

Programming Study

KY 76

Adair & Russell Counties

Item No. 8-8302.00



FINAL REPORT

Prepared by the
Kentucky Transportation Cabinet
Division of Planning
February 2009



EXECUTIVE SUMMARY

Programming Study

Adair & Russell Counties

KY 76 from US 127 to KY 206

Item No. 8-8302.00

November 2007

The purpose of this planning study is to gather information necessary to develop and evaluate alternatives that would improve safety and traffic flow along the KY 76 corridor from US 127 to KY 206.

Draft Project Goals

The preliminary goals established for this project include:

1. Improve Safety by:
 - a) Correcting horizontal and vertical deficiencies,
 - b) Increasing lane and shoulder widths to meet current guidelines and,
 - c) Providing improved safety measures such as flashing beacons, signage and guardrail where needed in certain locations.
2. Improve connectivity between US 127 and KY 206. KY 76 is a rural minor collector to the Green River Lake area, US 68 and KY 55.

Project Funding

This project was scheduled in the Enacted Six-Year Highway Plan (FY 2007-2012) with committed funds of \$100,000 for the planning phase. There are no future phases scheduled for this project at this time.

Existing Roadway Conditions

The current roadway alignment has narrow lanes and shoulders. Issues with the existing route are the curves and grades that do not meet current guidelines or provide adequate sight distance for on-coming vehicles along the corridor and vehicles pulling into traffic from the intersection at US 127 and KY 206.

Environmental Issues

Kentucky Transportation Cabinet personnel in District 8 prepared an Environmental Overview Report for this project. A few concerns were identified and need to be addressed as subsequent phases develop. These include: special use water designations, forested wetlands in the area and possible concerns of species that have been identified in the proximity.

Public Involvement

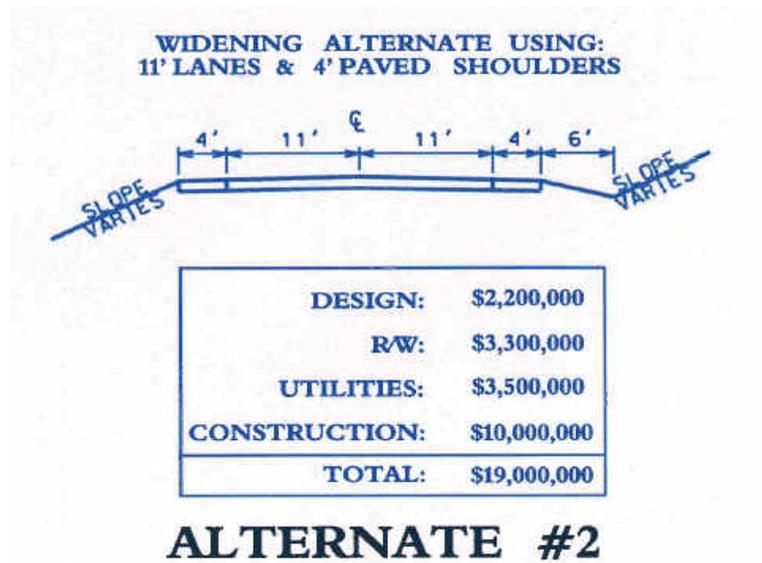
Local officials and stakeholders were given the opportunity to provide input. In addition, input was solicited from many local, state and federal agencies. Some local concerns were identified through this process:

- Narrow lanes and little to no shoulders, sharp drop-offs with no guardrail and difficult roadway geometrics,
- Used as a connector or “cut through” for commercial trucks (logging, concrete and carpet) along with recreational vehicles hauling boats to lakes in the surrounding area and those who commute,
- Sight distance issues upon entering or exiting KY 76 onto US 127 and vice versa and,
- Turning radii for trucks that encroach in the other lane at the intersection of KY 76/KY 206.

Recommendations

Only three alternates were considered due to the natural constraints of the corridor. Two of the three were chosen based on the project goals, corridor issues, technical analysis, environmental impacts and public/agency input. Primary and secondary recommendations are as follows:

1) **Alternate No. 2** was chosen to be the primary recommendation. This alternate includes the spot improvements that were identified along the existing route and the widening/upgrading of the KY 76 route with 11' lanes and 4' shoulders. The estimated cost for this rebuild is **\$19,000,000**.



2) **Alternate No. 1** (Spot Improvements) - If funding does not become immediately available for the primary recommendation, Alternate No. 1 has consideration as an interim recommended choice. This would provide the opportunity for lower-cost improvements to be programmed if only those lesser funding amounts became available. These smaller projects could be constructed to follow the primary recommendation.

Ranking for Spot Improvements

Rank	Spot #	County	BMP	EMP	Length	Total Cost
1	4	Russell	11.498	11.498	Russell	\$ 775,000.00
2	2	Russell/ Adair	14.135	0.000	Russell/ Adair	\$ 1,975,000.00
3	1	Adair	2.391	3.455	Adair	\$ 4,750,000.00
4	3	Russell	12.381	12.473	Russell	\$ 2,100,000.00
						\$ 9,600,000.00

Additional Information

Comments and/or requests for information regarding this KY 76 Programming Study should be sent to the address listed below:

Mr. Keith R. Damron, P.E.
 Director, Division of Planning
 200 Mero Street, 5th Floor
 Kentucky Transportation Cabinet
 (502) 564-7183 ext. 3275
 Frankfort, KY 40622

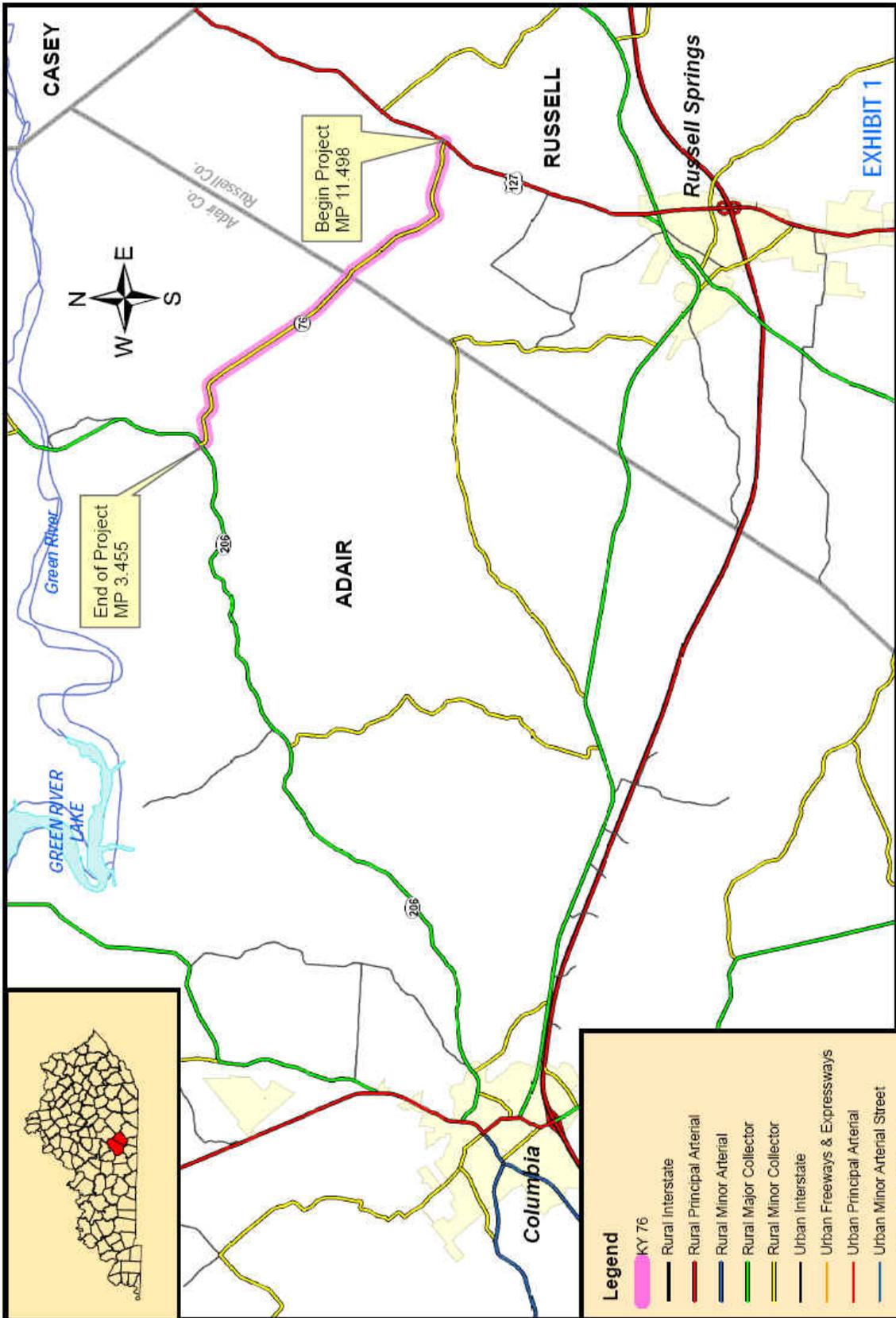


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1.0 INTRODUCTION

1.1 Purpose of the Study

The purpose of this Programming Study is to develop and evaluate alternatives for corridor improvements along KY 76 from US 127 to KY 206 in both Russell and Adair Counties. Those improvements consider safety and traffic flow issues. Subsequently, this study is intended to provide data to be used when and if the project enters the design phase and for determining future needs for funding, and can be utilized for federal requirements regarding consideration of environmental issues as defined in the National Environmental Policy Act (NEPA). Items involved with this study include:

- Define project goals;
- Identify potential project locations and design concepts;
- Discuss project needs and issues with public officials and government agencies;
- Develop and evaluate potential roadway improvements;
- Provide input for the Statewide Transportation Plan;
- Prioritize projects for future programming documents; and
- Identify known environmental concerns.

The first step in the process was the collection of technical and resource agency input concerning this project. This was accomplished by:

- Establishing a project team to provide direction and review for the study. This team included representation from the various phases of project development from the Kentucky Transportation Cabinet's (KYTC) Highway District office as well as the Central Office Division of Planning and the Lake Cumberland Area Development District (LCADD).
- Initiating early coordination with resource agencies, local officials and stakeholders.
- Compiling information from existing data and reports.

The second step in the process was the evaluation of the collected input to accomplish the following:

- Address the geometrics, capacity, crashes, and other issues that are influencing the project.
- Document known environmental concerns.
- Develop and identify the project goals based on input of all who participated ; and
- Make recommendations.

1.2 Programming and Schedule

This study was funded in the *Six-Year Highway Plan (FY2007-2012)* as "Scoping Study for Safety Improvements to KY 76 from US 127 to KY 206" with Item Number 8-8302.00. No future project phases for KY 76 from US 127 to KY 206 are defined or scheduled at this time.

2.0 EXISTING CONDITIONS

2.1 Project Location

The project is in the south central part of Kentucky in both Russell and Adair counties. The project starts at the intersection of US 127 north of Russell Springs in Russell County, milepoint 11.498 and proceeds northwest on KY 76, crossing into Adair County, to ending milepoint 3.455 which is the intersection of KY 76 and KY 206. The route is narrow, winding through a typical rural Kentucky agricultural and residential area with a scatter of small service-oriented commercial businesses. The project location is shown in Exhibit 1 of Appendix A.

2.2 Roadway Characteristics

Data for existing roadway characteristics along KY 76 were taken from the Division of Planning's Highway Information System (HIS) database. This two-lane undivided highway has nine-foot wide lanes and three and four-foot wide combination shoulders throughout the study area. The posted speed limit is 55 mph, but the advisory speed limit is posted at 35 mph at various locations due to the roadway geometry. KYTC re-surfaced a portion of this project in 2006 for Adair County. Currently, re-surfacing is scheduled for the rest of the route in Russell County. Table 1 lists the General Information describing this project.

TABLE 1
General Information

Counties:	Russell and Adair		
Route:	KY 76	Beg MP:	11.498
		End MP:	3.455
Item No:	8-8302.00	Length:	6.092 miles
Description:	Scoping study for KY 76 intersection of US 127 to intersection of KY 206.		
Area Development District	Lake Cumberland Area Development District		
Average Right of Way:	Russell - 40 Feet		
	Adair - 60 Feet		
Lane Width:	9 Feet		
Shoulder Width:	Varies 3-4 Feet		
Speed Limits:	55 mph		
Traffic Volumes:	Varies from 1260-1600 ADT (2007)		
% Trucks:	6.70%		
Bike Route:	No		
Coal Haul Route:	No		
Defense Highway	No		
District:	8		
Extended Weight:	No		
Functional Classification:	Rural Minor Collector		
National Truck Network:	No		
National Highway System	No		
Number of Bridges:	0		
Pavement type:	Mixed Bituminous		
Scenic Byway:	No		
State System:	Rural Secondary		
Truck Weight Class:	A (40,000 lb. Gross Load Limit)		
Type Road:	Undivided Highway		
Type of Terrain:	Rolling		



A windshield survey of KY 76 between US 127 and KY 206 reveals it as a narrow two lane, undivided roadway. Some areas are flat and others are rolling, both natural to the terrain. The majority of shoulders were little to none with steep drop-offs.

2.3 Traffic & Level of Service

The average daily traffic volume (ADT) in the year 2007 varied from 1,260 to 1,600 vehicles per day (vpd) along the project. The projected ADT for 2030 nearly doubles the maximum value to 3,100 vpd. (See Table 2 for details.)

Level of Service (LOS) is used to describe traffic conditions and includes consideration of speeds, travel time, freedom to maneuver, traffic interruptions, comfort and convenience. There are six (6) levels of service to describe a roadway with given letter designations of A to F. Similar to school grades, LOS A is the best condition whereas LOS F is the worst condition.

*Level of Service (LOS) is a qualitative measure of highway traffic conditions described in the **2000 Highway Capacity Manual.***

Collected input data and the use of HCS+ software calculated the LOS for 2-lane conditions. Three scenarios were analyzed: current conditions, projected 2030 conditions without improvements and 2030 conditions with improvements. Those improvements are described in last two columns of Table 2 having a 4-lane improvement and a 2-12' lanes with 8' shoulders improvement. Currently, KY 76 has a LOS "A" rating as seen in Table 2. The LOS remains at LOS "A" with the projected 2030 ADT if no improvements occur. Therefore, the LOS with improvements remains at "A" in 2030. See Exhibit 2 in Appendix A for a visual representation.

TABLE 2

Level of Service Calculations											
Begin Milepoint	End Milepoint	2007 Average Daily Traffic	Annual Growth Rate	2030 Average Daily Traffic	Percent Trucks	Lane Width (Feet)	Shoulder Width (Feet)	2007 Level of Service (LOS)	2030 LOS No Improv.	2030 LOS with Improvements	
										4-Lane	Improved 2-lane
11.498	14.135	1,600	2.4%	3100	6.7%	9	3	A	A	A	A
0.000	3.455	1,260	2.4%	2400	6.7%	9	4	A	A	A	A

*MP = milepoint

MP Description of KY 76:

MP 11.498 - @ the intersection of US 127

MP 14.135 – Russell/Adair County Line

MP 3.455 - @ the intersection of KY 206

Appendix B contains the output files from the HCS+ analysis.

2.4 Crash Analysis

Crash Data from the *Collision Reports Analysis for Safer Highways* (CRASH) database maintained by the Kentucky State Police were used to find the Critical Rate Factors (CRF) for tenth-mile spots as well as for longer segments along the corridor. High crash locations are shown in Tables 3 and 4. Between March 1, 2003 and January 31, 2007, the segment of KY 76 in Adair County had a CRF of 0.935 which indicates a potential high-crash location. In addition through the CRF calculation another spot was identified. This spot is a tenth of a mile span located in Adair County between milepoints 1.000 – 1.100. This spot had three (3) total crashes. Two (2) crashes involved were single vehicles that ran off the road.

Critical Rate Factor (CRF) is a measurement that indicates whether a spot or a segment is statistically more apt to having crash issues. If scored greater than 1.00, then crashes may not be occurring randomly.

See Exhibit 3 in Appendix A for visual representations.

TABLE 3

Crash Analysis (Segment)										
Seg. #	County	Begin MP	End MP	Length (Miles)	Avg. Daily Traffic (ADT)	Crashes				Critical Rate Factor *(CRF)
						Fatal	Injury	Property Damage Only	Total	
January 1, 2003 to December 31, 2006 HIS Data										
1	Russell	11.498	14.135	2.637	4460	0	1	2	3	0.125
2	Adair	0.000	3.455	3.455	3270	0	7	16	23	0.935

*CRF highlighted in **YELLOW** indicate Critical Rate Factor close to 1.00

TABLE 4

Crash Analysis (Spot @ Tenth-Mile Points)										
Pt. #	County	Begin MP	End MP	Length (Miles)	Avg. Daily Traffic (ADT)	Crashes				Critical Rate Factor *(CRF)
						Fatal	Injury	Property Damage Only	Total	
January 1, 2003 to December 31, 2006 HIS Data										
1	Adair	1.0	1.1	0.100	1260	0	1	2	3	1.15

*CRF highlighted in **RED** indicate Critical Rate Factor > 1.00

2.5 Environmental & Socioeconomic Overview

The Environmental Overview was conducted by Kentucky Transportation personnel in the District 8 Office of Somerset, Kentucky. The overview consisted of a file and

database review along with windshield surveys along the project route. See Appendix C for complete documentation.

Highlighted issues of possible concerns include:

- Threatened and Endangered Species
 - Adair County – gray bat, Indiana bat, and fanshell mussel
 - Russell County – Indiana bat, Cumberland bean pearlymussel, Cumberlandian combshell, fanshell mussel, fluted kidneyshell mussel, orangefoot pimpleback mussel, oyster mussel, pink mucket mussel, ring pink mussel and rough pinktoe mussel, sundew meadow
 - Habitat assessments will need to be conducted once an alignment is selected.
- Streams and Wetlands
 - An unnamed tributary of Green River is designated as an Outstanding Resource Water due to its high water quality.
 - Approximately five blueline streams are affected by this corridor.
 - Several small wetlands are scattered along the project. Only one is labeled as a palustrine forested wetland and is already bisected by the current roadway.
- Cultural-Historic
 - Review of the Kentucky Heritage Council and the National Register did not indicate any sites in the project area, although several structures appear to be over 50 years old and could be eligible for the National Register.
 - Note: if this project becomes federally funded then the alignment must be evaluated for 4(f) impacts and Section 106 impacts.
- Archaeology
 - According to KYTC's Division of Environmental Analysis personnel, no known archaeology sites have been documented along the KY 76 corridor, but it is believed there are potential archaeological sites in the area.
 - An archaeological survey is recommended prior to improvements to the project.
- Noise and Air Quality
 - Neither noise nor air will have substantial increases.
 - Both Adair and Russell counties are located in nonattainment areas.
- Hazardous Materials
 - Four sites had potential hazardous material/waste areas.
- Socioeconomic Issues
 - Little impact to the surrounding community and its traffic is anticipated.



Sundew Meadow

2.6 Environmental Justice and Community Impacts

The Lake Cumberland Area Development District (LCADD) prepared the Environmental Justice Review.

Environmental Justice is an Executive Order (12898) that was signed on February 11, 1994 that states "...each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations..." The Environmental Justice Review included in this report was based on the US Census Bureau 2000 Census data, field observations, local officials meetings and interviews. The focus is on portions of the community that could be considered minority, low-income, and elderly populated areas. This information is important to understand in making decisions about transportation facilities and services. Services such as transit, pedestrian and bicycle facilities may help those groups of people that have been traditionally underserved, cannot afford to drive or do not have the physical capability to drive.

No significant impacts or disproportionate effects on minorities, low-income groups and the elderly are anticipated in the study area, but it was recommended that proactive measures would be undertaken to insure these groups would not be disproportionately and adversely affected by the project. Furthermore, the LCADD staff will report any changes and/or developments that may occur in the future that could alter the findings of their report. The review document, in its entirety, can be seen in Appendix D.

2.7 Geotechnical Overview

The University of Kentucky, KY Geological Survey reported that this study area is not an anticipated problem area with regard to karst features, landslide hazards, resource conflicts and faults. In addition, the probable peak ground acceleration due to earthquake ground motion is 0.09g which is minimal potential to liquefaction or slope failure. This report is in Appendix F, Resource Agency Responses.

3.0 CABINET & AGENCY INPUT

3.1 Initial Project Team Meeting (March 16, 2007)

The initial Project Team Meeting was conducted on Friday, March 16, 2007 in Somerset, Kentucky at the Kentucky Transportation Cabinet (KYTC) District 8 Office. The purpose of this meeting was to discuss the history, purpose, scope of work, issues, public involvement needs and related activities for this project. Several handouts of maps, preliminary data collected and exhibits were presented to the attendees. Those participating were the staff from the KYTC District 8 Office and from the KYTC Central Office. A few of the topics discussed are described below. Details of all the items discussed by the participants are included in the Meeting Minutes in Appendix E.

- ❖ This planning phase scheduled in the Kentucky Six-year Highway Plan (FY 2007-2012) was described as a "Scoping Study", but it was decided by the Project Team that the study would be categorized as a "Programming Study" due to its nature to assist local leaders in determining future needs for funding. Senator Vernie MaGaha and Representative Jeff Hoover represent the constituents of this area.

- ❖ KY 76 has several issues concerning its geometric function such as narrow driving lanes, shoulders that do not meet current standards, several consecutive curves, sight distance issues and increased commercial truck/recreational use. Collectively, these issues contribute to safety concerns.
- ❖ It was agreed upon by the group that a Public Meeting will not be held since there are no future funds available at the time of this study. But, the team agreed to have a Local Officials Meeting to gain input on KY 76.

3.2 Initial Local Officials Meeting (May 7, 2007)

Part of the public involvement process is having a Local Officials Meeting to encourage and engage those that have an interest in the study at the local level. This meeting took place at the Lake Cumberland Area Development District in Russell Springs, Kentucky on Monday, May 7, 2007. The purpose was to discuss the history, purpose, scope of work, issues, and related activities for this project. The participants were: a Kentucky Senator, County Judges, Magistrates, Ambulance Service/EMT/Fire Department personnel, and a County School Board representative. Detailed Meeting Minutes are in Appendix E.

Some of the major local issues identified were as follows:

- ❖ It was noted from an Emergency Medical Service representative that KY 76 is frequently used by the ambulance service.
- ❖ The Adair-Russell County Line was mentioned several times as being dangerous and was described as having steep side slopes with little or no shoulders in the area around the culvert. This provides little room to install guardrail. This segment is characterized by sharp winding horizontal curves with a corresponding vertical alignment that may pose hazards during wet or icy conditions.
- ❖ This county line area also is a concern for the school bus drivers from both Adair and Russell Counties. Both Adair and Russell county buses turn around on Joe Grider Road, which is a narrow side road.
- ❖ Many trucks and recreational vehicles were reported to be using this route as a “cut through” to get to their destination. Specific hauling uses were: logging/sawmill, carpet materials, concrete, gravel and boats with trailers. Again, the main concern is that the road is very narrow with less than desirable shoulders, has many drop offs, and no white striping on the edges.
- ❖ Many claimed that incidents have occurred at the intersection of KY 76 and US 127. Several years ago US 127 was rebuilt and lowered to its current grade.

Possible suggestions for safety improvement solutions were as follows:

- ❖ Potential Spot improvements such as additional signing, rumble strips, installing flashing beacons, installing guardrail where needed and cutting berms or foliage for better sight distance along the route.
- ❖ Widening and Reconstruction: Minor widening with 11’ driving lanes and 3’ to 6’ shoulders or reconstruction to current design standards of 12’ lanes and 8’ shoulders.

A general consensus from the local officials meeting was in favor of the spot improvements and the possibility for the minor widening of KY 76.

It was agreed by the Project Team Members after this meeting that a formal 2nd Project Team Meeting was not needed due to the information collected and the small number of optional solutions developed. The district personnel were charged to obtain construction costs at the planning level to introduce at the next Local Officials Meeting.

3.3 2nd Local Officials Meeting (October 29, 2007)

This meeting was held at the LCADD office in Russell Springs, Kentucky on Monday, October 29, 2007. Participants that were invited were those that attended the last Local Officials meeting. At this time, KYTC introduced possible alternates that were developed from the study process and included cost estimates. Input from this group was solicited for final recommendations and prioritization of spot improvements for the project. Detailed Meeting Minutes are in Appendix E.

The three alternates are described as below.

Alternate No. 1 ~ Spot Improvements

- *Spot Improvement No. 1* ~ Improve horizontal alignment and widen the intersection of KY 76 and KY 206 for trucks to have proper turning radii. (Adair MP 2.391 to 3.455)
- *Spot Improvement No. 2* ~ Widen the route by extending the culvert. This location is at the county line. (Russell MP 14.135/Adair MP 0.000)
- *Spot Improvement No. 3* ~ Realign the 90 degree curve to make it smoother. (Russell MP 12.381 to 12.473)
- *Spot Improvement No. 4* ~ Improve the intersection of KY 76/ US 127 by adding turning lanes on US 127, cutting back slopes for sight distance, traffic safety devices and modifying the vertical alignment. (Russell MP 11.498)

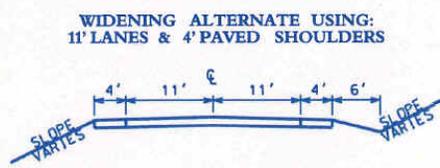
Table 5 shows the current phasing cost associated with each Spot. (See Exhibit 4 in Appendix A for the overall layout.)

TABLE 5

Cost Estimates for Spot Improvements

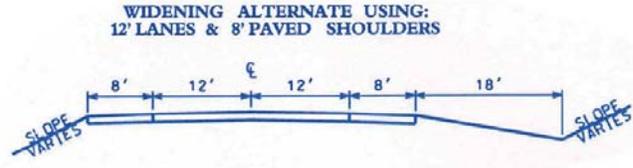
Spot #	Design	Right of Way	Utilities	Construction	Total
1	\$ 450,000.00	\$ 1,300,000.00	\$ 700,000.00	\$ 2,300,000.00	\$ 4,750,000.00
2	\$ 175,000.00	\$ 300,000.00	\$ 300,000.00	\$ 1,200,000.00	\$ 1,975,000.00
3	\$ 200,000.00	\$ 600,000.00	\$ 300,000.00	\$ 1,000,000.00	\$ 2,100,000.00
4	\$ 125,000.00	\$ 200,000.00	\$ 200,000.00	\$ 250,000.00	\$ 775,000.00
Total	\$ 950,000.00	\$ 2,400,000.00	\$ 1,500,000.00	\$ 4,750,000.00	\$ 9,600,000.00

Typical Sections and Cost Estimates for:



DESIGN:	\$2,200,000
RW:	\$3,300,000
UTILITIES:	\$3,500,000
CONSTRUCTION:	\$10,000,000
TOTAL:	\$19,000,000

ALTERNATE #2



DESIGN:	\$2,200,000
RW:	\$3,500,000
UTILITIES:	\$3,500,000
CONSTRUCTION:	\$20,800,000
TOTAL:	\$30,000,000

ALTERNATE #3

Alternate #2 was chosen as the primary alternate by the group. Since funding was deemed to be very expensive it was made clear that there be a second choice if funding was not attainable. Alternate #1 was chosen as the next alternate when funds were available. This alternate was more feasible financially.

At the time of this study KYTC’s maintenance crews had reported the current repaving along this route in addition to work being done in various spots to cut back slopes for sight distance issues.

3.4 Final Project Team Meeting (October 29, 2007)

This meeting was held directly after the 2nd Local Officials Meeting. The group concurred that the recommendations made in the previous Local Officials Meeting had merit and those recommendations would be in the final report. Therefore, the final process of the study is to write the report in a timeline that was discussed for having it complete prior to the next General Assembly. Minutes to this meeting can be found in Appendix E.

3.5 Resource Agency Coordination

Appropriate state and federal resource agencies along with local officials were identified and contacted to solicit their input and concerns associated with the study area and KY 76 improvements. The Division of Planning sent letters to 79 agencies and organizations requesting their input and comments for this Programming Study in order to address their concerns early in the project development process. The 29 agencies responding to the request for input and comments are listed below, along with a brief summary of their comments. Their complete responses are included in Appendix F.

It is noted that the Environmental and Public Protection Cabinet serves as the state clearinghouse for reviewing environmental documents. Some agencies provide comments both directly and through the clearinghouse. Therefore, some of the comments may be redundant in the Appendix.

Federal Aviation Administration, Memphis Airports District Office, June 5, 2007

No issues or concerns for this project.

Federal Emergency Management Agency, Region IV, June 4, 2007

No comment for this project.

U.S. Army Corps of Engineer, Ray Hedrick, Nashville, Tennessee District Office, May 31, 2007

Called KYTC to inform this office that the project is not in their area and he will forward the letter to the Louisville, Kentucky District Office.

U.S. Army Corps of Engineer, Jane Archer, Louisville, Kentucky District Office, May 30, 2007

Some streams in the area could be impacted and are subject to the regulatory authority under section 404 of the Clean Water Act (33 USC 1344). Named streams include Sulphur Creek, Hawk Branch and other unnamed tributaries. If any of these streams would be impacted proper applications for permits would have to be submitted.

U.S. Coast Guard, Bridge Branch, May 31, 2007

The project is not a project over which the Coast Guard exercises jurisdiction for bridge administration purposes.

U.S. Department of Agriculture, Forest Service, Daniel Boone National Forest, June 1, 2007

The project is outside the proclamation boundary of the Daniel Boone National Forest. Activities to improve KY 76 are not likely to cause impacts to resources or programs on National Forest System lands.

U.S. Department of Agriculture, Natural Resources Conservation Services, June 1, 2007

The agency has concerns with prime farmland conversion for this area. If the project uses federal dollars to convert important farmlands from agriculture to non-agriculture uses, Forms AD-1006 or NRCS-CPA-106 must be submitted to this office for review.

U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, June 11, 2007

The Agency has no specific comments at the time. They do recommend the following topics to be considered if and when necessary for the NEPA process: Air Quality, Water Quality/Quantity, Wetlands and Flood Plains, Hazardous Materials/Wastes, Non-Hazardous Solid Waste/Materials, Noise, Occupational Health and Safety, Land Use and Housing and Environmental Justice.

Justice and Public Safety Cabinet, Kentucky Vehicle Enforcement, June 4, 2007

Concerned of having a less than standard Typical Section if an upgrade occurs but not opposed to any widening for safety issues.

Kentucky Cabinet for Health and Family Services, Facilities Management Division, June 13, 2007

No specific issues or concerns with regard to this proposed project.

Kentucky Commerce Cabinet, Department of Parks, June 19, 2007

No preference for this proposed project.

Kentucky Commerce Cabinet, Kentucky Heritage Council, June 19, 2007

No known historical, cultural or archaeological sites are directly located in the project area, but nearby there are a couple prehistoric sites. There is a potential impact for sites that could possibly qualify for the National Register of Historic Places and it is recommended that the entire corridor be surveyed by a professional archaeologist prior to the design phase.

Kentucky Commission on Human Rights, June 13, 2007

No concerns for this project unless accessibility issues for people with disabilities should arise.

Kentucky Department of Agriculture, May 30, 2007

No specific concerns other than the proposed project may benefit movement of agricultural vehicles and commodities.

Kentucky Department for Environmental Protection, Division for Air Quality, May 29, 2007

401KAR 63:010 Fugitive Emissions – Prevent particulate matter from becoming airborne.

401 KAR 63:005 – Open burning prohibited.

Meet conformity requirements of the Clean Air Act and provisions of Title 23 and Title 49 of the US Code.

Kentucky Department for Environmental Protection, Division of Forestry, July 20, 2007

There are no state forests or champion trees in the project area. It was noted that special care to existing trees after construction should be taken. “Selecting Trees and Planting” publication was attached.

Kentucky Department for Environmental Protection, Division of Water, July 20, 2007

A Special Water exists in the Adair County portion of this project for a segment of an unnamed tributary to Green River. This segment is a part of the KDOW Reference Reach Stream Program. Also, improvements along the KY 76 corridor are considered to have minimal groundwater effects. As always, measures should be taken to protect the area’s groundwater during construction.

Kentucky Department for Environmental Protection, Division of Waste Management, July 20, 2007

Solid waste generated by this project must be disposed at a permitted facility. Any underground storage tanks, asbestos, lead paints and other contaminants encountered during this project should be addressed properly.

Kentucky Department of Fish and Wildlife Resources, June 27, 2007

Federally endangered gray bats and Indiana bats could occur in close proximity of the propose project area. There may also be a potential for impact of wetlands in the area. Direction and contacts were given to take appropriate measures for any disturbances for the future of this project.

Kentucky Department of Military Affairs, Office of the Adjutant General, June 5, 2007

There are no issues or concerns that impact this agency.

Kentucky Department of Parks, May 31, 2007

The project will not impact directly any facilities.

Kentucky Department of Natural Resources, Division of Mine Reclamation and Enforcement, May 24, 2007

The area does not indicate any presence of active or abandoned mining activities.

Kentucky Department of Natural Resources, Division of Oil and Gas Conservation, June 15, 2007

This area is known for oil and gas exploration activity.

Kentucky Department of State Police, June 7, 2007

Agency is in favor of improvements. Major concern is improving safety.

Kentucky Environmental and Public Protection Cabinet, Division of Conservation, May 29, 2007

Two concerns were expressed: 1) loss of prime farmland and farmland in general and 2) use of “Best Management Practices” (BMP’s) for prevention of non-point source water pollution, erosion and sedimentation control. Both concerns would need to be addressed in the preliminary phases of design.

There are no agricultural districts in this project area.

Kentucky Nature Preserves Commission, June 4, 2007

There is a site of interest north of the KY 76 corridor which has a rare/endangered plant referred to “Sundew Meadow” in this area. Also, Gray bats may have a potential impact in the area that would need to be considered. No caves are known, but suitable caves should be searched during planning stages.

Kentucky Transportation Cabinet, Office of Special Programs, June 4, 2007

Recommendation of having a minimum 4' paved shoulder throughout KY 76 to accommodate cyclists who may use this route to access other local Scenic Byways (US 127, US 80 and US 55) and a KTYC designated Bike Route (Central Heartland Tour).

Kentucky Transportation Cabinet, Permits Branch, June 18, 2007

Notify this office should any portion of this project is designed as partial control access or proposed roadway is placed on the National Highway System.

University of Kentucky, KY Geological Survey, June 1, 2007

A summary of geologic characteristics and concerns for the study area concludes that it is not anticipated to have karst features, landslide hazards, resource conflicts and faults. Probable peak ground acceleration due to earthquake ground motion is 0.09g which is minimal potential to liquefaction or slope failure.

Vernie McGaha, Kentucky State Senator, 15th Legislative District, June 5, 2007

The Senator has played an active role in this project and is one of the initiators. Several concerns were stated about the hazards along the KY 76 corridor:

1. Narrow lanes and little to no shoulders, sharp drop offs with no guardrail and difficult roadway geometrics,
2. Used as a connector or "cut through" for commercial trucks (logging, concrete and carpet) along with the use of recreational vehicles hauling boats to the lakes in the surrounding area, and those who commute and,
3. Issues with the approach and sight distance upon entering or exiting KY 76 to US 127 and vice versa.

4.0 STATEMENT OF PROJECT GOALS

As a result of the planning process and public involvement, project goals were identified based on input from all groups who participated: Local government agencies, highway officials, interest groups and the project team. These goals reflect the future project development for safety and connectivity improvements. These goals will assist local leaders in determining future needs for funding along this corridor. The project goals are as follows:

1. Improve Safety by:
 - a) Correcting horizontal and vertical deficiencies,
 - b) Increasing lane and shoulder widths to meet current guidelines and,
 - c) Providing improved safety measures such as flashing beacons, signage and guardrail where needed in certain locations.

2. Improve connectivity between US 127 and KY 206. KY 76 is a rural minor collector to the Green River Lake area, US 68 and KY 55.

5.0 RECOMMENDATIONS / IMPROVEMENT OPTIONS

5.1 Geometric Design Features

Throughout the study process the points below were established as the ground rules for making recommendations.

- Functional classification of KY 76 in Adair and Russell counties is rural minor collector. The project team does not expect this classification to change as a result of any improvements.
- The design year for this study is 2030 and the average daily traffic ranges from 2400-3100 vpd during this time frame.
- The expected design speed will be 55 mph along the corridor with suggested lower limits in areas where geometrics are a concern.
- The preferred typical section for a rural collector with ADT of 2000 or greater is 12' lanes and 8' shoulders. This is the basis of a cost estimate to compare with the preferred solution.

5.2 Build Alternatives

Based on the input of the local officials and technical analysis, the Project Team agreed that the primary recommendation for this project is Alternate No. 2. This alternate meets the project goals. It improves safety by widening the existing route to 11' lanes and 4' shoulders, corrects the areas where horizontal and vertical issues affect drivers and includes all spot improvements. Consequently, KY 76 will provide better connectivity between US 127 and KY 206. The cost estimate for this alternate is \$19,000,000.

5.3 Spot Improvements

It was also decided that Alternate No. 1, Spot Improvements, would have consideration as an interim recommended choice if funding does not become immediately available for the primary recommendation. This would provide the opportunity for lower-cost improvements to be programmed if only those lesser funding amounts became available. The purpose of each of these proposed projects is to improve safety and mobility along the existing route. All the spots were prioritized and listed in Table 6. For phased cost estimates see Table 5 in Chapter 3. The final aerial photo/map of these recommendations is in the following inserts.

Table 6

Rankings for Spot Improvements

Rank	Spot #	Total Cost
1	4	\$ 775,000.00
2	2	\$ 1,975,000.00
3	1	\$ 4,750,000.00
4	3	\$ 2,100,000.00
		\$ 9,600,000.00

6.0 ACKNOWLEDGEMENTS & CONTACTS

Several individuals contributed to the completion of this Programming Study. It is with much gratitude and appreciation for the time, effort, and knowledge shared by the following participants:

- ❖ Thanks to Jimmy C. Wilson, P.E. for his experience, guidance, and patience throughout the whole process.
- ❖ Many kudos to the District 8 personnel, namely Tom Clouse, P.E., who has fine tuned my writing skills.
- ❖ And, finally, Larry Wilson, Transportation Planner with the Lake Cumberland ADD, who was instrumental in coordinating the local events required for this project to proceed.

Additional information regarding the KY 76 Programming Study can be obtained from the following KYTC Division of Planning staff members:

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RECOMMENDATIONS

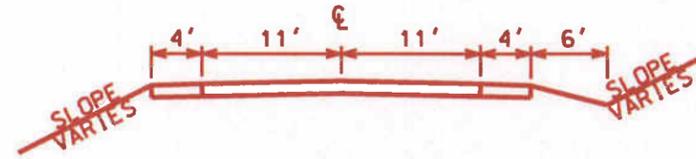


SPOT IMPROVEMENTS (#'s 1, 2, 3 & 4)

DESIGN:	\$950,000
R/W:	\$2,400,000
UTILITIES:	\$1,500,000
CONSTRUCTION:	\$4,750,000
TOTAL:	\$9,600,000

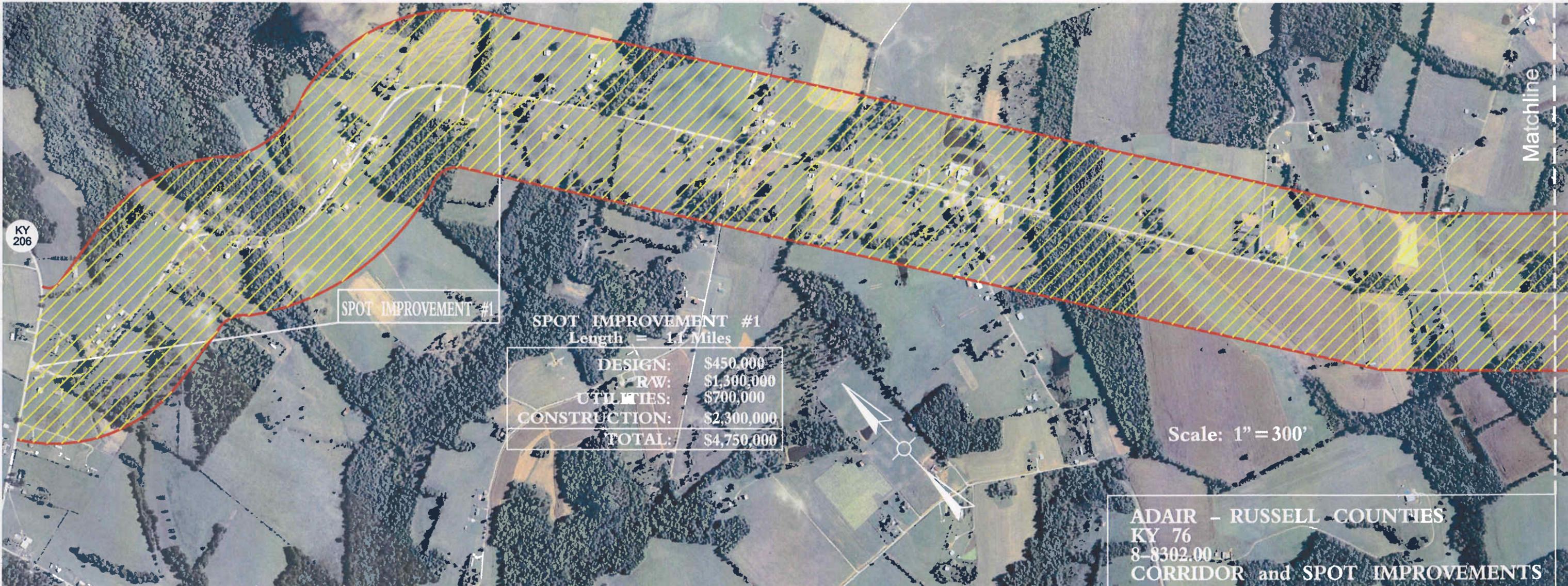
ALTERNATE #1

WIDENING ALTERNATE USING: 11' LANES & 4' PAVED SHOULDERS



DESIGN:	\$2,200,000
R/W:	\$3,300,000
UTILITIES:	\$3,500,000
CONSTRUCTION:	\$10,000,000
TOTAL:	\$19,000,000

ALTERNATE #2



SPOT IMPROVEMENT #1

SPOT IMPROVEMENT #1
Length = 1.1 Miles

DESIGN:	\$450,000
R/W:	\$1,300,000
UTILITIES:	\$700,000
CONSTRUCTION:	\$2,300,000
TOTAL:	\$4,750,000

Scale: 1" = 300'

ADAIR - RUSSELL COUNTIES
KY 76
8-8302.00
CORRIDOR and SPOT IMPROVEMENTS

Matchline



RECOMMENDATIONS

