is currently in design on KY 78, Item 8-907.00, is a horizontal and vertical realignment spot improvement project from MP 8.20 to MP 8.65. The project is awaiting environmental approval to request right of way funding at the time of this report.

Reconstruction of KY 78 between Stanford and Hustonville is a project on the Unscheduled Project List (UPL) with a UPL project # 08 069 D0078 22.00. A Project Identification Form (PIF) exists (see Appendix C) and the project is listed as low (Regional) to medium (Local and District) priority.

C. System Linkage

KY 78 connects the Cities of Stanford and Hustonville. KY 78 is a Scenic Highway designated as "Cumberland Cultural Heritage Highway" (see Figure 2).

The project segment on KY 78 is not on a National Truck Network. Mostly grain trucks, tractors and local delivery traffic are known to operate on this segment. A towing company operates from the home next to the project site currently.

D. Modal Interrelationship

There is no public transit or intermodal use currently on this route.

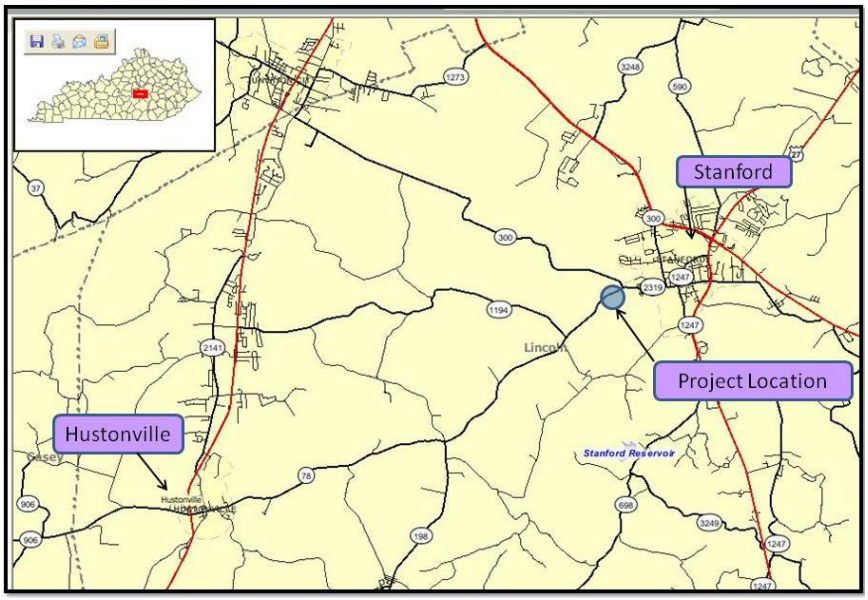


Figure 2: System Linkage Map

E. Social Demands or Economic Development

The project location is not expected to have any significant development. This was confirmed by Director of Economic Development in Stanford. According to the Director, there are no particular plans, at least in the immediate future for significant economic development activity in this area.

F. Transportation Demand

Traffic data was obtained from CTS – Traffic Counts summary data. Current and historic traffic data was obtained and future year traffic was estimated. The traffic growth expected is non-significant.

The current ADT in 2010 is 3300. A forecast will be needed to determine ESAL's.

G. Capacity

According to the KYTC Division of Planning's Adequacy Ratings Data, the current Vehicle/Service Flow (V/SF) is 0.18. This means that the current capacity of the existing roadway will be adequate for the near future.

H. Safety

Crash history of this segment was studied using Kentucky State Police data. Crash data was obtained from the Kentucky State Police database for a three year period from August 2007 to August 2010. There was one fatal crash involving two vehicles resulting in two deaths at MP 11.09 in June, 2010, about 600 feet west of the project site. In the past three years, Kentucky State Police did not report any crashes in the immediate vicinity of the bridge site. The property owner of the home next to the bridge site reported some minor crashes. Appendix D shows crash locations in the vicinity of the project as well as along KY 78 in that area.

I. Geometric Deficiencies

Roadway Information and Deficiencies

The existing culvert is skewed at 45 degrees to the roadway. Existing roadway is a two-lane undivided roadway with 9 foot lanes. Measured shoulder width at the site is approximately 1 foot. For the ADT and speed of the segment, KYTC Common Geometric Design Practices (Appendix E) suggest 12 foot lanes and 8 foot shoulders. Guardrail exists on the west side only. On the east side, there is no guardrail. Figure 3 shows the location of the bridge on KY 78.

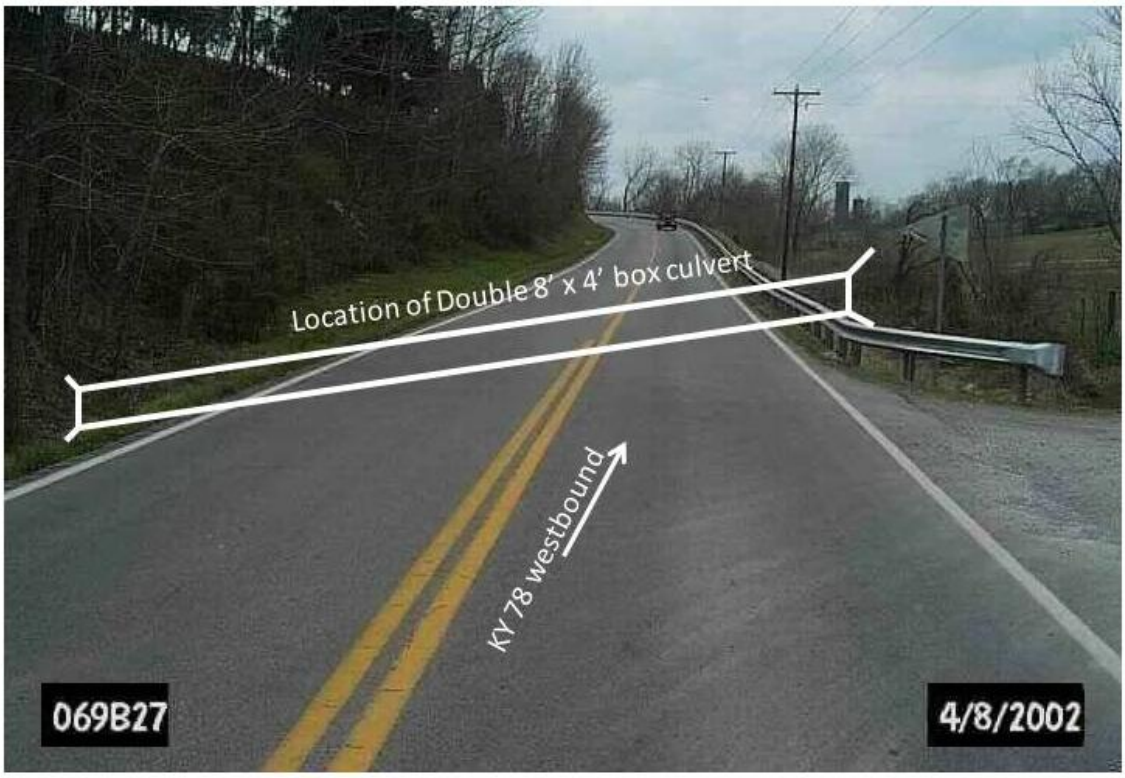


Figure 3: Bridge Location on KY 78

The location of the bridge is in a tangent section with a grade of approximately 0.64%. Speed limit in this area is 55 mph. Other existing roadway information is available in the roadway plans in Appendix F.

Figure 4 is a field sketch of the project location. A summary of the existing conditions at the project site can be seen in Table 1.

Appendix F shows roadway plans of KY 78 built in 1928 at the project location. The Composite Adequacy Rating of the roadway is 51.5. The rating is a composite of roughness, safety and service of the roadway.

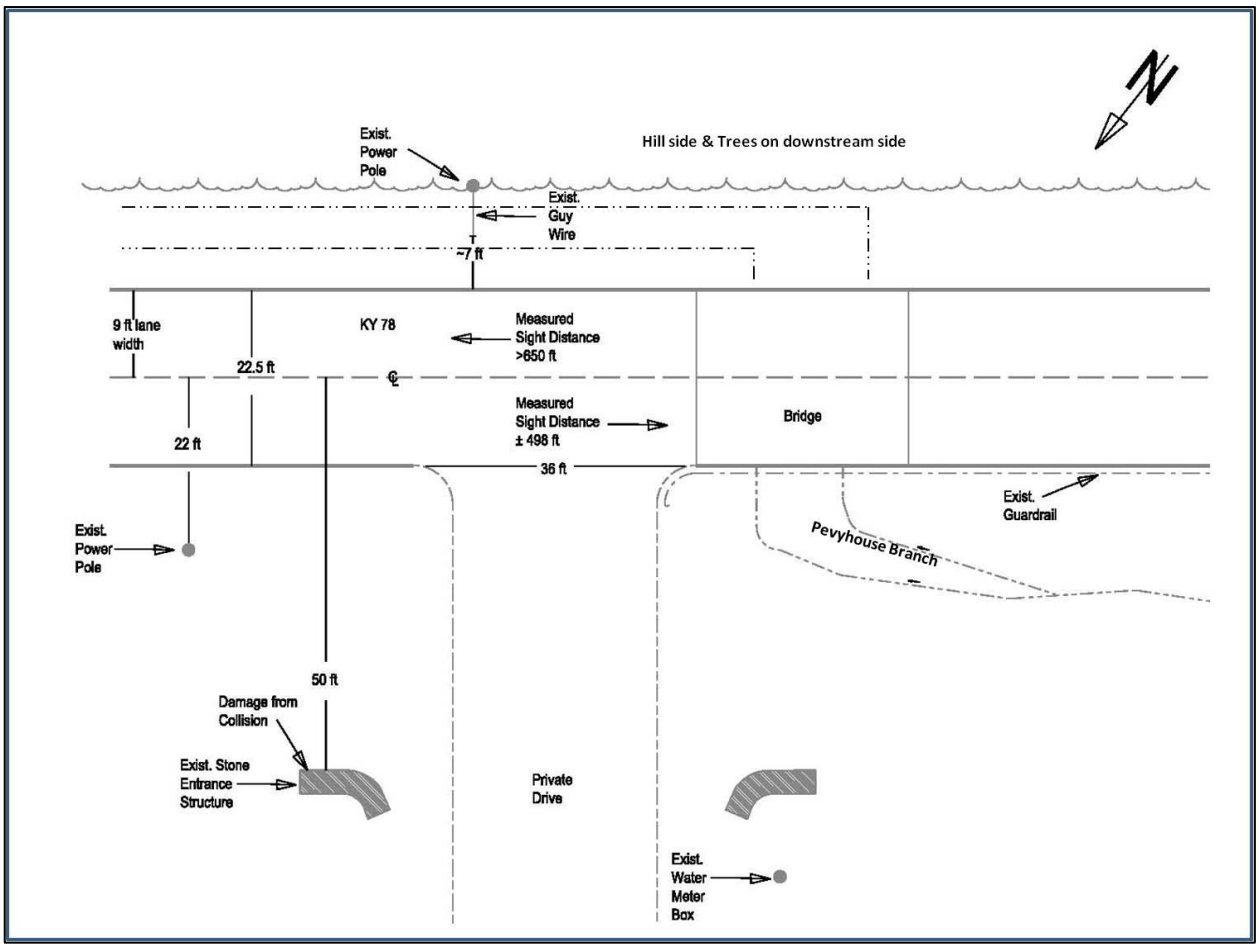


Figure 4: Field Sketch of Project Location

Table 1: Existing Conditions and Data Summary

County	*Lincoln*	**Item No.**	*8-1049.00*
Route Number(s)	*KY 78*	**Funding Type**	*BRO*
ADT (2010)	*3,830*	**MP**	*11.216*
Terrain	*Level*	**Posted Speed**	*55 mph*
Median Type	*Undivided*		
Roadway Data			
Functional Classification	*Rural Major Arterial*	**State Primary Road System**	*State Secondary Route*
National Highway System (NHS)	*No*	**Coal Haul Route**	*No*
National Truck Network	*No*	**Truck Weight Classification**	*A*
Bike Route	*No*	**Adequacy Rating Percentile**	*51.50*
Roadway Geometry			
	Existing Conditions	**KYTC Common Geometric Practices (55 mph Design Speed)**	
Number of Lanes	*2*	*2*	
Lane Width	*9 foot*	*12 foot*	
Shoulder Width	*+/- 1 foot*	*8 foot*	
Bridge Data			
Bridge Number	*069B00027N*		
Max. Span Length	*8 foot*		
Length	*27.0 foot*		
Sufficiency Rating	*43.2*		

Bridge Information and Deficiencies

The existing bridge is a double 8 foot x 4 foot x 37 foot culvert built in 1930. Bridge Number is 069B00027N. The existing culvert is skewed at 45 degrees to the roadway. The Sufficiency Rating of the bridge is 43.2. Bridge Inventory and Inspection reports can be seen in Appendix G.

Bridge Inventory and Inspection reports (April, 2010) list this bridge as structurally deficient. Bridge inspection reports recorded advanced deterioration of concrete in the barrels. Vertical cracks in the barrels, scaling and spalling in wing walls, and headwalls were also noted. The structural condition of the bridge can be seen in Figures 5 & 6.

Drainage

There are no reported flooding issues and roadway overtopping at this location. The Flood Insurance Rate Maps (FIRMs) do not indicate any flood zone in the vicinity of the project location. The FIRM Maps of the project site can be viewed in Appendix H.

Figure 5: Inner Structure of Box Culvert

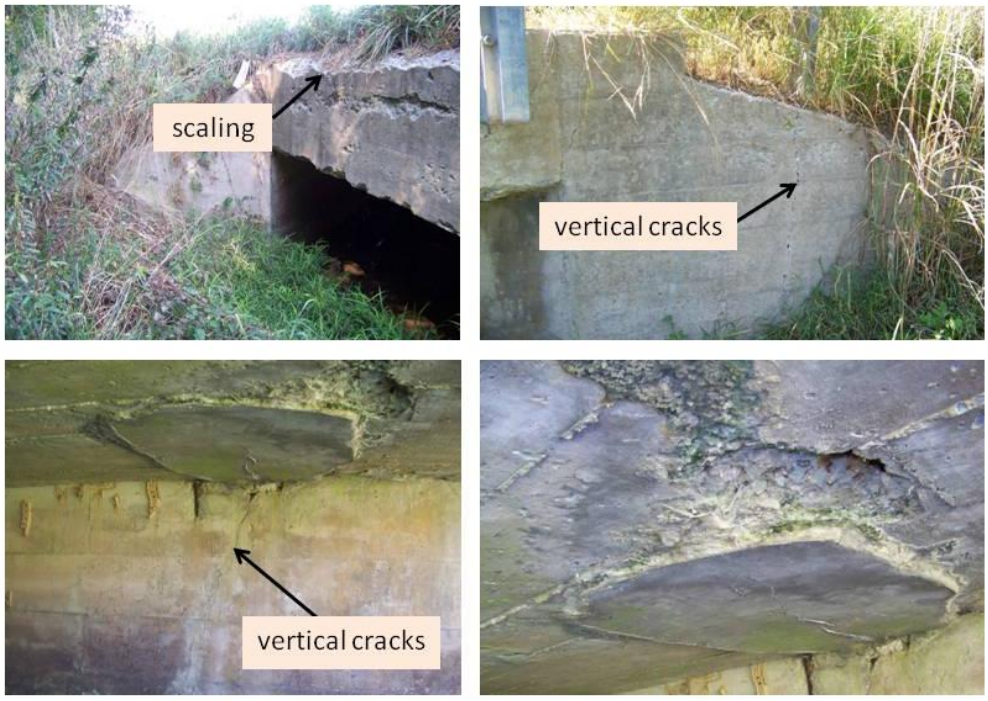


Figure 6: Structural Damage to the Box Culvert

Hydraulic Issues

Hydraulic issues were discussed at the Project Team meeting. Hydraulic Analysis will be conducted during the Phase 1 Design. Double 18 inch circular culverts exist at the driveway entrance of the hill side home on the downstream side. Ponding issues have been reported at these culverts.

Figure 7: Sediment build up on the upstream side

On the upstream side of the structure, sedimentation is filling up the channel. The walls of the double barrel culvert obstruct flow and cause sedimentation buildup. Another reason for the sedimentation buildup may be due to the skewed alignment of the channel with respect to the culvert and the flat grade of the stream. The problem may be minimized by replacing the box culvert with a single span bridge. If a double barrel culvert is installed, then a low flow diverter wall may be helpful in avoiding sedimentation.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW

A. Air Quality

Lincoln County is 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. This may be done in house or contracted out, depending on time and available resources.

C. Threatened and Endangered Species

The USFWS has identified the known and potential presence of threatened and endangered species in Lincoln County (See Table 2). During a site visit in August 2010 potential habitat was observed for the bat species in the project area; however a Habitat Assessment will need to be conducted to examine the

habitat potential more closely. The project area is outside the Upper Cumberland River Watershed; therefore no listed mussel species will be impacted. Any impacts to threatened and endangered species must be mitigated for, through coordination with USFWS.

Table 2: USFWS listing of Threatened and Endangered Species in Lincoln County

Group	Species	Common Name	Legal Status
Mammals	*Myotis sodalist*	Indiana bat	E
	Myotis grisescens	Gray bat	E
Mussels	*Villosa trabilis*	Cumberland bean pearlymussel	E

D. Hazardous Materials

During a site visit in August 2010, no properties were observed that would have a high probability of hazardous materials. However, due to the age of the bridge, it should be tested for asbestos prior to demolition.

E. Historic Resources

The house located immediately adjacent to the North of the project is reportedly 150 years old and is potentially eligible for listing on the National Register for Historic Places (see Figure 8). It has yet to be determined whether the potential eligibility will include only the house or the surrounding property as well. Additionally, the bridge over Peavey House Branch was constructed during the 1930s; which allows it to meet at least the first screening requirement for listing on the National Register for Historic Places. Therefore, a thorough assessment of the eligibility and listed status of the local residence and bridge should be completed in future project phases.

Due to the potential National Register eligibility of the home adjacent to the current project, early coordination with State Highway Preservation Office (SHPO) is necessary.

F. Permitting

Any impacts below the ordinary highwater mark within Peavey House Branch will need a USACE 404 Permit and potentially a Water Quality Certification from the Division of Water.

G. Noise

The scope of the project should not require additional noise analyses since there are no additional lanes of traffic planned for this project. The noise associated with construction and demolition will be temporary.

Figure 8: Potentially eligible for the National Register, currently owned by J.B. and Jacque Camenisch

Figure 9: Stone Walls adjacent to the bridge location

H. Socioeconomic

There will be no socioeconomic impacts associated with this project.

I. Section 4(f) Resources

The house, currently owned by Jacque and J.B. Camenisch is potentially eligible for the NR and if found to be eligible, it would therefore be protected under Section 4(f) of the Department of Transportation Act of 1966. Additionally, if the bridge or any 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 KYTC has options to mitigate and avoid impacts to Section 4(f) resources including a programmatic agreement for mitigating historic bridges and using “de minimus” guidance for minor strip takings.

J. Section 6(f) Resources

At this time, there do not appear to be any resources in the project area that are protected under Section 6(f) of the Land Water Conservation Fund Act.

IV. OTHER PROJECT INFORMATION

A. Utilities at Site

Existing utilities present at the site are electric, telephone, water and cable. A summary of the utility contacts in the project area is shown below.

Electric: Kentucky Utilities
August Faeth
198 Broadway, P.O. Box. 109
Danville, KY 40422
(859)936-3240

Telephone: AT & T
Brenda Richards
1535 Twilight Trail
Frankfort, KY 40361

Water: Stanford Waterworks
Alan DeShon, Manager
P.O. Box. 45, 305 Main St.
Stanford, KY 40484
(606)365-4512

Cable: Adelphia
Earl Finley
P.O. Box 727, 1617 Foxhaven Drive
Richmond, KY 40475
(859)624-9666

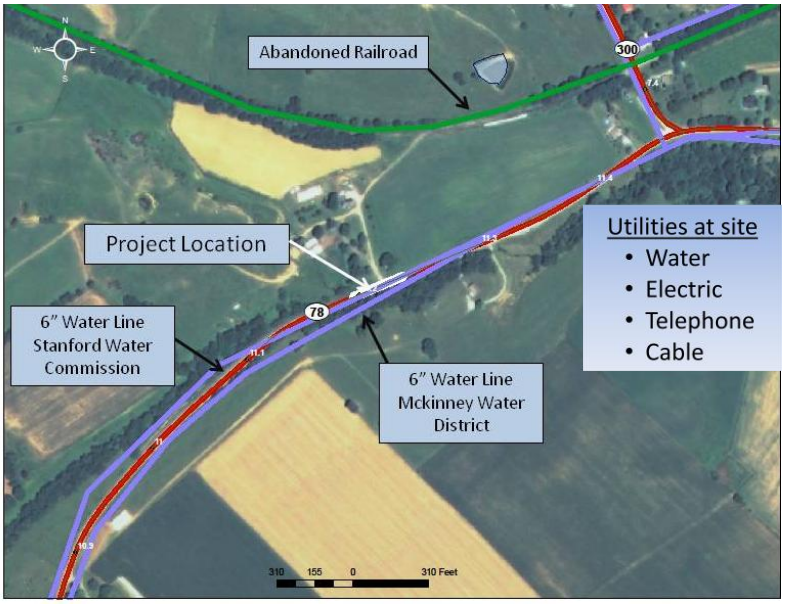


Figure 10: Utilities at the site

The location of utilities will need to be verified as the project survey is completed in Phase I Design.

B. Right of Way

As already mentioned, Appendix F has existing roadway plans for the project area. Right of Way appears to be 60 feet on the east side and 25 feet on the west side based on the existing plans.

PVA map of the project area can be seen in Appendix I. There is one owner for the property west of the existing bridge and one owner for the property east of the bridge. Deeds were investigated by District 8 Planning and are available for use.

V. PROJECT TEAM MEETING & SITE VISIT

Project Team Meeting

A Project Team meeting was held on September 8, 2010 at the District 8 office in Somerset. It was attended by KYTC Central Office team and District 8 Office staff. Introduction to DNA Pre-Design Scoping studies was presented which was followed by a Power Point presentation and discussion of DNA study of Item 8-1049.00. Existing conditions, preliminary environmental overview, possible alternatives were discussed and a draft "Purpose and Need" statement was defined. Meeting minutes can be seen in Appendix J.

Site Visit Observations

No truck traffic was noticed during the two site visits that were conducted. When the Project team visited the site, as many as eleven School Buses were seen traveling

through the project site just after the school dismissal time around 3 pm. It is recommended that construction should begin immediately after the School closes for the summer months to avoid any inconvenience to School traffic. Considering this important issue, an incentive per day should be added to the construction contract to finish the project early and open to traffic. A penalty for late completion of the project should also be defined.

During the site visit, the deck of the existing double box culvert was measured as 2 foot deep. Some erosion was noticed behind the northeast wing wall. The stonewalls were observed closely at the project site in order to estimate their life. It seems that the concrete on the stone walls is relatively new indicating the walls may not be as old as the home itself.

The downstream drainage structures at the entrance to the hill side home were investigated. The structures are double 18 inch circular concrete culverts. There was a lot of erosion seen on the downstream side of these culverts.

VII. PROPOSED TYPICAL SECTION

The Project Team discussed the proposed typical section for the project. Bridge design criteria should follow the future project design criteria on KY 78 as established in the Highway Design Guidance Manual.

KYTC Current Geometric Practices (see Appendix E) suggest two lanes 12 foot in width with 8 foot shoulders for the speed and ADT of this segment on KY 78. Reduced width of shoulders (4 foot) may be recommended. The typical will be finalized during Phase I Design.

VIII. PROJECT PURPOSE AND NEED STATEMENT

A Purpose and Need Statement is the foundation for project decision-making and is needed for projects requiring NEPA documentation. 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 this project:

> The purpose of the project is to eliminate the structural deficiency of the bridge which has a Sufficiency Rating of 43.2, to provide safety, mobility and connectivity between the cities of Stanford and Hustonville.

IX. POSSIBLE ALTERNATIVES

Structures considered by the Project team were a new bridge or a box culvert to replace the existing structure. For the culvert alternatives, double box culvert similar to the existing structure may be considered. Pre-cast arch culverts such as CONSPAN or BEBO will also be considered. Use of CONSPAN culverts can

minimize construction time and thereby shorten road closure duration. Minimum cover for these culverts is 1-1/2 foot not including pavement structure. Hydraulic analysis conducted in Phase 1 should also investigate the required opening and will allow for confirming or denying CONSPAN as an option. However, the low cover could pose a problems for installing guardrails for CONSPAN culverts.

Replacing the bridge at the current location: Alternates were discussed by the Project Team to construct the new structure at the current location. Replacing the bridge in-place with a new structure will require a temporary detour at the site or closing road, then detour traffic along an alternate route. The detour at site could affect the adjacent property which could be declared historic. On the east side, there is a hill and any construction of a detour will be expensive.

The Project Team decided that only State Routes will be used for detour and no County roads will be used for detour. Closing the road is the optimum choice to replace the bridge.

This segment of the road is planned to be closed down for another roadway improvement project (Item 8-907.00) a few miles west of the current project. Item 8-907.00 from MP 8.20 to 8.65 on KY 78 in Lincoln county is a spot improvement project to correct horizontal and vertical geometry.

The Project Team discussed that both the projects can be constructed at the same time so that the road closure can be combined. The Project Team recommended that this project should be let to construction at the same time as 8-907.00.

Realigning the structure: Realigning the structure by placing the new structure to the west may be problematic due to possible historic significance of the home. Realigning the structure on the downstream may be expensive involving cutting into the hill side. Both alternatives will involve realigning the existing roadway. Other disadvantages of realignment are: possible channel realignment and associated permits required. Also, significant amount of cut & fill will be required. With both upstream alternative or downstream alternative, matching the roadway with the realigned bridge would require adding new curves and super elevation in the roadway and will further increase the cost.

The following are the alternatives discussed at the Project Team meeting.

A. Alternate #1 - No Build

The Sufficiency Rating of the bridge is 43.2. The Project Team decided that this alternative should be dropped as the Project is already on the Highway Plan with funding allocated to it.

B. Alternate #2 – Build inplace with detour using existing State routes

This alternate involves a new structure with detour using existing State routes. The existing bridge is located on KY 78 at MP 11.216. The detour will be use KY 127 and KY 300. The detour length is 22 miles. The distance between KY 300 and KY 127 on KY 78 is 10.1. The detour length will lengthen this distance by 11.9 miles (22 miles – 10.1 mile = 11.9 miles). KY 78 will remain closed from JCT KY 300 to three miles north of JCT KY 78 – KY 198. The detour is shown in detail in Exhibit K.

This alternate will consider all possibilities for a new structure: a new bridge, pre-cast arch culvert and a double box culvert. Cost estimate for this alternate is shown below.

Some of the advantages of this alternate are: no additional right of way is needed, construction can take place without having to deal with traffic control and cost of relocation of utilities will be the minimum. The disadvantages of this alternate are: a detour is required which will increase the travel time. If construction takes place during non summer months, it will be inconvenient for school traffic.

Table 3: Alternate #2 - Build inplace with detour using existing State routes

	CONSTRUCTION	DESIGN	RIGHT OF WAY	UTILITIES	TOTAL
BRIDGE	$300,000	$150,000	$0	$50,000	$500,000
PRE CAST ARCH	$250,000	$150,000	$0	$50,000	$450,000
DOUBLE BOX CULVERT	$210,000	$150,000	$0	$50,000	$410,000

C. Alternate #3 – Build inplace with temporary detour at site

This alternate involves a new structure with temporary detour or diversion at the site. In this case, KY 78 does not need to close down during the construction period. Traffic can continue to operate using the temporary detour route at the site. In this Alternate, there are additional costs associated with the temporary detour such as temporary pavement, drainage, traffic control etc..

Table 4: Alternate #3 - New structure built inplace with temporary detour at site

	CONSTRUCTION	DESIGN	RIGHT OF WAY	UTILITIES	TOTAL
BRIDGE	$440,000	$175,000	$15,000	$50,000	$680,000
PRE CAST ARCH	$380,000	$175,000	$15,000	$50,000	$620,000
DOUBLE BOX CULVERT	$350,000	$175,000	$15,000	$50,000	$590,000

D. Alternate #4 – Build the new structure on the upstream side

This alternate involves construction of a new structure on the upstream side of the existing culvert. If the adjacent home is declared a historical property, the possibility of construction of a new structure on the upstream side will depend on the direction given by the State Historical Preservation Office.

This is a costlier alternative compared to Alternate 2 & 3. In this instance, the existing roadway can remain functional to the extent possible during construction. However, geometry of KY 78 needs to be realigned to match the location of the new structure. Additional right of way and utility expenses are required.

Table 5: Alternate #4 - Cost estimate for new structure on the upstream side

	CONSTRUCTION	DESIGN	RIGHT OF WAY	UTILITIES	TOTAL
BRIDGE	$660,000	$175,000	$30,000	$100,000	$965,000
PRE CAST ARCH	$610,000	$175,000	$30,000	$100,000	$915,000
DOUBLE BOX CULVERT	$570,000	$175,000	$30,000	$100,000	$875,000

E. Alternate #5 – Build the new structure on the downstream side

This alternate involves construction of a new structure on the downstream side of the existing culvert. This alternate was discussed at the Project Team meeting as a possible alternate. The downstream side of the existing culvert has a hill side for a considerable distance along KY 78.

This alternate was not recommended by the District office during the cost estimation phase because the alternate can be considerably more expensive. The location of the new structure and the realignment necessary on either side of the structure along KY 78 will be expensive. No cost estimates were developed for this alternate.

All the alternates have been summarized in Table 6 for comparison purposes.

Table 6: Summary of Cost Estimates

Alternate #1 - No Build – no cost estimate

Alternate #2: Build inplace with detour using existing State routes

	CONSTRUCTION	DESIGN	RIGHT OF WAY	UTILITIES	TOTAL
2010 BIENNIAL PLAN	$310,000	$130,000	$75,000	$50,000	$565,000
BRIDGE	$300,000	$150,000	$0	$50,000	$500,000
PRE CAST ARCH	$250,000	$150,000	$0	$50,000	$450,000
DOUBLE BOX CULVERT	$210,000	$150,000	$0	$50,000	$410,000

Alternate #3: New structure built inplace with temporary detour at site

	CONSTRUCTION	DESIGN	RIGHT OF WAY	UTILITIES	TOTAL
2010 BIENNIAL PLAN	$310,000	$130,000	$75,000	$50,000	$565,000
BRIDGE	$440,000	$175,000	$15,000	$50,000	$680,000
PRE CAST ARCH	$380,000	$175,000	$15,000	$50,000	$620,000
DOUBLE BOX CULVERT	$350,000	$175,000	$15,000	$50,000	$590,000

Alternate #4: New structure on the upstream side

	CONSTRUCTION	DESIGN	RIGHT OF WAY	UTILITIES	TOTAL
2010 BIENNIAL PLAN	$310,000	$130,000	$75,000	$50,000	$565,000
BRIDGE	$660,000	$175,000	$30,000	$100,000	$965,000
PRE CAST ARCH	$610,000	$175,000	$30,000	$100,000	$915,000
DOUBLE BOX CULVERT	$570,000	$175,000	$30,000	$100,000	$875,000

Alternate #5 – Build the new structure on the downstream side **–** no cost estimate because the District does not suggest this alternate.

X. OTHER ISSUES

The owner of the adjacent property on the west side operates a towing company from his home. During the site visit, the owner informed KYTC of the two crashes he was involved in, due to the difficulties entering and leaving his driveway. When he stops to take a left turn into his property from east bound KY 78, his vehicle is in danger of being rear-ended. He mentioned that he encounters problems leaving his driveway to get on KY 78 because of poor turning radius.

One recent crash damaged his stone wall fence which was noted at the time of the site visit. The Project Team decided that KYTC cannot make any improvements to his driveway as this is a private entrance. The property owner would be allowed to change his entrance by acquiring a KYTC permit. A left turn lane is not warranted at this location, however, the property owner could also construct this by permit.

XI. CONSTRUCTION

As discussed earlier, this project may be constructed at the same time as Item 8-907.00 which is a roadway spot improvement project west of the current project. This will enable road closure of KY 78 for the two projects along this segment at the same time. Also, as mentioned earlier, it is recommended that construction should take place during summer months when Schools are not in session to prevent disruption of School Bus services. The contract terms should include incentive for work completed ahead of schedule and penalties for not completing on time.

XII. SUMMARY

As seen in Table 6 in Section VIII, the estimated cost of all alternates except Alternate 2 exceeds the programmed cost in the 2010 Biennial Plan. Additional funds need to be requested. SHPO review of the site and adjacent property will determine if the project design should require mitigation. If the selected alternate is a new structure at the current location, these effects will be very minimum. If the selected alternate will place the structure on the upstream side, then greater mitigation may be required.

As mentioned in the report, a hydraulic analysis will be conducted during Phase I studies which will determine the size of the opening. The hydraulic analysis should include three alternative structural types for the new structure, a bridge, a culvert or a precast structure such as BEBO or CONSPAN culvert.

Upon completion of this project, a new bridge will be constructed which will replace the current bridge with a Sufficiency Rating of 43.2. Safety, mobility and connectivity between the cities of Stanford and Hustonville will be enhanced.

Additional Project photos can be seen in Appendix L. Some cost estimation tables can be seen in Appendix M.

For more information regarding this study please contact:

Sreenu Gutti, P.E., Steve Ross, P.E. or Keith Damron, P.E.
Kentucky Transportation Cabinet
Division of Planning, 5th Floor West
200 Mero St.
Frankfort, KY 40622
Ph: (502) 564-7183

APPENDIX A

EXHIBITS

EXHIBIT 1: PROJECT LOCATION

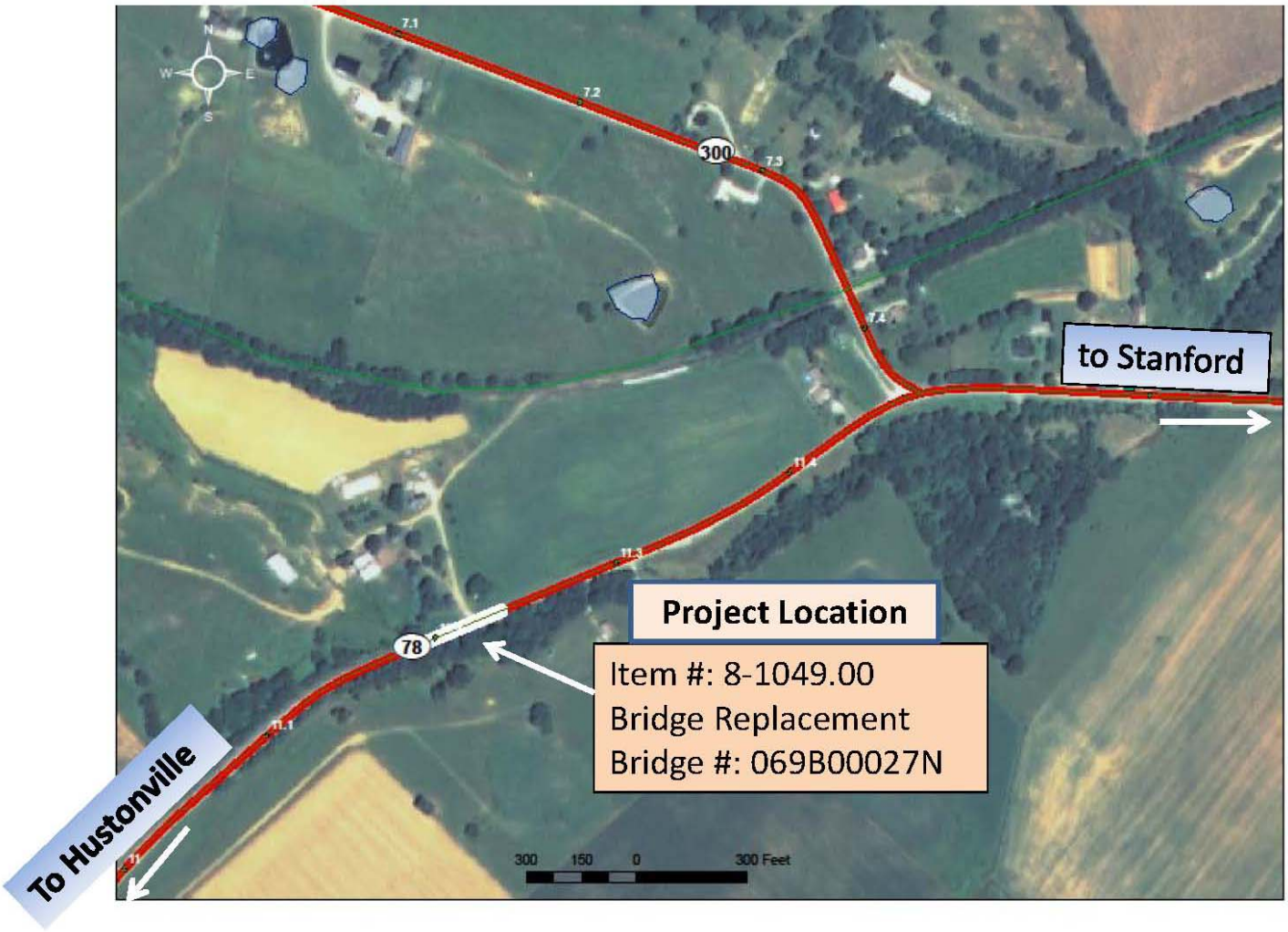
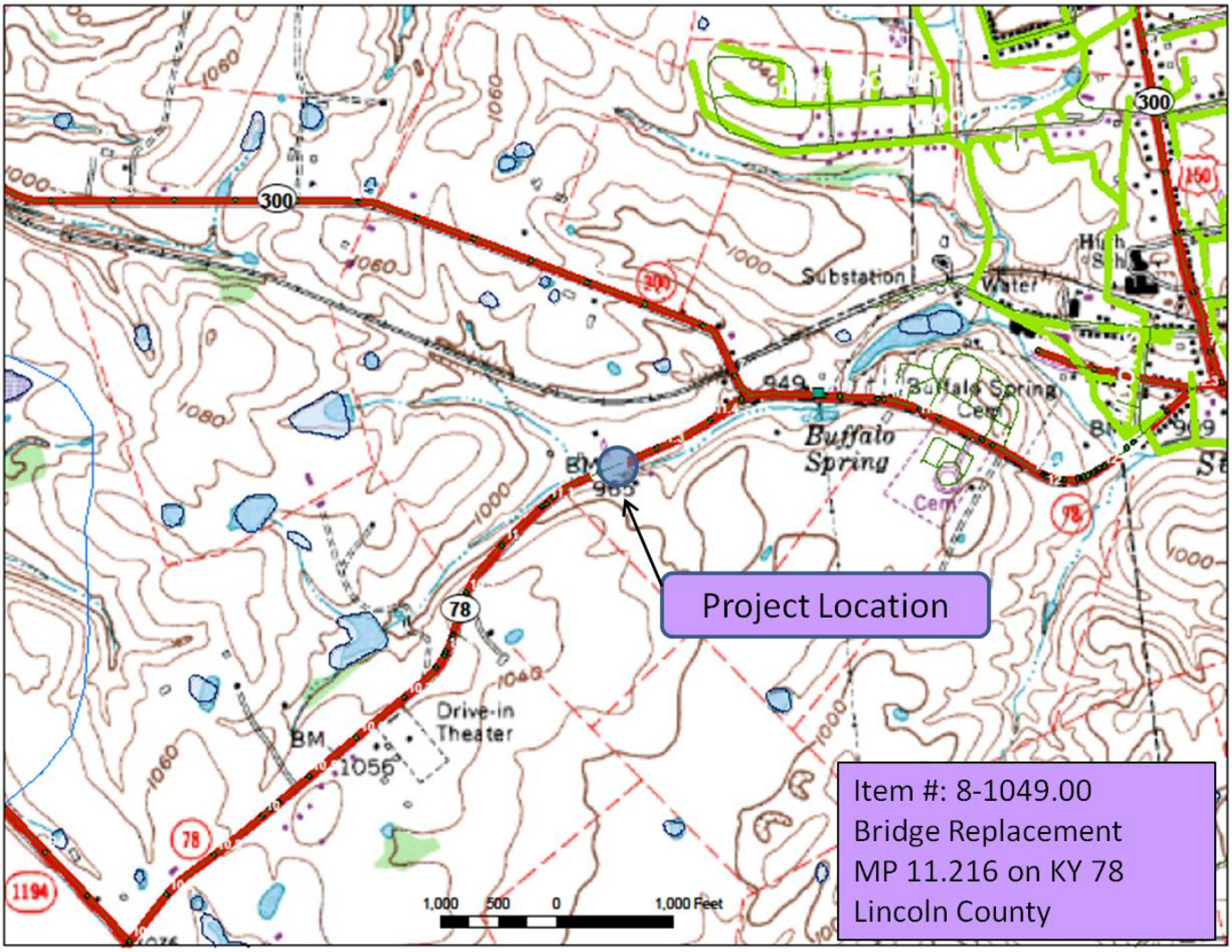


EXHIBIT 2: TOPOGRAPHIC MAP



HIS
12/8/2010

Kentucky Transportation Cabinet
Official DMI Route Log

Exhibit 3 KY 78 Route Log

County: **LINCOLN**

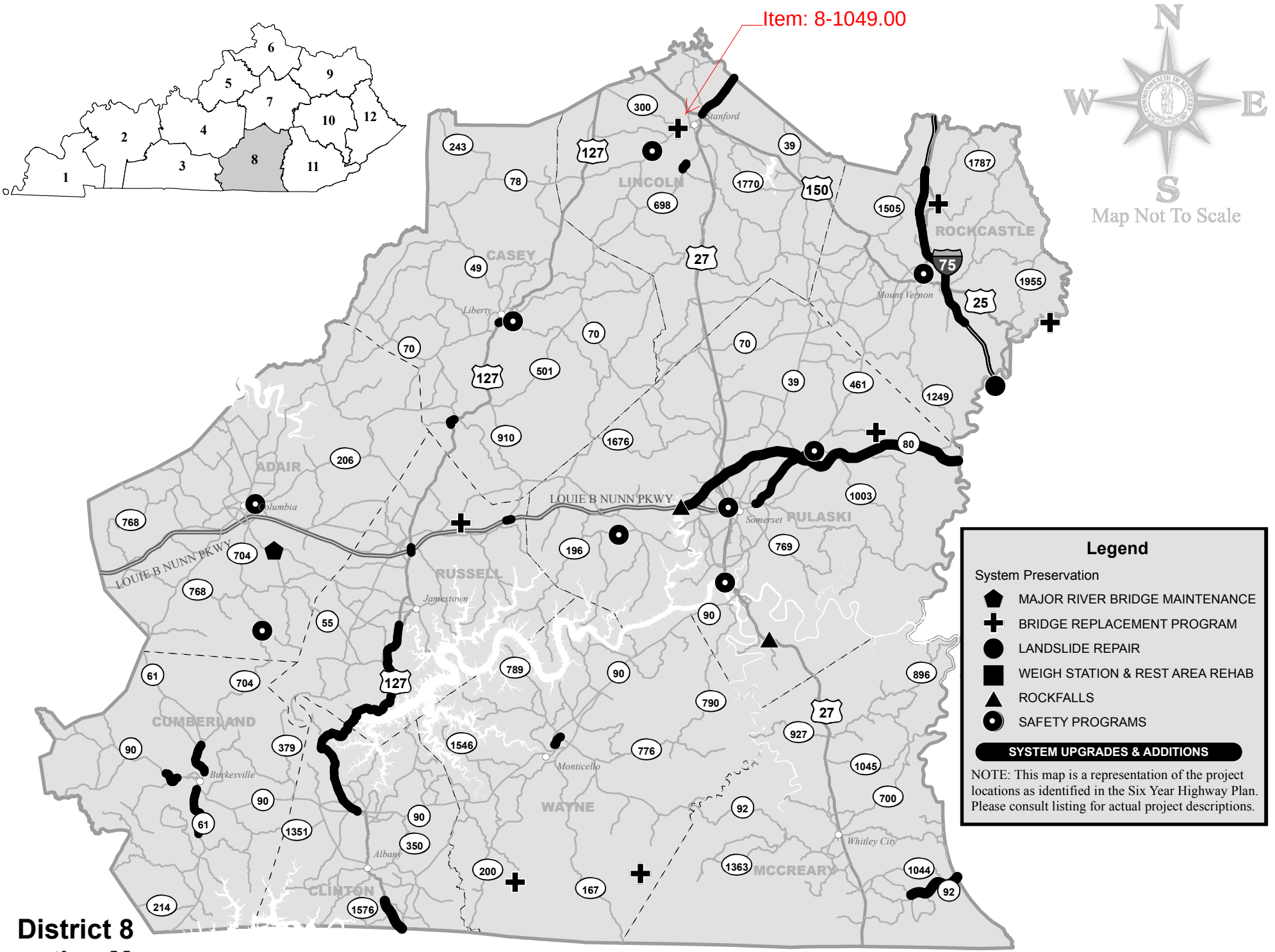
ROUTE	DIR	JCT	FUNCT	SYS	MILEPOINT	DESCRIPTION
KY 78	E		RUR MJ C	SS	5.263	MURPHY RD
	E		RUR MJ C	SS	5.719	SOUTH ELLIOTT RD
	E		RUR MJ C	SS	5.762	HANGING FORK CR. BRIDGE
	E		RUR MJ C	SS	7.058	PEYTON CREEK BRIDGE
	E		RUR MJ C	SS	7.089	KY 198
	E		RUR MJ C	SS	7.095	PEYTON WELL RD
	E		RUR MJ C	SS	7.185	MCCORMICKS BRANCH CULVERT
	E		RUR MJ C	SS	8.618	THORNHILL LN
	E		RUR MJ C	SS	8.647	BLUE LICK CR. BRIDGE
	E		RUR MJ C	SS	9.991	SPOONAMORE LN
	E		RUR MJ C	SS	10.102	KY 1194
	E		RUR MJ C	SS	11.216	PEVYHOUSE BRANCH CULVERT
	E		RUR MJ C	SS	11.479	KY 300
	E		RUR MJ C	SS	12.168	ST. ASAPH CREEK BRIDGE
	E		RUR MJ C	SS	12.193	MOON ST
	E		RUR MJ C	SS	12.309	KY 2319
	E		RUR MJ C	SS	12.343	KY 300
	E		RUR MJ C	SS	12.395	MCKINNEY CT
	E		RUR MJ C	SS	12.482	KY 1247/MILL ST
	E		RUR MJ C	SS	12.520	S DEPOT ST/N DEPOT ST
	E		RUR MJ C	SS	12.557	S LANCASTER ST/KY 1247
	E		RUR MJ C	SS	12.609	S 3RD ST/N 3RD ST
	E		RUR MJ C	SS	12.661	S 2ND ST/N 2ND ST
	E		RUR MJ C	SS	12.705	S 1ST ST/N 1ST ST
	E		RUR MJ C	SS	12.746	CUT OFF ST
	E		RUR MJ C	SS	12.803	LOGAN AV
	E		RUR MJ C	SS	12.938	WHITLEY AV
	E		RUR MJ C	SS	13.041	HARRIS CT
	E		RUR MJ C	SS	13.091	POWELL ST
	E		RUR MN C	RS	13.135	US 27
	E		RUR MN C	RS	13.364	INDUSTRIAL PARK DR
	E		RUR MN C	RS	13.518	DARST ST
	E		RUR MN C	RS	13.723	JOHN LOGAN TR
	E		RUR MN C	RS	13.781	LOGANS CREEK BRIDGE
	E		RUR MN C	RS	13.961	CORDIER RD
	E		RUR MN C	RS	14.442	EAST ST
	E		RUR MN C	RS	14.491	SHANKS LN
	E		RUR MN C	RS	14.499	RICE LN
	E		RUR MN C	RS	14.562	SOUTH ST
	E		RUR MN C	RS	14.681	CUT OFF PKE
	E		RUR MN C	RS	15.448	US 150
KY 198	N		RUR MN C	RS	0.000	CASEY - LINCOLN COUNTY LINE

Project Location

APPENDIX B

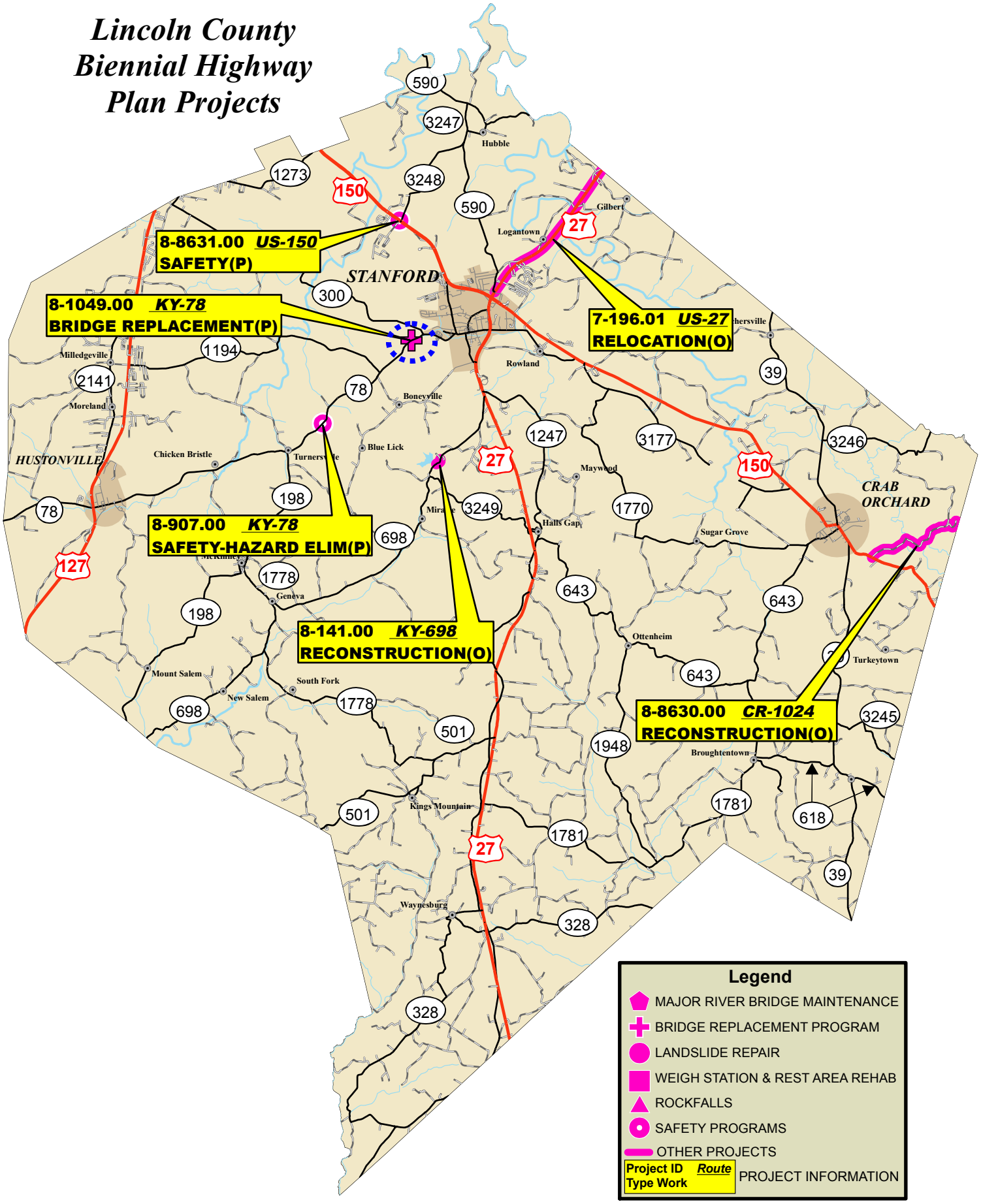
2010 General Assembly's Enacted Roadway Plan

District 8 Projects & Lincoln County Projects



District 8 Location Map

Lincoln County Biennial Highway Plan Projects



APPENDIX C

UPL Project Information Forms

PIF Revised: Aug. 2004

KYTC Project Identification Form

Cycle Year: **2005**
Priority: L : **Med** R: **Low** D: **Med**
Tier: **3**
Tier Rank: R: **n/a** D: **n/a**
Overall Top Ten: R: **n/a** D: **n/a**

Section I – General Information

Requested by: **Unknown**
Title/Organization:
Date:

Form Completed by: **B.Duncan/T.Clouse**
Title/Organization: **BGADD/DOH8**
Date: **1-21-05**

Revision 1 by:
Title/Organization:
Date:

Revision 2 by:
Title/Organization:
Date:

UPL Control #: **08 069 D0078 22.00** Co. #: **069**
Parent Control #:
RSE Unique Number: **069 KY-78**

District: **8** County: Lincoln Route: **KY 78**
ADD: **BGADD** MPO: SUA:

Mode: **Highway** State System: **State Secondary**
Type: **Reconstruction** Funct'l Class: **Rural Mjr Coll**

Project Length: 10.118 **Total Cost Estimate: $ 41650**
(P:150 D:4000 R:3500 U:3500 C:30500)

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: **KY 78**
Beginning MP: **2.225**
Ending MP: **12.343**
Total Length: **10.118**

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

(Use Report Year)	Original	Rev. 1	Rev. 2
AdequacyRating:	**80.55**: (**03**)	**84.5**: (**05**)	: ( )
• CRF: (Year)	**0.69**: (**03**)	**.56**: (**05**)	: ( )
• IRI: (Year)	**92**: (**03**)	**136**: (**05**)	: ( )
• V/SF: (Year)	**0.23**: (**03**)	**.11**: (**05**)	: ( )
Current ADT: (Year):	**2,160**: (**05**)	**2,160**: (**05**)	: ( )
Percent Trucks: (Year):	**14.8%**: (**03**)	: ( )	: ( )
Projected ADT (HDO): Year:	**2025**	%Growth: **2.05**	ADT: **3,243**

Please provide a clear problem statement for this project:

This project involves reconstructing KY 78 from Hustonville to Stanford (MP. 2.225 to MP. 12.343). KY 78 is a classified as a Rural Major Collector that runs East-West connecting US 27 to US 127. This segment of KY 78 consists primarily of 9' driving lanes and 3' shoulders (8.38 of 10.118 miles. The Composite Ratings vary from 65.50 to 98.00, and the Accident Critical Rate Factor ranges from 0.29 to 1.09. Horizontal Alignment rating varies from 1 to 3, indicating there are infrequent curves with design speeds less than the prevailing speed limit.

Section III – Project Description

Project Description Narrative:

Improve connectivity and safety on KY 78 from US 127 in Hustonville to KY 300 in Stanford.

Regional Goals/Objectives Addressed: **To promote the safe and efficient movement of people, goods and services to benefit all of the residents of the region.**

Section IV – Project Area Information:

1. Miscellaneous Roadway Conditions

Access Control:	Existing: **Permit** Proposed: **Permit**	Median Type:	Existing: **N/A** Proposed: **N/A**	Width: ____ Width: ____
Lane No./Width:	Existing: **2/9-20'** Proposed: **2/12'**	Shoulders:	Existing: **DGA** Proposed: **Asphalt**	Width: **3'-5'** Width: **8'**
No. of Bridges:	Existing: **9** Proposed: **9**	Other Improvement Projects in Area:	☐None ☒SYP ☐Resurface ☐Other **8-1024**	

Comments: **Existing Bridges at MP 2.275, 3.193, 4.608, 5.762, 7.058, 7.134, 8.647, 11.228, &12.156.**

2. Right of Way

Avg. Width: Existing: **40-50** 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: **Estimate requires further study**

3. Utilities

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

☐ No ☒ Yes Project may require Utility Relocations. | Comments: **Estimate requires further study**

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: **Requires further environmental review**

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: **Could enhance development opportunities**

☐ 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: **Downtown Stanford attractions**

	☐ No ☐ Yes This project provides direct access to major traffic generators: ☒ Shopping Centers ☒Schools ☒Industries ☐Military Installations ☐ Other Please Describe: **Various traffic generators**
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	$150,000	T.C.						
Design	$4,000,000	T.C						
ROW	$3,500,000	T.C						
Utilities	$3,500,000	T.C						
Construction	$25,300,000	T.C	$30,500,000	2/20/07	T.C.			
Total Cost	**$36,450,000**	**T.C**	**$41,650,000**	2/20/07	**T.C.**			

Estimate Procedure Used:

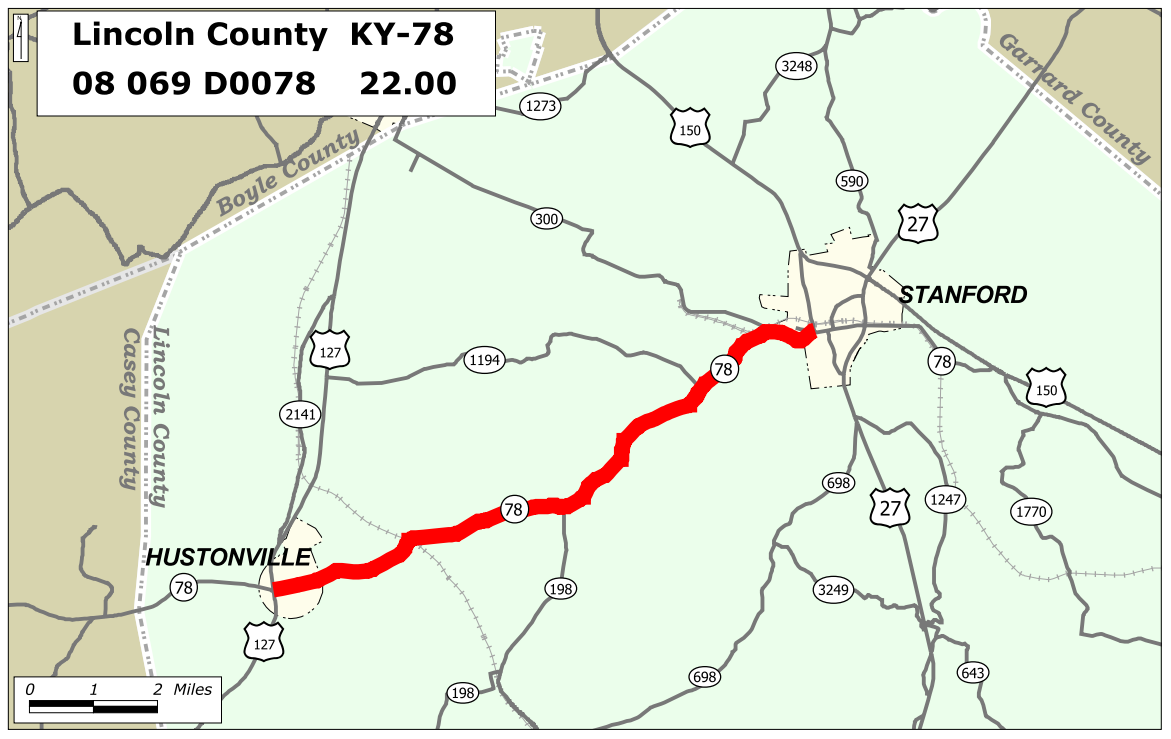
Original Estimate:	Revision 1:	Revision 2:
☐ Per Mile@ $ _____ Terrain: **Rolling**	☐ Per Mile@ $ _____ Terrain: **Rolling**	☐ Per Mile@ $ _____ Terrain: _____
☐ Detailed Estimate with Calculations Attached	☐ Detailed Estimate with Calculations Attached	☐ Detailed Estimate with Calculations Attached

Estimate Assumptions: **Assumptions used: Design $400,000/mile, R/W - used attached detailed cost estimate, Utilities $350,000/mile, Construction $2,500,000/mile**	Estimate Assumptions: **Construction $3,000,000/mile**	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:

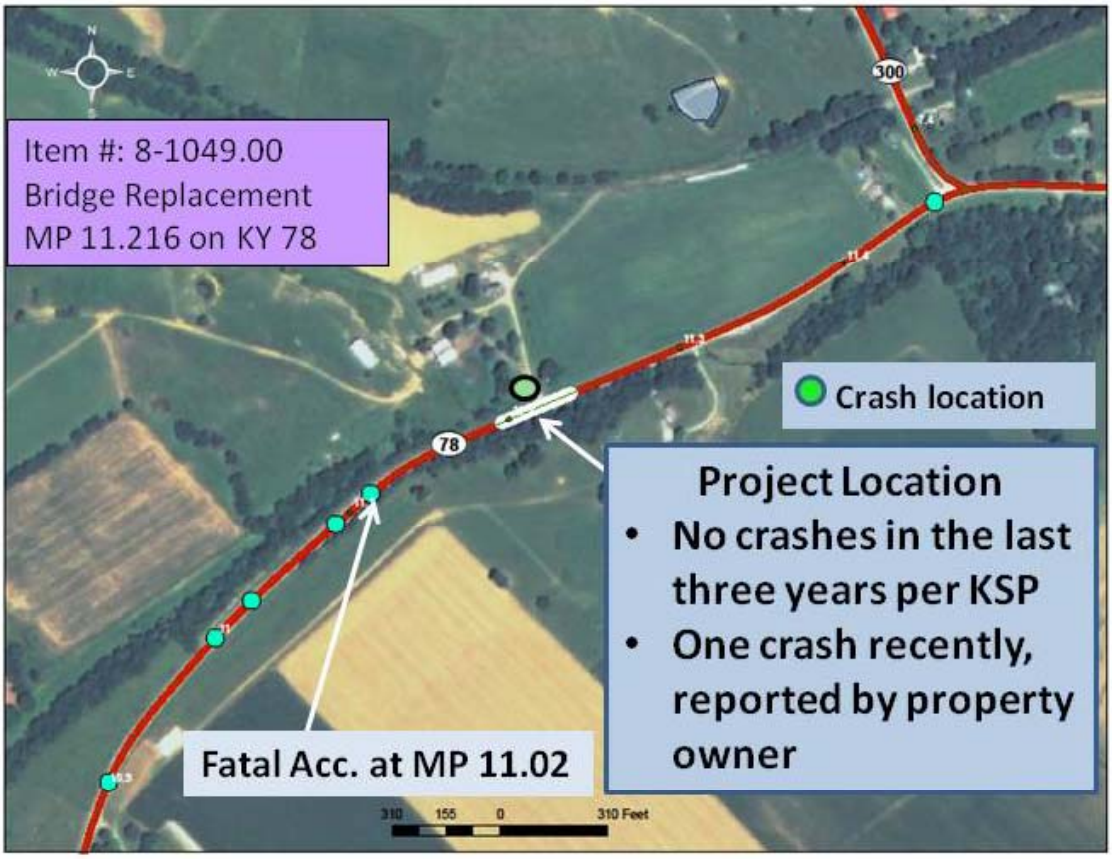

Lincoln County KY-78
08 069 D0078 22.00
Boyle County
Garrard County
Casey County
Lincoln County
STANFORD
HUSTONVILLE
3248
1273
150
590
300
27
127
1194
78
2141
698
1247
1770
198
3249
643
0 1 2 Miles

APPENDIX D

CRASH DATA

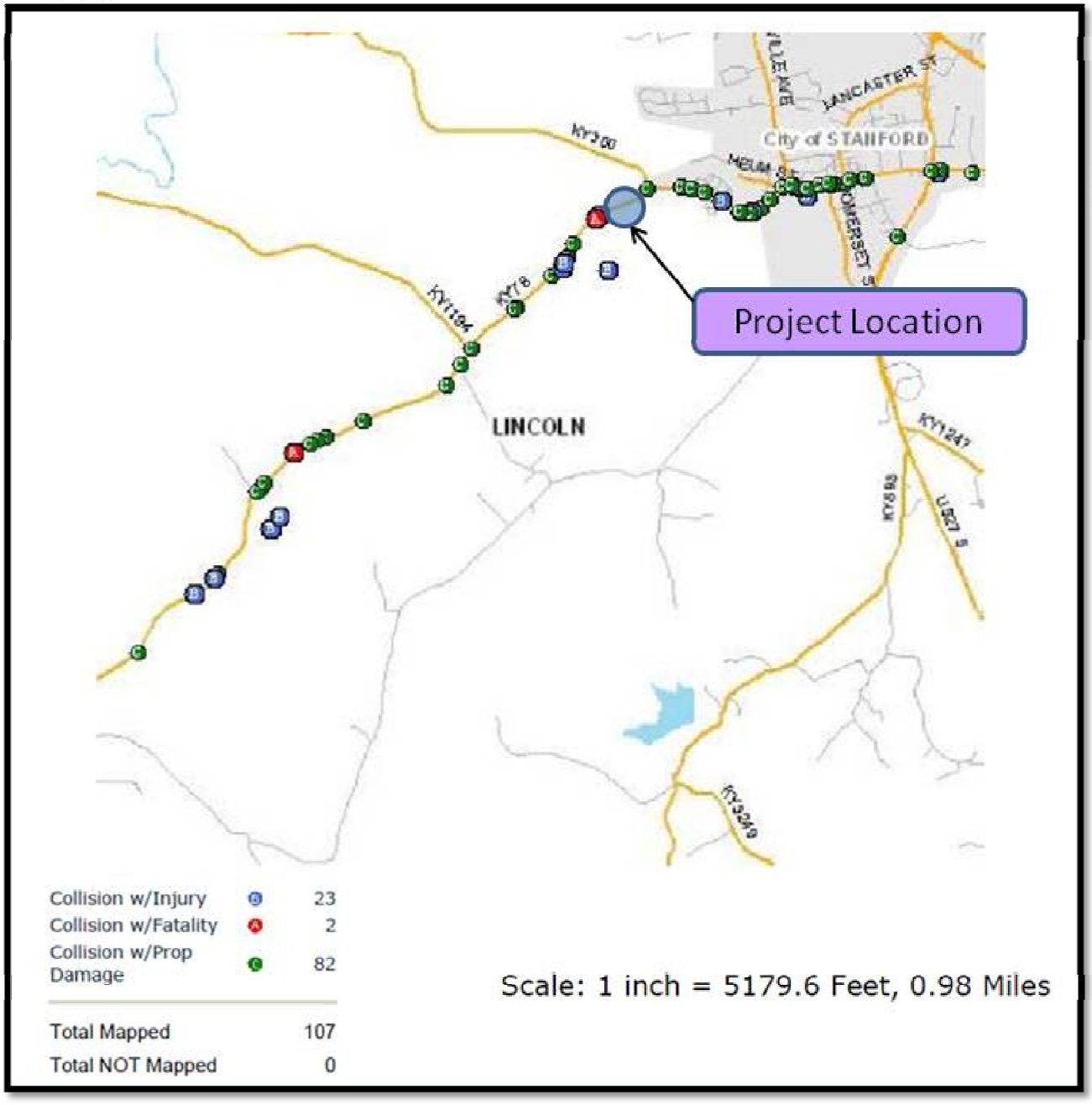
Safety – KY 78

Collision Locations (August 1, 2007 to July 29, 2010 data)



KY 78 CRASH DATA (8/07 to 7/10)

Criteria: Collision Date is between 8/1/2007 and 7/29/2010 ***And*** Roadway Number is ky0078 ***And*** County Name of: LINCOLN



APPENDIX E

KYTC COMMON GEOMETRIC PRACTICE GUIDELINES

EXHIBIT 700-03

Project Location

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 F

EXISTING ROADWAY PLANS

COUNTY OF	STATE PROJ. No	SECTION	YEAR	SHEET NO	TOTAL SHEETS
LINCOLN	23	C-S	1928	1	10

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	LAYOUT SHEET
2	TYPICAL SECTIONS-SUBM. BY CO. ENGINEER
3	STANDARD DRAWING SHEET
4 TO 15	PLAN AND PROFILE SHEETS
16 TO 18	REFERENCE SHEETS
19 TO 40	CROSS SECTION SHEETS
15	DRIVE SHEETS

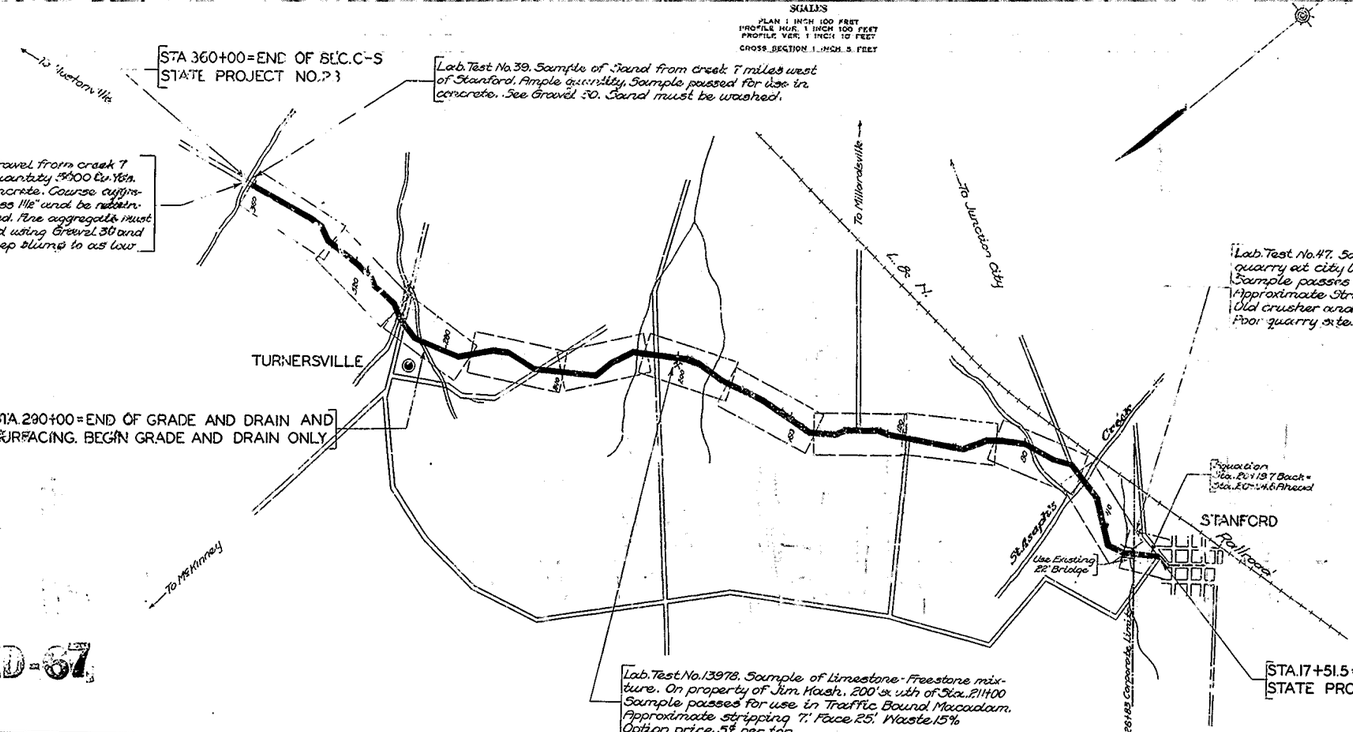
COMMONWEALTH OF KENTUCKY
STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY
STATE PROJ. Nº 23 SEC. C-S

LINCOLN CO.

1-31 File 4-15-2

SIGNS
PLAN 1 INCH 100 FEET
PROFILE HOR. 1 INCH 100 FEET
PROFILE VER. 1 INCH 10 FEET
CROSS SECTION 1 INCH 5 FEET



Lab. Test No. 47. Sample of Limestone from Mrs. Spock quarry at city limits of Stanford. 300' north of road. Sample passes for use in Traffic Bound Macadam. Approximate Stripping 6'. Face 15'. Waste 15%. Old crusher and bins already set up in this quarry. Poor quarry site. Not guaranteed. Not tested.

CONVENTIONAL SIGNS

COUNTY LINE	
CORPORATE LIMITS	
SURVEY LINE	
PROPOSED RIGHT OF WAY	100
GRADE LINE	200' V.C.
GROUND LINE	
TRAVELED WAY	
RAILROAD	BASE OF RAIL
FENCES (EXCEPT STONE & HEDGE)	
STONE FENCE	
HEDGE FENCE	
TREES & STUMPS	
PIPE LINE	
TELEPHONE POLES	
PIPE CULVERT	
CONCRETE CULVERT & BRIDGE	
LARGE STREAM	
SMALL STREAM	
BENCH MARKS	B.M. ⊗ No. 4
ROAD INTERSECTIONS	
MARSH	
BUILDINGS	

LAYOUT MAP

SCALE 1 INCH 2000 FEET

GROSS LENGTH	34,283.6 LIN. FT.	6.495	MILES
DEDUCTED FOR EQUATIONS	41.9 LIN. FT.		
NET LENGTH	34,221.6 LIN. FT.	6.481	MILES

NOT INCLUDED

RAILROAD CROSSINGS No. ____ LIN. FT.
BRIDGES 220 LIN. FT.

NO SECT'S.

KENTUCKY STATE HIGHWAY DEPARTMENT
COUNTY OF
LINCOLN
STANFORD-HUSTONVILLE ROAD

STATE PROJECT No. 23	SECTION C-S	DATE 1928

SURVEYED	1927 BY	L.B. Tyson, FIELD ENGINEER
PLANS CHECKED 9-17	1928 BY	R.E. Bowne, CHIEF DRAFTSMAN
SURVEY AND PLANS APPROVED	19 BY	LOCATING ENGINEER
SURVEY AND PLANS APPROVED	19 BY	ENGINEER OF CONSTRUCTION
APPROVED	19 BY	STATE HIGHWAY ENGINEER
APPROVED	19	CHAIRMAN STATE HIGHWAY COMMISSION

RECOMMENDED FOR APPROVAL
DISTRICT ENGINEER-BUREAU OF PUBLIC ROADS

RECOMMENDED FOR APPROVAL
CHIEF ENGINEER-BUREAU OF PUBLIC ROADS

APPROVED
DIRECTOR-BUREAU OF PUBLIC ROADS

PLANS TRACED BY A. R. JAN 1928
PLANS COMPLETED BY
PLANS CHECKED BY
PLANS APPROVED JAN 1928

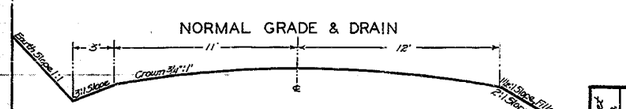
PLANS RETRACED BY JAN 1928

SP 23 - C-S

TYPICAL SECTION AND SUMMARY SHEET

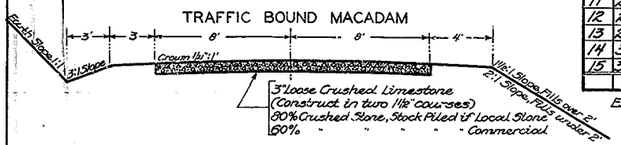
County Name	State Proj. No.	Section No.	Fiscal Year	Sheet No	Total Sheets
Lincoln	83	C-3	1928	2	10

NORMAL GRADE & DRAIN

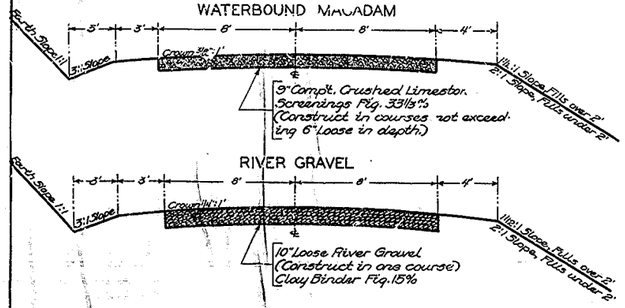


From Stx. 171+51.5 to Stx. 290+00 construction will be Grade and Drain and Surfacing. From Stx. 290+00 to Stx. 360+00 will be Grade and Drain only.

TRAFFIC BOUND MACADAM



WATERBOUND MACADAM



RIVER GRAVEL

GENERAL NOTES

The Department's 1926 Standard Specifications will govern on this project.

All curves to be barked and widened according to Standards.

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

Options on "local quarries" or pits are secured by the State Highway Department for the protection of the Contractor. Payment of the option price for materials from such quarries or pits will be made by the Contractor.

For typical sections in solid rock cuts see drawings Nos. 1 & 2 for Grade and Drain, and Nos. 3 & 4 for Grade, Drain and Surfacing on Standard Drawings Sheet No. 3.

Quantities for this project have been computed using a template designed for surfacing as shown on the cross sections. The initial construction will be Grade, Drain and Surfacing from Sta. 171+51.5 to Sta. 290+00, and Grade and Drain only from Sta. 290+00 to Sta. 360+00 as shown on the Typical Section Sheet and the grade line shown on these plans must be shifted slightly to properly balance the quantities.

GENERAL SUMMARY

Sheet No.	Station To Station	Clear And Grubb.	Excavation: Common	Solid Rock	Common Borrow	For Struct	Overhaul Excav	Rip Rap	Scarify And Reshape	Final Dressing	Remove Pipe	Reload Pipe	Remove Stone Fence	Class "A" CMP for Pvt. Ent. 12"	18"	24"
Unit to bid on		Acres	Cubic Yards				Yd. Sta.	Cu. Yds.	Sq. Yds	100 Sta.	Lin. Ft.		Cu. Yds.	Lin. Ft.		
4	171+51.5 - 182+50	1.72	357		424		1419		1600							
5	182+50 - 621+00	339	3415	195	435		1470		2100							
6	621+00 - 911+15	403	1609	1664	434		369		2680							
7	911+15 - 1221+00	3.54	1237				287		3300							
8	1221+00 - 1501+00	3.21	963		55		436		3300							
9	1501+00 - 1811+50	3.96	732		814		533		3500							
10	1811+50 - 2101+00	4.71	742		1083				2470							
11	2101+00 - 2401+00	4.02	774		800		581		3470							
12	2401+00 - 2731+00	3.79	923		164		24		3500				138			
13	2731+00 - 3011+20	3.53	1595		1296		1177		260							
14	3011+20 - 3301+75	4.55	6712	5932	337		756						25			
15	3301+75 - 3601+00	3.63	2936	875	583		2807						218			
	Totals	44.08	22075	8466	6425	483	9859	100	26180	342	50	290	790	300	102	26

Estimated 100 Cu. Yds. Removing Stone Masonry.

BRIDGE & CULVERT SUMMARY

Final Quantities Noted 11-5-28

Sheet No.	Station	Size	Concrete "A"	"D"	"F"	Reinf Steel	Class "B" Concrete	Struct. Excav.	Foundation Excav: Common Dry	Common Wet	Rock Dry	Rock Wet	Remove Exist. Struct.	Grade	Drawing No.	Std. or Spec'l.
Unit To Bid On			Cu. Yds			Lbs.	Cu. Yds	Cu. Yds	Cubic Yards				Each			
5	54+50	10'0"x12'6"	62.1			4710		30						934.58	3554	Spec.
6	71+50	D618'4"x369'6"	63.8			4140		150						950.24	3555	"
11	212+16.5	2-1/6 Deck Gir.	93.7	2.5	35.7	12550			100	50	10		1	936.00	3556	"
13	289+00	Dpl. 45° 2-6'6" 8"x11"x39"	54.7			4980		140					1	933.00	3557	"
13	295+84.5	2-18 Deck Gir. 45° Skew	81.8	2.7	52.6	16580			110	70	10		1	931.00	3558	"
14	321+50	8'6"x40'	52.1			6120		50						950.19	C-86 C-119 C-3	Std.
Totals			408.2	5.2	88.3	46080		370 *	210	120	20		3			

* Included in General Summary.

PIPE SUMMARY

Sheet No.	Station	Skew	First + Class Pipe 18"	24"	Class "A" Conc. For H-Walls	Structure Excav.	Remarks
UNIT BID ON		Deg	Lin. Ft.		Cubic Yards		
4	31+00	30	30		3.14		1-ELL HDW
5	36+00	30	30		3.14		" " "
6	62+50			30	4.00		2-Std. H.Ws.
6	69+50		27		3.49		1-Rsd. H.W.
6	71+43**		30		3.02		2 Std H.Ws
6	81+00	30	30		3.14		1-ELL H.W.
6	85+00	30	30		3.14		" " "
6	89+00	30	30		3.14		" " "
7	99+00			30	4.00		2 Std H.Ws.
8	147+00			27	4.54		1 Rsd. H.W
9	152+50		27		3.02		2-Std. H.Ws.
9	176+21			27	4.54		1 Rsd. H.W.
9	181+00		27		3.49		" " "
10	193+43			27	4.54		" " "
10	203+00		27		3.02		2-Std. H.Ws.
11	220+00	30	33		3.14		1-ELL. H.W.
11	225+00	30	30		3.14		" " "
12	263+00		27		3.02		2-Std. H.Ws.
12	268+00		27		3.49		1-Rsd. H.W.
12	271+50		27		3.49		" " "
13	275+43		27		3.02		2-Std. H.Ws.
13	279+50			27	4.54		1-Rsd. H.W.
13	282+39		27		3.49		" " "
13	294+00		27		3.49		" " "
14	308+00		54		3.02		2-Std. H.Ws.
14	310+43		36		3.02		" " "
14	316+53			66	4.00		" " "
14	327+50	30	30		3.14		1-ELL Helw.
15	332+00		54		3.02		2-Std. H.Ws.
15	337+00		30		3.02		" " "
15	344+00	30	30		3.14		1-ELL H.W.
15	349+00	30	30		3.14		" " "
15	354+00	30	30		3.14		" " "
Totals		180'	234		112.82	113 *	

* Included in General Summary.

† Alternate Bids must be submitted on the following types of pipe:- First Class Reinf. Conc. Pipe, " D.S. Vit. Pipe, Class "A" Corr. Metal Pipe.

** This pipe is to be eliminated on construction

MILEAGE

	Lin. Ft.	Miles	Sq. Yds.
Gross Length	272436	5.159	
Deduct for Equation	49		
Net Length	271476	5.141	48262.4
Deduct for Bridge	96.0		
Add for Curve Widening	275.8		492.1
Total Surfacing			48754.5

TRAFFIC BOUND MACADAM

	Roadway	Pvt. Ent.
3" Loose Crushed Limestone *	4871 Tons	300 Tons
Construct in Two 1 1/2" Courses		
90% Additional Crushed Limestone Stock Piled (Local)	38917 Tons	
60% " " " (Commercial)	2922 "	

WATERBOUND MACADAM

3" Compt. Crushed Limestone *	21959 Tons	300 Tons
Construct in Courses not to exceed 6" Loose in depth		
Screenings Fig. 33 1/3%	7318 Tons	

RIVER GRAVEL

10" Loose River Gravel	16958 Tons	300 Tons
Construct in one course		
Clay Binder Fig. 15%	2031 Cu. Yds	

* Stripping Excavation Common T.B.M. 2300 Cu. Yds. W.B.M. 6900 Cu. Yds.
" " Solid Rock 300 " " 1500 " "

SP 23 - C - 8

COUNTY NAME	STATE PROJ. NO.	SECTION NO.	YEAR	SHEET NO.	TOTAL SHEETS
LINCOLN	23	C-S	1928	4	10

STANFORD, KY.

COURT HOUSE

B.M. No. 1

P.I. 3+05.4 Δ = 1°23' Rt.

P.I. 15+17.1 Δ = 47°24' Rt.

P.I. 17+41.5 Δ = 48°05' Lt.

S77°54'W

S79°17'W

MRS. HUGH REID

JOHN F. ENGLEMAN

MRS. B.B. KENNEDY

JOHN BALL

MRS. BERTHA HELM

MRS. ROSE ATKINS ESTATE

MRS. EDMOND SIMPSON

MRS. GEO. GENTRY

B.M. No. 2

HUGH BAKER

MRS. C.E. TATE

P.I. 29+58.0

MRS. MARTHA E. GOOCH

MRS. JOHN COOK

Use Existing Bridge

MRS. GEO. GENTRY

MRS. W.S. DRYE

MRS. WM. FIELDS ADM.

Sta. 26+83 ± Stream Corporate Limits CITY OF STANFORD

Δ = 15°-16'R
C = 14°00'
T = 192.0
L = 391.6
R = 1432.5
E = 12.8

EQUATION = Sta. 20+19.7 Back = Sta. 20+21.6 Ahead

Δ = 37°47'
C = 30°00'
T = 65.4
L = 125.9
R = 191.0
E = 10.8

FOR CONSTRUCTION
Sta. 17+51.5 To Sta. 32+50

Clearing & Grubbing	1.72 Acres
Excavation Common	357 Cu. Yds.
" " Borrow	424 " "
" Overhaul	1419 Yd. Sta.
Scarify and Reshape	1600 Sq. Yds.

B.M. No. 1. U.S.G.S.B.M. about 75' N. of Court House, Marker in stone block at edge of sidewalk, Elev. 912.00

B.M. No. 2. Nail in forked Maple (rear ground) 33' Lt. of Sta. 24+42. Elev. 897.71.

Note: Quantities for this project have been computed using a template designed for surfacing as shown on the cross sections. The initial construction will be Grade and Drain and Surfacing from Sta. 17+51.5 to Sta. 290+00 and Grade and Drain only from Sta. 290+00 to Sta. 360+00 as shown on the typical section sheet and the grade line shown on these plans must be shifted slightly from Sta. 290+00 to Sta. 360+00 to properly balance the quantities.

STA. 17+51.5 BEGIN
S.P. No. 23. SEC. C-S.

20 / 41 COM. BOR. / 61 — 157 / 157 — 8 / 274 / 383 COM. BOR. / 685 — 4 / 93 / 97 — 158 / 158

(ROCK) O.H. 186 YD. STA.

O.H. 1233 YD. STA. (123 COM - 151 ROCK)

Bridge

51 / 10 ± 20% / 61 — 139 / 28 ± 20% / 16' — 595 / -70 ± 20% / 685 — 81 / 16 ± 20% / 97 — 132 / -26 ± 20% / 158

Note: On construction lower grade to tie with existing bridge which is to be used.

-1.60% — 200' V.C. — -2.30% — 200' V.C. — -1.93% — 200' V.C. — +2.20% — 200' V.C. — +5.38 46% — 200' V.C. — +11.83 6%

COUNTY OF
LINCOLN
STANFORD - HUSTONVILLE
ROAD

STATE PROJ	SECTION	DATE
No. 23	C-S	1928

PROFILE — HORIZ. 1 IN. = 100 FT. — VERT. 1 IN. = 10 FT.

PLATE I PLAN PROFILE & P.A. STANDARD

S P 23 — C — 8

COUNTY NAME	STATE PROJ. No.	SECTION No.	YEAR	SHEET No.	TOTAL SHEET
LINCOLN	23	C-5	1928	5	16

MRS. C.E. TATE

Δ=5°20'L
C=2°00
T=133.1
L=266.6
R=2865.0
E=3.1

Pl.35+68.3

B.M.No.3.

N61°17'W

PC 30+74.9

PT 33+41.5

PC 33+46.6

PT 34+15.8

Δ=57°38'R
C=14°00
T=285.1
L=411.7
R=409.2
E=57.9

PC 31+88.2
PT 35+99.9

NO TURN

15 Ft. Jog

Pl 41+45.4

PC 41+52.8

Δ=21°50'
C=6°00'
T=184.2
L=363.9
R=955.0
E=17.6

MRS C.E. TATE

Barn

PT 37+96.7

N66°37'W

B.M.No.4

Pl 49+27.0

MRS. MARTHA E. GOOCH

BUFFALO SPRINGS CEMETERY ASSOCIATION

GLENWOOD CEMETERY (Colored)

Ky. Utilities Co. high tension line

C.V. GENTRY

Δ=39°35'R
C=12°00'
T=171.7
L=329.6
R=477.5
E=29.9

PT 64+11.0

Pl 62+53.1

N88°21'W

B.M.No.5.

R.L. VANNOY

FOR CONSTRUCTION
Sta. 32+50 TO Sta. 62+00

Clearing & Grubbing		3.9 Acres.
Excavation Common		3415 Cu. Yds.
"	Solid Rock	195 "
"	Common Borrow	435 "
"	Overhaul	1470 Yd. Sta.
Scarify & Reshape		2100 Sq. Yds.

B.M.#3. Nail in root of W Oak, 60' Lt. of Sta. 38+00. Elev. 958.93

B.M.No.4. Nail in root 18" Maple, 30' Rt. Sta. 48+35. Elev. 960.29

B.M.No.5. 'X' on S.W. cor. of Rt. cor. of conc. culvt. 13' Rt. of Sta. 54+54. Elev. 934.43

275 COMMON
195 SOLID ROCK
49 SWELL
519
93
274
152

(ROCK)

(1.3 COM. = 1.5 ROCK)

60 EMB.
58 REF.
25 SHR.
152

+6.956%

-6.213%

-1.483%

-1.144%

-0.188%

+1.60%

0.0%

500' V.C.

250' V.C.

200' V.C.

300' V.C.

Note: On construction if practicable revise grades to reduce waste.

571
571

705
705 WASTE
0

375
350 WASTE
25

476
95 SHR.
571

0
0

617
588
29

EXCV. COMMON

EMBANKMENT

772
772

69
588
350 COM. BOR.
1007

31
350 COM. BOR.
118

643
129 ± 20%
772

839
168 ± 20%
1007

97
194 ± 20%
118

O.H. 1470 YD. STA

24
41 ± 20%
65

24
57 ± 20%
81

PROFILE
DIRECTIONS
NOTE BOOK

CUSHING DREYFOUS CO., CINCO., N.Y.

PLATE I PLAN-PROFILE R.P.K. STANDARD

COUNTY NAME	STATE PROJ. NO.	SECTION NO.	YEAR	SHEET NO.	TOTAL SHEETS
LINCOLN	23	C-3	1928	6	10

Sta 71+50 Double
8' x 4' box culvert

0.64% grade

C.V. GENTRY

MRS. C.E. TATE

R.L. VANNOY

JAS. VADIVEER

J.H. SKIDMORE

LEE HILL

MRS. C.E. TATE

LEE HILL

Δ = 39°33
C = 12°00'
T = 171.7
L = 329.6
R = 477.5
E = 29.9

Δ = 13°33'Lt.
C = 4°00'
T = 170.2
L = 338.8
R = 1432.5
E = 10.1

Δ = 18°31'Lt.
C = 6°00'
T = 155.1
L = 308.6
R = 955.0
E = 12.6

Δ = 8°48'Lt.
C = 2°00'
T = 220.4
L = 440.0
R = 2865.0
E = 8.4

B.M. No. 6

B.M. No. 7

30 Ft. R/W for Channel Change changed from left to right side on Oct. 1, 1928 - R.A.C.

FOR CONSTRUCTION

Sta. 62+00	To	Sta. 91+15
Clearing & Grubbing		4.03 Acres
Excavation Common		1609 Cu. Yds.
" Solid Rock		1664 " "
" Common Borrow		434 " "
" Overhaul		369 Yd. Sta.
Scarify & Reshape		~680 Sq. Yds.

B.M. No. 6: Nail in root of 24" Sycamore, 150' Lt. of Sta. 69+10. Elev. 943.45

B.M. No. 7: X in N.W. cor. of conc. water trough, 80' Lt. of Sta. 75+20. Elev. 953.72

EXCV. COMMON
- SOLID ROCK
- SWELL

EMBANKMENT
REFILL
SHRINKAGE

O.H. 369 YD. 5 STA.

+1.60%
+11.1467%
+0.64%
+15.5428%
+3.833%
+14.5428%
-15.0727%

200' V.C.

PROFILE SURVEYED PLOTTED PLANS BY

PLATE I PLAN-PROFILE A.R.E.A. STANDARD

S P 23 — C — 3

COUNTY	STATE PROJ. NO.	SECTION NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
LINCOLN	23	C-5	1928	7	40

MRS. C. E. TATE

FIRST NATIONAL BANK

F. REID

J. B. PAXTON

LEE HILL

MRS. W. M. FIELDS
(Administratrix)

24'-16" CM Pipe

Δ = 22°02' Lt
C = 8°00'
T = 139.4
L = 275.4
R = 716.3
E = 13.4

P.C. 90+81.6

P.T. 93+57.0

P.O.T. 93+00

P.I. 92+42.0

P.I. 99+44.7

P.C. 97+31.4

Δ = 32°26' Rt.
C = 9°00'
T = 208.3
L = 402.4
R = 716.3
E = 29.6

P.T. 101+42.8

P.C. 101+55

P.O.T. 107+00

P.I. 107+28

B.M. No. 9

P.O.T. 114+00

P.I. 116+38

B.M. No. 10

P.T. 122+82

FOR CONSTRUCTION

Sta. 91+15	To	Sta. 122+00
Clearing & Grubbing		3.54 Acres
Excavation Common		1237 Cu. Yds.
Overhaul		287 Yd. Sta.
Scarify & Reshape		3300 Sq. Yds.

B.M. No. 8 Nail in 16" Walnut
30' Lt. Sta. 93+25. Elev. 1034.24

B.M. No. 9 Nail in root of 18" Maple
90' Lt. Sta. 107+70. Elev. 1040.71

B.M. No. 10 Nail in root of 18" Sycamore
40' Lt. Sta. 119+25 Elev. 1039.16

Exc. com. 167 / 112 / 55 — 372 — 0 / 112 / 60 / 172 — 156 — 174 / 60 / 16 Waste / 98

O.H. 185 Yd. Sta.

U.H. 102 Yd. Sta.

EMB. 46 / 9 / 55 — 310 / 62 / 372 — 143 / 29 / 172 — 130 / 26 / 156 — 82 / 16 / 98

+5.022% +4.12% +2.166% +2.48% +2.666% +3.383%

400' V.C. 300' V.C. 200' V.C. 300' V.C. 300' V.C.

P.I. 103+58.10 P.I. 103+52.50

V.C. 102+27.58 V.C. 102+29.06 V.C. 102+23.68 V.C. 101+86.3 V.C. 101+94.03 V.C. 103+44.2 V.C. 104+79.16 V.C. 104+85.42 V.C. 104+85.42 V.C. 104+93.49

P.I. 103+20.00 P.I. 101+17.80 P.I. 103+70.00 P.I. 103+37.00

154 / 5 / 20 Waste / 83 — 145 — 69 — 69 / 14 / 24 / 145 — 121 / 24 / 145 — 97 / 12 / 69

104+00 114+00 122+00

PROFILE
SURVEYED
PLOTTED
TRACED
CHECKED
NOT BOOK
NO.

PLATE I PLAN-PROFILE S. P. R. STANDARD

SP 23 - C-8

APPENDIX G

INVENTORY AND INSPECTION REPORTS

NATIONAL BRIDGE INVENTORY

KENTUCKY INVENTORY AND APPRAISAL REPORT

(8) STRUCTURE NUMBER: 069B00027N

*****IDENTIFICATION*****

(1) STATENAME:	KENTUCKY
(5) INVENTORY ROUTE (ON/UNDER):	131000780
(2) DISTRICT AGENCY DISTRICT:	8
(3) COUNTY CODE: 69	(4) PLACECODE: 0000
(6) FEATURES INTERSECTED:	PEVYHOUSE BRANCH
(9) LOCATION:	.30 MI WEST OF JCT KY 300
(11) MILE POINT:	11.22
(7) FACILITY CARRIED:	KY-78
(12) BASE HIGHWAY NETWORK:	
(13) LRS INVENTORY ROUTE & SUBROUTE:	
(16) LATITUDE:	37.527151935 N DEGREES
(17) LONGITUDE:	-84.685301465 W DEGREES
(98) BORDER BRIDGE STATECODE - %SHARED:	
(99) BORDER BRIDGE STRUCTURE NUMBER:	

*****STRUCTURE TYPE AND MATERIAL*****

(43) STRUCTURE TYPE MAIN:	119 - Concrete Culvert
(44) STRUCTURE TYPE APPR:	!-2 -Not Coded
(45) NUMBER OF SPANS IN MAIN UNIT:	2
(46) NUMBER OF APPROACH SPANS:	0
(107) DECK STRUCTURE TYPE	N - Not Applicable
(108) WEARING SURFACE/PROTECTIVE SYSTEM	
(108A) TYPE OF WEARING SURFACE	6 - Not Applicable
(108B) TYPE OF MEMBRANE:	8 - Unknown
(108C) TYPE OF DECK PROTECTION:	8 - Unknown

*****AGE AND SERVICE*****

(27) YEAR BUILT:	1930
(106) YEAR RECONSTRUCTED:	0
(42A) TYPE OF SERVICE-ON:	1 - Highway
(42B) TYPE OF SERVICE-UNDER	5 - Waterway
(28) LANES ON STRUCTURE: 2	UNDER STRUCTURE: 0
(29) AVERAGE DAILY TRAFFIC: 3230	
(30) YEAR OF ADT: 2009	(109) TRUCK ADT%: 7
(19) BYPASS DETOUR LENGTH:	5 mi.

*****GEOMETRIC DATA*****

(48) LENGTH OF MAXIMUM SPAN:	8.0 ft.
(49) STRUCTURE LENGTH:	27.0 ft.
(50) CURB OR SIDE WALK LEFT: 0.0 ft.	RIGHT: 0.0 ft.
(51) BRIDGE ROADWAY WIDTH CURB TO CURB:	0.0 ft.
(52) DECK WIDTH OUT TO OUT:	0.0 ft.
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS):	20.0
(33) BRIDGE MEDIAN:	No
(34) SKEW: 45	STRUCTURED FLARED: No
(10) INVENTORY ROUTE MIN VERT CLEAR:	100.0 ft.
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR:	22 ft.
(53) MIN VERT CLEAR OVER BRIDGE RDWY:	99.99 ft.
(54) MIN VER UNDER CLEAR REF: N	(b) 0 ft.
(55) MIN LAT UNDER CLEAR RT REF: N	(b) 0 ft.
(56) MIN LAT UNDER CLEAR LEFT:	0 ft.

*****NAVIGATION DATA*****

(38) NAVIGATION CONTROL	0 - No navigation control on waterway
(111) PIER PROTECTION:	1 - Navigation protection not required
(39) NAVIGATION VERTICAL CLEARENCE:	0.0 ft.
(116) VERT-LIFT BRIDGE NAV MIN VERT CLEARENCE:	0.0 ft.
(40) NAVIGATION HORIZONTAL CLEARENCE:	0.0 ft.
SUFFICIENCY RATING:	43.20
STATUS:	1 - Structurally Deficient

*****CLASSIFICATION*****

(112) NBIS BRIDGE LENGTH:	Yes
(104) HIGHWAY SYSTEM	0 - Inventory Route is not on the NHS
(26) FUNCTIONAL CLASS	07 - Major Collector
(100) STRAHNET HIGHWAY	0 - The inventory route is not a STRAHNET route
(101) PARALLEL STRU	N - No parallel structure exists
(103) TEMPORARY STRUCTURE	Not Applicable
(102) DIRECTION OF T	2 - 2-way traffic
(105) FEDERAL LANDS HIGHWAYS:	0 - Not applicable
(110) DESIGNATED NATIONAL NETWORK:	0 - The inventory route is not part of the national network for trucks
(20) TOLL:	3 - On Free Road
(21) MAINTAIN:	1 - State Highway Agency
(22) OWNER:	01 - State Highway Agency
(37) HISTORICAL SIGNIFICANCE	5 - Bridge is not eligible for the National Register of Historic Places

*****CONDITION*****

(58) DECK:	N
(59) SUPERSTRUCTURE:	N
(60) SUBSTRUCTURE:	N
(61) CHANNEL AND CHANNEL PROTECTION:	6
(62) CULVERTS:	4

*****LOAD RATING AND POSTING*****

(31) DESIGN LOAD:	2 - H 15
(63) OPERATING RATING METHOD:	1 - Load Factor
(64) OPERATING RATING:	~~#COMPUTATION~~ 25.
(65) INVENTORY RATING METHOD	1 - Load Factor
(66) INVENTORY RATING:	15.0 Tons
(70) BRIDGE POSTING:	5 - Equal to or above the legal loads
(41) STRUCTURE OPEN, POSTED OR CLOSED:	A - Open, no restriction

*****APPRAISAL*****

(67) STRUCTURAL EVALUATION:	4
(68) DECK GEOMETRY:	N
(69) UNDERCLEARENCE, VERTICAL & HORIZONTAL:	N
(71) WATERWAY ADEQUACY:	7
(36) TRAFFIC SAFETY FEATURES:	NNNN
(113) SCOUR CRITICAL BRIDGES:	8

*****PROPOSED IMPROVEMENTS*****

(75) TYPE OF WORK:	
(76) LENGTH OF STRUCTURE IMPROVEMENT:	0 ft.
(94) BRIDGE IMPROVEMENT COST:	$0.00
(95) ROADWAY IMPROVEMENT COST:	$0.00
(96) TOTAL PROJECTION COST:	$0.00
(97) YEAR OF IMPROVEMENT COST ESTIMATE:	
(114) FUTURE ADT:	3876
(115) YEAR OF FUTURE ADT:	2029

*****INSPECTIONS*****

(90 INSPECTION DATE:	4/8/2010
(92) CRITICAL FEATURE INSPECTION:	
(92A) FRACTURE CRITICAL DETAIL:	N
(92B) UNDERWATER INSPECTION:	N
(92C) OTHER SPECIAL INSP:	N
(91) FREQUENCY:	24 months
(93) CFI DATE:	
(93A):	1/1/1901
(93B):	1/1/1901
(93C):	1/1/1901

069B00027N

KYTC Bridge Inspection Report

Summary:
Inspection Date: 4/8/2010
Inspector: LLINKES (135)
Primary Type: Standard (24 Months)

Types of Inspections Performed:

National Bridge Inventory:	Y
Element:	Y
Fracture Critical:	N
Underwater:	N
Other Special:	N

Inspector Signature:

District Review Date: 4/8/2010
District Reviewer: EDICK (134)

IDENTIFICATION

Bridge ID (8):	069B00027N MAP BRIDGE	**District Number:**	8
Route Carried (7):	KY-78	**County (3):**	69 Lincoln
Mile Point:	11.216	**Feature Intersected (6):**	PEVYHOUSE BRANCH
Location (9):	.30 MI WEST OF JCT KY 300	**Road Name:**	KY HIGHWAY 78
Structure Description:	27 Foot - 2 Span Concrete Culvert (includes frame culverts)		

NBI CONDITION

Deck (58):	N
Superstructure (59):	N
Substructure (60):	N
Culverts (62):	4
Channel/Protection (61):	6

SCHEDULE TAB

Schedule:	Required (Y/N)	Last Date		Frequency	Next Date
NBI (90):		4/8/2010	**(91):**	24 mos	4/8/2012
Fracture Critical (92A):	N	**(93A):** 1/1/1901	**(92A):**	mos	1/1/1901
Underwater (92B):	N	**(93B):** 1/1/1901	**(92B):**	mos	1/1/1901
Other Special (92C):	N	**(93C):** 1/1/1901	**(92C):**	mos	1/1/1901
Elemental:	NA			24 mos	4/8/2012

Load Rating and Posting

Truck Type	Typ I	Typ II	Typ III	Typ IV	Gross
Recomm. Posting:	-1	-1	-1	-1	-1
Field Posting:	-1	-1	-1	-1	-1

Posting Status (41): A Open, no restriction
Signs Posted: Cardinal: N Non-Cardinal: N

WATERWAY

Scour Critical (113):	8
Observed 113 Rating:	6
Waterway Adeq. (71):	7

DECK/WEARING SURFACE

Deck Type (107): N N/A (NBI)
Wearing Surface/Protective System (108): Type: 6 Membrane: 8 Protection: 8
Traffic Safety Features (36): Bridge Rail: N Transition: N Appr. Rail: N Rail Ends: N
Overlay: N
Overlay Type: -1
Overlay Thickness: -1.00

Vertical Clearances

Minimum Vertical Overclearance (53):	99.99
Minimum Vertical Underclearance (54):	0.00
Maximum Vertical Clearance (10):	99.99
Minimum Vertical Clearance:	99.99

Sufficiency Ratings

SR: 43.20 **SD/FO:** 1 Structurally Deficient

Element Condition State Data

Elm/Env	Description	Units	Total Qty.	Qty. CS1	Qty. CS2	Qty. CS3	Qty. CS4	Qty. CS5
241/1	Concrete Culvert	LF	74.00	0.00	0.00	74.00	0.00	0.00
334/1	Metal Rail Coated	LF	28.00	28.00	0.00	0.00	0.00	0.00
361/1	Scour Smart Flag	EA	1.00	0.00	1.00	0.00	0.00	0.00

069B00027N

KYTC Bridge Inspection Report

Summary:
Inspection Date: 4/8/2010
Inspector: LLINKES (135)
Primary Type: Standard (24 Months)

Types of Inspections Performed:

National Bridge Inventory:	Y
Element:	Y
Fracture Critical:	N
Underwater:	N
Other Special:	N

Element Condition State Data

Elm/Env	Description	Units	Total Qty.	Qty. CS1	Qty. CS2	Qty. CS3	Qty. CS4	Qty. CS5
500/1	RC Culv Wing	LF	30.00	0.00	0.00	30.00	0.00	0.00
501/1	RC Culv Head	LF	48.00	0.00	0.00	48.00	0.00	0.00
612/1	Chan Algn	EA	1.00	0.00	1.00	0.00	0.00	0.00
613/1	Vegetation	EA	1.00	1.00	0.00	0.00	0.00	0.00

Element Condition State Data

Str Unit	Elm/Env	Description	Description
1	241/1	Concrete Culvert	Concrete in barrels has advanced deterioration with vertical cracking. large amount of scaling in top of barrels 1/2" to 1" deep
1	334/1	Metal Rail Coated	< none >
1	361/1	Scour Smart Flag	Local scour at the NE. wing on the upstream side.
1	500/1	RC Culv Wing	Concrete wings are scaled, cracked and spalled.
1	501/1	RC Culv Head	Concrete headwalls are spalled on top with heavy deterioration and scale on the face.
1	612/1	Chan Algn	Flow is all in barrel 2. Alignment is poor also in part to heavy build up of sediment and drift in the channel that is diverting the stream flow.
1	613/1	Vegetation	< none >

BRIDGE.Notes

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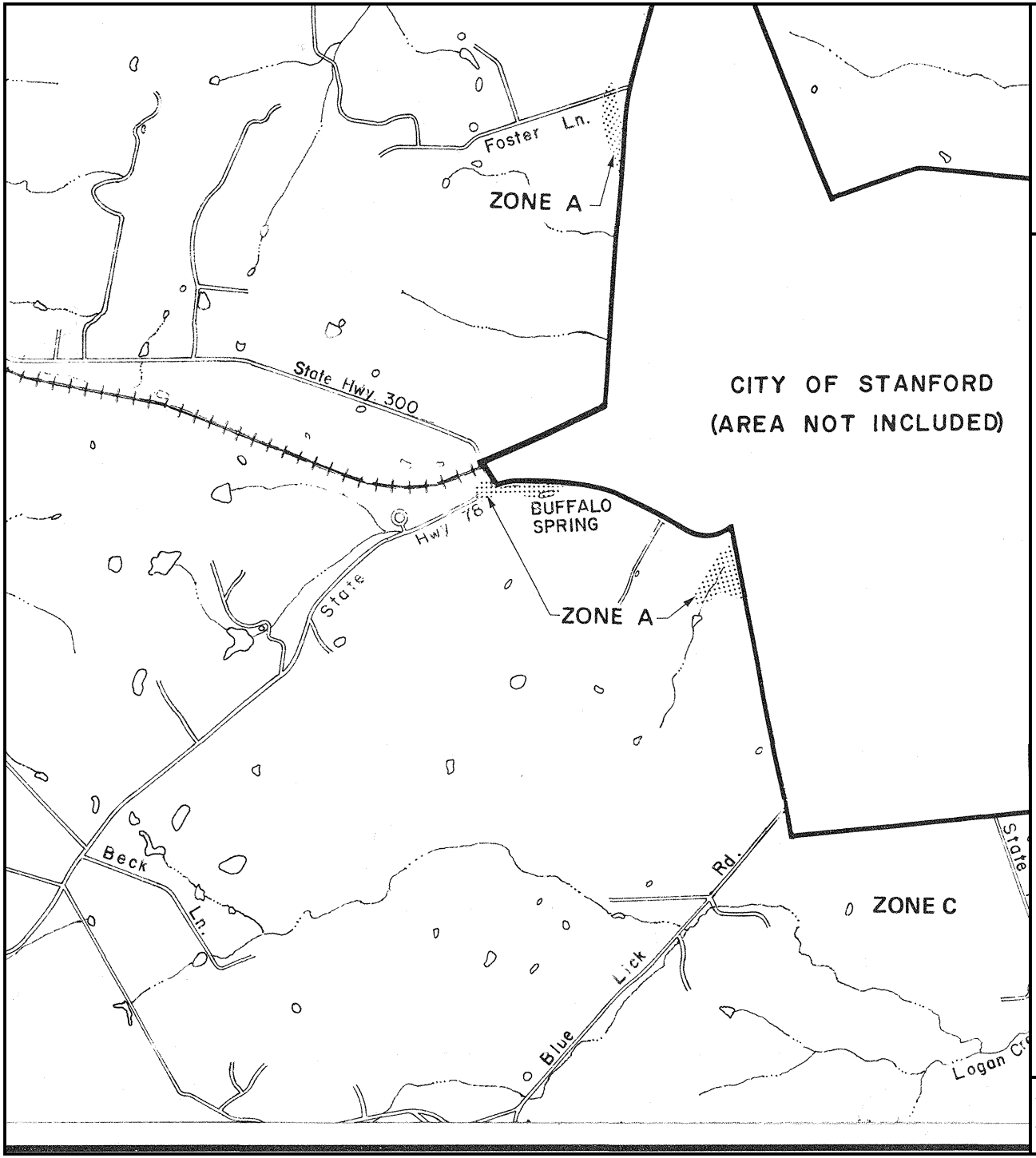
Work Candidates

Inspector Candidates:

Candidate ID:	Status	Priority	Assigned	Action	Elem	Date Recommended
A-KYTC-0F961220-00000043	Approved	Medium	Unassigned	31	241	4/10/2008
A-KYTC-0F961220-00000045	Approved	High	Unassigned	31	612	4/10/2008
A-KYTC-0F961220-00000047	Approved	High	Unassigned	31	609	4/10/2008

APPENDIX H

FIRM MAPS OF THE STUDY AREA



N

APPROXIMATE SCALE

2000 0 2000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

LINCOLN COUNTY, KENTUCKY

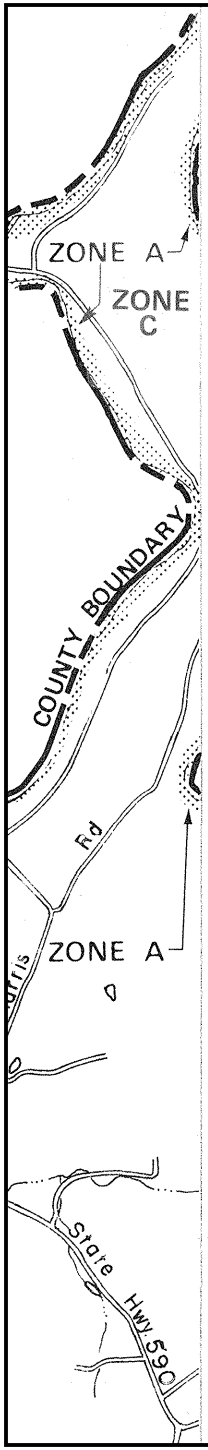
(UNINCORPORATED AREAS)

PANEL 25 OF 125

COMMUNITY-PANEL NUMBER
210325 0025 B

EFFECTIVE DATE:
JULY 3, 1986

Federal Emergency Management Agency



Zone Designations*	ZONE C ZONE A ZONE C
Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7×
Zone D Boundary	
River Mile	•M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

N

APPROXIMATE SCALE

2000 0 2000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

LINCOLN COUNTY, KENTUCKY

(UNINCORPORATED AREAS)

PANEL 25 OF 125

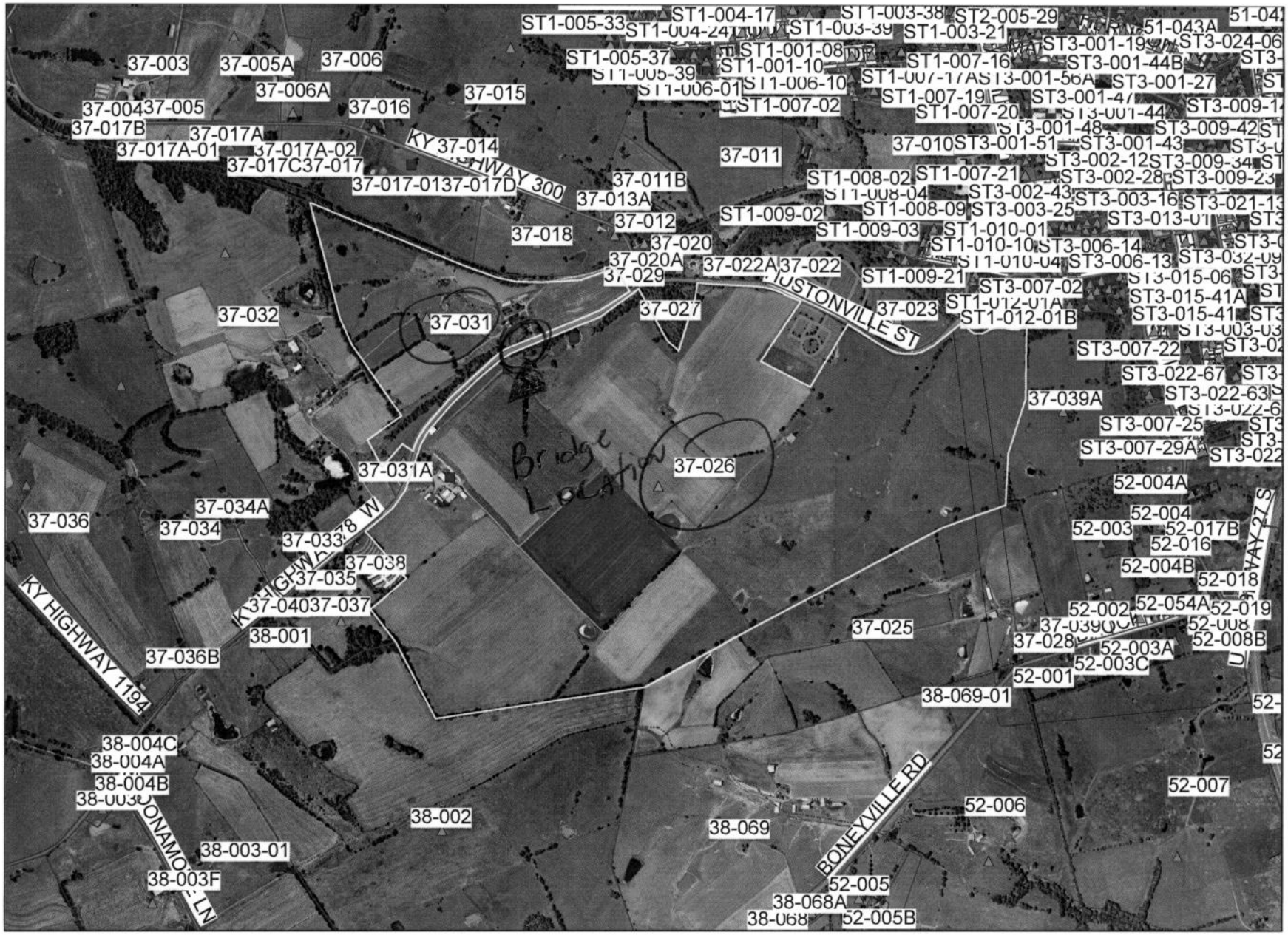
COMMUNITY-PANEL NUMBER
210325 0025 B

EFFECTIVE DATE:
JULY 3, 1986

Federal Emergency Management Agency

APPENDIX I

PVA MAP



PVA Mapping for 8-1049.00 Lincoln Co.

APPENDIX J

PROJECT TEAM MEETING MINUTES

Meeting Minutes
Project Team Meeting
Item 8-1049.00, Bridge Replacement

Meeting Date: **September 8, 2010**
Meeting Location: **District 8, Somerset**
In Attendance:

Danny Anderson	District 8 Planning
Marshall Carrier	CO Highway Design - Drainage
Morgan Wilson	District 8 Utilities
Tom Clouse	District 8 TEBM Project Development
Jami West	District 8 Environmental
Tammy Wilson	District 8 TEBM Engineering Support
Jason Coe	District 8 Support Structures
Joe Gossage	District 8 Design
Charles Hale	District 8 Right of Way
Rodney Little	CO Design – QA Branch
Keith Damron	KYTC Central Office Division of Planning
Steve Ross	KYTC Central Office Division of Planning
Tonya Higdon	KYTC Central Office Division of Planning
Jill Asher	KYTC Central Office Division of Planning
Sreenu Gutti	KYTC Central Office Division of Planning

INTRODUCTION: The meeting started just after 10 a.m. local time. Attendees were requested to "Sign-In" in the sheet provided. Presentation Handouts were distributed. A Power Point presentation was started by Sreenu Gutti. The goals for the meeting were two fold - understanding DNA Pre-Design Scoping Studies and discussing the Pre-Design Scoping Study for Item 8-1049.00. It was explained to the group that DNA stands for Data, Needs and Analysis. It was also explained why these studies are conducted, how they are helpful and the process involved in developing a Study. A "Purpose and Need" statement will be developed in a DNA study to better define the intent of the Project. FHWA suggested nine elements for Purpose and Need will be considered in developing a Purpose and Need statement.

DNA Pre-Design Scoping Studies are conducted for Design projects which do not have prior Planning Studies. They are usually completed within a 4-6 week timeline with actual work involved of about 2-3 weeks. They are conducted to document existing data of the project and its vicinity. These studies help initiate early project requests such as Traffic Forecasting/Modeling, preliminary environmental overviews and they initiate early agency coordination such as SHPO. Such activities conducted early will help develop a good project schedule and help keep scope creep to a minimum.

PRE-DESIGN SCOPING STUDY FOR ITEM 8-1049.00: Following the introduction of the concepts of Pre-Design Scoping Study, the Study for Item 8-1049.00 was discussed. A site video was played and the Project location was defined. The project is located at MP 11.216 on KY 78 in Lincoln County and is 0.3 mile from the Junction of KY 300 & KY 78. The bridge has an ID 069B00027N. FHWA recommended nine elements to define Purpose and Need statement for this project can be described as follows.

Legislation: The project is listed in the 2010 Highway Plan and has a total estimated cost of $565,000 (combined D,R,U and C).

Project Status: Design funds are not authorized at this time. The group was informed that the District Office can request funds for conducting a DNA Study.

System Linkage: KY 78 connects the Cities of Stanford and Hustonville. A PIF exists for a UPL project # 08 069 D0078 22.00 for the reconstruction of KY 78 between these two cities. The priority level as listed in the PIF was listed as low (regional) to medium (local and district).

A question was asked if there is truck traffic that may create special interest in the bridge project 8-1049.00. It was mentioned that this segment of KY 78 is not on a National Truck Network. Mostly grain trucks, tractors and local delivery traffic are known to operate on this segment. A towing company operates from the home next to the project site currently. Shoulders do not indicate any weight issues. Tom indicated that the shoulder width may be increased in future design. It was suggested by Keith that Bridge design criteria should follow the future project design criteria on KY 78 as established in the Highway Design Guidance Manual.

Modal Interrelationship: There is no public transit currently on this route. An unknown rail road that existed just north of the site is currently abandoned.

Social Demands or Economic Development: The group was informed that the Director of Economic Development in Stanford informed that there are no particular plans at least in the immediate future for significant economic development in this area.

Transportation Demand: Current and future traffic data was presented. The reconstruction of US 150, closure of factories in Hustonville and KY 127 improvements may have been factors in reduction of traffic. Traffic data and trends will be consulted with the Traffic forecast group for the project area.

Capacity: Volume to Service flow ratio on this segment is 0.18 meaning that there is no congestion at this time.

Safety: Crash history of this segment was studied using Kentucky State Police data. There was one fatal crash involving two vehicles and two deaths at MP 11.09 in June, 2010, about 600 ft west of the project site. Sight distance of the horizontal curve at this location was discussed. Measured sight distance to the bridge is 500 ft. In the past three years, Kentucky State Police did not report any crashes in the immediate vicinity of the bridge site. The property owner of the home next to the bridge site reported some minor accidents.

Roadway Deficiencies: Current roadway data at the project site was presented. The current roadway is a two-lane undivided roadway with 9 ft lanes. Measured shoulder width at the site is +/- 1 ft. Guardrail exists on the north side only. The Composite Adequacy Rating of the roadway is 51.5. The rating is a composite of roughness, safety and service of the roadway.

A video was shown on the side without guardrail depicting the elevation difference close to the edge of the roadway. The existing culvert is skewed at 45 degrees to the roadway. Bridge Inventory and Inspection reports were shown. Bridge inspection reports recorded advanced deterioration of concrete in the barrels. Vertical cracks in the barrels, scaling and spalling in wing walls, and headwalls were also noted. Project photos were shown along with structural damage on the bridge.

There are no reported flooding issues and roadway overtopping at this location. The Sufficiency Rating of the bridge is 43.2. KYTC policy is to consider replacing the bridge when the Sufficiency Rating is below 50.

A question was asked if the area was identified as a flood zone in the flood insurance rate maps (FIRMS). The bridge site is not identified to be in a flood zone. Also, Tom informed that the bridge will be designed in-house by KYTC.

POSSIBLE ALTERNATIVES & CONSTRUCTION ISSUES: Bridge alternatives were discussed. The "No Build" alternate was discussed. Steve pointed out that the slide which said that a no build is not a consideration, should be corrected. He added that the bridge appears to have a few more years of service. Keith and Tom added the fact that while "No Build" is to be always be considered an alternative, there are large disadvantages to select this alternative that makes it undesirable, and it is unlikely once a structure makes it to the list.

Other alternates considered were replacing the existing structure with a bridge or replacing with a box culvert. Hydraulic issues of the structure were questioned. Hydraulic Analysis will be conducted during the Phase 1 Design. Marshall mentioned that on the downstream side of the bridge, there are known ponding issues at the entrance culverts to the hill side home.

On the upstream side of the structure, sedimentation is filling up the channel. The walls of the double barrel culvert cause obstruction to flow and may be the reason for sedimentation. Another reason for the sedimentation may be due to the alignment of the channel with respect to the culvert and the flat grade. The problem can be minimized by replacing the box culvert with a single span bridge. Keith added that if a double barrel culvert is installed, then a low flow diverter wall may be helpful in avoiding sedimentation.

CON/SPAN culvert systems were discussed. Use of CON/SPAN culverts can minimize construction time and thereby shorten road closure duration. Minimum cover for these culverts is 1-1/2 ft not including pavement structure. Hydraulic analysis conducted in Phase 1 should also investigate the required opening and will allow for confirming or denying CON/SPAN as an option. However, there could be guardrail issues with CON/SPAN culverts.

Other issues such as replacing the bridge in-place or realigning were discussed. Realigning the structure by placing the new structure to the north is not desirable due to possible historic significance of the home. Realigning the structure on the downstream may be costly due to the expensive involved cutting into the hill side. Both alternatives will involve realigning the roadway. Other disadvantages of realignment are a possible channel realignment and associated permits required. Also, significant amount of cut & fill will be required. With both an upstream

alternative or downstream alternative, matching the roadway with the realigned bridge would require adding new curves and super elevation in the roadway and will further increase the cost.

Replacing the bridge in-place with a new structure will require a temporary detour at the site or detouring traffic along an alternate route. The detour at site will involve the same issues discussed in the previous paragraph such as possible historic property on the north and hill side on the south.

Closing this segment of KY 78 during construction was also discussed. Detour options were discussed. There is no simple detour available unless one is constructed on site around the construction area. A question was asked if CR 1314 could be used. Tom informed that State roads should be used for detour and not County roads. Tom also mentioned that closing the road is the optimum choice to replace bridge.

The road is planned to be closed down for another roadway improvement project (Item 8-907.00) a few miles west of the current project. Public Officials were already informed and an approval is in place to close the road. Right of Way has not been obtained on that project. The project may go to construction in summer 2011. It was also mentioned that the road improvement project has more issues compared to the bridge project. It is possible that the bridge project can be completed earlier than road improvement project.

Keith added that road closure is considered as primary solution in practical solutions approach. The group discussed if both the projects can take place at the same time and therefore the road closure can be combined. The Project Team recommended that this project be let to constriction at the same time as 8-907.00. Tom added that the Judge may need to be consulted again for the road closure for both projects. District will investigate. District will get public opinion in this regard.

UTILITIES: Slides showing existing utilities at the project site were presented. Existing utilities present at the site are water, electric, telephone and cable. Recently estimated cost which is same as the cost listed in the 2010 Highway Plan is $50,000. District Utilities informed that 300 ft of length was used in the estimate. It was discussed that utilities involved due to a traffic detour at site will be more and therefore additional costs should be included. Additionally $30,000 to $40,000 may be added to the cost of a detour at site alternate.

Sreenu asked a question whether one lane operation during construction is a possibility. The group decided against the option.

ENVIRONMENTAL ISSUES: Jamie informed that the house is not currently listed on the historic register. However, the house is 150 years old. It will be considered eligible for listing on the National Register for Historic Places, and therefore would be afforded protection as a 4f resource. It is unknown if the entrance stone walls are as old as the house. Jason informed the group that a picture of the property and project site from the 70's does not show the existence of the stone fence. It appears that the stone walls were recently built. Also, the stone walls seem to be built in the Highway Right of Way. District 8 Permits section may issue a notice to the property owner asking that the walls should be removed.

TYPICAL SECTION: Jill asked a question about the proposed typical section for the project. Current geometric standards recommend two lanes 12 ft in width with 8 ft shoulders for the speed and ADT of this segment of KY 78. Tom answered that 8 ft shoulders will not be considered, instead 11 ft lanes and 4 ft shoulders may be recommended. The typical will be finalized during Phase I Design.

OTHER ISSUES: Some issues regarding the adjacent property on the upstream side were discussed. The owner operates a towing company out of his home. During a recent site visit, he informed KYTC of the two crashes he was involved in, due to the difficulties entering and leaving his driveway. When he stops to take a left turn into his property from east bound KY 78, his vehicle is in danger of being rear-ended. He mentioned that he encounters problems leaving his driveway to get on KY 78 because of poor turning radius.

One recent crash damaged his stone wall fence which was seen at the time of the site visit. The entrance is also too close to the guardrail at the bridge site. Tom suggested that the funding of the bridge replacement project does not allow for the scope of the project to increase because of inclusion of a private entrance issue created by the property owner. The property owner can make a permit request to KYTC to construct a new entrance or relocate his current entrance. Keith added that this project will not worsen the effects of the entrance. Turning radius may be improved with any alternative.

Sreenu informed the group that the horizontal curve south west of the project site on KY 78 has visual obstruction due to the hill side and trees. Based on the site visit, if the hill side can be cut and trees cleared, it can enhance the sight distance to the bridge. Tom informed that the bridge project funding is strictly for bridge replacement and to include this work would exceed the scope and intent of this Federal funding source. The improvements may be eligible for HSIP funds. Danny will investigate. Keith suggested that any information pertaining to roadway improvement should not be included in the bridge project report.

Funding for the project in the 2010 Highway Plan was discussed. Keith asked Tom if $130,000 for Design was adequate. It will be investigated.

PURPOSE AND NEED STATEMENT: The Purpose and Need statement was discussed. It was agreed that the word "scenic Cumberland Cultural Heritage Highway" should be deleted. The second paragraph supporting the problem should be eliminated. The Purpose and Need may be defined as follows:

The purpose of the project is to eliminate the structural deficiency of the bridge which has a Sufficiency Rating of 43.2, to provide safety, mobility and connectivity between the cities of Stanford and Hustonville.

NEXT STEPS: At the end of the meeting, the following items were summarized:

- Cost estimates will be developed for a bridge and a box culvert options for three alternatives: upstream, in place, and downstream.
- Cost estimates will be developed for a detour on existing routes and detour at the site.

- District 8 will get input from Public Officials & Public regarding road closure during construction.

The following is a summary of the cost estimates that will be developed:

OPTION 1: COST ESTIMATE - INPLACE WITH DETOUR USING EXISTING ROUTES

	CONSTRUCTION	DETOUR	DESIGN	RIGHT OF WAY	UTILITIES	TOTAL
BRIDGE						
CULVERT						

OPTION 2: COST ESTIMATE - INPLACE WITH TEMPORARY DETOUR AT SITE

	CONSTRUCTION	DETOUR AT SITE	DESIGN	RIGHT OF WAY	UTILITIES	TOTAL
BRIDGE						
CULVERT						

OPTION 3: COST ESTIMATE - NEW STRUCTURE ON UPSTREAM SIDE*[a]

	CONSTRUCTION	DESIGN	RIGHT OF WAY	UTILITIES	TOTAL
BRIDGE					
CULVERT					

OPTION 4: COST ESTIMATE - NEW STRUCTURE ON DOWNSTREAM SIDE*[a]

	CONSTRUCTION	DESIGN	RIGHT OF WAY	UTILITIES	TOTAL
BRIDGE					
CULVERT					

* existing roadway functional during construction

[a] including roadway realignment

Possible culvert options are regular box culvert, CONSPAN & BEBO types.

SITE VISIT: No truck traffic was noticed during the two site visits that were conducted. When the Project team visited the site, as many as 11 School Buses were seen traveling the project site just after the school dismissal time around 3 pm. It is recommended that construction should begin immediately after the School closes for the summer months to avoid any inconvenience to School traffic. Considering this important issue, an incentive per day should be added to the construction contract to finish the project early and open to traffic with a penalty if the deadline is not met.

The deck of the existing double box culvert was measured as 2 ft deep. Some erosion was noticed behind the northeast wing wall. The stonewalls were observed at the project site in order to estimate their life. It seems that the concrete on the stone walls is relatively new indicating the walls may not be as old as the home itself.

The downstream drainage structures at the entrance to the hill side home were investigated. Pictures were collected on both ends of the structures. The structures are double 18" circular concrete culverts. There was a lot of erosion seen on the downstream side of the culverts.

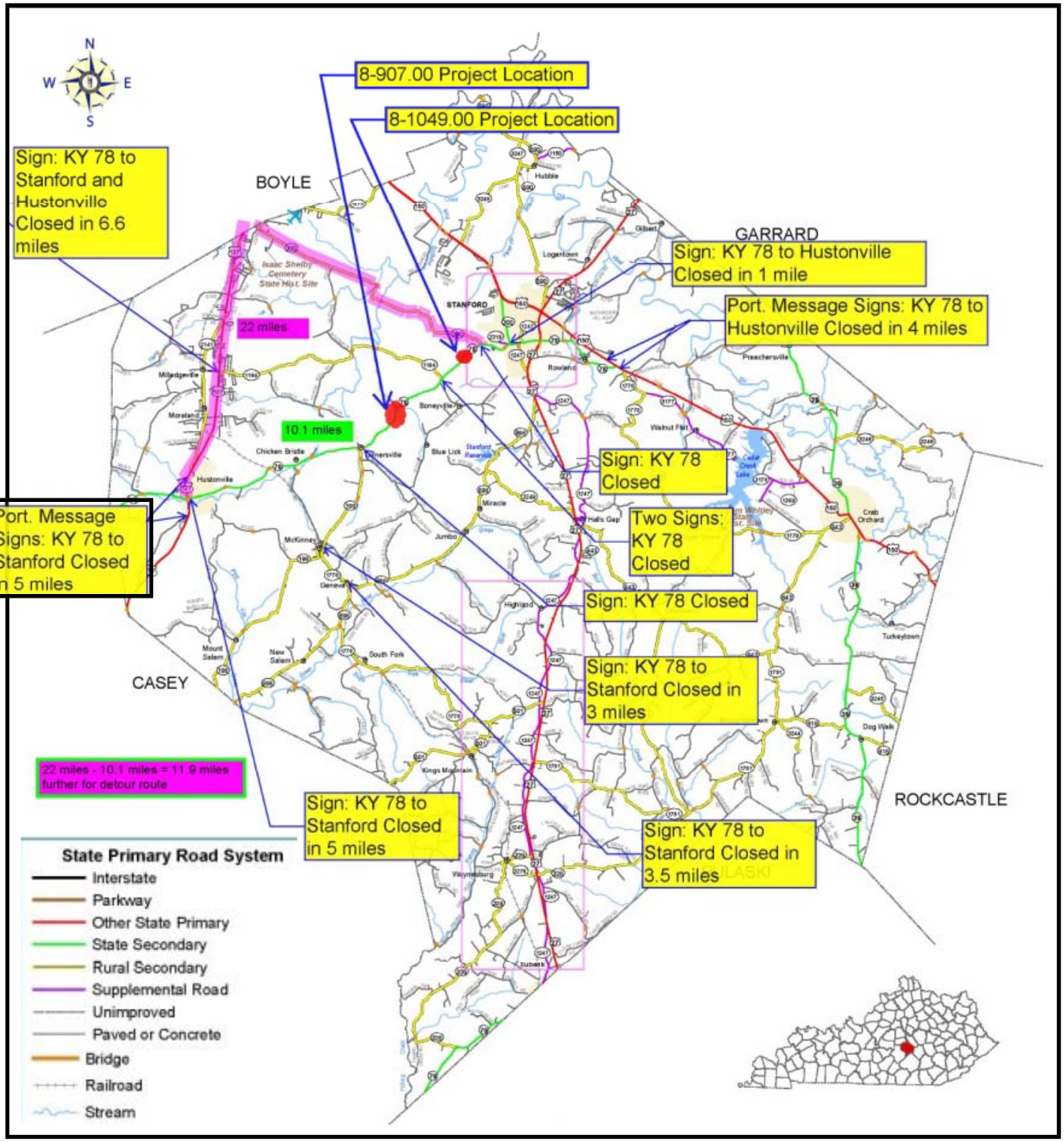
Feasibility of detour at site was investigated in the field. Constructing a wall along the outer banks of the channel to redirect the channel flow and prevent erosion may be considered during design.

END OF MINUTES

APPENDIX K

DETOUR MAP

Preliminary Detour Plan for Items 8-1049 & 8-907



APPENDIX L

PROJECT PHOTOS

Bridge photo taken in 2002

Bridge location and Roadway on the west

Bridge location and Roadway on the east

Upstream side of the Bridge (Aug, 2010)

Downstream side of Bridge

Hill side & Trees on Downstream side of the Bridge

Culverts at entrance on downstream side

Downstream side features – hill side, trees, home

APPENDIX M

COST ESTIMATION TABLES

Option 1: Replace in-place and close road

APPROACH PAVEMENT

ITEM CODE	ITEM	UNIT	QUANTITY	UNIT PRICE	ITEM COST
	DGA BASE-4"	TON	130	$16.00	$2,080.00
	ASPH BASE-8"	TON	220	$65.00	$14,300.00
	ASPH SURF-1.25"	TON	46	$65.00	$2,990.00
	PAVE STRIPING-PERM PAINT-4 IN	LF	1200	$0.20	$240.00
	PAVE STRIPING-TEMP PAINT-4 IN	LF	1200	$0.20	$240.00
	ASPHALT PAVE MILLING & TEXTURING	TON	25	$25.00	$625.00
	MOB. FOR MILLING & TEXTURING	LS	1	$2,500.00	$2,500.00
	LEVELING & WEDGING	TON	25	$70.00	$1,750.00
	EDGE KEY	LF	60	$50.00	$3,000.00
	REMOVE PAVEMENT	SY	375	$20.00	$7,500.00

ESTIMATED PAVEMENT COST ($) $35,225.00

ROADWAY/DOUBLE BOX CULVERT

	CLEARING AND GRUBBING	LS	1	$2,000.00	$2,000.00
	EXCAVATION	CY	425	$20.00	$8,500.00
	STAKING	LS	1	$3,500.00	$3,500.00
	REMOVE STRUCTURE	LS	1	$10,000.00	$10,000.00
	CLASS A CONCRETE	CY	120	$500.00	$60,000.00
	REINF. STEEL	LB	13600	$0.90	$12,240.00
	GRAN. BACKFILL	CY	60	$25.00	$1,500.00
	CLASS III CHANNEL LINING	TON	40	$30.00	$1,200.00
	GUARDRAIL	LF	200	$40.00	$8,000.00
	GUARDRAIL END TREATMENT TYPE 1	EA	2	$2,200.00	$4,400.00
	GUARDRAIL TERMINAL SECTION NO. 1	EA	1	$65.00	$65.00
	TEMP DITCH	LF	300	$1.50	$450.00
	TEMPORARY SILT FENCE	LF	600	$2.50	$1,500.00
	CLEAN TEMPORARY SILT FENCE	LF	600	$0.40	$240.00
	SILT TRAP - TYPE A	EA	1	$333.00	$333.00
	SILT TRAP - TYPE B	EA	4	$216.00	$864.00
	CLEAN SILT TRAPS	EA	5	$30.00	$150.00
	SEEDING & PROTECTION	SQ YD	3000	$0.70	$2,100.00
	REGRADE EXISTING DITCH	LF	300	$7.00	$2,100.00
	BARRICADES	EA	6	$250.00	$1,500.00
	SIGNS	SQ FT	576	$6.00	$3,456.00
	PORT. MESSAGE SIGN	EA	4	$2,500.00	$10,000.00
	EROSION CONTROL BLANKET	SQ YD	750	$2.00	$1,500.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$5,000.00	$5,000.00

ESTIMATED ROADWAY COST ($) $140,598.00

ESTIMATED PROJECT COST ($) $175,823.00
ESTIMATED CONTINGENCY COST @ 15% ($) $26,373.45

Demobilization (2%) LS 1 $3,516.00

ESTIMATED PROJECT TOTAL ($) $205,712.45

round up **$210,000.00**

APPROACH PAVEMENT

ITEM CODE	ITEM	UNIT	QUANTITY	UNIT PRICE	ITEM COST
	DGA BASE-4"	TON	130	$16.00	$2,080.00
	ASPH BASE-8"	TON	220	$65.00	$14,300.00
	ASPH SURF-1.25"	TON	46	$65.00	$2,990.00
	PAVE STRIPING-PERM PAINT-4 IN	LF	1200	$0.20	$240.00
	PAVE STRIPING-TEMP PAINT-4 IN	LF	1200	$0.20	$240.00
	ASPHALT PAVE MILLING & TEXTURING	TON	25	$25.00	$625.00
	MOB. FOR MILLING & TEXTURING	LS	1	$2,500.00	$2,500.00
	LEVELING & WEDGING	TON	25	$70.00	$1,750.00
	EDGE KEY	LF	60	$50.00	$3,000.00
	REMOVE PAVEMENT	SY	375	$20.00	$7,500.00

ESTIMATED PAVEMENT COST ($) $35,225.00

ROADWAY/BRIDGE

	CLEARING AND GRUBBING	LS	1	$2,000.00	$2,000.00
	EXCAVATION	CY	425	$20.00	$8,500.00
	STAKING	LS	1	$3,500.00	$3,500.00
	REMOVE STRUCTURE	LS	1	$10,000.00	$10,000.00
	BRIDGE STRUCTURE	SF	1440	$100.00	$144,000.00
	GUARDRAIL	LF	200	$40.00	$8,000.00
	CLASS III CHANNEL LINING	TON	40	$30.00	$1,200.00
	GUARDRAIL BRIDGE CONNECTOR	EA	4	$1,200.00	$4,800.00
	GUARDRAIL END TREATMENT TYPE 1	EA	2	$2,200.00	$4,400.00
	GUARDRAIL TERMINAL SECTION NO. 1	EA	1	$65.00	$65.00
	TEMP DITCH	LF	300	$1.50	$450.00
	TEMPORARY SILT FENCE	LF	600	$2.50	$1,500.00
	CLEAN TEMPORARY SILT FENCE	LF	600	$0.40	$240.00
	SILT TRAP - TYPE A	EA	1	$333.00	$333.00
	SILT TRAP - TYPE B	EA	4	$216.00	$864.00
	CLEAN SILT TRAPS	EA	5	$30.00	$150.00
	SEEDING & PROTECTION	SQ YD	3000	$0.70	$2,100.00
	REGRADE EXISTING DITCH	LF	300	$7.00	$2,100.00
	BARRICADES	EA	6	$250.00	$1,500.00
	SIGNS	SQ FT	576	$6.00	$3,456.00
	PORT. MESSAGE SIGN	EA	4	$2,500.00	$10,000.00
	EROSION CONTROL BLANKET	SQ YD	750	$2.00	$1,500.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$5,000.00	$5,000.00

ESTIMATED ROADWAY COST ($) $215,658.00

ESTIMATED PROJECT COST ($) $250,883.00
ESTIMATED CONTINGENCY COST @ 15% ($) $37,632.45

Demobilization (2%) LS 1 $5,018.00

ESTIMATED PROJECT TOTAL ($) $293,533.45

round up **$300,000.00**

APPROACH PAVEMENT

ITEM CODE	ITEM	UNIT	QUANTITY	UNIT PRICE	ITEM COST
	DGA BASE-4"	TON	130	$16.00	$2,080.00
	ASPH BASE-8"	TON	220	$65.00	$14,300.00
	ASPH SURF-1.25"	TON	46	$65.00	$2,990.00
	PAVE STRIPING-PERM PAINT-4 IN	LF	1200	$0.20	$240.00
	PAVE STRIPING-TEMP PAINT-4 IN	LF	1200	$0.20	$240.00
	ASPHALT PAVE MILLING & TEXTURING	TON	25	$25.00	$625.00
	MOB. FOR MILLING & TEXTURING	LS	1	$2,500.00	$2,500.00
	LEVELING & WEDGING	TON	25	$70.00	$1,750.00
	EDGE KEY	LF	60	$50.00	$3,000.00
	REMOVE PAVEMENT	SY	375	$20.00	$7,500.00

ESTIMATED PAVEMENT COST ($) $35,225.00

ROADWAY/PRE-CAST ARCH

	CLEARING AND GRUBBING	LS	1	$2,000.00	$2,000.00
	EXCAVATION	CY	425	$20.00	$8,500.00
	STAKING	LS	1	$3,500.00	$3,500.00
	REMOVE STRUCTURE	LS	1	$10,000.00	$10,000.00
	14'X6'X24' PRE-CAST CONC ARCH STRUCTURE	LF	24	$3,500.00	$84,000.00
	SITE PREP.	LS	1	$20,000.00	$20,000.00
	GUARDRAIL	LF	200	$40.00	$8,000.00
	CLASS III CHANNEL LINING	TON	40	$30.00	$1,200.00
	GUARDRAIL BRIDGE CONNECTOR	EA	0	$1,200.00	$0.00
	GUARDRAIL END TREATMENT TYPE 1	EA	2	$2,200.00	$4,400.00
	GUARDRAIL TERMINAL SECTION NO. 1	EA	1	$65.00	$65.00
	TEMP DITCH	LF	300	$1.50	$450.00
	TEMPORARY SILT FENCE	LF	600	$2.50	$1,500.00
	CLEAN TEMPORARY SILT FENCE	LF	600	$0.40	$240.00
	SILT TRAP - TYPE A	EA	1	$333.00	$333.00
	SILT TRAP - TYPE B	EA	4	$216.00	$864.00
	CLEAN SILT TRAPS	EA	5	$30.00	$150.00
	SEEDING & PROTECTION	SQ YD	3000	$0.70	$2,100.00
	REGRADE EXISTING DITCH	LF	300	$7.00	$2,100.00
	BARRICADES	EA	6	$250.00	$1,500.00
	SIGNS	SQ FT	576	$6.00	$3,456.00
	PORT. MESSAGE SIGN	EA	4	$2,500.00	$10,000.00
	EROSION CONTROL BLANKET	SQ YD	750	$2.00	$1,500.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$5,000.00	$5,000.00

ESTIMATED ROADWAY COST ($) $170,858.00

ESTIMATED PROJECT COST ($) $206,083.00
ESTIMATED CONTINGENCY COST @ 15% ($) $30,912.45

Demobilization (2%) LS 1 $4,122.00

ESTIMATED PROJECT TOTAL ($) $241,117.45

round up **$250,000.00**

Option 2: Replace in-place and Construct Diversion

	ITEM CODE	ITEM	UNIT	QUANTITY	UNIT PRICE	ITEM COST
APPROACH PAVEMENT		DGA BASE-4"	TON	130	$16.00	$2,080.00
		ASPH BASE-8"	TON	220	$65.00	$14,300.00
		ASPH SURF-1.25"	TON	46	$65.00	$2,990.00
		PAVE STRIPING-PERM PAINT-4 IN	LF	1200	$0.20	$240.00
		PAVE STRIPING-TEMP PAINT-4 IN	LF	1200	$0.20	$240.00
		ASPHALT PAVE MILLING & TEXTURING	TON	25	$25.00	$625.00
		MOB. FOR MILLING & TEXTURING	LS	1	$2,500.00	$2,500.00
		LEVELING & WEDGING	TON	25	$70.00	$1,750.00
		EDGE KEY	LF	60	$50.00	$3,000.00
		REMOVE PAVEMENT	SY	375	$20.00	$7,500.00
	ESTIMATED PAVEMENT COST ($)					**$35,225.00**
ROADWAY/DOUBLE BOX CULVERT		CLEARING AND GRUBBING	LS	1	$2,000.00	$2,000.00
		EXCAVATION	CY	425	$20.00	$8,500.00
		STAKING	LS	1	$6,500.00	$6,500.00
		REMOVE STRUCTURE	LS	1	$10,000.00	$10,000.00
		CLASS A CONCRETE	CY	120	$500.00	$60,000.00
		REINF. STEEL	LB	13600	$0.90	$12,240.00
		GRAN. BACKFILL	CY	60	$25.00	$1,500.00
		CLASS III CHANNEL LINING	TON	40	$30.00	$1,200.00
		GUARDRAIL	LF	200	$40.00	$8,000.00
		GUARDRAIL END TREATMENT TYPE 1	EA	2	$2,200.00	$4,400.00
		GUARDRAIL TERMINAL SECTION NO. 1	EA	1	$65.00	$65.00
		TEMP DITCH	LF	300	$1.50	$450.00
		TEMPORARY SILT FENCE	LF	600	$2.50	$1,500.00
		CLEAN TEMPORARY SILT FENCE	LF	600	$0.40	$240.00
		SILT TRAP - TYPE A	EA	1	$333.00	$333.00
		SILT TRAP - TYPE B	EA	4	$216.00	$864.00
		CLEAN SILT TRAPS	EA	5	$30.00	$150.00
		SEEDING & PROTECTION	SQ YD	3000	$0.70	$2,100.00
		REGRADE EXISTING DITCH	LF	300	$7.00	$2,100.00
		BARRICADES	EA	6	$250.00	$1,500.00
		SIGNS	SQ FT	192	$6.00	$1,152.00
		PORT. MESSAGE SIGN	EA	2	$2,500.00	$5,000.00
		EROSION CONTROL BLANKET	SQ YD	750	$2.00	$1,500.00
		MAINTAIN AND CONTROL TRAFFIC	LS	1	$15,000.00	$15,000.00
		SUBTOTAL:				$146,294.00
		DIVERSION				
		CLEARING AND GRUBBING	LS	1	$1,500.00	$1,500.00
		STAKING	LS	1	$0.00	$0.00
		TEMP DITCH	LF	650	$1.50	$975.00
		TEMPORARY SILT FENCE	LF	650	$2.50	$1,625.00
		CLEAN TEMPORARY SILT FENCE	LF	650	$0.40	$260.00
		SILT TRAP - TYPE B	EA	4	$216.00	$864.00
		CLEAN SILT TRAPS	EA	4	$30.00	$120.00
		TEMP SEEDING & PROTECTION	SQ YD	1800	$0.70	$1,260.00
		CRUSHED AGGREGATE NO. 2 SIZE	TON	200	$35.00	$7,000.00
		CULVERT PIPE-36"	LF	248	$100.00	$24,800.00
		TEMP GUARD RAIL	LF	300	$10.00	$3,000.00
		EMBANKMENT IN PLACE	CY	1711	$15.00	$25,666.67
		DGA-4.5"	TON	452	$16.00	$7,235.80
		ASPH BASE -4"	TON	385	$65.00	$24,993.22
		PAVE STRIPING-TEMP PAINT-4 IN	LF	2600	$0.20	$520.00
		SIGNS	SF	96	$6.00	$576.00
		MAINTAIN AND CONTROL TRAFFIC	LS	1		$0.00
		REMOVE DIVERSION	LS	1	$10,000.00	$10,000.00
		SEEDING & PROTECTION	SQ YD	3000	$0.70	$2,100.00
		DIVERSION TOTAL:				$112,496.00
		round up				$113,000.00
	ESTIMATED ROADWAY AND DIVERSION COST ($)					**$259,294.00**
	ESTIMATED PROJECT COST ($)					**$294,519.00**
	ESTIMATED CONTINGENCY COST @ 15% ($)					**$44,177.85**
		Demobilization (2%)	LS	1		$5,890.00
	ESTIMATED PROJECT TOTAL ($)					**$344,586.85**
					round up	**$350,000.00**

	ITEM CODE	ITEM	UNIT	QUANTITY	UNIT PRICE	ITEM COST
APPROACH PAVEMENT		DGA BASE-4"	TON	130	$16.00	$2,080.00
		ASPH BASE-8"	TON	220	$65.00	$14,300.00
		ASPH SURF-1.25"	TON	46	$65.00	$2,990.00
		PAVE STRIPING-PERM PAINT-4 IN	LF	1200	$0.20	$240.00
		PAVE STRIPING-TEMP PAINT-4 IN	LF	1200	$0.20	$240.00
		ASPHALT PAVE MILLING & TEXTURING	TON	25	$25.00	$625.00
		MOB. FOR MILLING & TEXTURING	LS	1	$2,500.00	$2,500.00
		LEVELING & WEDGING	TON	25	$70.00	$1,750.00
		EDGE KEY	LF	60	$50.00	$3,000.00
		REMOVE PAVEMENT	SY	375	$20.00	$7,500.00
	ESTIMATED PAVEMENT COST ($)					**$35,225.00**
ROADWAY/BRIDGE		CLEARING AND GRUBBING	LS	1	$2,000.00	$2,000.00
		EXCAVATION	CY	425	$20.00	$8,500.00
		STAKING	LS	1	$6,500.00	$6,500.00
		REMOVE STRUCTURE	LS	1	$10,000.00	$10,000.00
		BRIDGE STRUCTURE	SF	1440	$100.00	$144,000.00
		GUARDRAIL	LF	200	$40.00	$8,000.00
		CLASS III CHANNEL LINING	TON	40	$30.00	$1,200.00
		GUARDRAIL BRIDGE CONNECTOR	EA	4	$1,200.00	$4,800.00
		GUARDRAIL END TREATMENT TYPE 1	EA	2	$2,200.00	$4,400.00
		GUARDRAIL TERMINAL SECTION NO. 1	EA	1	$65.00	$65.00
		TEMP DITCH	LF	300	$1.50	$450.00
		TEMPORARY SILT FENCE	LF	600	$2.50	$1,500.00
		CLEAN TEMPORARY SILT FENCE	LF	600	$0.40	$240.00
		SILT TRAP - TYPE A	EA	1	$333.00	$333.00
		SILT TRAP - TYPE B	EA	4	$216.00	$864.00
		CLEAN SILT TRAPS	EA	5	$30.00	$150.00
		SEEDING & PROTECTION	SQ YD	3000	$0.70	$2,100.00
		REGRADE EXISTING DITCH	LF	300	$7.00	$2,100.00
		BARRICADES	EA	6	$250.00	$1,500.00
		SIGNS	SQ FT	192	$6.00	$1,152.00
		PORT. MESSAGE SIGN	EA	2	$2,500.00	$5,000.00
		EROSION CONTROL BLANKET	SQ YD	750	$2.00	$1,500.00
		MAINTAIN AND CONTROL TRAFFIC	LS	1	$15,000.00	$15,000.00
		SUBTOTAL:				$221,354.00
		DIVERSION				
		CLEARING AND GRUBBING	LS	1	$1,500.00	$1,500.00
		STAKING	LS	1	$0.00	$0.00
		TEMP DITCH	LF	650	$1.50	$975.00
		TEMPORARY SILT FENCE	LF	650	$2.50	$1,625.00
		CLEAN TEMPORARY SILT FENCE	LF	650	$0.40	$260.00
		SILT TRAP - TYPE B	EA	4	$216.00	$864.00
		CLEAN SILT TRAPS	EA	4	$30.00	$120.00
		TEMP SEEDING & PROTECTION	SQ YD	1800	$0.70	$1,260.00
		CRUSHED AGGREGATE NO. 2 SIZE	TON	200	$35.00	$7,000.00
		CULVERT PIPE-36"	LF	248	$100.00	$24,800.00
		TEMP GUARD RAIL	LF	300	$10.00	$3,000.00
		EMBANKMENT IN PLACE	CY	1711	$15.00	$25,666.67
		DGA-4.5"	TON	452	$16.00	$7,235.80
		ASPH BASE -4"	TON	385	$65.00	$24,993.22
		PAVE STRIPING-TEMP PAINT-4 IN	LF	2600	$0.20	$520.00
		SIGNS	SF	96	$6.00	$576.00
		MAINTAIN AND CONTROL TRAFFIC	LS	1		$0.00
		REMOVE DIVERSION	LS	1	$10,000.00	$10,000.00
		SEEDING & PROTECTION	SQ YD	3000	$0.70	$2,100.00
		DIVERSION TOTAL:				$112,496.00
		round up				$113,000.00
	ESTIMATED ROADWAY AND DIVERSION COST ($)					**$334,354.00**
	ESTIMATED PROJECT COST ($)					**$369,579.00**
	ESTIMATED CONTINGENCY COST @ 15% ($)					**$55,436.85**
		Demobilization (2%)	LS	1		$7,392.00
	ESTIMATED PROJECT TOTAL ($)					**$432,407.85**
					round up	**$440,000.00**

	ITEM CODE	ITEM	UNIT	QUANTITY	UNIT PRICE	ITEM COST
APPROACH PAVEMENT		DGA BASE-4"	TON	130	$16.00	$2,080.00
		ASPH BASE-8"	TON	220	$65.00	$14,300.00
		ASPH SURF-1.25"	TON	46	$65.00	$2,990.00
		PAVE STRIPING-PERM PAINT-4 IN	LF	1200	$0.20	$240.00
		PAVE STRIPING-TEMP PAINT-4 IN	LF	1200	$0.20	$240.00
		ASPHALT PAVE MILLING & TEXTURING	TON	25	$25.00	$625.00
		MOB. FOR MILLING & TEXTURING	LS	1	$2,500.00	$2,500.00
		LEVELING & WEDGING	TON	25	$70.00	$1,750.00
		EDGE KEY	LF	60	$50.00	$3,000.00
		REMOVE PAVEMENT	SY	375	$20.00	$7,500.00
	ESTIMATED PAVEMENT COST ($)					**$35,225.00**
ROADWAY/PRE-CAST ARCH		CLEARING AND GRUBBING	LS	1	$2,000.00	$2,000.00
		EXCAVATION	CY	425	$20.00	$8,500.00
		STAKING	LS	1	$6,500.00	$6,500.00
		REMOVE STRUCTURE	LS	1	$10,000.00	$10,000.00
		14'X6'X24' PRE-CAST CONC ARCH STRUCTURE	LF	24	$3,500.00	$84,000.00
		SITE PREP.	LS	1	$20,000.00	$20,000.00
		GUARDRAIL	LF	200	$40.00	$8,000.00
		CLASS III CHANNEL LINING	TON	40	$30.00	$1,200.00
		GUARDRAIL BRIDGE CONNECTOR	EA	0	$1,200.00	$0.00
		GUARDRAIL END TREATMENT TYPE 1	EA	2	$2,200.00	$4,400.00
		GUARDRAIL TERMINAL SECTION NO. 1	EA	1	$65.00	$65.00
		TEMP DITCH	LF	300	$1.50	$450.00
		TEMPORARY SILT FENCE	LF	600	$2.50	$1,500.00
		CLEAN TEMPORARY SILT FENCE	LF	600	$0.40	$240.00
		SILT TRAP - TYPE A	EA	1	$333.00	$333.00
		SILT TRAP - TYPE B	EA	4	$216.00	$864.00
		CLEAN SILT TRAPS	EA	5	$30.00	$150.00
		SEEDING & PROTECTION	SQ YD	3000	$0.70	$2,100.00
		REGRADE EXISTING DITCH	LF	300	$7.00	$2,100.00
		BARRICADES	EA	6	$250.00	$1,500.00
		SIGNS	SQ FT	192	$6.00	$1,152.00
		PORT. MESSAGE SIGN	EA	2	$2,500.00	$5,000.00
		EROSION CONTROL BLANKET	SQ YD	750	$2.00	$1,500.00
		MAINTAIN AND CONTROL TRAFFIC	LS	1	$15,000.00	$15,000.00
		SUBTOTAL:				$176,554.00
		DIVERSION				
		CLEARING AND GRUBBING	LS	1	$1,500.00	$1,500.00
		STAKING	LS	1	$0.00	$0.00
		TEMP DITCH	LF	650	$1.50	$975.00
		TEMPORARY SILT FENCE	LF	650	$2.50	$1,625.00
		CLEAN TEMPORARY SILT FENCE	LF	650	$0.40	$260.00
		SILT TRAP - TYPE B	EA	4	$216.00	$864.00
		CLEAN SILT TRAPS	EA	4	$30.00	$120.00
		TEMP SEEDING & PROTECTION	SQ YD	1800	$0.70	$1,260.00
		CRUSHED AGGREGATE NO. 2 SIZE	TON	200	$35.00	$7,000.00
		CULVERT PIPE-36"	LF	248	$100.00	$24,800.00
		TEMP GUARD RAIL	LF	300	$10.00	$3,000.00
		EMBANKMENT IN PLACE	CY	1711	$15.00	$25,666.67
		DGA-4.5"	TON	452	$16.00	$7,235.80
		ASPH BASE -4"	TON	385	$65.00	$24,993.22
		PAVE STRIPING-TEMP PAINT-4 IN	LF	2600	$0.20	$520.00
		SIGNS	SF	96	$6.00	$576.00
		MAINTAIN AND CONTROL TRAFFIC	LS	1		$0.00
		REMOVE DIVERSION	LS	1	$10,000.00	$10,000.00
		SEEDING & PROTECTION	SQ YD	3000	$0.70	$2,100.00
		DIVERSION TOTAL:				$112,496.00
		round up				$113,000.00
	ESTIMATED ROADWAY AND DIVERSION COST ($)					**$289,554.00**
	ESTIMATED PROJECT COST ($)					**$324,779.00**
	ESTIMATED CONTINGENCY COST @ 15% ($)					**$48,716.85**
		Demobilization (2%)	LS	1		$6,496.00
	ESTIMATED PROJECT TOTAL ($)					**$379,991.85**
					round up	**$380,000.00**

Option 3: Replace Upstream and keep Existing Facility Operable During Construction

NEW ALIGNMENT PAVEMENT

ITEM CODE	ITEM	UNIT	QUANTITY	UNIT PRICE	ITEM COST
	DGA BASE-4"	TON	1086	$16.00	$17,376.00
	ASPH BASE-8"	TON	1833	$65.00	$119,145.00
	ASPH SURF-1.25"	TON	286	$65.00	$18,590.00
	PAVE STRIPING-PERM PAINT-4 IN	LF	5200	$0.20	$1,040.00
	PAVE STRIPING-TEMP PAINT-4 IN	LF	5200	$0.20	$1,040.00
	ASPHALT PAVE MILLING & TEXTURING	TON	25	$25.00	$625.00
	MOB. FOR MILLING & TEXTURING	LS	1	$2,500.00	$2,500.00
	LEVELING & WEDGING	TON	25	$70.00	$1,750.00
	EDGE KEY	LF	60	$50.00	$3,000.00
	REMOVE PAVEMENT	SY	3125	$20.00	$62,500.00

ESTIMATED PAVEMENT COST ($) $227,566.00

ROADWAY/DOUBLE BOX CULVERT

	CLEARING AND GRUBBING	LS	1	$3,500.00	$3,500.00
	EXCAVATION	CY	425	$0.00	$0.00
	STAKING	LS	1	$9,650.00	$9,650.00
	EMBANKMENT IN PLACE	CY	6944	$12.00	$83,333.33
	REMOVE STRUCTURE	LS	1	$10,000.00	$10,000.00
	CLASS A CONCRETE	CY	120	$500.00	$60,000.00
	REINF. STEEL	LB	13600	$0.90	$12,240.00
	GRAN. BACKFILL	CY	60	$25.00	$1,500.00
	CLASS III CHANNEL LINING	TON	40	$30.00	$1,200.00
	CULVERT PIPE-24"	LF	60	$60.00	$3,600.00
	REMOVE GUARDRAIL	LF	500	$2.00	$1,000.00
	GUARDRAIL	LF	700	$40.00	$28,000.00
	GUARDRAIL END TREATMENT TYPE 1	EA	2	$2,200.00	$4,400.00
	GUARDRAIL TERMINAL SECTION NO. 1	EA	1	$65.00	$65.00
	KPDES PERMIT AND EROSION CONTROLS	LS	1	$10,000.00	$10,000.00
	SEEDING & PROTECTION	SQ YD	9000	$0.70	$6,300.00
	REGRADE EXISTING DITCH	LF	300	$7.00	$2,100.00
	BARRICADES	EA	6	$250.00	$1,500.00
	SIGNS	SQ FT	192	$6.00	$1,152.00
	PORT. MESSAGE SIGN (2)	EA	2	$2,500.00	$5,000.00
	EROSION CONTROL BLANKET	SQ YD	5000	$2.00	$10,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$5,000.00	$5,000.00

ESTIMATED ROADWAY COST ($) $259,540.33

ESTIMATED PROJECT COST ($) $487,106.33
ESTIMATED CONTINGENCY COST @ 15% ($) $73,065.95

Demobilization (2%)	LS	1	$9,742.00

ESTIMATED PROJECT TOTAL ($) $569,914.28

round up **$570,000.00**

NEW ALIGNMENT PAVEMENT

ITEM CODE	ITEM	UNIT	QUANTITY	UNIT PRICE	ITEM COST
	DGA BASE-4"	TON	1086	$16.00	$17,376.00
	ASPH BASE-8"	TON	1833	$65.00	$119,145.00
	ASPH SURF-1.25"	TON	286	$65.00	$18,590.00
	PAVE STRIPING-PERM PAINT-4 IN	LF	5200	$0.20	$1,040.00
	PAVE STRIPING-TEMP PAINT-4 IN	LF	5200	$0.20	$1,040.00
	ASPHALT PAVE MILLING & TEXTURING	TON	25	$25.00	$625.00
	MOB. FOR MILLING & TEXTURING	LS	1	$2,500.00	$2,500.00
	LEVELING & WEDGING	TON	25	$70.00	$1,750.00
	EDGE KEY	LF	60	$50.00	$3,000.00
	REMOVE PAVEMENT	SY	3125	$20.00	$62,500.00

ESTIMATED PAVEMENT COST ($) $227,566.00

ROADWAY/BRIDGE

	CLEARING AND GRUBBING	LS	1	$3,500.00	$3,500.00
	EXCAVATION	CY	425	$0.00	$0.00
	STAKING	LS	1	$9,650.00	$9,650.00
	EMBANKMENT IN PLACE	CY	6944	$12.00	$83,333.33
	REMOVE STRUCTURE	LS	1	$10,000.00	$10,000.00
	BRIDGE STRUCTURE	SF	1440	$100.00	$144,000.00
	CLASS III CHANNEL LINING	TON	40	$30.00	$1,200.00
	CULVERT PIPE-24"	LF	60	$60.00	$3,600.00
	REMOVE GUARDRAIL	LF	500	$2.00	$1,000.00
	GUARDRAIL	LF	700	$40.00	$28,000.00
	GUARDRAIL END TREATMENT TYPE 1	EA	2	$2,200.00	$4,400.00
	GUARDRAIL TERMINAL SECTION NO. 1	EA	1	$65.00	$65.00
	GUARDRAIL BRIDGE CONNECTOR	EA	4	$1,200.00	$4,800.00
	KPDES PERMIT AND EROSION CONTROLS	LS	1	$10,000.00	$10,000.00
	SEEDING & PROTECTION	SQ YD	9000	$0.70	$6,300.00
	REGRADE EXISTING DITCH	LF	300	$7.00	$2,100.00
	BARRICADES	EA	6	$250.00	$1,500.00
	SIGNS	SQ FT	192	$6.00	$1,152.00
	PORT. MESSAGE SIGN (2)	EA	2	$2,500.00	$5,000.00
	EROSION CONTROL BLANKET	SQ YD	5000	$2.00	$10,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$5,000.00	$5,000.00

ESTIMATED ROADWAY COST ($) $334,600.33

ESTIMATED PROJECT COST ($) $562,166.33
ESTIMATED CONTINGENCY COST @ 15% ($) $84,324.95

Demobilization (2%)	LS	1	$11,243.00

ESTIMATED PROJECT TOTAL ($) $657,734.28

round up **$660,000.00**

NEW ALIGNMENT PAVEMENT

ITEM CODE	ITEM	UNIT	QUANTITY	UNIT PRICE	ITEM COST
	DGA BASE-4"	TON	1086	$16.00	$17,376.00
	ASPH BASE-8"	TON	1833	$65.00	$119,145.00
	ASPH SURF-1.25"	TON	286	$65.00	$18,590.00
	PAVE STRIPING-PERM PAINT-4 IN	LF	5200	$0.20	$1,040.00
	PAVE STRIPING-TEMP PAINT-4 IN	LF	5200	$0.20	$1,040.00
	ASPHALT PAVE MILLING & TEXTURING	TON	25	$25.00	$625.00
	MOB. FOR MILLING & TEXTURING	LS	1	$2,500.00	$2,500.00
	LEVELING & WEDGING	TON	25	$70.00	$1,750.00
	EDGE KEY	LF	60	$50.00	$3,000.00
	REMOVE PAVEMENT	SY	3125	$20.00	$62,500.00

ESTIMATED PAVEMENT COST ($) $227,566.00

ROADWAY/PRE-CAST ARCH

	CLEARING AND GRUBBING	LS	1	$3,500.00	$3,500.00
	EXCAVATION	CY	425	$0.00	$0.00
	STAKING	LS	1	$9,650.00	$9,650.00
	EMBANKMENT IN PLACE	CY	6944	$12.00	$83,333.33
	REMOVE STRUCTURE	LS	1	$10,000.00	$10,000.00
	14'X6'X24' PRE-CAST CONC ARCH STRUCTURE	LF	24	$3,500.00	$84,000.00
	SITE PREP.	LS	1	$20,000.00	$20,000.00
	CLASS III CHANNEL LINING	TON	40	$30.00	$1,200.00
	CULVERT PIPE-24"	LF	60	$60.00	$3,600.00
	REMOVE GUARDRAIL	LF	500	$2.00	$1,000.00
	GUARDRAIL	LF	700	$40.00	$28,000.00
	GUARDRAIL END TREATMENT TYPE 1	EA	2	$2,200.00	$4,400.00
	GUARDRAIL TERMINAL SECTION NO. 1	EA	1	$65.00	$65.00
	KPDES PERMIT AND EROSION CONTROLS	LS	1	$10,000.00	$10,000.00
	SEEDING & PROTECTION	SQ YD	9000	$0.70	$6,300.00
	REGRADE EXISTING DITCH	LF	300	$7.00	$2,100.00
	BARRICADES	EA	6	$250.00	$1,500.00
	SIGNS	SQ FT	192	$6.00	$1,152.00
	PORT. MESSAGE SIGN (2)	EA	2	$2,500.00	$5,000.00
	EROSION CONTROL BLANKET	SQ YD	5000	$2.00	$10,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$5,000.00	$5,000.00

ESTIMATED ROADWAY COST ($) $289,800.33

ESTIMATED PROJECT COST ($) $517,366.33
ESTIMATED CONTINGENCY COST @ 15% ($) $77,604.95

Demobilization (2%)	LS	1	$10,347.00

ESTIMATED PROJECT TOTAL ($) $605,318.28

round up **$610,000.00**

COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
DIVISION OF RIGHT OF WAY
UTILITY ESTIMATE

COUNTY Lincoln ITEM NO. _____
STATE NO. _____ FED. NO. _____
ROAD NAME Stanford - Hustonville Road (KY 78)
TC-10 NO. _____ 6 YEAR PLAN EST _____

ALTERNATE 1	ALTERNATE 0	ALTERNATE 0	ALTERNATE 0
$50,000.00			

Estimate sheet must be attached for each alternate.

PLANS USED:

NONE XX TOPO MAP ____ PREL. INSPEC. ____ FINAL INSPEC. ____ FINAL PLANS ____

ESTIMATE:

PRE-STUDY XX UPDATE FOR INSPEC. ____ REQUEST FUNDS ____ REQUEST ADD'L FUNDS ____

ARE RAILROADS INVOLVED ON THIS PROJECT? YES ____ NO XX

IF YES, ARE RAILROAD COSTS REFLECTED IN YOUR ESTIMATE? YES ____ NO ____

This estimate is based on the 6 Year Plan scheduled authorization date of FY

SECTION 2 (COMPLETE IF ADDITIONAL FUNDS ARE REQUESTED. USE BACK IF ADDITIONAL SPACE IS NEEDED TO THOROUGHLY EXPLAIN THE INCREASE.)

AMOUNT AUTHORIZED (THIS SECTION)----------	----------	$0.00
ADDITIONAL FUNDS NEEDED----------	----------	
TOTAL FUNDS NEEDED----------	----------	$0.00

WHAT **SPECIFICALLY** CAUSED THE COST INCREASE

Bridge located approx. 1000 feet west of intersection of KY 300 and KY 78. Estimate prepared without any plans.
Estimate reflects a total wipe out of all utilities around bridge.

WHY WAS THE WORK REQUIRING ADDITIONAL FUNDS NOT ORIGINALLY ANTICIPATED

CC: C.O. RIGHT OF WAY
C.O. UTILITIES
DIST PRECONSTRUCTION
DIST DESIGN
DIST PLANNING

Steve McCall
UTILITY AGENT SIGNATURE

12-4-09
DATE

COUNTY Lincoln ITEM NO.

ESTIMATE SHEET STATE NO. 0 FED. NO. 0

ALTERNATE 1 ROAD NAME Stanford - Hustonville Road (KY 78)

Accurately describe project termini which this estimate is based. Does it agree with the Pre- Con Report? YES NO XX

Bridge and approach replacement on KY 78 @ approx mp 11.2. Located approx. 1,000 feet west of intersection of KY 300.

COMPANY	ITEM	QUANTITY	UNIT COST	AMOUNT
Water	Water Main	300	$ 50.00	$ 15,000.00
City of Stanford	Engineering	$ 15,000.00	25%	$ 3,750.00
	Inspection	$ 15,000.00	10%	$ 1,500.00
	Administration	$ 15,000.00	5%	$ 750.00
Electric	Pole Count	2	$ 2,000.00	$ 4,000.00
Kentucky Utilities	Engineering	$ 4,000.00	25%	$ 1,000.00
Telephone	Pole Count	1	$ 1,500.00	$ 1,500.00
AT&T	Underground		$ 50.00	$ -
	Engineering	$ 1,500.00	35%	$ 525.00
Cable	Pole Count	1	$ 1,500.00	$ 1,500.00
Adelphia	Engineering	$ 1,500.00	25%	$ 375.00
			SUB-TOTAL	$ 29,900.00
CONTINGENCIES----------			at 30%	$ 8,970.00
STATE FORCES ENGINEERING----------			at 30%	$ 8,970.00
			TOTAL	$ 47,840.00
ROUND UP TO NEAREST $5,000.00----------			USE	$ 50,000.00

If more than one county is involved, costs for each county must be separately identified.

Estimate by _____ Date _____