DNA Scoping Study

Todd County
KY181 from US68x to US68
Item No. 3-8401.00

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KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
DIVISION OF PLANNING
FOR
BOWLING GREEN-DISTRICT 3 PLANNING

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Pre-Design Scoping Study

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I. INTRODUCTION

a. Study Purpose

The purpose of this DNA Scoping Study is to provide early support for the Pre-Construction phase in order to better define the concerns of this project. This report will provide support through the following actions:

- Better define the intent of the project before the design process actually begins
- Initiate project requests for information needed for design activities
- Discuss possible alternatives as set forth by the District Project Team
- Identify possible practical solutions using operations and maintenance rather than capital construction
- Document agency recommendations to streamline future design efforts

b. Location

This project is located in the community of Elkton, along KY181 beginning at the town center and continuing north to the intersection of US68 (mile point (MP12.021 to 13.042) in Todd County, Kentucky. (Figure 1). Elkton, which can be found on the right side of the Elkton USGS Topographic Quadrant, lies equal-distant between Russellville and Hopkinsville.

c. Project Purpose and Need

KY181 provides a crucial connection between the city of Elkton and US68. Existing conditions need improvement to enhance safety by providing better access management, pedestrian mobility, and through correcting roadway deficiencies while being sensitive to the natural (Elk Fork Creek) and social environments. Appendix F contains in detail the Nine Elements of a Purpose and Need Statement as specified by National Environmental Protection Act (NEPA).

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Figure 1: Project location

d. Programming Schedule

This project is currently scheduled in the 2010-2011 Two-Year Highway Plan for Todd County as Item No. 3-8401.00. Phasing and cost estimates are as follows:

Phase	**Fiscal Year**	**Prop Source**	**Estimate**
Design	2011	SPP	420,000
Right of Way	2011	SPP	560,000
Utilities	2012	SP	870,000
Design	2012	SP	2,250,000
	Total		$4,100,000

Note: Appendix A contains more details regarding funding.

II. Existing Conditions

a. Roadway Characteristics for KY181

The roadway characteristics change along the project and can be generally characterized as a two-lane undivided road. The project begins at the US68X northern intersection of the Elkton town center loop (MP 12.021) and proceeds northerly. The first 1200 feet is a broad paved area with on-street parking. Just north of this section is a bridge (MP 12.247) that begins a section that has little or no shoulder (MP 12.8). From this point, the roadway broadens with paved shoulders to the intersection with US68 (MP 13.042), the northern terminus of this study. HIS identifies only one curve (1.8 degree) from MP 12.69 to 12.86.

i. Highway Information System

1. System

Section No	Functional Classification System	State Class System	NHS	TrkWtClass
One	FC 6, Rural Minor Arterial	State Secondary	No	AAA
Two	FC 6, Rural Major Collector	State Secondary	No	AAA

2. Existing Geometrics

Section No.	Geometric	HIS	Observed/Plans
One	Lanes	2	2
One	Lane Width	14	12-15 feet
One	Shoulder Width	0	0 ft
One	Curbed	Yes	Primarily
Two	Lanes	2	2-4
Two	Lane Width	9	9-10.5 feet
Two	Shoulder Width	3	0-8 feet
Two	Right-of-Way Width	N/A	See Appendix F

3. Posted Speed Limit

Section No.	Posted Speed
One	35 MPH
Two	35 MPH

4. 2009 Coal Haul (in Tons Annually)

Section No.	Cardinal Direction	Non-Cardinal
One	0	0
Two	0	0

5. Terrain

Section No.	EV value	Observed
One	2	Level to Rolling
Two	2	Level to Rolling

6. Adequacy Rating

Section No.	Mile Point Range		Adequacy Percentile
One	12.021	12.241	75.62
Two	12.241	13.04	75.62

ii. Crash Analysis

A crash analysis from January 1, 2007 to December 31, 2009 revealed 3 types of incidences totaling 6 vehicular crashes along the project corridor. The events predominantly occurred away from intersections. These events involved backing (2), rear end crashes (2), and sideswipes (2). Three crashes occurred just north of the town center loop where pavement is widest. The following is general summary of events and severity:

Location	# of events	# of Veh	Injuries	Fatalities
KY181near town center	3	6	1	0
KY181 near Water St	1	2	0	0
KY181 N of Pond River	1	2	0	0
KY181 at US68	1	2	0	0
TOTALS	6	12	1	0

0

The following is a summary of event types at the same locations:

Location	Rear End	Backing	Sideswipe	Single
KY181near town center	0	1	2	0
KY181 near Water St	1	0	0	0
KY181 N of Pond River	0	1	0	0
KY181 at US68	1	0	0	0
TOTALS	2	2	2	0

Crash rates factors (CRF) for the project were below the critical threshold of 1.00 for similarly classed roadways. Even at an analysis level of one-tenth of a mile, the section just north of town center resulted in a CRF of only 0.72. Only the US68 intersection at the north terminus accounted for one or 17% of all the recorded accidents.

For accident details see Appendix C.

iii. Existing and Future Estimated Traffic Volumes

Traffic volumes along KY181 change little for the one mile corridor. Available information did not quantify traffic that used connecting roads. For the purpose of this report, volumes were assumed constant:

Section One	2010 ADT = 5100	2032 ADT = 7300
Section Two	2010 ADT = 5100	2032 ADT = 7300

Appendix D contains data used to develop the 2032 traffic estimate

b. Future Transportation Projects

Currently, no other projects are scheduled for construction along the portion of KY181. However, several miles south along KY 181 is the intersections of US41, and US 79. This area is in the vicinity of Guthrie and a massive industrial complex which may spur growth in the area. Item 3-8630 is a Planning Study that will identify possible improvements for the confluence of these three roads.

III. PRELIMINARY ENVIRONMENTAL OVERVIEW

a. Ecological Overview

The ecological impacts appear to be limited to the possible disturbance of a blue line stream called Elk Fork. Elk Fork begins northwest of US68 near Allegre and crosses under a bridge at mile point 12.241. Beginning at Dry Branch which is downstream of the bridge, Elk Fork is designated as a special use waterway. Therefore, disturbances could have downstream impacts.

i. Air Quality

Todd County currently is in compliance with the Environmental Protection Agency (EPA). However, EPA is poised to change the 2.5 micron particulate threshold. Therefore, regulations may need to be reviewed to determine if the area is still in attainment.

ii. Noise

Since capacity is not an issue with this project, any work will be to correct potential safety and geometric deficiencies. Therefore noise impacts are not anticipated.

iii. Aquatic Ecosystems

A 401 permit should be anticipated. The bridge associated with Section Two, will determine the type of permit that will be required. This project may also encounter wetland areas which may result in “in-lieu” fees.

iv. Threatened and Endangered Species

The Indiana Bat (Myotis Sodalis), the Fanshell Mussel (Cyprogenia Stegaria), Littlewing Pearly Mussel (Pegias Fibula), and Ring Pink Mussel (Obovaria Refusa) are listed as endangered species known to be present in Todd county. The Indiana Bat Conservation Fund (IBCF) can be utilized to compensate for any potential habitat loss that may occur as a result of this project. A Biological Assessment (BA) may be required for the three mussels noted to determine if they are present.

v. Historic Preservation (Section 4F) and 106 areas

This project currently plans to use State Funds (SP). Currently two houses, a cemetery and the Concrete Tee Bridge over Elk Fork have been identified as possible Historic Register candidates. Should a future enacted budget propose Federal Statewide Transportation Program (STP) funds, a more in-depth survey may be necessary. Suspected properties have been noted, and may necessitate a formal survey.

vi. UST/HAZMAT

The area is predominately residential. Unless, additional right-of-way is anticipated, UST/HAZMAT will not need to be investigated. No obvious issues were identified by this report for this project

b. Socioeconomic & Environmental Justice

i. Socioeconomic

This project should not create any major or permanent hardships for any individuals or businesses. However, if rebuilding the bridge over Elk Fork is chosen, some residences may be impacted. Roadway improvement in Section One may pose temporary impacts to businesses.

ii. Environmental Justice

While relocations are possible, the project will not result in a disproportionate negative impact on low-income or minority populations according to available information.

IV. PROPOSED IMPROVEMENTS

a. Possible Options

This section identifies ideas compiled during a Project Team Meeting on May 16, 2011. As always, "Do Nothing" is an option and is implied in each section.

i. **KY 181 Bridge over Elk Fork Creek, just north of Elkton, KY**.

This bridge (110B0001N) constructed in 1930, has a deck width of 22 feet and a length of 73 feet. While the Sufficiency Rating is 77, the original guard rails have been removed and replaced, presumably to improve side clearance. However, the new railing is bolted to the bridge structure and does not meet current standards. Because of the width, the bridge is considered functionally obsolete. Reconstruction of the bridge would address the deficiencies.

Option 1: Replace Bridge

While the bridge does qualify as historical by virtue of its age, the method of construction is quite common and doesn't represent an example that has unique characteristics for a 2-span Concrete Tee Beam bridge. Commercial properties adjacent to the bridge may pose right of way challenges. A lower reach of the Elk Fork Creek is listed as a special use water, so care will be necessary to minimize impacts to the stream. The estimated cost for this option is approximately $2,100,000.

ii. Rehabilitate Urban Roadway Segment

This section of the project begins at the courthouse square (MP 12.021) and proceeds north to the Elk Fork Creek Bridge (see Option 1) at MP 12.241. While pavement width is adequate to stripe as three lanes, doing so might jeopardize on-street parking. The road segment has issues with drainage and pedestrian safety. To accommodate these concerns, curb, gutter and grade improvements will mitigate drainage. Currently sidewalks do not fully extend through the urban section. Rehabilitation of the segment would include ADA compliant sidewalks. Access management may also be an issue to help delineate access and minimize wide commercial entrances. Striping for a center turning lane can also be considered.

Sidewalk stops here

Little off street parking and access with limited views

Photos 2 & 3: intermittent sidewalk and parking(Looking South)

Sidewalk stops here

Access with limited view

Catch basin too high

Photos 3 & 4: Access, Sidewalk & Drainage needs

The total cost to rehabilitate this section of roadway is about $2,100,000.

iii. Improve Intersection at Pond River Road

This option proposes to construct a northbound left turn lane at Pond River Road (MP 12.474) which is a county maintained road with high traffic volume. Pond River Road provides access to active residential development and to US 68. (Photo 5).

Photo 5: Improve Pond River Road Intersection (Looking North)

Currently, a shoulder opposite Pond River Road has been improved with gravel to accommodate through traffic in order to bypass left turners from KY 181 to Pond River Road. From Pond River Road, the stone entrance to a Cemetery creates a line of site problem for vehicles entering KY 181. Improvements may include shifting KY181 easterly, to provide better site distance from Pond River Road. The estimated cost to improve the intersection is about $940,000

b. Cost Estimates

		✓	Planning	Design*	ROW	Utilities	Construction	Total Cost
Option i								
	Bridge							
	Replacement	✓			$1,060,000	$485,000	$541,000	$2,086,000
Option ii								
	Rehab							
	Urban	✓			$1,250,000	$535,000	$357,000	$2,142,000
	Section							
Option iii								
	Pond River				$200,000	$500,000	$235,000	$935,000
	Intersection							
Total of Checked Items		✓		$0	$2,310,000	$1,020,000	$898,000	$4,228,000
	Budgetted			$0	$560,000	$870,000	$2,250,000	$3,680,000

☑ Check marks are not recommendations, but rather possible choices given the available funding

*Design funds were authorized on January 7, 2011 and therefore are not reflected in the cost estimate

V. PUBLIC AND AGENCY COORDINATION

a. Public Involvement

Since this project proposes to use State Funds, public involvement is optional. The project team may seek the input of the public through meetings and determine which options create minimized adverse impacts.

b. Agency Coordination

The estimates included in this report were prepared by District 3 in 2011. A project development team meeting was held at the district office on May 16, 2011. The minutes of this meeting can be reviewed in Appendix G.

Consultation with the Division of Water needs to occur to determine necessary permitting with regard to the Special designation of a segment of Elk Fork Creek, downstream of the project.

An environmental assessment (EA) may be needed to be conducted to determine if all or a part of this project meetings a Categorical Exclusion (CE). A finding of no significant impact (FONSI), issued by EPA may be needed.

c. Utilities

Based on preliminary contacts, the following are contacts for existing utilities:

Water

Todd County Water District
Highland Lick Road, P.O. Box 520
Elkton, Kentucky 42220
Mr. John Haley, Superintendent
Telephone Number: (270) 265-2229, 277-9048 or 277-9059
Cellular Telephone Number: (270) 878-0497
FAX Number: (270) 277-9893

Sewer

Elkton Water and Sewerage Departments
Elkton City Hall
Elkton, Kentucky 42220
Mr. Roger Mays, Superintendent
Telephone Number: (270) 265-5703

Gas

Atmos Energy Corporation
2401 New Hartford Road, P.O. Box 866
Owensboro, Kentucky 42303
Mr. John Paris, President
Mr. Doug Sterns, Manager of Engineering Design
Mr. Sid Hudson, Accountant
Telephone Numbers: (270) 685-8158, 685-8020, 685-8159
FAX Number: (270) 688-6948

Regional Office & District Office
2850 Russellville Road
Bowling Green, Kentucky 42101
Mr. Ronnie Benningfield, Manager Operations
Telephone Number: (270) 901-1705
Cellular Telephone: (270) 791-1314
Anthony Stallins, Operations Supervisor
Telephone Number: (270) 901-1704
Mr. Byron Oost, Engineering Technician
Telephone Number: (270) 901-1710
Greg Cecil, WKG Locator
Telephone Number: (270) 843-3393 or Cell 776-0749

Russellville Office
181 South Main Street
Russellville, Kentucky 42276
Mr. Phillip Neel, Town Operation
Telephone Number: (270) 726-8814
Cellular Telephone Number: (270) 316-3464

Cable

Mediacom Southeast LLC
90 North Main
Benton, Kentucky 42025
Mr. Dale Haney, General Manager
Telephone Number: 1-800-444-5353

District Office
325 North Plum Street
Princeton, Kentucky 42445
Albert Gaboriault, District Technician
Telephone Numbers: (270) 527-9939, Cell (270) 339-6040

Electric

Pennyrile Rural Electric Cooperative Cooperation
2000 Harrison Street, P.O. Box 2900
Hopkinsville, Kentucky 42241-2900
Mr. Eston Glover, General Manager
Mr. John Wheeler, Manager of Engineer
Mr. Jeff Hurd, Design Engineer
Mr. Gary Breaden, Project Engineer
Telephone Number: (270) 886-2555
Toll-Free Telephone Number: (800) 297-4710
FAX Numbers: (270) 886-5933, 885-6469
E-mails: first letter of first name and last name@precc.com

Russellville Office
268 South Main Street, P.O. Box 547
Russellville, Kentucky 42276-0547
Mr. Mark Wilkins, District Manager
Mr. Todd Adler, Engineer
Telephone Number: (270) 726-2479
FAX Number: (270) 726-3031

Elkton Office
P.O. Box 519
Elkton, Kentucky 42276-0547
Mr. Henry Hollingsworth, District Manager
Mr. Terry Joiner, Engineer
Telephone Number: (270) 265-2545
FAX Number: (270) 265-3622

Telephone

ATT - KY
Hopkinsville District Office
801 Richard Street
Hopkinsville, Kentucky 42240
Michael Forrest, Engineer
Telephone Number: (270) 889-9782
Cellular Number: (270)5195862

VI. CONCLUSIONS AND RECOMMENDATIONS

a. Preliminary Environmental Conclusion

Construction is currently budgeted in FY2012 to utilize Kentucky State Program Funds (SP). Unless Federal funding is proposed, a National Environmental Protection Agency (NEPA) document will not be required. However, the bridge replacement and drainage improvements identified in this report may require Water permits, as well as Biological, Archeological, and Historic reviews.

b. Project Conclusion

During the Project Development meeting the team agreed that improvements are needed to improve pedestrian access, mobility and drainage along the north portion of section one. Access management was also mentioned as a need. The team also wished to consider replacing the bridge over Elk Fork Creek. While capacity and the critical rate factor for crashes along the corridor are below thresholds, these options were identified as the higher priority items.

While each alternative in this report is less than the budget, the bridge replacement and adjacent urban street section may be accomplished within the budget because of the inherent overlap when considering each independently. However, the funds as currently distributed by phase do not match the estimates contained in this report. Future Biennial plans may wish to consider these estimates and amend the distribution of costs to the project phases. During the design phase, the selected alternatives may require public input, while other alternatives proposed may be completed by operational or maintenance solutions. Ultimately, this project has the potential to meet the needs of the community into the foreseeable future through improved safety, mobility, and connectivity.