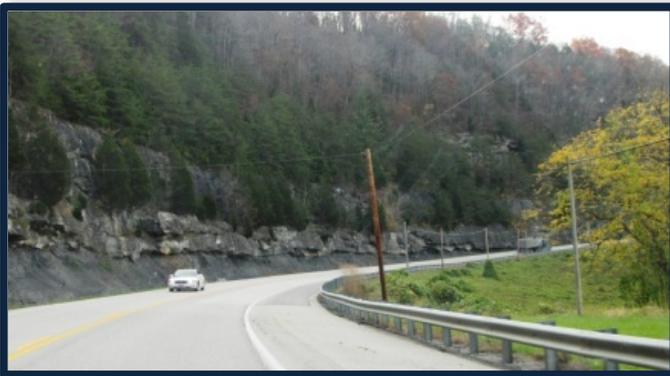


KY 15 From Campton to Hazard

Programming Study

Perry, Breathitt, and Wolfe Counties



FINAL REPORT

April 2013

Prepared For:



Prepared By:



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Chapter 1

INTRODUCTION

1.1 PURPOSE OF STUDY

The Kentucky Transportation Cabinet (KYTC) has undertaken this review of previous planning, design, and environmental analysis work on KY 15 from the Bert T. Combs Mountain Parkway Exit 43 at Campton in Wolfe County (including KY 15S from KY 15 at Milepoint [MP] 9.5 to the Parkway) to MP 14.5 north of Hazard in Perry County. This 47.9-mile section of KY 15 in Wolfe, Breathitt, and Perry counties is referenced in this report as the “KY 15 Study Area.” The primary purposes of this examination are to:

- 15 Provide an independent evaluation of the previous work with regard to deficiencies, projects, and priorities, including a review of design plans and a review and update of the purpose and need statement and project goals.
- 15 Identify new improvements with consideration to practical solutions and other design parameters to reduce costs.
- 15 Review cost estimates and prepare planning-level cost estimates for any new projects including estimates of any practical solutions, design options or other design revisions.
- 15 Develop a project development plan for each Corridor Segment including cost estimates by phase, and priority sections for programming.

The purpose of this study is to provide sufficient information to make an informed decision about how best to move forward with the widening of KY 15. Proposed roadway improvements with fewer than four lanes and/or with a design speed less than 60 mph were excluded from the development of new alternative alignments or the evaluation of potential cost savings for previously proposed design sections.

1.2. PREVIOUS STUDIES

The following studies have been developed in recent years by KYTC for KY 15 along and near the section that is the subject of this study:

- 15 *Scoping Study, KY 15, Jeff to Grapevine*, prepared for KYTC by Bernardin, Lochmueller and Associates, December 1996.
- 15 *Preliminary Line and Grade Design Report, KY 15 and KY 15/KY 550 Interchange, Perry County, Item Number 10-269.0*, prepared for KYTC by GRW Engineers, Inc., October 1995.
- 15 *Project Scoping Report, Perry – Breathitt – Wolfe Counties, KY 15, Hazard to Campton Road*, prepared for KYTC by WMB Inc., January 1994.
- 15 *Advanced Planning Study, KY 15, Hazard to Campton*, prepared for KYTC by WSA, August 1998.

- 15 *Finding of No Significant Impact*, KY 15 from Morton Boulevard in Perry County (MP 14.5) to the vicinity of KY 28 (MP 20.7), approved by KYTC in June 2004 and by FHWA in July 2004.
- 15 *Draft Environmental Assessment*, KY 15 from the vicinity of KY 28 in Perry County (MP 20.7) to 0.5 mile north of KY 1110 near Haddix in Breathitt County (MP 9.0), June 1999.
- 15 *Finding of No Significant Impact and Appended Environmental Assessment*, KY 15 from 0.6 miles north of KY 476 near Haddix in Breathitt County (MP 8.3) to 0.4 miles north of KY 205 near Vancleve, May 2000.

In addition to the studies listed, the following project development activities have occurred on the following sections of KY 15:

- 15 The section between MP 20.7 and MP 24.4 in Breathitt County has been reconstructed and was opened to traffic in 2008.
- 15 The section between MP 17.9 and MP 20.7 in Breathitt County is currently undergoing reconstruction at the time of this report.
- 15 The section in Breathitt County between KY 476 near Haddix (MP 7.6) and MP 17.9 was approximately 50% complete in Phase II Design before work was halted.
- 15 The section between MP 7.6 in Breathitt County and the vicinity of KY 28 in Perry County (MP 20.7) was approximately 90% complete in Phase I Design before work was halted.
- 15 The section between MP 16.9 and MP 20.7 in Perry County had proceeded to plans for a Preliminary Line-and-Grade Inspection before work was halted.

Design files for previous work are not included herein, but have been organized on electronic media. Due to the different dates that some of this work was performed, some of the beginning/ending points for previous work overlapped, particularly in the vicinity of KY 28 in Perry County and near Haddix in Breathitt County.

1.3 CORRIDOR SECTIONS

The KY 15 Study Area has been divided into seven sections (Sections A-G) that may be considered “Segments of Independent Utility” (SIUs). An eighth section (Section H), between MP 14.5 and MP 16.9 in Perry County, was included in the analysis for system continuity, and because the previous environmental analysis of the section between MP 16.9 and MP 21.5 extended southward to MP 14.5. Previous design work on the eighth section had proceeded to the submission of Right-of-Way plans in October 2003 before work was stopped. Those corridor sections are shown in Figure 1 and are described on the following page:

CORRIDOR SECTION	LOCATION	DISTANCE
Section A	KY 15 From MP 24.4 in Breathitt County to the Mountain Parkway Exit 43 at Campton Via KY 15S	12.8 miles
Section B	KY 15 From MP 20.7 to MP 24.4 in Breathitt County	3.7 miles
Section C	KY 15 From MP 17.9 to MP 20.7 in Breathitt County	2.8 miles
Section D	KY 15 From MP 7.7 to MP 17.9 in Breathitt County	10.2 miles
Section E	KY 15 From MP 5.4 to MP 7.7 in Breathitt County	2.3 miles
Section F	KY 15 From MP 21.5 in Perry County to MP 5.4 in Breathitt County	9.1 miles
Section G	KY 15 From MP 16.9 to MP 21.5 in Perry County	4.6 miles
Section H	KY 15 From MP 14.5 to MP 16.9 in Perry County	2.4 miles
TOTAL LENGTH OF ALL SECTIONS		47.9 miles

Included is a summary of previous work for the eighth section; however, analysis and recommendations regarding Section H were beyond the scope of this report.

1.4 REPORT ORGANIZATION

The history of the various corridor sections shows that they had advanced to various stages of completion of planning, design, and/or environmental analysis before work was halted. The following chapters of this report fully address the corridor sections that comprise the KY 15 Study Area, and describe the recommended priorities resulting from the evaluation of the corridor sections.

- 15 Chapter Two — Summary of Staged Improvements
- 15 Chapter Three—All Corridor Sections
- 15 Chapter Four—Corridor Section A (Campton to Vancleve)
- 15 Chapter Five—Corridor Section B (Vancleve to Kenny King Road)
- 15 Chapter Six—Corridor Section C (Kenny King Road to Park Road)
- 15 Chapter Seven—Corridor Section D (Park Road to Haddix)
- 15 Chapter Eight—Corridor Section E (Haddix to 2 ¼ miles south of KY 476)
- 15 Chapter Nine—Corridor Section F (2 ¼ miles south of KY 476 to just north of KY 28)
- 15 Chapter Ten—Corridor Section G (Just north of KY 28 to Capitol Hill Drive)
- 15 Chapter Eleven—Corridor Section H (Capitol Hill Drive to Morton Boulevard)
- 15 Chapter Twelve—Summary of Corridor Sections
- 15 Chapter Thirteen —Recommended Priorities

1.5 PURPOSE AND NEED

The Appalachian Regional Commission (ARC) was established by Congress in the 1965 Appalachian Development Act. That same Act established the Appalachian Development Highway System (ADHS), intended to provide both access and connectivity to assist in fostering economic development in the region. KY 15 in the project study area is part of ADHS Corridor I, which begins at the KY 15/US 119 junction in Whitesburg and ends 126.2 miles north at the Mountain Parkway junction with I-64 near Winchester. Early improvements on this corridor using both State and ADHS funds led to this route being declared complete sometime in the late 1960's or early 1970's. However, in today's economic market, this route is still in need of the below discussed improvements in an effort to provide a transportation system that helps to deliver economic opportunities to distressed Appalachian counties.

Notwithstanding ARC's declaration that, in effect, Corridor I was complete, the purpose of further improvements is to enhance mobility and improve safety while enhancing access for economic development opportunities for north-south travel from the Mountain Parkway to the Hal Rogers Parkway between I-75, 50 miles to the west, and US 23, 35 miles to the east. The needs are to improve the roadway geometrics, reduce the number of crashes, reduce travel times, increase passing opportunities, and enhance the quality of life in this distressed region.

Chapter 2

SUMMARY OF STAGED IMPROVEMENTS

KY 15 between the Hal Rogers Parkway at Hazard and the Bert T. Combs Mountain Parkway at Campton is characterized by deficient roadway geometrics, the presence of slower moving heavy trucks, and restricted passing opportunities. These conditions are more prevalent between Hazard and Jackson than between Jackson and Campton.

Improvements to KY 15 have been discussed for nearly 50 years. The Appalachian Development Highway System included this roadway, as well as sections to the north and to the south, as part of ADHS Corridor I. A planning study to recommend priorities was initiated by KYTC nearly 20 years ago.

Roadway design activities have advanced to the point of right-of-way purchase at the southern end of the corridor north of Hazard. One section north of Jackson has been reconstructed and a second section is currently being reconstructed.

A strategy for staged improvements to the corridor has been recommended, and may be summarized in these stages:

- i. *Address the current congestion on KY 15 near Jackson by reconstruction along the existing alignment.*

The total estimated cost of these recommendations is \$456 million.

- ii. *Complete improvements between Hazard and Jackson beginning at the south end and proceeding northward in affordable construction sections.*
- iii. *Complete improvements in the vicinity of Campton.*
- iv. *Construct a Jackson Bypass east of the current KY 15 alignment.*
- v. *Complete the corridor improvements from Campton to Vancleve.*

Chapter 3

ALL CORRIDOR SECTIONS

KY 15 within the study area is functionally classified as a Principal Arterial route and is classified for maintenance purposes as a State Primary route. It is included on both the National Highway System (NHS) and the federally designated portion of the National Truck Network (NTN). Its gross truck weight limit class is 80,000 pounds (AAA). Table A-1 in Appendix A summarizes existing conditions.

Access control is very important when planning for a regional facility such as KY 15. Each alternative was studied and updated for costs as partial control of access with minimum spacing in rural areas of 1200 feet and urban areas (through Jackson) of 600 feet. Frontage roads were included in the estimates where appropriate and when needed.

Chapter 4

CORRIDOR SECTION A (*Campton to Vancleve*)

4.1 PROJECT LOCATION

The northern terminus of Corridor Section A, actually KY 15S, is Exit 43 on the Mountain Parkway at Campton in Wolfe County. KY 15S begins at the exit and terminates 1.0 mile south at the KY 15/KY 191 intersection. Following the KY 15/15S/191 intersection (KY 15 MP 9.5), the KY 15 Study Area proceeds southward on KY 15 to its southern terminus at MP 24.4 in Breathitt County. The length of Section A is 12.8 miles.

4.2 PROJECT HISTORY

This Corridor Section was included in both the “Project Scoping Report, Perry – Breathitt – Wolfe Counties, KY 15, Hazard to Campton Road,” prepared for KYTC by WMB Inc. in January 1994, and in the “Advanced Planning Study, KY 15, Hazard to Campton,” prepared for KYTC by WSA in August 1998. The WMB study recommended four-lane improvements to KY 15 within Corridor Section A along the existing alignment at an estimated cost of \$85.6 million (in 1993 dollars). The WSA study was only an abbreviated Programming Study, and it estimated the cost of improving Section A to be \$158 million (in 1997 dollars) using the same parameters as the WMB study.

4.3 ENVIRONMENTAL STATUS

The 1994 WMB report included an Environmental Overview but no detailed Environmental Assessment (EA). As an abbreviated Programming Study, the 1998 WSA report followed KYTC policy at that time by including a brief Environmental Overview and an Environmental Footprint map.

4.4 EXISTING CONDITIONS

i. Geometric Characteristics

Corridor Section A is characterized by two 12-foot-wide lanes and 10-foot-wide shoulders. Except for the portion near Campton, Highway Information System (HIS) data indicates 60% passing sight distance except for 90% near the Breathitt-Wolfe County line.

ii. Traffic Information

Current average daily traffic (ADT) volumes range from about 7,000 vehicles per day (vpd) near Campton to about 4,000 vpd near the Breathitt-Wolfe County line. More than 460,000 tons of coal annually are shipped northbound. Average travel speeds are near 50 mph, with a slightly lower speed near Campton. The average travel speed contributes to a level-of-service (LOS) C, except near Campton where it is D. Volume-to-capacity (v/c) ratios range from 0.24 to 0.34.

Projected annual traffic growth rates within this corridor section are modest: 1% on KY 15S, 0% on KY 15 from MP 1.7 to MP 9.5, and 0.5% south of MP 1.7. Average travel speeds in the Year 2035 under a “no-build” scenario will decline only slightly (not more than 1.2 mph), if at all. V/C ratios increase to a range of 0.26 to 0.41, but LOS values remain unchanged.

Under the four-lane improvement scenario in the WMB study, the average Year 2035 travel speed is conservatively estimated to increase from 50 mph to 59 mph, v/c ratios would not exceed 0.14, and the LOS would be A throughout Corridor Section A. Travel time would be reduced from 13 minutes to less than 11 minutes.

iii. Crash Information

At the time of this report, the KYTC Critical Rate Calculator used 2009-2011 crash data. That information showed a Critical Crash Rate Factor (CCRF) of 0.82 for Corridor Section A. Statistically speaking, Corridor Section A does not have a crash concern. Two fatal crashes occurred in clear weather with dry roadways, but no other commonality existed in these two crashes.

iv. Adequacy Rating (AR) and Percentile

The composite AR for Corridor Section A ranges from 89.6 upward, except for the segment of KY 15 between MP 8.7 and MP 9.5. That segment appeared to need pavement resurfacing at the time of the AR calculation. Without that need, the AR for that section would have been greater than 93.

4.5 COST ESTIMATE

Current year estimated construction phase costs for improvements to Section A ranges from \$85.7 million to \$95.5 million.

Chapter 5

CORRIDOR SECTION B (*Vancleve to Kenny King Road*)

5.1 PROJECT LOCATION

The northern terminus of Corridor Section B is MP 24.4 near Vancleve and the southern terminus is MP 20.7 in Breathitt County, a distance of 3.7 miles.

5.2 PROJECT HISTORY

Corridor Section B was reconstructed and opened to traffic in 2008. This section was reconstructed, essentially on a new alignment, to the east of the former roadway.

5.3 ENVIRONMENTAL STATUS

Corridor Section B was included in the “Finding of No Significant Impact (Short Form FONSI) and Appended Environmental Assessment,” dated May 2000.

5.4 EXISTING CONDITIONS

i. Geometric Characteristics

Corridor Section B is characterized by four 12-foot-wide driving lanes, 10-foot-wide outer shoulders, and 6-foot-wide inner shoulders separated by a 28-foot-wide depressed grass median.

ii. Traffic Information

The current ADT volume is estimated to be about 7,300 vpd. More than 460,000 tons of coal annually are shipped northbound. The average travel speed is near 60 mph, the LOS is A, and the v/c ratio is 0.07.

Traffic growth in Corridor Section B is projected to be 0.5% annually. Average Year 2035 travel speeds are estimated to remain near 60 mph, the v/c ratio would be 0.08, and the LOS would still be A. It is estimated that reconstruction of Corridor Section B reduced its travel time by 2.5 minutes.

iii. Crash Information

During the first three and a half years that the new four-lane alignment on Corridor Section B was open to traffic, there were 17 reported crashes involving no fatalities and a total of seven injuries. During the final three and a half years when the old alignment was used as KY 15, there were 43 crashes and a total of one fatality and twenty-eight injuries. The CCRF for the new road is 0.40.

iv. Adequacy Rating and Percentile

The AR for the newly reconstructed Corridor Section B is 92.3.

Chapter 6

CORRIDOR SECTION C (*Kenny King Road to Park Road*)

6.1 PROJECT LOCATION

The northern terminus of Corridor Section C is MP 20.7 and the southern terminus is MP 17.9 in Breathitt County, a distance of 2.8 miles.

6.2 PROJECT HISTORY

Corridor Section C is currently being reconstructed. This section is being reconstructed on a new alignment to the east of the current roadway.

6.3 ENVIRONMENTAL STATUS

Corridor Section C was included in the “Finding of No Significant Impact (Short Form FONSI) and Appended Environmental Assessment,” dated May 2000.

6.4 EXISTING CONDITIONS

i. Geometric Characteristics

Corridor Section C is being reconstructed to four 12 foot-wide driving lanes, 10 foot-wide outer shoulders, and 6-foot-wide inner shoulders separated by a 28 foot-wide depressed grass median.

ii. Traffic Information

There is a significant difference in the current traffic volumes on Corridor Section C north and south of the KY 15 intersection with KY 30 west. North of this intersection, the current ADT volume is about 7,300 vpd whereas south of this intersection, the ADT is estimated to be 18,200 vpd. More than 460,000 tons of coal annually are shipped northbound north of the intersection with KY 30 west, while nearly 625,000 tons are shipped northbound annually south of that point. In a *Traffic Forecast Report* prepared by KYTC in January 2011, the traffic growth in Corridor Section C was projected to be 1.00% annually. The current average travel speed is about 30 mph, the v/c ratio is 0.72, and the LOS is E. Without the improvements currently under construction, the average year 2035 travel speed is estimated to be less than 27 mph with a v/c ratio of 0.91 and an LOS remaining at E. With the improvements, the average travel speed is estimated to be near 60 mph and the v/c ratio would be 0.35. The LOS would be A north of the intersection with KY 30 and B south of that point. It is estimated that reconstruction of Corridor Section C will reduce its travel time by 3.5 minutes.

iii. Crash Information

KYTC data showed a CCRF of 0.40 for Corridor Section C. Statistically speaking, Corridor Section C does not have a crash concern. No fatalities were recorded in this corridor during the analysis time period.

iv. Adequacy Rating and Percentile

The AR south of the intersection with KY 30 west is 51.2, placing this section in the worst 1% of roads in Kentucky. North of that intersection, the AR is 92.3.

Chapter 7

CORRIDOR SECTION D (Park Road to Haddix)

7.1 PROJECT LOCATION

The northern terminus of Corridor Section D is MP 17.9 and the southern terminus is MP 7.7 near Haddix in Breathitt County. The length of Section D along the existing alignment is 10.2 miles. The length of the previously recommended alternative for Section D is 7.1 miles.

7.2 PROJECT HISTORY

Phase II Design of Corridor Section D was approximately 50% complete by WMB at the time work was stopped. The estimated cost of constructing the preferred alternative for Corridor Section D (in 1999 dollars) was approximately \$150 million. The WSA study, using figures from the (then) Recommended 1998 Highway Plan, had estimated the cost of Corridor Section D at \$108 million.

7.3 ENVIRONMENTAL STATUS

Corridor Section D was included in the “Finding of No Significant Impact (Short Form FONSI) and Appended Environmental Assessment,” dated May 2000.

7.4 EXISTING CONDITIONS

i. Geometric Characteristics

Most of Corridor Section D is characterized by two 12-foot-wide lanes and 10-foot-wide shoulders. The portion south of MP 8.8 has 11-foot-wide driving lanes, while the urban development section north of MP 16.3 has 4-foot-wide shoulders. South of MP 16.3, HIS data indicates 35-40% passing sight distance; passing is prohibited north of that point.

ii. Traffic Information

Current ADT volumes range from about 18,300 vpd near the intersection with Washington Avenue in Jackson (KY 1812 west) to about 6,600 vpd near KY 476. Nearly 625,000 tons of coal are shipped northbound annually in Corridor Section D. Travel speeds average 32 mph south of KY 1812 east and 28 mph north of that point. South of the urban development section the travel speed is about 47 mph. The current year LOS is D south of Roark Ridge Road (MP 16.3) and E north of that point. V/C ratios progressively improve from 0.77 at the north end of Corridor Section D to 0.33 at the south end.

Projected annual traffic growth rates within this corridor section are modest: 0.5% annually north of the intersection with KY 476 and 1.00% annually south of that point. Since a portion of Corridor Section D is already operating near capacity levels, the average travel speeds in

the Year 2035 under a “no-build” scenario will decline only slightly except for the section north of KY 1812 east, where the reduction exceeds 2 mph. V/C ratios increase and range from 0.87 at the north end of the section to 0.36 at the south end, but LOS values remain unchanged.

Under the improvement scenario developed in Phase II Design, the average Year 2035 travel speed is conservatively estimated to increase to 59 mph, v/c ratios would not exceed 0.34, and the LOS would be A throughout Corridor Section D except for the section north of KY 1812 east where the LOS would be B. Travel time would be reduced by nearly 3.5 minutes.

iii. Crash Information

KYTC data showed a CCRF of 0.54 for Corridor Section D. There were two fatal crashes during the analysis time period.

iv. Adequacy Rating and Percentile

The AR north of the intersection with Roark Ridge Road is less than 54, placing this section in the worst 1% of roads in Kentucky. South of that point, the AR ranges from 81.1 to 89.6.

7.5 COST ESTIMATE

Current year estimated construction phase costs for improvements to Section D ranges from \$71.4 million to \$137.9 million.

Chapter 8

CORRIDOR SECTION E (*Haddix to 2 ¼ Miles South of KY 476*)

8.1 PROJECT LOCATION

The northern terminus of Corridor Section E is MP 7.7 near Haddix and the southern terminus is MP 5.4 in Breathitt County. The length of Section E is 2.3 miles.

8.2 PROJECT HISTORY

Phase I Design of Corridor Section E was approximately 90% complete by WMB at the time previous work was stopped. A preferred alternative (improvements along the existing roadway) was recommended. The WSA study, using figures from the (then) Recommended 1998 Highway Plan, had estimated the cost of a slightly longer version of Corridor Section D at \$26.6 million.

8.3 ENVIRONMENTAL STATUS

The only environmental analysis report provided as part of the current study was a portion of the “Revised Draft Environmental Assessment,” which covers both Corridor Sections E and F. This document includes the comment “Draft Submitted June 30, 1999.” However, other correspondence includes an August 11, 2000, memorandum from the State Highway Engineer to the Chief District 10 Engineer indicating that document had been “approved” by the Federal Highway Administration (FHWA).

8.4 EXISTING CONDITIONS

i. Geometric Characteristics

Corridor Section E is characterized by two 11-foot-wide lanes and 10-foot-wide shoulders. HIS data indicates 40% passing sight distance.

ii. Traffic Information

The current ADT volume is 6,100 vpd. Travel speeds average 48 mph. The current year LOS is D and the v/c ratio is 0.33.

Traffic growth rates within this corridor section are projected to be 1.00% annually. Corridor Section E would continue to operate at LOS D in the Year 2035 under a “no-build” scenario. Travel speed would decline slightly to 47 mph, and the v/c ratio would increase to 0.39.

Nearly 1.6 million tons of coal are shipped annually in Corridor Section E, 60% of it southbound.

Under the improvement scenario considered in Phase I Design, Year 2035 travel speed is conservatively estimated to increase to 59 mph, v/c ratios would not exceed 0.13, and the LOS would be A. Travel time would be reduced by about half a minute.

iii. Crash Information

KYTC data showed a CCRF of 0.14 for Corridor Section E. No fatal crashes were reported.

iv. Adequacy Rating and Percentile

The AR for Corridor Section E is 89.6, placing this section in the 48th percentile of similar roads statewide. Horizontal curvature is described as having infrequent curves with design speeds less than the prevailing speed limit on the section.

8.5 COST ESTIMATE

Current year estimated construction phase costs for improvements to Section E ranges from \$25.7 million to \$27.8 million.

Chapter 9

CORRIDOR SECTION F (2 ¼ Miles South of KY 476 to just north of KY 28)

9.1 PROJECT LOCATION

The northern terminus of Corridor Section F is MP 5.4 in Breathitt County and the southern terminus is MP 21.5 in Perry County. The length of Section F is 9.1 miles.

9.2 PROJECT HISTORY

Phase I Design of Corridor Section F was approximately 90% complete by WMB at the time work was stopped. A preferred alternative (improvements principally along the existing roadway) was being recommended. The WSA study, using figures from the (then) Recommended 1998 Highway Plan, had estimated the cost of a slightly shorter version of Corridor Section F at \$112.2 million.

9.3 ENVIRONMENTAL STATUS

The only environmental analysis report provided as part of the current study was a portion of the “Revised Draft Environmental Assessment,” which covers Corridor Sections E and F. This document includes the comment “Draft Submitted June 30, 1999.” However, other correspondence includes an August 11, 2000, memorandum from the State Highway Engineer to the Chief District 10 Engineer indicating that document had been “approved” by FHWA.

9.4 EXISTING CONDITIONS

i. Geometric Characteristics

Corridor Section F is characterized by two 11-foot-wide lanes and 10-foot-wide shoulders in Breathitt County and two 12-foot-wide lanes and 6-foot-wide shoulders in Perry County. HIS data indicates 40-43% passing sight distance.

ii. Traffic Information

Current ADT volumes are 6,000 vpd near the northern end and 8,000 vpd near the southern end of Section F. More than 1.3 million tons of coal are shipped annually in Section F, slightly more than half of which travels southbound. Travel speeds average 48 mph in the northern portion of Section F but only 38 mph in the southern portion. The current year LOS is D in the northern portion of Section F but E in the southern portion, and v/c ratios are 0.33 and 0.39, respectively.

Traffic growth rates within this corridor section are projected to be 1.00% annually. Corridor Section F would continue to operate at LOS D (northern portion) and E (southern portion) in the Year 2035 under a “no-build” scenario. Travel speed would decline slightly to 47 mph in the northern section and 36 mph in the southern section, and the v/c ratios would increase to 0.39 and 0.47, respectively.

Under the improvement scenario being considered in Phase I Design, Year 2035 travel speed is conservatively estimated to increase to 59 mph, v/c ratios would not exceed 0.17, and the LOS would be A. Travel time would be reduced by more than 4.5 minutes.

iii. Crash Information

KYTC data showed a CCRF of 0.80 for Corridor Section F. One fatal crash was reported.

iv. Adequacy Rating and Percentile

The AR for the Perry County portion of Corridor Section F is 76, placing this section in only the 15th percentile of similar roads statewide. Horizontal curvature is described as having several curves severely affecting travel speeds, while vertical grades are described as

frequently limiting sight distance. The AR for the Breathitt County portion is 89.6. Horizontal curves infrequently have speeds less than the prevailing speed limit, while some vertical grades have reduced sight distance.

9.5 COST ESTIMATE

Current year estimated construction phase costs for improvements to Section F range from \$64.6 million to \$70.7 million.

Chapter 10

CORRIDOR SECTION G (*Just north of KY 28 to Capitol Hill Drive*)

10.1 PROJECT LOCATION

The northern terminus of Corridor Section G is MP 21.5 and the southern terminus is MP 16.9, both in Perry County. The length of Section G is 4.6 miles.

10.2 PROJECT HISTORY

Preliminary design plans for a Line-and-Grade Inspection were submitted by Vaughn and Melton in October 2002. A preferred alternative, principally on new alignment to the west of the existing roadway, was recommended. The WSA study, using figures from the (then) Recommended 1998 Highway Plan, had estimated the cost of a slightly longer version of Corridor Section G at \$38.7 million.

10.3 ENVIRONMENTAL STATUS

Corridor Section G was included in the “Finding of No Significant Impact,” dated June 2004.

10.4 EXISTING CONDITIONS

i. Geometric Characteristics

Corridor Section G is characterized by two 12-foot-wide lanes and 6-foot-wide shoulders. HIS data indicates 43% passing sight distance.

ii. Traffic Information

The current ADT volume is 11,400 vpd. More than 1.3 million tons of coal are shipped annually in the northern portion of Section F, slightly more than half of which travels southbound. South of the intersection with KY 1067, the annual tonnage increases by nearly 70%; south of KY 1067, nearly three fourths of the coal tonnage is southbound. Travel speeds average 35 mph in Section G. The current year LOS is E, and the v/c ratio is 0.54.

Traffic growth rates within this corridor section are projected to be 0.75% annually. Corridor Section G would continue to operate at LOS E in the Year 2035 under a “no-build” scenario. Travel speed would decline to 29 mph, and the v/c ratio would increase to 0.84.

Under the improvement scenario considered in the previous design, Year 2035 travel speed is conservatively estimated to increase to 59 mph, v/c ratios would not exceed 0.32, and the LOS would be A or B. Travel time would be reduced by more than 3.5 minutes.

iii. Crash Information

KYTC data showed a CCRF of 0.74 for Corridor Section G. Three fatal crashes were reported with one fatality in each.

iv. Adequacy Rating and Percentile

The AR for Corridor Section G is 76, placing this section in only the 15th percentile of similar roads statewide. Horizontal curvature is described as having several curves severely affecting travel speeds, while vertical grades are described as frequently limiting sight distance.

10.5 COST ESTIMATE

Qk4 current year estimated construction phase costs for improvements to Section G range from \$37.1 million to \$53.4 million.

Chapter 11

CORRIDOR SECTION H (*Capitol Hill Drive to Morton Boulevard*)

11.1 PROJECT LOCATION

The northern terminus of Corridor Section H is MP 16.9 and the southern terminus is MP 14.5, both in Perry County. The length of Section F is 2.4 miles.

11.2 PROJECT HISTORY

Right-of-Way Plans were submitted by GRW Engineers in October 2003. A preferred alternative, principally along the existing alignment, was recommended. The KYTC FY 2012–2018 Highway Plan includes funding for all remaining project phases, with construction being scheduled for FY 2017.

11.3 ENVIRONMENTAL STATUS

Corridor Section H was included in the “Finding of No Significant Impact,” dated June 2004.

11.4 EXISTING CONDITIONS

i. Geometric Characteristics

Corridor Section H is characterized by four 12-foot-wide lanes and 9-foot-wide shoulders south of KY 267, and by two 12-foot-wide lanes and 6-foot-wide shoulders north of KY 267. HIS data indicates at least 43% passing sight distance.

ii. Traffic Information

Current ADT volumes range from 11,400 vpd north of KY 267 to 19,000 vpd between the Hal Rogers Parkway and Morton Boulevard. Travel speeds average 30 mph in Section H: higher north of KY 267 and lower south of that point. The current year LOS is E, and the v/c ratio is 0.54 north of KY 267 and 0.82 south of KY 267.

Traffic growth rates within this corridor section are projected to be 2.00% annually. Corridor Section H would continue to operate at LOS E in the Year 2035 north of KY 267 and would diminish to LOS F south of that point under a “no-build” scenario. Travel speed would decline to 21 mph.

Under the improvement scenario being considered in the previous design, Year 2035 v/c ratios would not exceed 0.49, and the LOS would be A or B north of KY 267 and B or C south of KY 267. Travel time would be reduced by more than 3.0 minutes.

iii. Crash Information

KYTC data showed a CCRF of 1.79 for Corridor Section H. Crashes per mile occur almost six times more frequently south of KY 267 than north of KY 267. The number of crashes south of KY 267 (63 in 2009; 42 in 2010; and 49 in 2011) appears to be trending downward, though the pattern isn’t definitive. Nearly 2/3 (62.6%) of the crashes occurred on dry pavement in daylight. (Daylight crashes on dry pavement represent those that occur where the driving environment is least likely to be problematical for the driver.) Slightly more than half of these (53%) were rear-end crashes. A relatively high percentage of these rear-end crashes (76.6%) occurred either in the immediate vicinity of a traffic signal or during peak hours where the traffic queuing caused by those signals might have extended over an extended distance. Two fatal crashes were reported with one fatality in each.

iv. Adequacy Rating and Percentile

The AR for Corridor Section H north of KY 267 is 76, placing this section in only the 15th percentile of similar roads statewide. Horizontal curvature is described as having several curves severely affecting travel speeds, while vertical grades are described as frequently limiting sight distance. The AR south of KY 267 is 55, placing this section in the worst 1% of roads in Kentucky. Horizontal curvature is described as having several curves severely affecting travel speeds. The crash history south of KY 267 (the CCRF on that portion is 2.32) also contributes to the low AR.

Chapter 12

SUMMARY OF CORRIDOR SECTIONS

12.1 PROJECT LOCATION

The northern terminus of the KY 15 Corridor Study is Exit 43 on the Mountain Parkway at Campton in Wolfe County. The southern terminus is MP 14.5 in Perry County. The length of the KY 15 Corridor Study is 47.9 miles.

12.2 PROJECT HISTORY

An overall “KY 15 Corridor Planning Study” was completed in 1994. Phase I Design was approximately 90% complete on the portion between MP 20.3 in Perry County and MP 7.6 in Breathitt County when work was halted. Phase II Design was approximately 50% complete on the portion between MP 7.6 and MP 17.9 in Breathitt County when work was halted. The section between MP 16.8 and MP 20.3 was ready for a Preliminary Line-and-Grade Inspection when work was halted. Right-of-Way Plans had been submitted on the section between MP 14.5 and MP 16.9 in Perry County when work was halted. One section, between MP 20.7 and MP 24.4 in Breathitt County, was widened to four travel lanes and opened to traffic in 2008. The section immediately south of that, between MP 17.9 and MP 20.7, is currently under reconstruction to four travel lanes and should be opened to traffic in 2013.

12.3 ENVIRONMENTAL STATUS

The 1994 *KY 15 Corridor Planning Study* included a broad environmental overview, and this work is the only environmental work performed to date between MP 24.4 in Breathitt County and the Mountain Parkway. An EA-FONSI, dated May 2000, covered the section between MP 7.6 and MP 17.9 in Breathitt County. A “Revised Draft Environmental Assessment,” dated June 1999, covered the section between MP 20.3 in Perry County and MP 7.6 in Breathitt County. An EA-FONSI, dated June 2004, covered the section between MP 14.5 and MP 20.3 in Perry County.

12.4 EXISTING CONDITIONS

i. Geometric Characteristics

North of MP 24.4 in Breathitt County and south of MP 17.9 in Breathitt County, KY 15 generally has two 12-foot-wide driving lanes, with short sections of 11-foot-wide driving lanes, and shoulder widths generally 6-foot-wide or wider (a short segment has 4-foot-wide shoulders). The section between MP 21.1 and MP 24.4 in Breathitt County has four 12-foot-wide driving lanes, 10-foot-wide outer shoulders, and 6-foot-wide inner shoulders separated by a 28-foot-wide depressed grass median. The section between MP 17.9 and MP 20.7 in Breathitt County is currently being reconstructed to that same four-lane geometric configuration.

If the originally proposed improvements to KY 15 had already been implemented, the cumulative time savings from Hazard to the Mountain Parkway at Campton would have been nearly 20 minutes for each vehicle.

On the two-lane sections, the percent passing sight distance is generally greater between Jackson and Campton than between Hazard and Jackson.

ii. Traffic Information

Current ADT volumes are greatest near Jackson (18,300 vpd) and north of Hazard (19,000 vpd). Between Hazard and Jackson, the average daily traffic is generally between 6,000 and 9,000 vpd, while north of Jackson the ADT ranges from 4,000 to 7,000 vpd. Average travel speeds range from 28 mph in the segments through Jackson and just north of Hazard, to 60 mph along the reconstructed Section B. Current levels of service range from A in the newly constructed Section B to E around Jackson and just north of Hazard.

Significant coal tonnage is shipped along KY 15, particularly south of KY 28 in Perry County.

iii. Crash Information

CCRF for each analysis section are discussed above. In addition, the 0.7-mile section in Jackson between the Goodyear Store at 361 KY 15 South (MP 17.1) and Brewer Drive (MP 17.8) shows a CCRF of 1.69. The number of crashes there (26 in 2009; 24 in 2010; and 16 in 2011) is trending downward over time. More than 2/3 (68.2%) of these crashes occurred on dry pavement in daylight. While 46.7% of the crashes were rear-end, 25.8% were angle crashes. The rear-end crashes are to be expected, given the two traffic signals in this 0.7 section, but the frequency of angle crashes is somewhat unusual. All but one of these angle crashes involved a vehicle entering or exiting a side entrance. Enhanced access control should be considered as a part of future roadway improvements.

The intersection of KY 15 with KY 15S and KY 191 in Wolfe County has a CCRF of 2.45. Unfortunately, the number of crashes appears to be increasing over time (5 in 2009; 6 in 2010; and 7 in 2011). However, the relatively small number of crashes (18) that results in a high CCRF may be more a function of relatively low traffic volumes than an indicator of a significant safety deficiency on this roadway.

iv. Adequacy Rating and Percentile

The ARs range from 95.0 along 15S just south of the Mountain Parkway to 51.2 along existing Section C. Discounting the section currently under reconstruction, the lowest AR, 53.5, was in the urban section through Jackson.

12.5 COST ESTIMATES

Current year estimated construction phase costs for improvements to Section A and Sections D through G range from \$284.5 million to \$385.3 million. Cost Estimates based on quantities and unit prices are shown in Appendix C.

Chapter 13

RECOMMENDED PRIORITIES

Priorities for improvements to KY 15 in Perry, Breathitt, and Wolfe counties are discussed below, shown in Table 1, and depicted in Figure 2. Table 2 lists alternatives that were considered but not recommended, including a brief statement of the reasons for not being recommended. Options for combining several of the improvements are listed based on what may be acceptable construction phase costs. Completion of corridor improvements is a high regional priority, and this would be facilitated by having the fewest stages possible. Criteria for recommending the following include traffic volume served, crash frequency, current LOS, and continuity of construction segments.

KY 15 RECOMMENDED PRIORITIES

Priority	County (ies)	Section	Segment	Description	Beginning MP	Ending MP	Length (Miles)	CONSTRUCTION ESTIMATE (MILLIONS)					Design and Environmental Status	Estimated 2035 Daily Traffic	Current CCRF	Current LOS
								Design	R/W	Utilities	Construction	Alternate Construction				
1	Breathitt	D Existing	3 Urban	From existing construction near Panbowl Road north of Jackson to just south of the intersection with Miller Hollow Road	17.9	16.3	1.6	\$1.1	\$4.8	\$0.8	\$4.9	\$33.7	No previous Design work; EA would need to be both updated and revised	21,000	1.15-1.67	E
	Breathitt	D Existing	3 Rural	From just south of the intersection with Miller Hollow Road to just south of Walmart Shopping Center	16.3	15.6	0.7	\$0.5	\$0.5	\$0.2	\$11.2			14,400	1.2	E
2	Breathitt	D Existing	2	From just south of Walmart shopping center to a half-mile south of the intersection with KY 30 East	15.6	14.1	1.5	\$1.8	\$0.3	\$0.8	\$17.6					
3	Perry	G Existing	All	Along existing alignment (except for a new KY 28 interchange) from north of a new interchange at KY 28 to near Capitol Hill Drive	21.5	16.9	4.6	\$3.2	\$6.3	\$1.2	\$40.1	\$56.1	No Design work along existing alignment; FONSI would need to be revised and updated. R/W purchase has begun on new alignment alternative.	13,800	0.61-0.82	E
4	Perry	F	1	Along existing alignment from just north of Wendell Ford Airport entrance road to north of new interchange at KY 28	24.3	21.5	2.8	\$1.6	\$1.5	\$1.0	\$16.0		Phase I Design 90% completed; EA would need to be updated	10,200	0.35	E
5	Breathitt/Perry	F	2	Along existing alignment from vicinity of Noble Road south of Watts in Breathitt County to just north of Wendell Ford Airport entrance road in Perry County	3.0	24.3	3.9	\$2.5	\$2.7	\$1.3	\$29.5	\$53.7	Phase I Design 90% completed; EA would need to be updated	7,600	0.35	D-E
6	Breathitt	F	3	Along existing alignment from approx 2.2 miles south of KY 476 East to vicinity of Noble Road south of Watts	5.4	3.0	2.4	\$2.3	\$1.6	\$0.9	\$24.2		Phase I Design 90% completed; EA would need to be updated	7,600	0.35	D
7	Breathitt	E	All	Along existing alignment from approx 300 feet north of KY 476 East to approx 2.2 miles south of KY 476 East	7.7	5.4	2.3	\$2.5	\$1.5	\$0.8	\$27.8	\$27.8	Phase I Design 90% completed; EA would need to be updated	7,600	0.24	D
8	Breathitt	D East	1	New alignment (east of existing) from a half-mile south of the intersection with KY 30 East to approx 300 feet north of KY 476 East	14.1*	7.7	3.9	\$3.5	\$0.6	\$0.1	\$43.3	\$43.3	No previous Design work; EA would need to be both updated and revised	8,500	0.37	E
9	Wolfe	A	3	5-lane Curb & Gutter segment in Campton from KY 15S at the Mountain Parkway to just south of current 3-lane section near MP 8.2 on KY 15 **	1.1	8.2	2.6	\$1.8	\$1.6	\$1.0	\$17.9***	\$17.9***	No previous Design work or Environmental Analysis	6,900-8,800	0.30-1.04	C-D
10	Breathitt	D East	3	From near the north end of existing construction to just south of Walmart Shopping Center on new alignment east of existing KY 15	17.9*	15.6*	3.5	\$4.6	\$0.9	\$0.3	\$77.0****	\$77.0****	No previous Design work; EA would need to be both updated and revised	5,100	0.36	E*****
11	Wolfe	A	2	Along existing alignment from 5-lane curb and gutter segment in priority 9 above to approx MP 2.9 north of Bethany	8.2	2.9	5.3	\$3.0	\$2.6	\$1.7	\$37.4	\$37.4	No previous Design work or Environmental Analysis	5,400	0.39	C
12	Breathitt/Wolfe	A	1	Along existing alignment from approx MP 2.9 in Wolfe County north of Bethany to north end of existing 4-lane (MP 24.4 in Breathitt County)	2.9	24.4	4.9	\$3.1	\$2.3	\$1.6	\$38.6	\$38.6	No previous Design work or Environmental Analysis	4,800	0.31-0.42	C

* Milepoints of existing alignment. New alignment will result in milepoint modifications. Thus, length does not equal difference in milepoints.

** Another option would be to stop this at the intersection with KY 3355, which would be 0.7 mile shorter.

*** Use of a rural 5-lane cross section would reduce this cost by 8-9%

**** High construction phase cost of this segment due in part to a \$15 million structure

***** Currently LOS E. If Priority 1 were to be constructed before Priority 10, the LOS would be A or B

Notes: Construction cost estimates include a generalized additional amount for frontage roads. Specific locations and lengths of frontage roads will be determined in subsequent project development phases. Also, Section B has been constructed, Section C is currently under construction and Section H is included in the current KYTC Highway Plan; therefore, they are omitted from this table.

Table 1: KY 15 Recommended Priorities

ALTERNATIVES CONSIDERED BUT NOT RECOMMENDED				
Section	Segment	Length (Miles)	Construction Cost Estimate (millions)	Reason Not Recommended
A on New Alignment	3	2.5	\$27.3	Unpopular with public; not consistent with current Mountain Parkway improvement project
Original D West		7.0	\$123.4	More expensive; difficult to segment into viable construction projects
Modified D West	1	1.9	\$10.8	Still leaves a large portion difficult to segment into viable construction projects
Modified D West	2	5.6	\$111.0	More expensive; difficult to segment into viable construction projects
Modified D Existing	1	5.2	\$42.3	New alignment provides shorter distance for slightly less overall cost
G on New Alignment		4.3	\$53.8	Significantly more costly than staying on existing alignment

Note: Construction cost estimates include a generalized additional amount for frontage roads. Specific locations and lengths of frontage roads will be determined in subsequent project development phases.

Table 2: KY 15 Alternatives Considered But Not Recommended

PRIORITIES #1 AND #2

The first recommended priority is Segment 3 of Section D along the existing KY 15 alignment. From just south of the shopping center that includes Walmart on the southern city limits of Jackson to just south of the intersection of KY 15 with Miller Hollow Road, a distance of 0.7 mile, the improvement would be a five-lane rural cross-section. From just south of Miller Hollow Road to the existing construction near Panbowl Road, a distance of 1.6 miles, the improvement would be a five-lane curb-and-gutter cross section.

The estimated future year ADT volume is 21,000 vpd, the highest traffic volumes north of Hazard. The current LOS is E. The CCRF for this segment ranges from 1.15 to 1.67. The advantages of improving this segment immediately include addressing the most significant current LOS and CCRF issues. However, these improvements would be aimed at what is, in essence, a local street rather than system improvements to KY 15 between the Hal Rogers and Mountain parkways. The principal disadvantage of this recommendation is the possibility that these improvements would be seen as the only ones ever

needed along this segment of KY 15. Nonetheless, this recommendation is made to address the traffic and safety issues cited above as well as for the following additional considerations:

- 15 The improvements are estimated to cost \$24 million. An eastern bypass of Jackson with similar termini is estimated to cost \$82.9 million. The western bypass of Jackson originally proposed is estimated to cost \$133.8 million. (A modified version of the western bypass developed to allow some minor segmenting is estimated to be only slightly less at \$133.1 million.)
- 15 If this segment of the KY 15 system improvements on a Jackson bypass were constructed prior to major improvements between Hazard and Jackson, the newly generated traffic volumes would be small, and the trips using this bypass would simply be current through trips immediately north and south of Jackson. The western bypass, being a shorter distance and hence having a shorter travel time, would likely attract 6,150 vpd. The estimated cost for a western bypass is \$121.8 to \$123.4 million. A western bypass is difficult to segment into viable construction projects. An eastern bypass, being slightly longer and having a slightly greater travel time, would likely attract only 5,100 vpd. This would leave between 14,900 and 15,900 vpd on existing KY 15, resulting in continued congestion and, potential, crash problems.

If Priority #1 were to be constructed, the estimated cost for the construction phase would be only \$16.1 million. Improvements in Priority #1 could be lengthened to a logical construction terminus to include a more aggressive construction phase. Sections north of Priority #1 are currently under construction or have been constructed. Thus, the second priority would be immediately south of Priority #1. The logical construction segment for Priority #2 would be from the shopping center that includes Walmart on the southern city limits of Jackson to approximately one-half mile south of the intersection with KY 30 East, a distance of 1.5 miles. This improvement would be a four-lane cross section with a 40-foot-wide median generally along the existing alignment. The estimated future year ADT volume for Priority #2 is 14,400 vpd, the second highest traffic volumes north of Hazard. The LOS is E and the CCRF for this segment is 1.2. The estimated construction cost phase of Priorities #1 and #2 combined is \$33.7 million. Figure 2 and Table 1 show these and all recommended priorities.

It is noted that a higher estimated construction cost phase (i.e., an even longer recommended section) would likely be acceptable. However, the discussion below will point out that extending this recommendation to the next logical construction break would result in a total construction phase cost of \$77 million, which is considered too high to be a practical recommendation.

PRIORITIES #3 AND #4

The third recommended priority is Section G, generally along the existing KY 15 alignment (except for a new KY 28 interchange) from MP 16.9 near Capitol Hill Drive through the new interchange at KY 28, a distance of 4.6 miles. This improvement would be a four-lane cross section with a 40-foot-wide median. The estimated future year ADT volume is 13,800 vpd, the third highest traffic volumes north of Hazard. The LOS is E and the CCRF for this segment ranges from 0.61 to 0.82. The estimated cost of this improvement to Section G along the existing alignment is \$50.8 million, including \$40.1 million for the construction phase. The estimated cost for the new alignment west of existing KY 15 (originally recommended in the previous work) is \$61.5 million, including a construction phase of \$53.8 million. Significant overall cost savings could be realized by making improvements to KY 15 along the existing alignment despite higher estimated costs for right-of-way purchase and utility relocation. A decision will

have to be made whether it is prudent to stay with the previous cross-country alignment or perform the additional work necessary to stay along the existing alignment.

If Priority #3 were to be constructed, the estimated cost for the construction phase would be \$40.1 million. Improvements in Priority #3 could possibly be lengthened to a logical construction terminus to include a more aggressive construction phase. Thus, the recommended Priority #4 is Segment 1 of Section F. This segment extends from just north of the new interchange with KY 28 to just north of Wendell Ford Airport entrance road, a distance of 2.8 miles. This improvement would be a four-lane cross section with a 40-foot-wide median generally along the existing alignment. The estimated future year ADT volume on Segment 1 of Section F is 10,200 vpd, the fourth highest traffic volumes north of Hazard. The LOS is E and the CCRF for this segment is 0.35. The estimated cost of implementing Priority #4 is \$20.1 million, including \$16 million for the construction phase. The estimated construction cost phase of Priorities #3 and #4 combined is \$56.1 million. .

PRIORITIES #5 AND #6

The fifth recommended priority is Segment 2 of Section F, generally along the existing KY 15 alignment from just north of Wendell Ford Airport Road in Perry County to vicinity of Noble Road south of Watts in Breathitt County, a distance of 3.9 miles. This improvement would be a four-lane cross section with a 40-foot-wide median. The estimated future year ADT volume is 7,600 vpd. The LOS transitions from E at the south end to D at the north end. The CCRF for this segment is 0.35. The estimated cost of this improvement to Segment 2 of Section F along the existing alignment is \$36.0 million, including \$29.5 million for the construction phase. This segment is recommended as a continuation of previously recommended improvements to the south.

Since the construction phase of Priority #5 is \$29.5 million, improvements in Priority #5 could possibly be lengthened to a logical construction terminus to include a more aggressive construction phase. Thus, the recommended Priority #6 is Segment 3 of Section F, generally along the existing alignment from vicinity of Noble Road south of Watts to approx 2.2 miles south of KY 476 East, a distance of 2.4 miles. This improvement would be a four-lane cross section with a 40-foot-wide median. This segment is recommended as a continuation of previously recommended improvements to the south. The estimated future year ADT volume is 7,600 vpd, while the current LOS is D. The CCRF for this segment is 0.35. The estimated cost of this improvement to Segment 3 of Section F along the existing alignment is \$29.0 million, including \$24.2 million for the construction phase. The estimated construction cost phase of Priorities #5 and #6 combined is \$53.7 million. Priorities #5 and #6 could be pursued separately or together.

PRIORITY #7

The seventh recommended priority is Section E, generally along the existing alignment from approximately 2.2 miles south of KY 476 East to approx 300 feet north of KY 476 East, a distance of 2.3 miles. This improvement would be a four-lane cross section with a 40-foot-wide median. This segment is recommended for the next priority as a continuation of previously recommended improvements to the south. The estimated future year traffic volume is 7,600 vpd, and the current LOS is D. The CCRF for this segment is 0.24. The estimated cost of this improvement to Section E along the existing alignment is \$32.6 million, including \$27.8 million for the construction phase.

PRIORITY #8

The eighth recommended priority is Segment 1 of Section D, on new alignment east of the existing KY 15 from approximately 300 feet north of KY 476 East to approximately one-half mile south of the intersection with KY 30 East, a distance of 3.9 miles. This improvement would be a four-lane cross section with a 40-foot-wide median. The estimated cost of this improvement to Segment 1 of Section D on new alignment is \$47.5 million, including \$43.3 million for the construction phase. Though only modestly less costly than Segment 1 of Section D along the existing alignment (\$50.8 million estimated cost, including \$42.3 million for construction), the new alignment option reduces the travel distance for this segment by 1.3 miles. This segment is recommended as a continuation of previously recommended improvements to the south. The estimated future year ADT volume is 8,500 vpd, and the current LOS is E. The CCRF for this segment is 0.37.

PRIORITY #9

The ninth recommended priority is Segment 3 of Section A in Campton, along the existing alignment from just south of current three-lane section near MP 8.2 to the Mountain Parkway, a distance of 2.6 miles. This improvement would be a five-lane curb-and-gutter cross section. The estimated cost of this improvement is \$22.3 million, including \$17.9 million for the construction phase. At Project Team Meeting #3, it was suggested that the curb and gutter section perhaps could terminate at the new elementary school (KY 3355), which would reduce the length of this segment by 0.7 mile and increase the length of Priority #11 by the same amount. A rural five-lane cross section would reduce construction costs by nearly 9%.

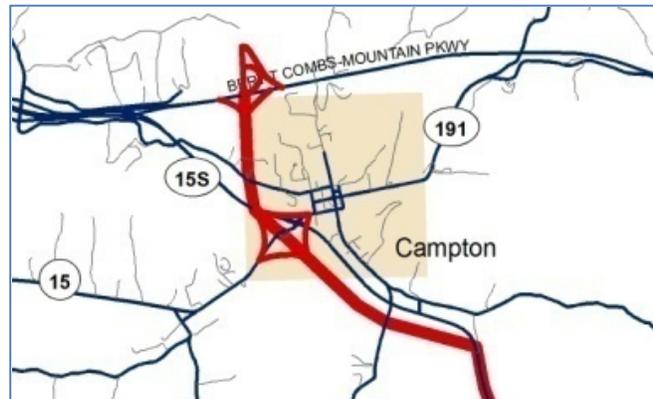


Figure 3: New Alignment through Campton (WMB Study, 1994)

The 1994 “KY 15 Corridor Planning Study” by WMB Engineers had considered a new alignment just south and west of existing KY 15 from near MP 8.2 south of Campton, a new interchange with existing KY 15 near MP 9.8, and a new interchange with the Mountain Parkway just east of the interchange at MP 43 (Figure 3). Public opinion expressed during that study indicated this option was not popular, and improvements since constructed to the Mountain Parkway (and currently under construction) have reduced its practicality. Further, the estimated cost of that option could be significantly higher than improvements along the existing route, principally due to the need to construct two interchanges.

Segment A-3 is recommended because congestion through Campton would be the greatest cause of delay in the KY 15 Corridor following construction of the first eight priorities. Estimated future year ADT volumes range from 6,900 to 8,800 vpd. The current LOS diminishes from C on the south end to D near the KY 15/KY 15S/KY 191 intersection. The CCRF for this segment ranges from 0.30 to 1.04.

PRIORITY #10

The tenth recommended priority is Segment 3 of Section D, on new alignment east of existing KY 15 from just south of the Walmart Shopping Center to near the north end of the existing construction, a distance of 3.5 miles. This improvement would be a four-lane cross section with a 40-foot-wide median. In the discussion above, recommended Priority #1 would improve existing KY 15 in this same vicinity to address (1) immediate congestion concerns, and (2) the projection that construction of a Jackson bypass prior to major improvements between Hazard and Jackson would result in relatively low traffic volumes. Previous recommended priorities have included improvements to all sections between Hazard and the south side of Jackson. Thus, construction of a Jackson bypass would be appropriate at this stage for system continuity. The estimated cost of this priority, Segment 3 of Section D on a new alignment east of Jackson, is \$82.8 million, including \$77 million for the construction phase. Although shorter than Segment 1 of Section D (Priority #8 above), the estimated cost of Segment 3 of Section D is higher due in part to a \$15.1 million structure. This is considerably less costly than improvements on a new alignment west of Jackson (\$133.8 million, including \$123.4 million for the construction phase), and is more compatible with Priorities #2 and #8, above.

PRIORITY #11

The eleventh recommended priority is Segment 2 of Section A, along the existing alignment from MP 2.9 north of Bethany in Wolfe County to the five-lane curb-and-gutter segment in Priority #9, a distance of 5.3 miles. This improvement would be a four-lane cross section with a 40-foot-wide median. Of the two remaining unprioritized segments, this one has a slightly higher projected ADT volume (5,400 vpd) than the one to the south discussed below (4,800 vpd). The estimated cost of this improvement to Segment 2 of Section A is \$44.7 million, including \$37.4 million for the construction phase.

PRIORITY #12

The twelfth and final recommended priority is Segment 1 of Section A, along the existing alignment from the north terminus of the existing four-lane section at MP 24.4 near Vancleve in Breathitt County to MP 2.9 north of Bethany in Wolfe County, a distance of 4.9 miles. This improvement would be a four-lane cross section with a 40-foot-wide median. The estimated cost of this improvement to Segment 2 of Section A is \$45.6 million, including \$38.6 million for the construction phase.

APPENDIX A

County	Route	Beginning MP	Beginning Feature	Ending MP	Ending Feature	Length	Functional Class	State System	NHS ?	NTN ?	Truck Weight Class	# of Through Lanes	Lane Width (ft)	Shoulder Width (ft)	Percent Passing Sight Distance >1500 ft
WOLFE	KY 15S	0.000	KY 191/KY 15	0.195		0.195	Principal Arterial	State Primary (Other)	Y	F	AAA	2	12	10	60
		0.195		0.935		0.740									
		0.935	Mountain Parkway Overpass	1.045		0.110									
WOLFE	KY 15	0	Breathitt County Line	1.732	KY 1261	1.732	Principal Arterial	State Primary (Other)	Y	F	AAA	2	12	10	60
		1.732	KY 1261	8.870	Elkins Road	7.138									0
		8.870	Elkins Road	9.515	KY 191 and KY 15S	0.645									
BREATHITT	KY 15	0.000	Perry County Line	5.989	1.75 mile south of KY 476	5.989	Principal Arterial	State Primary (Other)	Y	F	AAA	2	11	10	40
		5.989	1.75 mile south of KY 476	7.737	KY 476	1.748									
		7.737	KY 476	8.330	0.6 miles north of KY 476	0.593									
		8.330	0.6 miles north of KY 476	8.837	Begin 12' wide lanes	0.507									
		8.837	Begin 12' wide lanes	14.644	KY 1089/KY 1812	5.807									
		14.644	KY 1089/KY 1812	16.329	Roark Ridge Road	1.685									
		16.329	Roark Ridge Road	17.446	KY 1812E	1.117									
		17.446	KY 1812E	17.936	KY 1812	0.490									
		17.936	KY 1812	18.465	KY 30	0.529									
		18.465	KY 30	21.052	Begin 4 Lanes	2.587									
		21.052	Begin 4 Lanes	24.475	Resume 2 Lanes	3.423									
		24.475	Resume 2 Lanes	26.446	Wolfe County Line	1.971									
PERRY	KY 15	14.512	Morton Blvd	15.968	KY 267	1.456	Principal Arterial	State Primary (Other)	Y	F	AAA	3/4/3		4	61
		15.968	KY 267	16.798	Capitol Hill Drive	0.830									
		16.798	Capitol Hill Drive	20.335	0.4 miles south of KY 28	3.537									
		20.335	0.4 miles south of KY 28	25.179	Breathitt County Line	4.844									

Table A-1, Part 1: Existing Conditions

County	Route	Beginning MP	Beginning Feature	Ending MP	Ending Feature	Median	Access Control	Annual Tons of Coal	Latest ADT	Year of Latest ADT	Traffic Growth Rate	Unrounded Forecast 2035 ADT	Forecast 2035 ADT	CCRF*	Composite Adequacy Rating	Composite Adequacy Rating Percentile		
WOLFE	KY 15S	0.000	KY 191/KY 15	0.195	Mountain Parkway Overpass	15' Raised Mountable	None	460,324 northbound	6,776	2,009	1.00%	8,777	8,800	0.308	95.00	74.84		
		0.195		0.935		None												
		0.935		1.045		30' Depressed												
WOLFE	KY 15	0	Breathitt County Line	1.732	KY 1261	None	None	461641 northbound	4183	2009	0.50%	4,762	4,800	0.426	89.60	47.84		
		1.732	KY 1261	8.870					Elkins Road	5358	2010	0.00%	5,358	5,400	0.393	92.30	63.18	
		8.870	Elkins Road	9.515					KY 191 and KY 15S	6905	2011	0.00%	6,905	6,900	1.041	76.25	14.87	
BREATHITT	KY 15	0.000	Perry County Line	5.989	1.75 mile south of KY 476	None	None	634,119 northbound	5943	2010	1.00%	7,621	7,600	0.351	89.60	47.84		
		5.989	1.75 mile south of KY 476	7.737	KY 476			954,055 southbound	6057	2011	1.00%	7,621	7,600	0.239				
		7.737	KY 476	8.330	0.6 miles north of KY 476			465,008 northbound	6580	2009	0.50%	7,491	7,500	0.555				
		8.330	0.6 miles north of KY 476	8.837	Begin 12' wide lanes			622,946 northbound	7480	2010	0.50%	8,473	8,500	0.364			81.10	24.21
		8.837	Begin 12' wide lanes	14.644	KY 1089/KY 1812				9269	2011	0.50%	10,448	10,500	0.369			88.55	41.11
		14.644	KY 1089/KY 1812	16.329	Roark Ridge Road				12624	2009	0.50%	14,372	14,400	1.202			53.50	0.55
		16.329	Roark Ridge Road	17.446	KY 1812E			14	18261	2011	0.50%	20,583	20,600	1.672			51.20	0.37
		17.446	KY 1812E	17.936	KY 1812				16422	2009	1.00%	21,271	21,300	1.151				
		17.936	KY 1812	18.465	KY 30			None	466,274 northbound	2009	0.50%	18,696	18,700	0.247			92.30	63.18
		18.465	KY 30	21.052	Begin 4 Lanes			4183		2009	0.50%	4,762	4,800	0.322				
		21.052	Begin 4 Lanes	24.475	Resume 2 Lanes			32		461,641 northbound	0.314							
		24.475	Resume 2 Lanes	26.446	Wolfe County Line			None										
		PERRY	KY 15	14.512	Morton Blvd			15.968	KY 267	None	None	377,174 northbound	18,400	2011			2.00%	29,595
15.968	KY 267			16.798	Capitol Hill Drive	578,383 northbound	11,390	2,009	2.00%			19,060	19,100	0.609	76.00	14.81		
16.798	Capitol Hill Drive			20.335	0.4 miles south of KY 28	2,076,326 southbound												
20.335	0.4 miles south of KY 28			25.179	Breathitt County Line	592,721-648,454 northbound	8013	2011	1.00%			10,174	10,200	0.349				

Table A-1, Part 2: Existing Conditions

APPENDIX B

PROJECT TEAM MEETING MINUTES

AGENDA

Project Team Meeting #1 KY 15 Programming Study Breathitt, Perry, and Wolfe Counties

Date: April 12, 2012
Time: 10:00 a.m.
Location: KYTC District 10, Jackson, KY

- I. Introductions
- II. Work Accomplished Prior to This Meeting
 - a. Traffic Forecasts
 - i. Analysis Sections Identified
 - ii. Growth Rates for Each Section Approved by KYTC
 - b. Consultants Who Performed Prior Planning, Environmental, and Design
 - i. WMB
 - ii. GRW
 - iii. Vaughn & Melton
 - iv. *THE* Engineers
- III. Purpose of This Meeting: Summary of Previous Work
- IV. Next Steps
 - a. Obtain and compile HIS data, traffic data, crash data
 - b. Calculate current and future year V/C ratios
 - c. Project team meeting to present and discuss this information





Architecture

Engineering

Construction

MEETING MINUTES

Project: Programming Study for KY 15 Breathitt, Perry, and Wolfe Counties
Mountain Parkway Interchange in Wolfe County to MP 16.8 in Perry County

Purpose: Project Team Meeting #1

Place: District 10 - Jackson

Meeting Date: April 12, 2012
10:00 a.m. EST

Prepared By: Annette Coffey

In Attendance:	Jill Asher	KYTC, Division of Planning
	Shane Tucker	KYTC, Division of Planning
	Corbett Caudill	KYTC, District 10 – Jackson
	Jason Blackburn	KYTC, District 10 – Jackson
	Darren Back	KYTC, District 10 – Jackson
	Darren Stamper	KYTC, District 10 – Jackson
	Aric Skaggs	KYTC, District 10 – Jackson
	Jeff Allen	KYTC, District 10 – Jackson
	Keith Caudill	KYTC, CO Highway Design
	Eunice Holland	Kentucky River Area Development District
	Taylor Kelly	Qk4
	Annette Coffey	Qk4
	Bruce Siria	Qk4

The objective of the meeting was to present a summary of work that was previously performed on this corridor. The meeting started with introductions and meeting handouts consisting of: an agenda, spreadsheet of annual growth rates to be used for future tasks, a corridor map divided into sections, and maps of preferred and previously studied alignments within the corridor, and detailed information regarding previous work performed on each section. For district use, flash drives were given to the Project Manager with the presented information and appropriate design files. The meeting was turned over to Bruce Siria with Qk4 to present a summary of previous corridor efforts and Qk4 work to date.

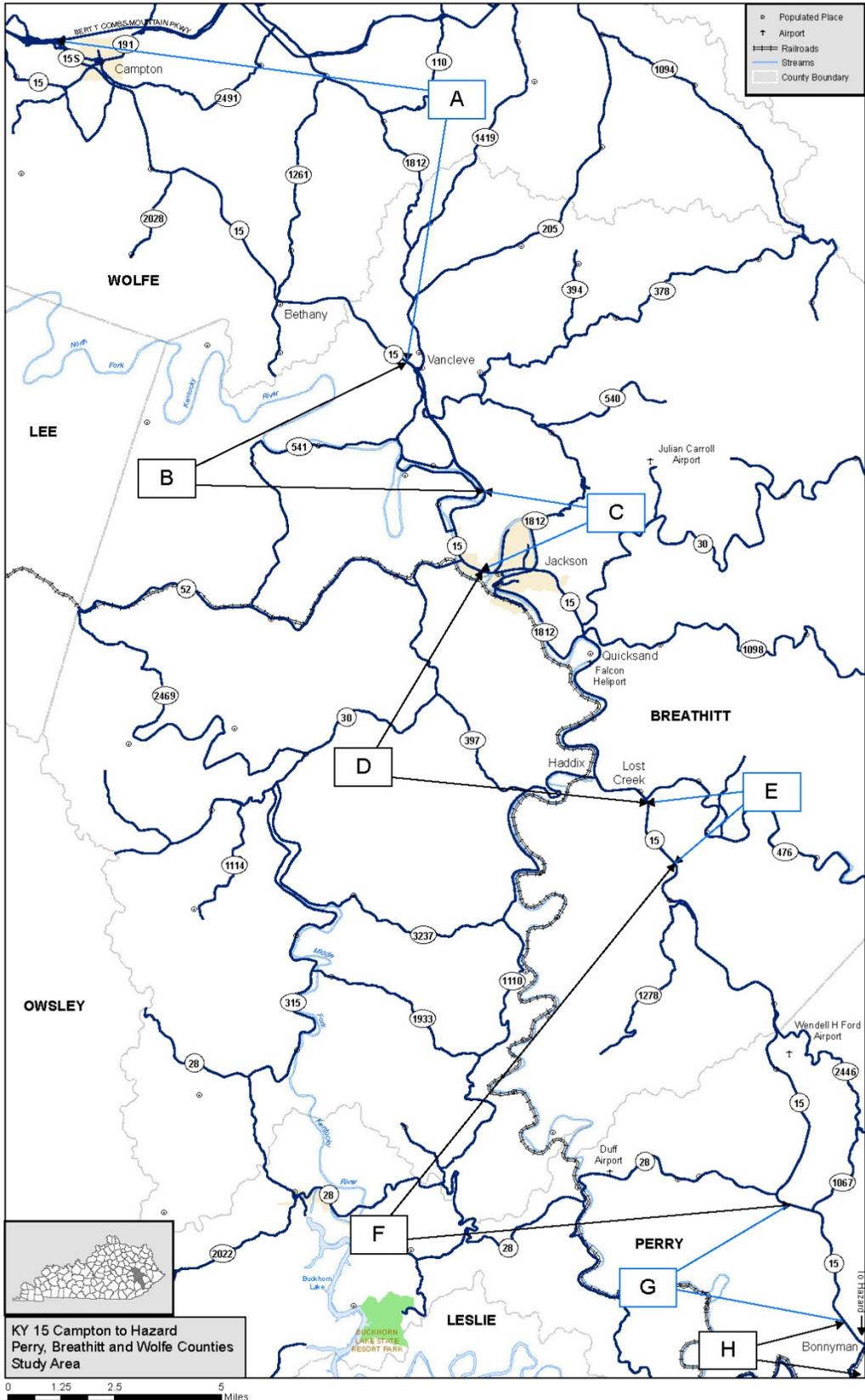
Mr. Siria began his presentation with recognition and appreciation of WMB, GRW, Vaughn & Melton, and THE Engineers for their cooperation in providing Qk4 with the information necessary to complete this task. One of the early tasks for Qk4 was to divide the corridor into logical sections, and propose growth rates to the Division of Planning. Those rates were presented in tabular form and ranged from 0% in Wolfe County to 1.0% in Perry County. Then, each corridor section was presented in detail (see minute attachments).

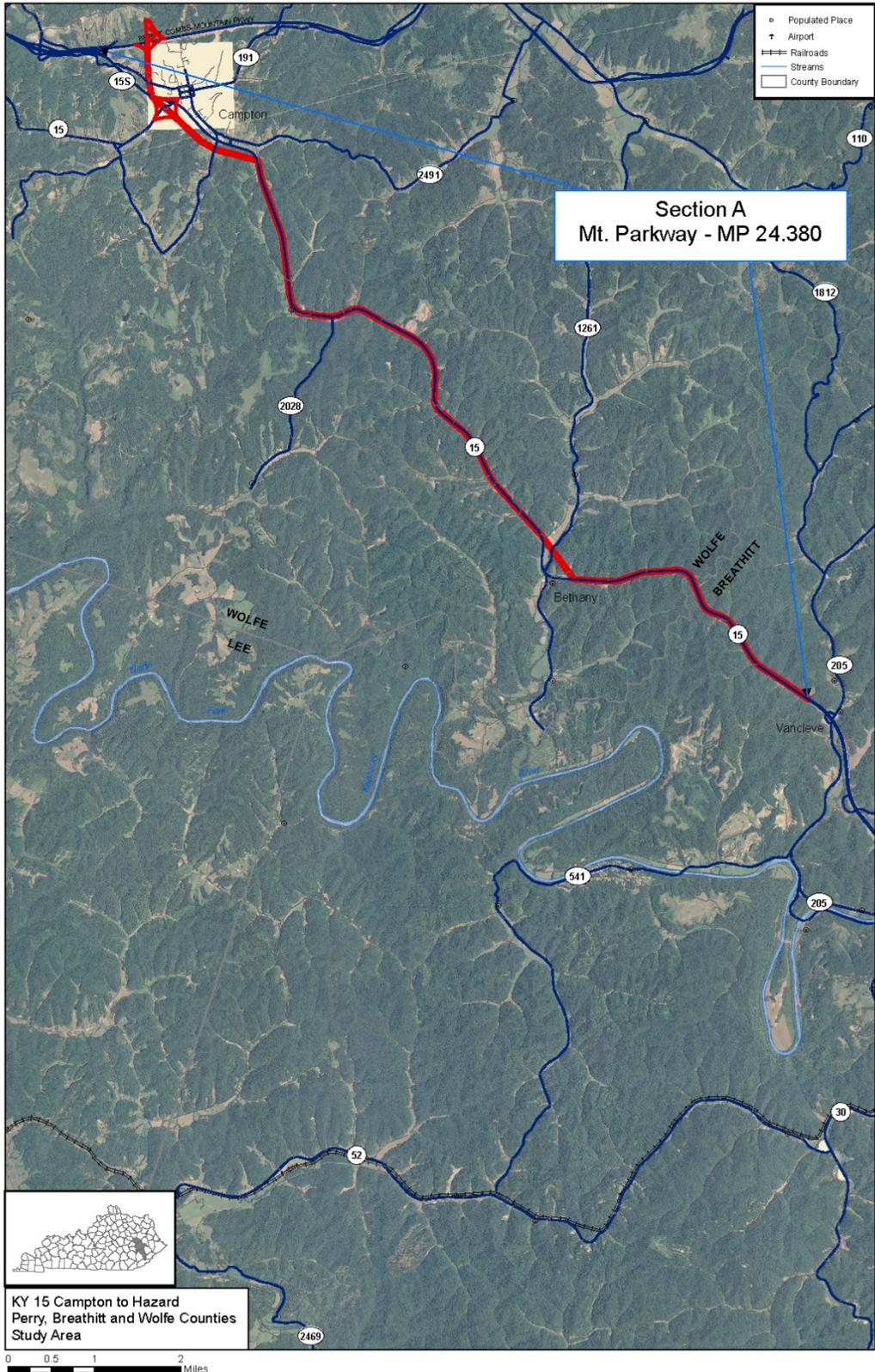
Comments during the presentation regarding sections are summarized below:

1. Section D – there is a current UPL project to widen only KY 15 through Jackson. Local officials support widening KY 15 through town regardless of whether a bypass constructed.
2. To be consistent with constructed sections of KY 15, the design speed for each section should be 60 mph. The typical section for the four-lane constructed segments has a 40 feet separation between directions. The 40 feet is measured from inside white line to inside white line. To be consistent, this should be the maximum typical section for any new improvements investigated.
3. Barrier walls should be considered as typical section modifications are considered.
4. The sections from Jackson (Section D) south should be the focus of Qk4 future work.
5. In Jackson, widening the existing, and an alignment to the east rather than west should be investigated. The previously proposed eastern alignment has very expensive bridge costs in the first mile.
6. Qk4 should concentrate on construction sections of \$40 million or less. To achieve that goal, the district felt that staying close to the existing alignment will have to be re-evaluated.
7. Any focus on Section A should be below the two interchanges. In addition, a bypass of Campton and new interchange with the Mt. Parkway is not desirable and should not be considered.
8. Access control will be an issue if improvements are proposed along the existing roadway.
9. This route provides important regional connectivity from US 23 to the Mountain Parkway.

The next steps for Qk4 will be to present capacity analysis, traffic projections, and crash analysis. District personnel requested that the aforementioned analyses presentation be deferred to the same meeting where new improvements options considering “practical solutions” or other design revisions with corresponding cost estimates for widening of KY 15 are presented.

-----End of Minutes-----





SECTION A

NORTHERN TERMINUS: MT. PARKWAY EXIT 43, WOLFE COUNTY
SOUTHERN TERMINUS: 0.6 MILES NORTH OF KY 205 (MP 24.010), BREATHITT COUNTY
LENGTH: 12.63 MILES

ITEM NUMBER: NONE

LATEST PLANNING/DESIGN WORK: WMB OVERALL CORRIDOR STUDY - 1994

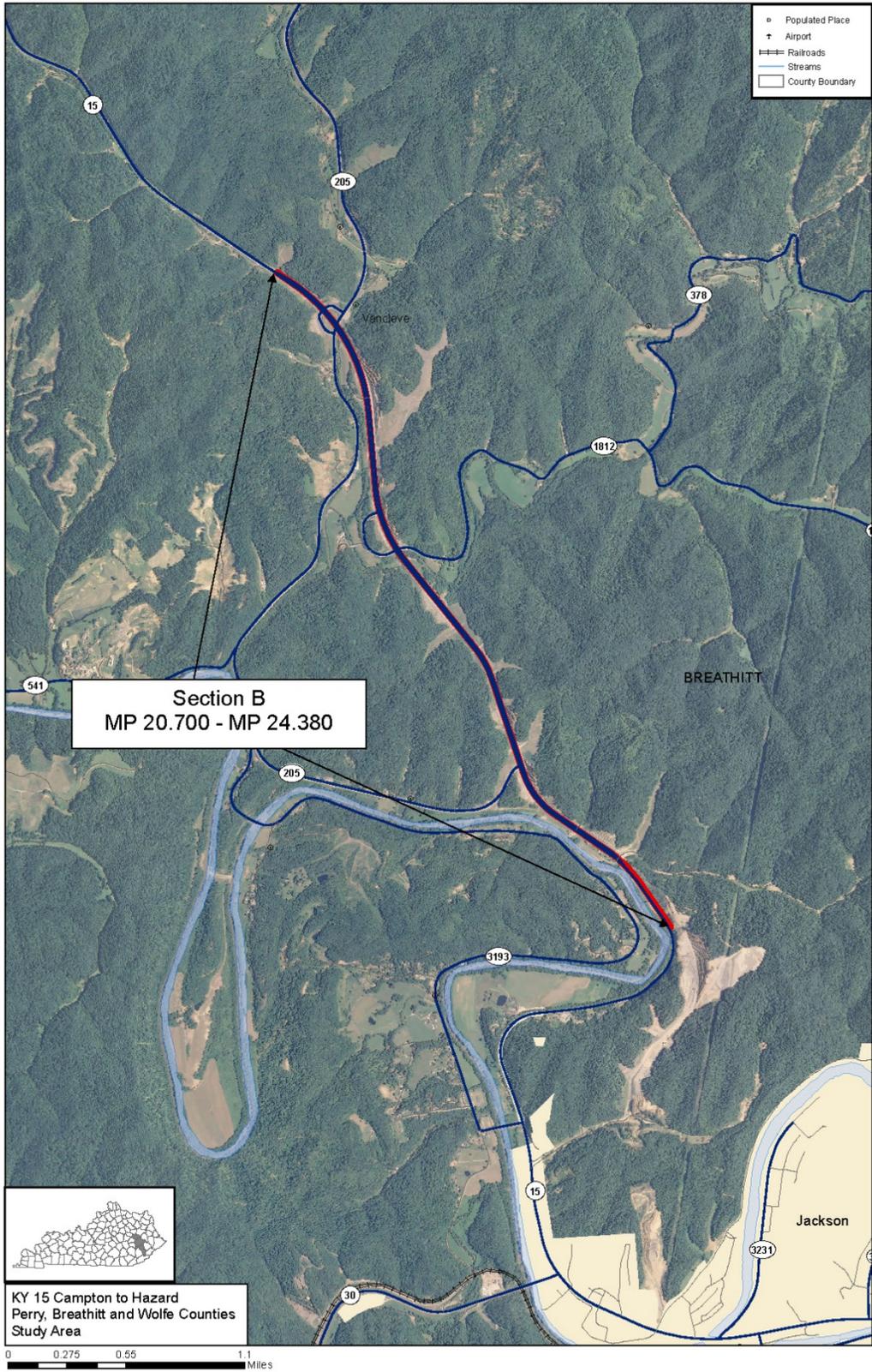
LATEST ENVIROMENTAL STATUS: ENVIRONMENTAL OVERVIEW FROM WMB STUDY

RECOMMENDATION: IMPROVEMENTS TO EXISTING CORRIDOR EXCEPT CAMPTON BYPASS

PROPOSED TYPICAL SECTION: 4 12' LANES, 10' PAVED SHOULDER, 40' DEPRESSED MEDIAN

	1994 COST ESTIMATE	RESIDENTIAL RELOCATIONS	OTHER RELOCATIONS	CEMETERIES	TOTAL PARCELS	OTHER
RECOMMENDED ALTERNATIVE (EXISTING CORRIDOR)	\$126.3 MILLION	62	34	0	163	LOCAL OFFICIALS STRONGLY PREFERRED THAT CAMPTON NOT BE BYPASSED
ALTERNATES D, E, AND F	\$153.1 MILLION	79	8	1	129	NECESSITATES BYPASS OF CAMPTON, NEW INTERCHANGE ON MOUNTAIN PARKWAY, AND MAY IMPACT WATER QUALITY OF CAMPTON LAKE

FROM		TO		Traffic Forecast and Year From Previous Work	Latest Actual Count and Year	Future Annual Traffic Growth Percentage Approved by KYTC
MP	DESCRIPTION	MP	DESCRIPTION			
0.000	KY 15	1.045	Mt. Parkway Exit 43	8600 (2015)	6776 (2009)	1.00%
8.235	Swift Camp Creek Rd	9.515	KY 15S/KY 191	8700 (2015)	5358-6905 (2010-11)	0.00%
1.732	KY 1261N in Wolfe County	8.235	Swift Camp Creek Rd	4500-5400 (2015)	5358 (2010)	0.00%
24.380	0.6 miles north of KY 205	1.732	KY 1261N in Wolfe County	5500 (2015)	4183 (2009)	0.50%



SECTION B

NORTHERN TERMINUS: 0.6 MILES NORTH OF KY 205 (MP 24.010), WOLFE COUNTY
SOUTHERN TERMINUS: JUST SOUTH OF KENNY KING RD (MP 20.700), BREATHITT COUNTY
LENGTH: 3.68 MILES

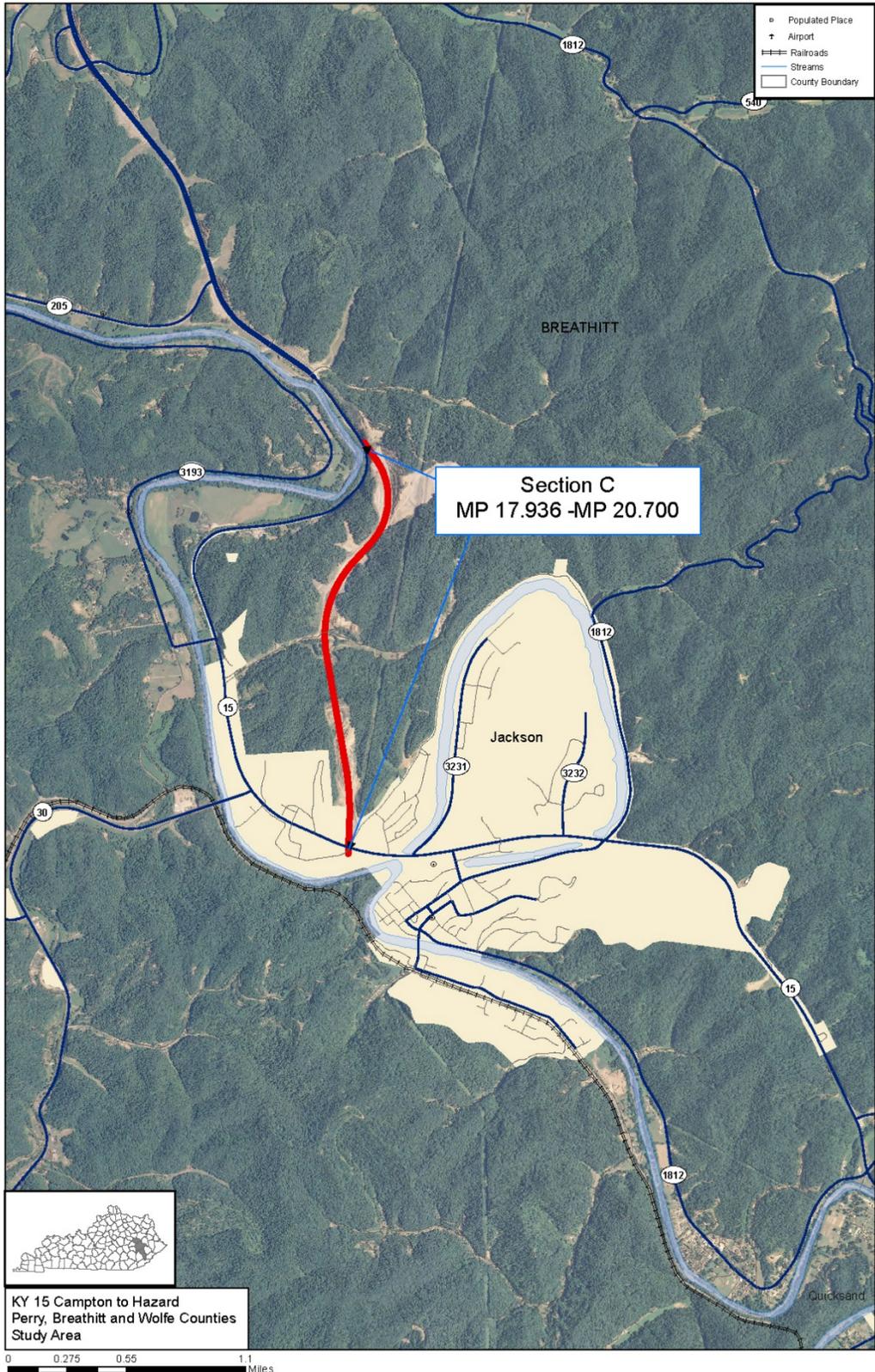
ITEM NUMBER: 270.87; 270.97

LATEST WORK: RECONSTRUCTED IN 2007-2008

TYPICAL SECTION: 4 12' LANES, 10' PAVED SHOULDER, 40' DEPRESSED MEDIAN

TRAFFIC DATA:

LATEST COUNT:	6983 (2010)
LATEST ESTIMATE:	7260 (2011)
2025 FORECAST ADT:	9700
GROWTH RATE USED IN DESIGN PLANS:	1.65% ANNUALLY



SECTION C

NORTHERN TERMINUS: JUST SOUTH OF KENNY KING RD (MP 20.700) BREATHITT COUNTY
SOUTHERN TERMINUS: JUNCTION WITH EXISTING KY 15 @ PANBOWL ROAD (MP 17.936)
LENGTH: 2.76 MILES

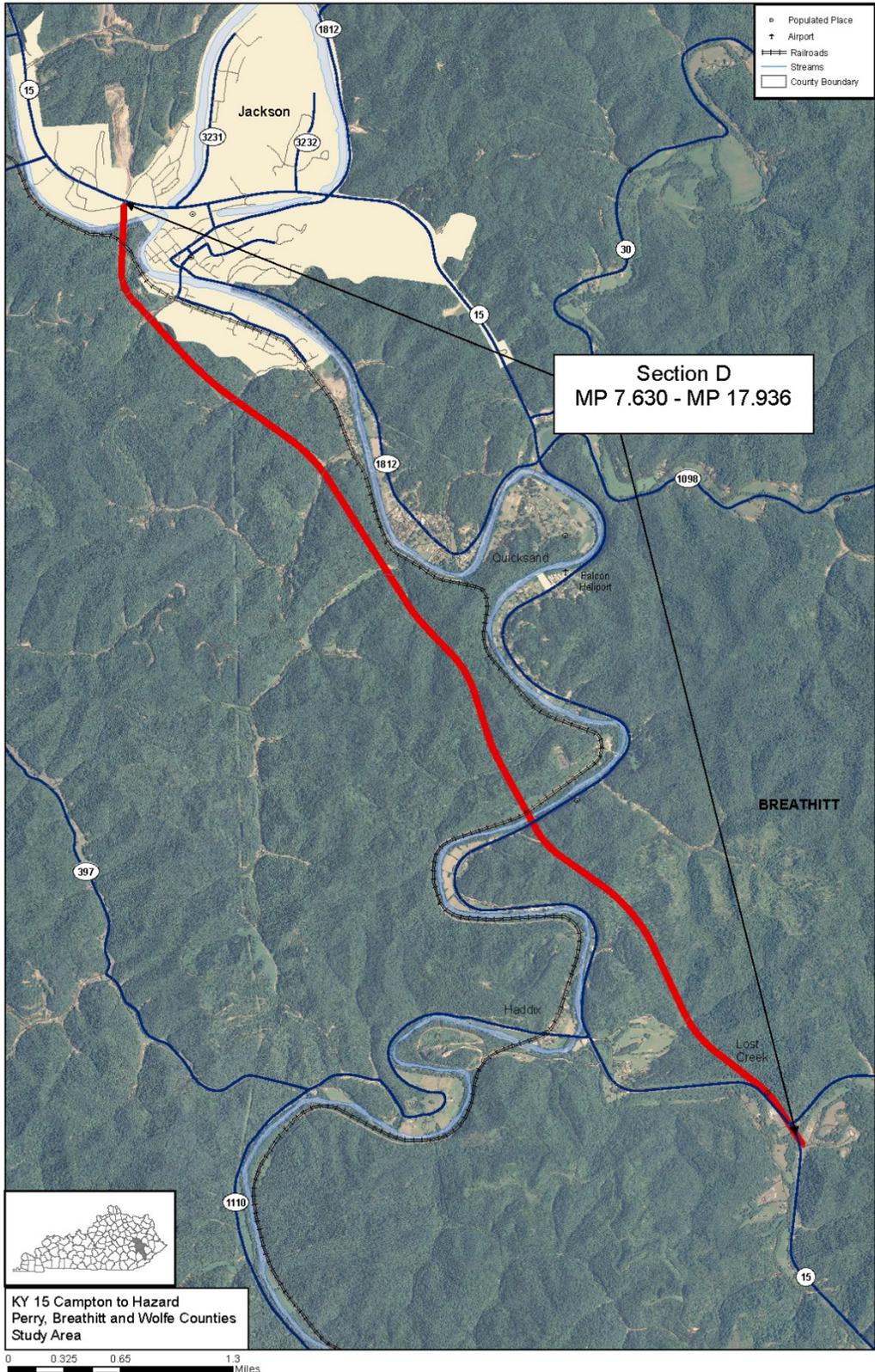
ITEM NUMBER: 270.60; 270.67; 270.70; 270.77

LATEST WORK: UNDER CONSTRUCTION NOW

TYPICAL SECTION: 4 12' LANES, 10' PAVED SHOULDER, 40' DEPRESSED MEDIAN

TRAFFIC DATA:

LATEST TRAFFIC ESTIMATE:	5600 (2010)
2020 FORECAST ADT:	6000 (KYTC TRAFFIC FORECAST) 16,850 (KYTC DESIGN PLANS)
GROWTH RATE USED:	1.00% (KYTC TRAFFIC FORECAST) 1.60% (KYTC DESIGN PLANS)



SECTION D

NORTHERN TERMINUS: JUNCTION WITH EXISTING KY 15 @ PANBOWL ROAD (MP 17.936)
SOUTHERN TERMINUS: 575 FEET SOUTH OF KY 476 NEAR HADDIX (MP 7.63)
LENGTH: 10.3 MILES

ITEM NUMBER: 270.11

LATEST PLANNING/DESIGN WORK: WMB ESTIMATES PHASE II DESIGN WAS 50% COMPLETE

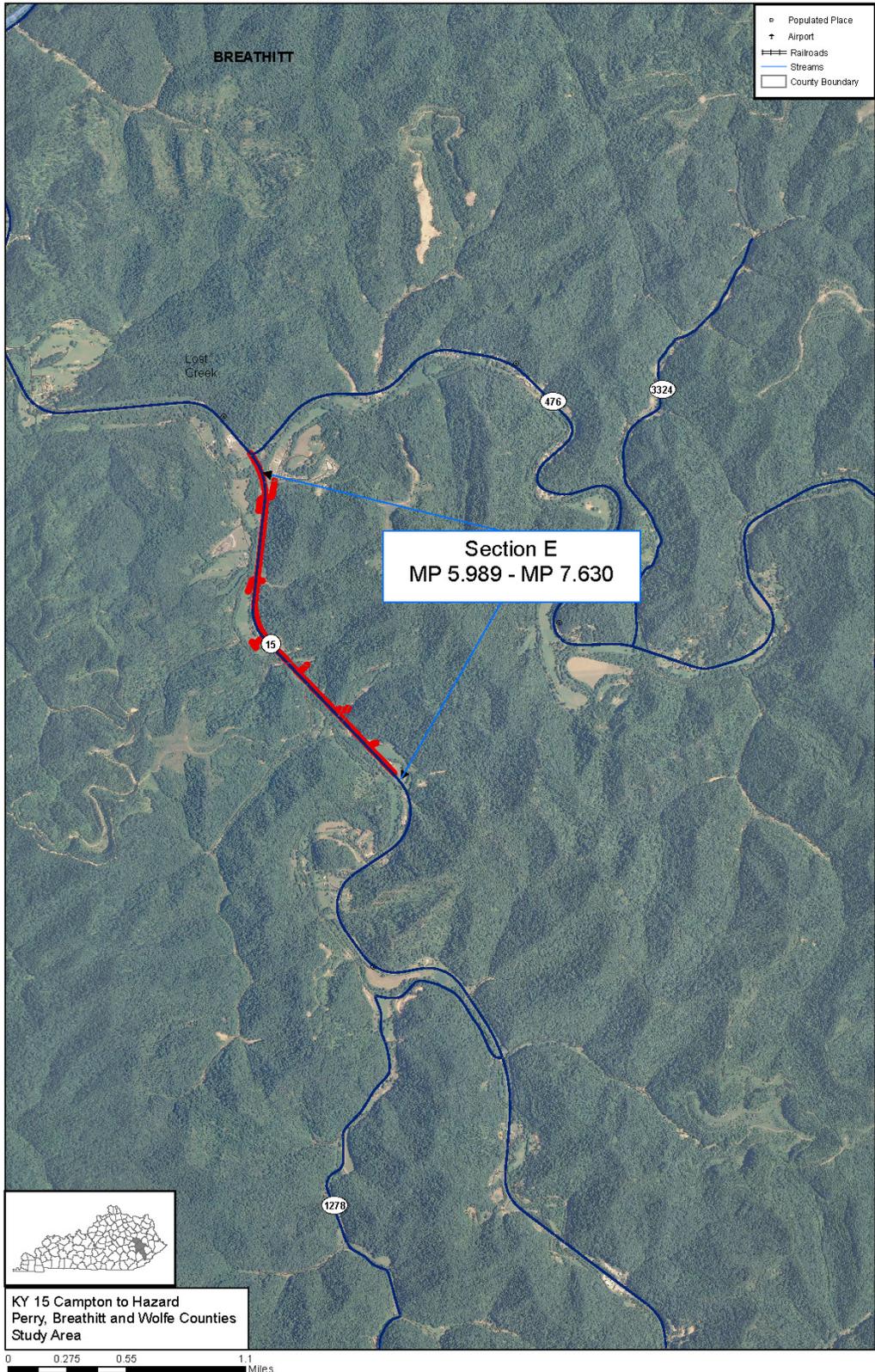
LATEST ENVIROMENTAL STATUS: EA FONSI MAY, 2000

RECOMMENDATION IN EA: ALTERNATE 2

- SHORTEST STRUCTURE TO SPAN NORTH FORK OF KY RIVER
- LESS POTENTIAL STABILITY PROBLEMS
- LOCAL OFFICIALS PREFERRED THIS ALTERNATIVE

PROPOSED TYPICAL SECTION: 4 12' LANES, 10' PAVED SHOULDER, 40' DEPRESSED MEDIAN

	1999 COST ESTIMATE (MILLIONS)	RESIDENTIAL RELOCATIONS	BUSINESSES	OTHER RELOCATIONS	FEET OF STREAM RECHANNELIZATION REQUIRED	ACRES OF PRIME FARMLAND TAKEN	HAZMAT SITES
RECOMMENDED ALTERNATIVE (ALTERNATIVE 2 IN EA)	\$148.2	51 FIXED, 38 MOBILE	14	11	21,533	23	6
OTHER ALTERNATIVES CONSIDERED (FROM EA)							
ALTERNATIVE 1	\$153.8	51 FIXED, 38 MOBILE	14	11	22,014	21	6
ALTERNATIVE 3	\$157.8	48 FIXED, 32 MOBILE	7	5	21,030	21	6
ALTERNATIVE 4	\$157.0	45 FIXED, 40 MOBILE	14	8	20,472	17	6
ALTERNATIVE 5	\$157.9	48 FIXED, 34 MOBILE	14	5	21,949	21	6
ALTERNATIVE 6	\$159.0	48 FIXED, 38 MOBILE	20	13	22,014	27	10
ALTERNATIVE 7	\$158.3	50 FIXED, 38 MOBILE	14	10	21,456	0	6



SECTION E

NORTHERN TERMINUS: 575 FEET SOUTH OF KY 476 (MP 7.63)
SOUTHERN TERMINUS: 1.75 MILES SOUTH OF KY 476 (MP 5.99)
LENGTH: 1.64 MILES

ITEM NUMBER: 285.00

LATEST PLANNING/DESIGN WORK: WMB ESTIMATES PHASE I DESIGN WAS 90% COMPLETE

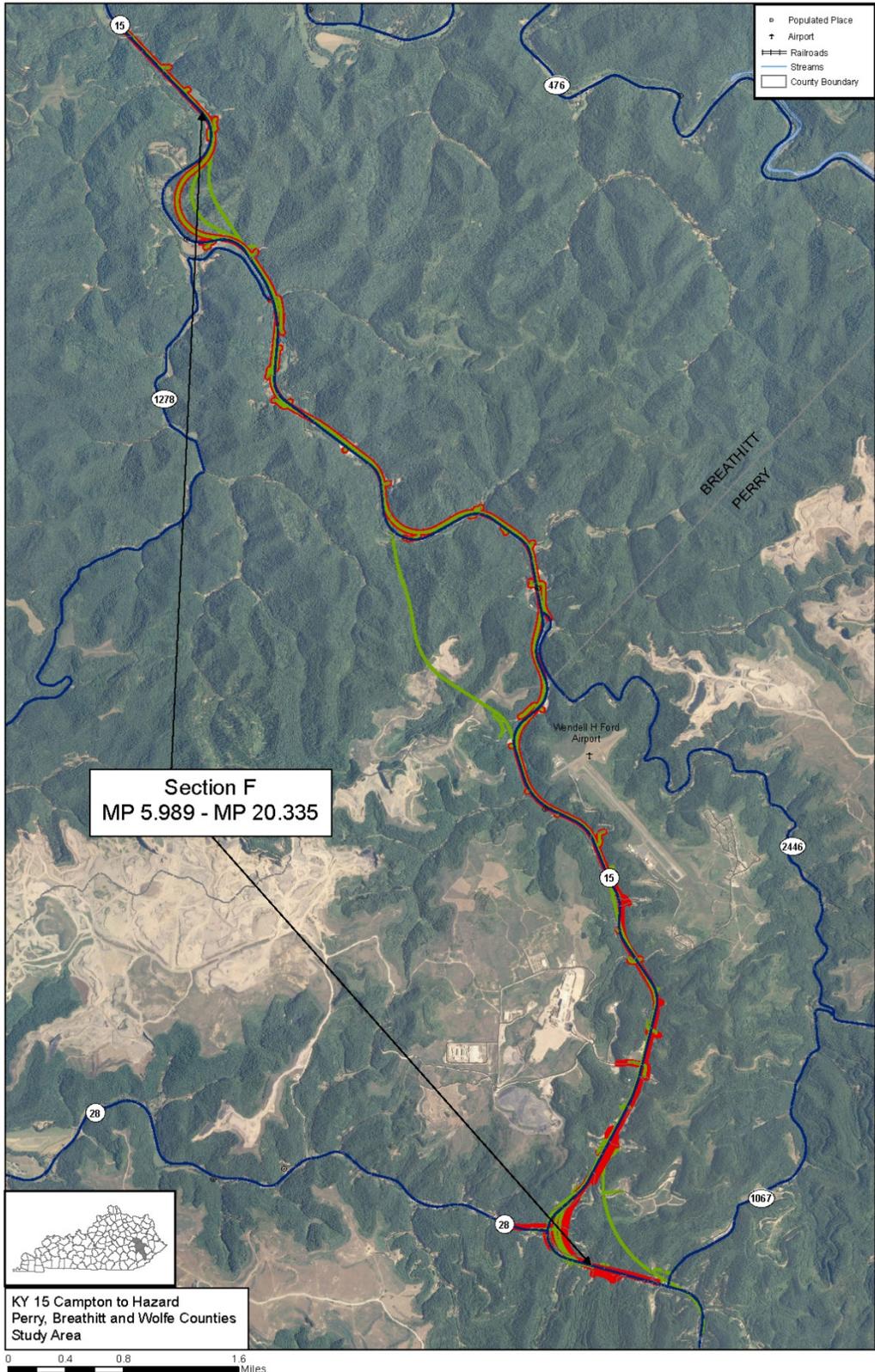
LATEST ENVIROMENTAL STATUS: DRAFT EA JUNE, 1999

RECOMMENDATION IN EA: ALTERNATE 1

PROPOSED TYPICAL SECTION: 4 12' LANES, 10' PAVED SHOULDER, 40' DEPRESSED MEDIAN

ENVIRONMENTAL COMPARISON OF ALTERNATIVES (INCLUDES ITEM 10-286)	RESIDENTIAL RELOCATIONS	BUSINESSES	CEMETERY IMPACTS	FEET OF STREAM RECHANNELIZATION REQUIRED	ACRES OF WETLANDS	HAZMAT SITES
RECOMMENDED ALTERNATIVE (ALT 9 SOUTH, ALT 1 NORTH)	22 FIXED, 51 MOBILE	13	8	1,469	1.6	5
OTHER ALTERNATIVES CONSIDERED						
ALTERNATIVE 8	40 FIXED, 63 MOBILE	4	5	8,135	1.2	3
ALTERNATIVE 9	22 FIXED, 38 MOBILE	5	5	5,855	1.6	2
ALTERNATIVE 8 SOUTH, ALTERNATE 1 NORTH	53 FIXED, 66 MOBILE	13	8	4,000	1.2	6
ALTERNATIVE 1	CONSIDERED INITIALLY, BUT DISMISSED—EXCEPT WHEN PAIRED WITH ALT 8 OR 9 AT KY15/KY28 INTERSECTION					
ALTERNATIVE 2	CONSIDERED INITIALLY, BUT DISMISSED FROM DETAILED EVALUATION BECAUSE DEFICIENCIES AT KY15/KY28 INTERSECTION NOT ALLEVIATED					
ALTERNATIVE 3	CONSIDERED INITIALLY, BUT DISMISSED FROM DETAILED EVALUATION BECAUSE DEFICIENCIES AT KY15/KY28 INTERSECTION NOT ALLEVIATED					

FROM		TO		Traffic Forecast and Year From Previous Work	Latest Actual Count and Year	Future Annual Traffic Growth Percentage Approved by KYTC
MP	DESCRIPTION	MP	DESCRIPTION			
5.989	1.75 mile south of KY 476	7.630	575 feet south of KY 476	7,800 (2015)	6,057 (2010)	1.00%



SECTION F

NORTHERN TERMINUS: 1.75 MILES SOUTH OF KY 476 (MP 5.99 BREATHITT CO.)
SOUTHERN TERMINUS: 0.40 MILES SOUTH OF KY 28 (MP 20.335 PERRY CO.)
LENGTH: 10.83 MILES

ITEM NUMBER: 286.00

LATEST PLANNING/DESIGN WORK: WMB ESTIMATES PHASE I DESIGN WAS 90% COMPLETE

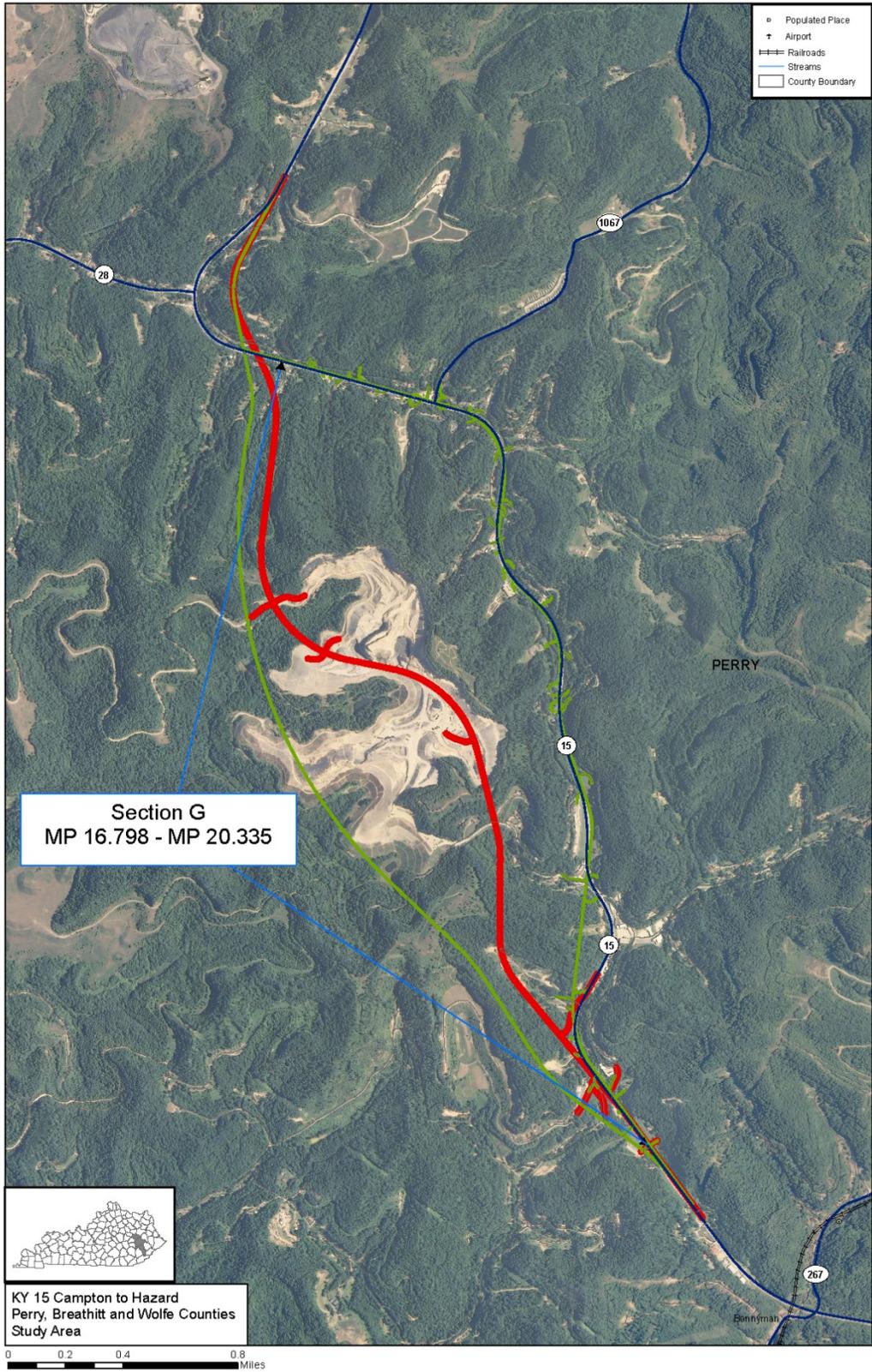
LATEST ENVIROMENTAL STATUS: DRAFT EA JUNE, 1999

RECOMMENDATION IN EA: ALTERNATE 1 SOUTH TO APPROX MP 22.7, THEN ALT 9

PROPOSED TYPICAL SECTION: 4 12' LANES, 10' PAVED SHOULDER, 40' DEPRESSED MEDIAN

ENVIRONMENTAL COMPARISON OF ALTERNATIVES (INCLUDES ITEM 10-285)	RESIDENTIAL RELOCATIONS	BUSINESSES	CEMETERY IMPACTS	FEET OF STREAM RECHANNELIZATION REQUIRED	ACRES OF WETLANDS	HAZMAT SITES
RECOMMENDED ALTERNATIVE (ALT 9 SOUTH, ALT 1 NORTH)	22 FIXED, 51 MOBILE	13	8	1,469	1.6	5
OTHER ALTERNATIVES CONSIDERED						
ALTERNATIVE 8	40 FIXED, 63 MOBILE	4	5	8,135	1.2	3
ALTERNATIVE 9	22 FIXED, 38 MOBILE	5	5	5,855	1.6	2
ALTERNATIVE 8 SOUTH, ALTERNATE 1 NORTH	53 FIXED, 66 MOBILE	13	8	4,000	1.2	6
ALTERNATIVE 1	CONSIDERED INITIALLY, BUT DISMISSED—EXCEPT WHEN PAIRED WITH ALT 8 OR 9 AT KY15/KY28 INTERSECTION					
ALTERNATIVE 2	CONSIDERED INITIALLY, BUT DISMISSED FROM DETAILED EVALUATION BECAUSE DEFICIENCIES AT KY15/KY28 INTERSECTION NOT ALLEVIATED					
ALTERNATIVE 3	CONSIDERED INITIALLY, BUT DISMISSED FROM DETAILED EVALUATION BECAUSE DEFICIENCIES AT KY15/KY28 INTERSECTION NOT ALLEVIATED					

FROM		TO		Traffic Forecast and Year From Previous Work	Latest Actual Count and Year	Future Annual Traffic Growth Percentage Approved by KYTC
MP	DESCRIPTION	MP	DESCRIPTION			
4.047	KY 1278	5.989	1.75 mile south of KY 476	6200 (2015)	6057 (2011)	1.00%
0.529	KY 2446	4.047	KY 1278	7900-10,100 (2015)	5943 (2011)	1.00%
0.000	Perry County Line	0.529	KY 2446 in Breathitt County	7900-10,100 (2015)	5943 (2011)	1.00%
20.735	KY 28 in Perry County	25.179	Breathitt County Line	7900-10,100 (2015)	8013 (2011)	1.00%
20.335	0.4 mile south of KY 28	20.735	KY 28 in Perry County	7900-10,100 (2015)	11390 (2009)	0.75%



SECTION G

NORTHERN TERMINUS: 0.40 MILES SOUTH OF KY 28 (MP 20.335 PERRY CO.)
SOUTHERN TERMINUS: CAPITOL HILL DRIVE (MP 16.847)
LENGTH: 3.54 MILES

ITEM NUMBER: 269.01

LATEST PLANNING/DESIGN WORK: V & M PLANS FOR P L & G INPECTION SUBMITTED OCT 2002

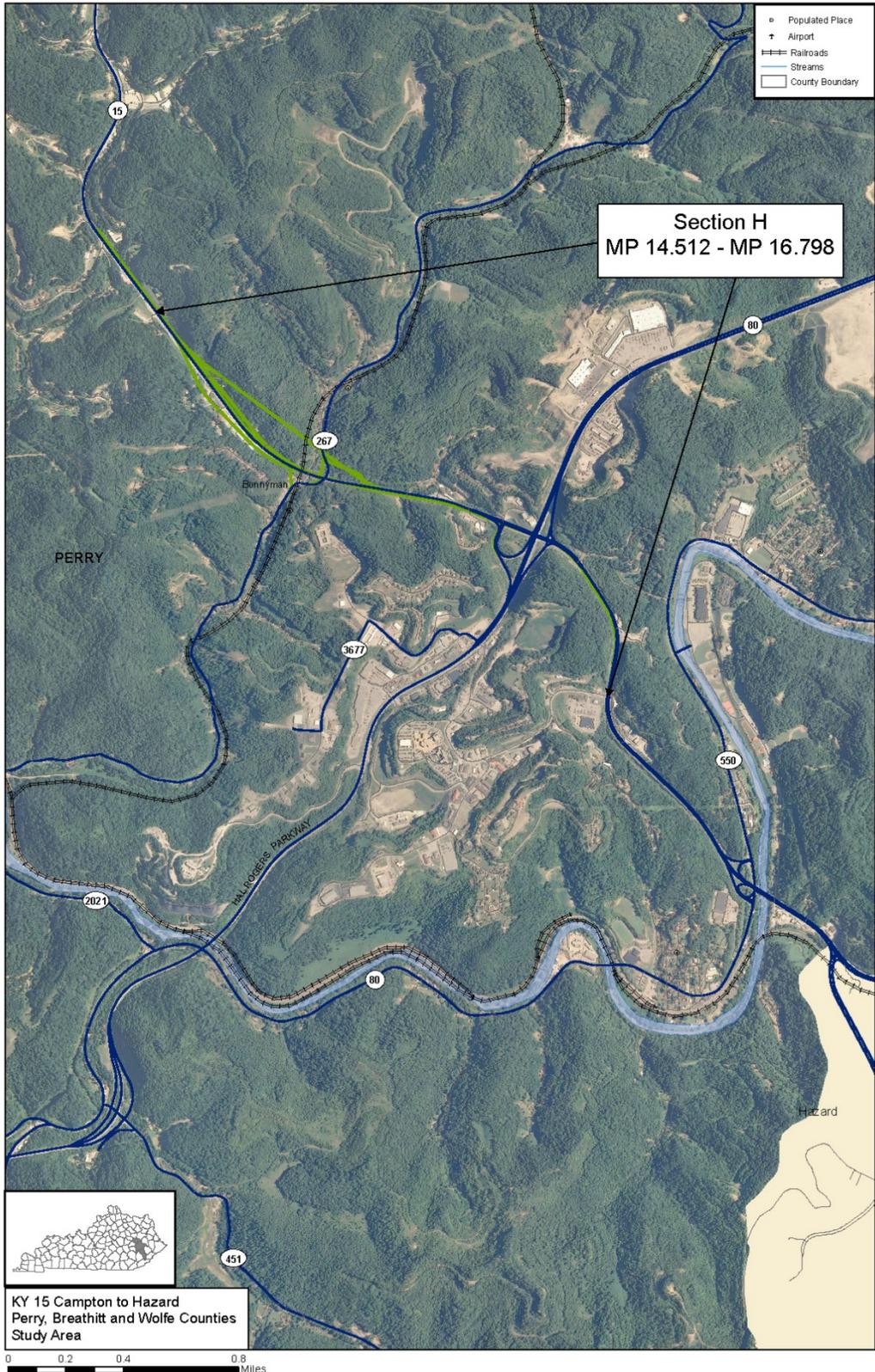
LATEST ENVIROMENTAL STATUS: EA FONSI JUNE, 2004

RECOMMENDATION IN EA: ALTERNATE 2

PROPOSED TYPICAL SECTION: 4 12' LANES, 10' PAVED SHOULDER, 40' DEPRESSED MEDIAN

ENVIRONMENTAL COMPARISON OF ALTERNATIVES (INCLUDES ITEM 10-269.02)	ESTIMATED COST (MILLIONS)	RESIDENTIAL IMPACTS	BUSINESS IMPACTS	CHURCH IMPACTS	CEMETERY IMPACTS	FEET OF STREAM RECHANNELIZATION REQUIRED	ACRES OF WETLANDS	HAZMAT SITES
RECOMMENDED ALTERNATIVE (ALTERNATIVE 2 IN EA)	\$56.9 (UPDATED TO \$58.4 IN 2008)	36	6	2	2	3,750	0.92	2
OTHER ALTERNATIVES CONSIDERED								
ALTERNATIVE 1	\$69.4	26	0	1	4	5,610	3.05	2
ON EXISTING ALIGNMENT	\$52.6	95	15	0	2	10,338	0.2	6

FROM		TO		Traffic Forecast and Year From Previous Work	Latest Actual Count and Year	Future Annual Traffic Growth Percentage Approved by KYTC
MP	DESCRIPTION	MP	DESCRIPTION			
16.798	Capitol Hill Drive	20.335	0.4 mile south of KY 28	11,510 (2025)	8013 (2011)	0.75%



SECTION H

NORTHERN TERMINUS: CAPITOL HILL DRIVE (MP 16.847)
SOUTHERN TERMINUS: MORTON BLVD (MP 14.512)
LENGTH: 2.34 MILES

ITEM NUMBER: 269.02 (PREVIOUS); 159.00 (NEW HIGHWAY PLAN)

LATEST PLANNING/DESIGN WORK: R/W PLANS SUBMITTED IN OCT, 2003

LATEST ENVIROMENTAL STATUS: EA FONSI JUNE, 2004

RECOMMENDATION IN EA: IMPROVE EXISTING ALIGNMENT

PROPOSED TYPICAL SECTION: 4 12' LANES, 6' PAVED SHOULDER, 14' FLUSH MEDIAN

ENVIRONMENTAL COMPARISON OF ALTERNATIVES (INCLUDES ITEM 10-269.01)	ESTIMATED COST (MILLIONS)	RESIDENTIAL IMPACTS	BUSINESS IMPACTS	CHURCH IMPACTS	CEMETERY IMPACTS	FEET OF STREAM RECHANNELIZATION REQUIRED	ACRES OF WETLANDS	HAZMAT SITES
RECOMMENDED ALTERNATIVE (ON EXISTING ALIGNMENT)	\$52.6	95	15	0	2	10,338	0.2	6
OTHER ALTERNATIVES CONSIDERED								
ALTERNATIVE 1	\$69.4	26	0	1	4	5,610	3.05	2
ALTERNATIVE 2	\$56.9	36	6	2	2	3,750	0.92	2

FROM		TO		Traffic Forecast and Year From Previous Work	Latest Actual Count and Year	Future Annual Traffic Growth Percentage Approved by KYTC
MP	DESCRIPTION	MP	DESCRIPTION			
14.512	Morton Blvd	16.798	Capitol Hill Drive	22300 (2020)	17830 (2008)	2.00% (KYTC forecast dated Mar 2002)

AGENDA

Project Team Meeting #2 KY 15 Programming Study Breathitt, Perry, and Wolfe Counties

Date: October 24, 2012
Time: 1:30 p.m.
Location: KYTC District 10, Jackson, KY

- I. Purpose of This Meeting:
 - a. Discuss 2012 Cost Estimates by Section
 - i. As originally proposed
 - ii. New corridor in Section D
 - iii. Along existing alignment in Sections D and G
 - iv. Alternative geometrics and pavement design
 - b. Discussion of KY 28 Intersection
 - c. Project Team Decides Which Concepts to Segment

- II. Next Steps
 - a. Segment Alternatives Recommended by Project Team
 - b. Cost Estimates Prepared for Each Segment
 - c. Priority Segments Recommended to Project Team





Architecture

Engineering

Construction

MEETING MINUTES

Project: Programming Study for KY 15 Breathitt, Perry, and Wolfe Counties
Mountain Parkway Interchange in Wolfe County to MP 16.8 in Perry County

Purpose: Project Team Meeting #2

Place: District 10 - Jackson

Meeting Date: October 24, 2012
1:30 p.m. EDT

Prepared By: Bruce Siria

In Attendance:

Jill Asher	KYTC, Division of Planning
Sreenu Gutti	KYTC, Division of Planning
Steve Ross	KYTC, Division of Planning
Jason Blackburn	KYTC, District 10 – Jackson
Darren Back	KYTC, District 10 – Jackson
Brent Weddington	KYTC, District 10 – Jackson
Aric Skaggs	KYTC, District 10 – Jackson
Min Jiang	KYTC, District 10 – Jackson
Eunice Holland	Kentucky River Area Development District
Annette Coffey	Qk4
Duffy Ford	Qk4
Bruce Siria	Qk4

Jason Blackburn noted that this was the second official project team meeting on the KY 15 Planning Study (the meeting on August 20 being an informal, interim discussion) and that the end purpose of the study was to prepare a summary notebook that would be useful both to District 10 personnel not familiar with previous work on KY 15 and to stress to external stakeholders the importance of the corridor.

Relevant central office and district personnel changes were announced. Sreenu Gutti will take over as central office coordinator for this study. Jill Asher is transferring to the Division of Highway Design effective

November 1. Mikael Pelfrey will assume Jill's duties as leader of the Corridor Planning Team in the Division of Planning. Aric Skaggs was introduced as the new Branch Manager for Project Development in District 10. Min Jiang and Brent Weddington of D-10 were also introduced.

Darren Back asked if WMB had shared an inspection report documenting why the "Westside of Jackson" corridor was preferred. Bruce Siria answered in the negative, indicating that Qk4 only had the EA FONSI for that segment. Jason indicated that the public and local officials had indicated concerns with a "Westside" alternative. (Note: The EA FONSI indicates that the preferred alignment within the "Westside of Jackson" corridor was recommended "after consideration of public input, environmental impacts, and transportation objectives". The preferred alignment was also 3 to 7 percent less costly than others considered.)

Bruce then narrated a brief PowerPoint presentation focusing on KY 15 corridor sections D, E, F, and G, including new corridors in Section D and an along existing Section G alternative. The cost estimates for the KY 15 junction at KY 28 included a diamond interchange; further cost savings would be possible with a modification there. Regardless, the existing KY 15 intersection with KY 28 should be relocated. The project team recommended that the interchange option continue to be included.

Jason commented that Section D was the most troublesome for the district office. "Westside" corridor has no tie-down points for construction segmentation, and connectors back to existing KY 15 necessitate crossing (or even relocating) the river. "Eastside" corridor is more attractive from that perspective.

The project team suggested unit costs of \$75,000 per house and \$500 per acre (in the 'cross-country' options). Right-of-Way and utility relocation costs will be developed by District 10. District staff asked Qk4 to provide Right-of-Way acreage, number of business/residential relocations, and disturb limits.

The current Qk4 cost estimates include the KY 15/KY 28 interchange in Section F. It will be moved to the estimate for Section G to mesh with the previous design work on Section G. (Note: The KY 15/KY 28 junction was included in the prior work for Section F, but later work for Section G also included that location.)

Possible construction segmentation for study sections was discussed:

No segmentation of sections E or G was needed.

For section F, the following general segments were suggested:

1. From MP 21.504 to the northern airport entrance road (MP 23.813) {2.3 miles}
2. From MP 23.813 to beginning of tangent section at MP 2.6 {4.0 miles}
3. From MP 2.6 to the northern end of Section F (MP 5.989) {3.4 miles}

For section D, there is no need to try to segment the “Westside” option. For the “Eastside” option, and for the option along the existing alignment, various combinations of the two were suggested.

The project team reiterated that Qk4 was not to further examine a 30-foot median option, although the work Qk4 has done to date may be included in the final report. Barrier wall options are to be included in the segment cost estimates to ascertain the level of right-of-way savings that option may provide. The project team indicated that pavement design options did not need to be considered in the segment cost estimates.

At the next meeting, Qk4 will present cost estimates by project development phase for the segments described above. Qk4 will also present a cost estimate by phase for section A (Vancleve to Campton). Finally, Qk4 will recommend a priority order for KY 15 improvement segments and its rationale for those recommendations.

The meeting concluded at approximately 3:00 p.m.

-----End of Minutes-----

AGENDA

Project Team Meeting #3 KY 15 Programming Study Breathitt, Perry, and Wolfe Counties

Date: January 16, 2013
Time: 10:30 a.m.
Location: KYTC District 10, Jackson, KY

- I. Purpose of This Meeting:
 - a. Discussion of Priority Segments
- II. Next Steps
 - a. Letter Agreement Extension
 - b. Submission of Draft Report
 - c. Schedule





Architecture

Engineering

Construction

MEETING MINUTES

Project: Programming Study for KY 15 Breathitt, Perry, and Wolfe Counties
Mountain Parkway Interchange in Wolfe County to MP 16.8 in Perry County

Purpose: Project Team Meeting #3

Place: District 10 - Jackson

Meeting Date: January 16, 2013
10:30 a.m. EDT

Prepared By: Annette Coffey

In Attendance:	Sreenu Gutti	KYTC, Division of Planning
	Steve Ross	KYTC, Division of Planning
	Jason Blackburn	KYTC, District 10 – Jackson
	Darren Back	KYTC, District 10 – Jackson
	Brent Weddington	KYTC, District 10 – Jackson
	Aric Skaggs	KYTC, District 10 – Jackson
	Min Jiang	KYTC, District 10 – Jackson
	Michael D. Miller	Kentucky River Area Development District
	Eunice Holland	Kentucky River Area Development District
	Annette Coffey	Qk4
	Duffy Ford	Qk4
	Bruce Siria (teleconference)	Qk4

Jason Blackburn noted that this was the third official project team meeting on the KY 15 Planning Study. At this meeting Qk4 was to present their recommendations for priorities for the project based on input from the previous meetings, existing and future conditions. At that point, he turned the meeting over to Annette Coffey of Qk4.

Annette provided an agenda, a summary of the process for establishing the recommended priorities for KY 15 improvements, a spreadsheet containing KY 15 segments and a priority for each,

recommended by Qk4 and a summary map. Each is attached for reference. The main considerations in establishing the priorities were current LOS, crash history, and existing and projected traffic. She then led the group through each priority section 1 -12.

The following were items to be clarified, or noted:

- Show in the Recommended Priorities spreadsheet for Priority 1 the breakout of rural and urban.
- Insert in the column “Estimated Future Daily Traffic” the Design Year 2035
- For Priority 9 Section A Segment 3, we may want to consider stopping the curb and gutter at the new elementary school (KY 3355). Include this comment in the final report and an estimated difference in cost per mile between a 5-lane rural and a 5-lane curb and gutter section.
- Clarify the difference in costs between Priority 8 and Priority 10 both on the spreadsheet and in the final report. Even though Section 10 is shorter it is \$34 Million, higher in construction costs. Much of the difference is due to a \$15.1 million structure. This will be clarified in the final report.
- Add a column stating at what point in the past this section was taken to e.g. through Phase I design and an approved final environmental document.
- Include the sections B and C so as not to leave any sections out.
- A clarification was asked on the footnote on the spreadsheet which states “Priority 10 is currently LOS E. If Priority 1 were to be constructed before Priority 8 the LOS would be B.” Several were concerned this would hamper chance of the final segment of the bypass ever being constructed.
- Qk4 was asked to send the draft Purpose and Need for the project out to everyone at the meeting for review and comment.
- Mr. Miller stated that the 80 miles from Campton to Whitesburg is the most important road in the area and it carries a considerable amount of the commercial traffic.
- It was requested that Qk4 either develop another spreadsheet or add to the existing spreadsheet what other alignments were studied and add comments as to why they were not selected e.g. D West.
- In the final report, Qk4 should include the fact that much of Segment G was years ago recommended on new alignment. Even though it may be cheaper to go along the existing, KYTC will have to make a decision whether it is prudent to stay with the previous cross country alignment or back up and go along the existing KY 15.

Jason stated that the District will take the recommended priorities under advisement and they look forward to a final report. A time extension may be necessary to complete the final report. Qk4 was asked by Steve Ross, to submit a letter to Mikael Pelfrey of Central Office Planning outlining the reasons for the extension. Qk4 will submit minutes of the meeting to everyone at the meeting for comment, and will submit a draft report within 60 days.

To ensure that KY 15 operates as intended in the goals of the project, access control will be very important when implementing segments of KY 15. Each alternative studied and updated for costs with this study effort, was estimated as partial control of access with minimum spacing in rural areas of 1200' and urban (through Jackson) 600 feet. Frontage roads were included in the estimates where appropriate and when needed.

The meeting concluded at approximately 12:00 p.m.

-----End of Minutes-----

Priorities for improvements to KY 15 in Perry, Breathitt, and Wolfe counties are listed below in 12 stages. Options for combining several of the improvements are listed based on what may be acceptable construction phase costs. KYTC's desire is to complete this project at the earliest practicable date, and this would be facilitated by having the fewest stages possible. However, construction cost levels must be reasonable for future listings as a single project in the KYTC Highway Plan. Criteria for recommending the following 12 priorities include traffic volume served, crash frequency, current level of service (LOS), and continuity of construction segments.

Priorities #1 and #2

The first recommended priority is Segment 3 of Section D along the existing KY 15 alignment. From just south of the shopping center that includes Walmart on the southern city limits of Jackson to just north of the intersection of KY 15 with Miller Hollow Road, a distance of 0.72 miles, the improvement would be a 5-lane rural cross-section. From Miller Hollow Road to the existing construction near Panbowl Road, a distance of 1.53 miles, the improvement would be a 5-lane curb-and-gutter cross-section.

Estimated future year traffic volumes are 21,000 vehicles daily, the highest traffic volumes north of Hazard. The current LOS is E. The critical crash rate factor (CCRF) for this segment ranges from 1.15 to 1.67. The advantages of improving this segment immediately include addressing the most significant current LOS and CCRF issues. However, these improvements would be aimed at what is, in essence, a local street rather than system improvements to KY 15 between the Hal Rogers and Mountain parkways. The principal disadvantage of this recommendation is the possibility that these improvements would be seen as the only ones ever needed along this segment of KY 15. Nonetheless, this recommendation is made to address the traffic and safety issues cited above as well as for the following additional considerations:

- Cost: This improvement is estimated to cost \$24 million. An eastern bypass of Jackson with similar termini is estimated to cost \$82.9 million. The western bypass of Jackson originally proposed is estimated to cost \$133.8 million. (A modified version of the western bypass developed by Qk4 to allow some minor segmenting is estimated to be only slightly less at \$133.1 million.)
- If this segment of the KY 15 system improvements on a Jackson bypass were constructed prior to major improvements between Hazard and Jackson, the newly generated traffic volumes would be small, and the trips using this bypass would simply be current through trips immediately north and south of Jackson. The western bypass, being a shorter distance and hence having a shorter travel time, would likely attract 6,150 vehicles per day. An eastern bypass, being slightly longer and having a slightly greater travel time, would likely attract only 5,100 vehicles per day. This would leave between 14,900 and 15,900 vehicles daily on existing KY 15, resulting in continued congestion and, likely, crash problems.

If Priority #1 were to be constructed, the estimated cost for the construction phase would be only \$16.1 million. Improvements in Priority #1 could be lengthened to a logical construction terminus to

include a more aggressive construction phase. Sections north of Priority #1 are currently under construction or have been constructed. Thus, the second priority would be immediately south of Priority #1. The logical construction segment for Priority #2 would be from the shopping center that includes Walmart on the southern city limits of Jackson to approximately one-half mile south of the intersection with KY 30 East, a distance of 1.47 miles. Estimated future year traffic volumes for Priority #2 are 14,400 vehicles daily, the second highest traffic volumes north of Hazard. The LOS is E and the CCRF for this segment is 1.2. The estimated construction cost phase of Priorities #1 and #2 combined is \$33.7 million. Figure 1 depicts this combined recommendation.

It is noted that a higher estimated construction cost phase (i.e., an even longer recommended section) would likely be acceptable. However, the discussion below will point out that extending this recommendation to the next logical construction break would result in a total construction phase cost of \$77 million, which is considered too high to be a practical recommendation.

The next sequence of recommended priorities is between Hazard and Jackson, starting at the southern terminus and progressing south-to-north until tying in to Priority #2.

Priorities #3 and #4

The third recommended priority is Section G, generally along the existing KY 15 alignment (except for a new KY 28 interchange) from MP 16.8 near Capitol Hill Drive through the new interchange at KY 28, a distance of 4.49 miles. (Note: neither this recommendation nor others for improvements along the existing alignment preclude spot locations identified in final design where short distances of new alignment are used.) This improvement would be a 4-lane cross section with a 40-foot-wide median. Estimated future year traffic volumes are 13,800 vehicles daily, the third highest traffic volumes north of Hazard. The LOS is E and the CCRF for this segment ranges from 0.61 to 0.82. The estimated cost of these improvements to Section G along the existing alignment is \$50.8 million, including \$40.1 million for the construction phase. The estimated cost for the new alignment west of existing KY 15 (originally recommended in the previous work) is \$61.5 million, including a construction phase of \$53.8 million. Significant overall cost savings could be realized despite higher estimated costs for right-of-way purchase and utility relocation. Priorities #1 through #3 are depicted in Figure 2.



Figure 1: Priorities #1 and #2

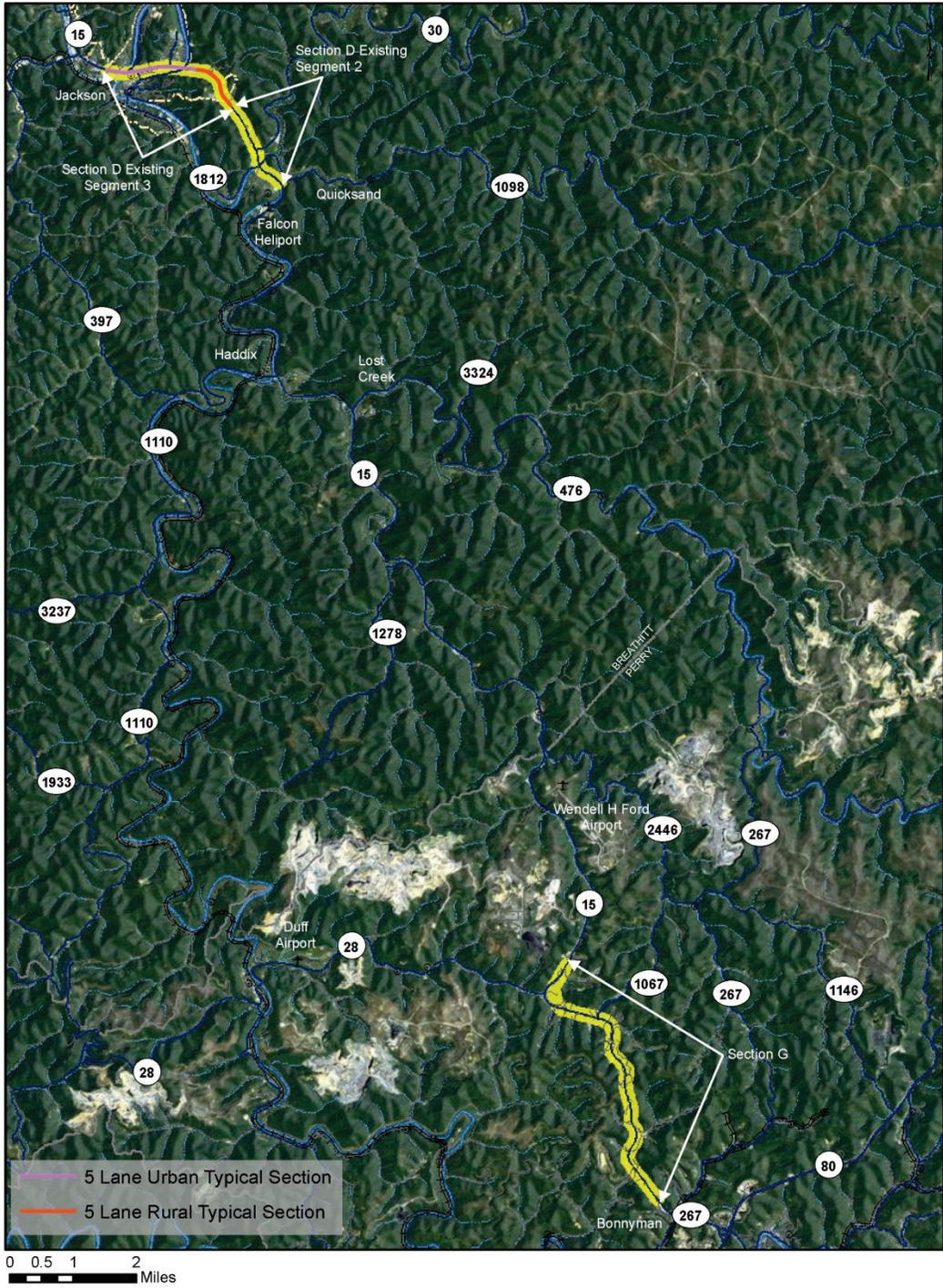


Figure 2: Priorities #1 through #3

If Priority #3 were to be constructed, the estimated cost for the construction phase would be \$40.1 million. Improvements in Priority #3 could possibly be lengthened to a logical construction terminus to include a more aggressive construction phase. Thus, the recommended Priority #4 is Segment 1 of Section F. This segment extends from just north of the new interchange with KY 28 to just north of Wendell Ford Airport entrance road, a distance of 2.83 miles. This improvement would be a 4-lane cross section with a 40-foot-wide median generally along the existing alignment. Estimated future year traffic volumes on Segment 1 of Section F are 10,200 vehicles daily, the fourth highest traffic volumes north of Hazard. The LOS is E and the CCRF for this segment is 0.35. The estimated cost of implementing Priority #4 is \$20 million, including \$16 million for the construction phase. The estimated construction cost phase of Priorities #3 and #4 combined is \$56.1 million. If KYTC considers this to be too aggressive for a single construction project, Priorities #3 and #4 could be pursued separately. Priorities #1 through #4 are shown in Figure 3.

Priorities 5 and 6

The fifth recommended priority is Segment 2 of Section F, generally along the existing KY 15 alignment from just north of Wendell Ford Airport Road in Perry County to vicinity of Noble Road south of Watts in Breathitt County, a distance of 3.94 miles. This improvement would be a 4-lane cross section with a 40-foot-wide median. Estimated future year traffic volumes are 7,600 vehicles daily. The LOS transitions from E at the south end to D at the north end. The CCRF for this segment is 0.35. The estimated cost of these improvements to Segment 2 of Section F along the existing alignment is \$36.0 million, including \$29.5 million for the construction phase. This segment is recommended as a continuation of previously recommended improvements to the south. This recommendation is shown in Figure 4.

Since the construction phase of Priority #5 is \$29.5 million, improvements in Priority #5 could possibly be lengthened to a logical construction terminus to include a more aggressive construction phase. Thus, the recommended Priority #6 is Segment 3 of Section F generally along the existing alignment from vicinity of Noble Road south of Watts to approx 2.23 miles south of KY 476 East, a distance of 2.36 miles. This improvement would be a 4-lane cross section with a 40-foot-wide median. This segment is recommended as a continuation of previously recommended improvements to the south. Estimated future year traffic volumes are 7,600 vehicles daily, while the current LOS is D. The CCRF for this segment is 0.35. The estimated cost of these improvements to Segment 3 of Section F along the existing alignment is \$29.0 million, including \$24.2 million for the construction phase. The estimated construction cost phase of Priorities #5 and #6 combined is \$53.6 million. If KYTC considers this to be too aggressive for a single construction project, Priorities #5 and #6 could be pursued separately. Priorities #1 through #6 are shown in Figure 5.

Priority #7

The seventh recommended priority is Section E, generally along the existing alignment from approximately 2.23 miles south of KY 476 East to approx 300 feet north of KY 476 East, a distance of 2.29 miles. This improvement would be a 4-lane cross section with a 40-foot-wide median. This segment

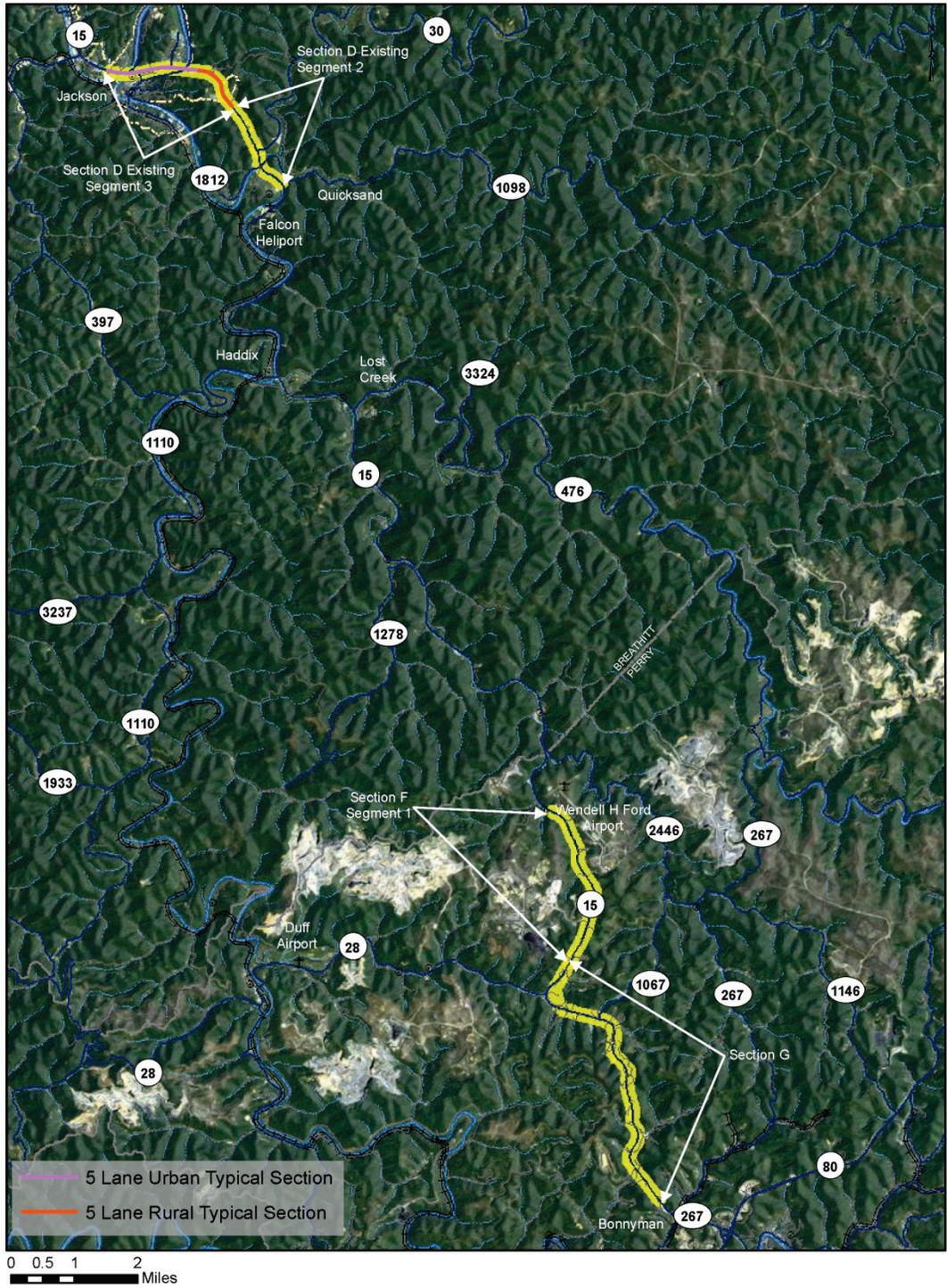


Figure 3: Priorities #1 through #4

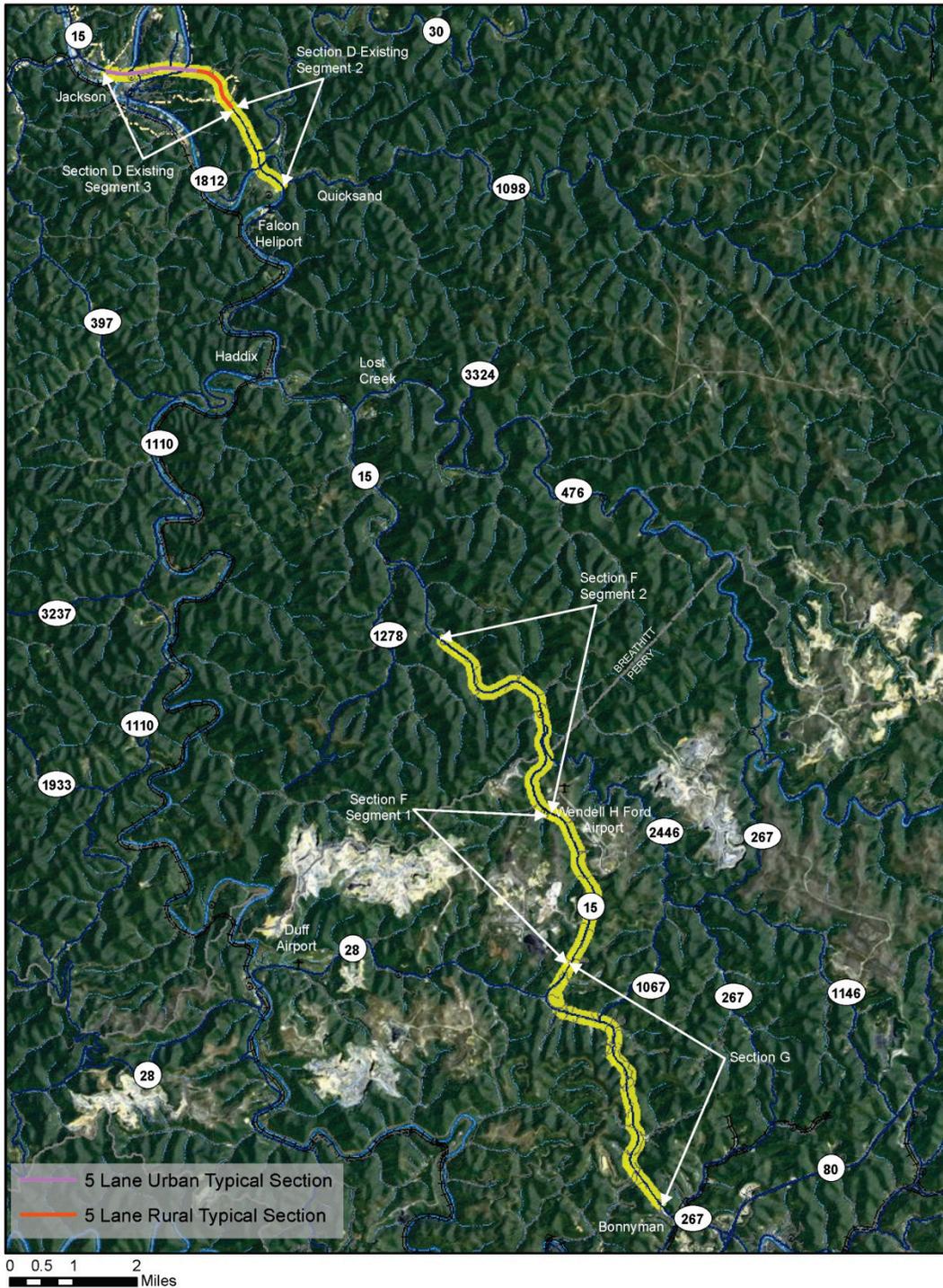


Figure 4: Priorities #1 through #5

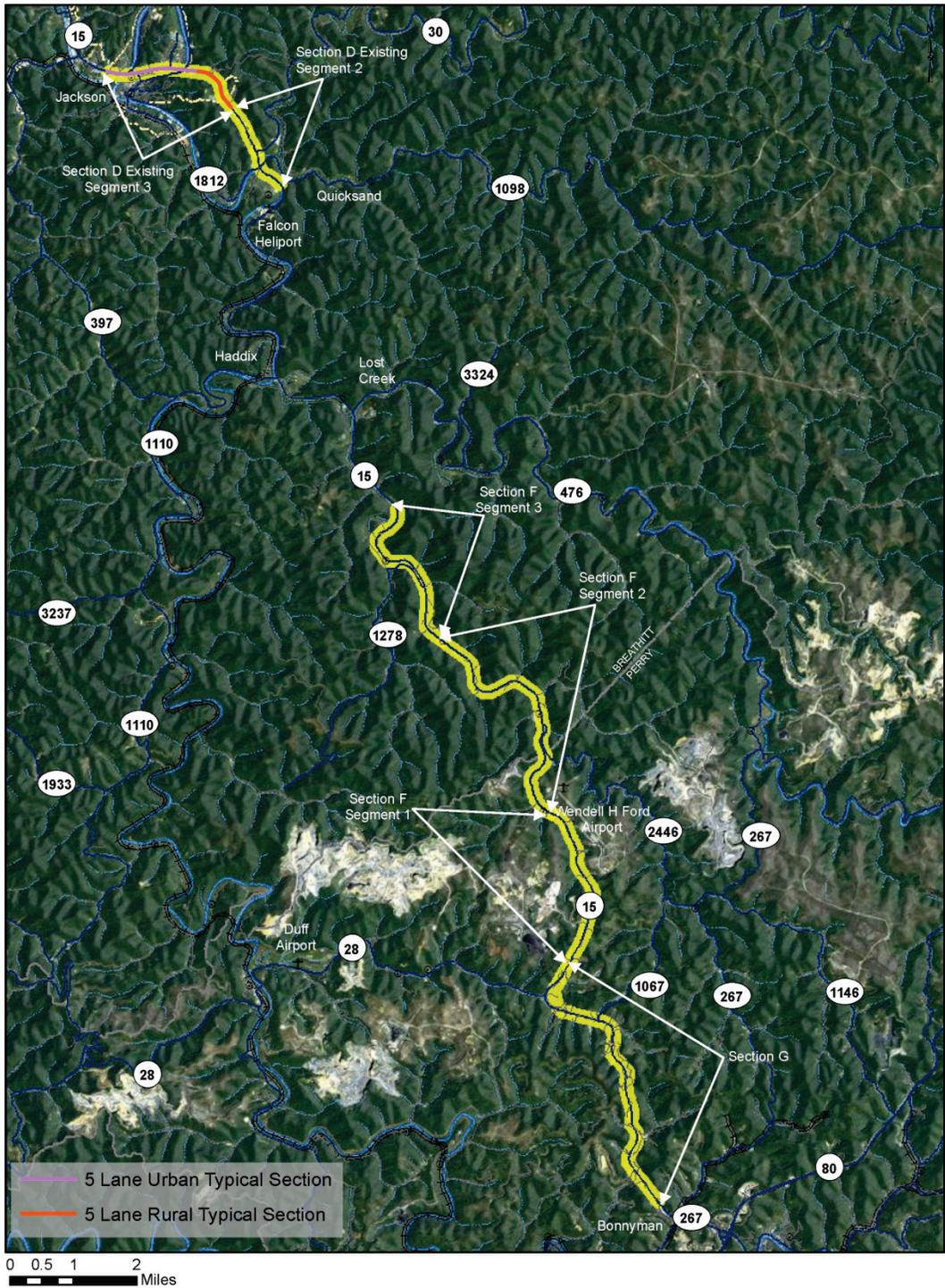


Figure 5: Priorities #1 through #6

is recommended for the next priority as a continuation of previously recommended improvements to the south. Estimated future year traffic volumes are 7,600 vehicles daily, and the current LOS is D. The CCRF for this segment is 0.24. The estimated cost of these improvements to Section E along the existing alignment is \$32.6 million, including \$27.8 million for the construction phase. Priorities #1 through #7 are shown in Figure 6.

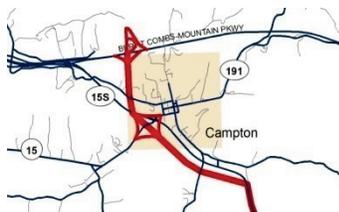
Priority #8

The eighth recommended priority is Segment 1 of Section D, on new alignment east of the existing KY 15 from approximately 300 feet north of KY 476 East to approximately one-half mile south of the intersection with KY 30 East, a distance of 3.90 miles. This improvement would be a 4-lane cross section with a 40-foot-wide median. The estimated cost of these improvements to Segment 1 of Section D on new alignment is \$47.4 million, including \$43.3 million for the construction phase. Though only modestly less costly than Segment 1 of Section D along the existing alignment (\$50.8 million estimated cost, including \$42.3 million for construction), the new alignment option reduces the travel distance for this segment by 1.29 miles. This segment is recommended as a continuation of previously recommended improvements to the south. Estimated future year traffic volumes are 8,500 vehicles daily, and the current LOS is E. The CCRF for this segment is 0.37. Priorities #1 through #8 are shown in Figure 7.

Priority #9

The ninth recommended priority is Segment 3 of Section A in Campton, along the existing alignment of from just south of current 3-lane section near MP 8.2 to the Mountain Parkway, a distance of 2.59 miles. This improvement would be a 5-lane curb-and-gutter cross-section. The estimated cost of this improvement is \$23.3 million, including \$19.4 million for the construction phase. The 1994 KY 15 Corridor Planning Study by WMB Engineers had considered a new alignment just south and west of existing KY 15 from near MP 8.2 south of Campton, a new interchange with existing KY 15 near MP 9.8, and a new interchange with the Mountain Parkway just east of the (then) partial interchange at MP 43. Public involvement during that study indicated this option was not popular, and improvements since constructed to the Mountain Parkway (and currently under construction) have reduced its practicality.

The WMB Study estimated the cost of the alternative for Segment 3 of Section A on new alignment would be 22% (\$5 million in 2012 dollars) more costly than improvements along the existing route. This segment is recommended because congestion through Campton would be the greatest cause of delay in the KY 15 Corridor following construction of the first eight priorities. Estimated future year traffic volumes range from 6,900 to 8,800 vehicles daily. The current LOS diminishes from C on the south end to D near the KY 15/KY 15S/KY 191 intersection. The CCRF for this segment ranges from 0.30 to 1.04. Priorities #1 through #9 are shown in Figure 8.



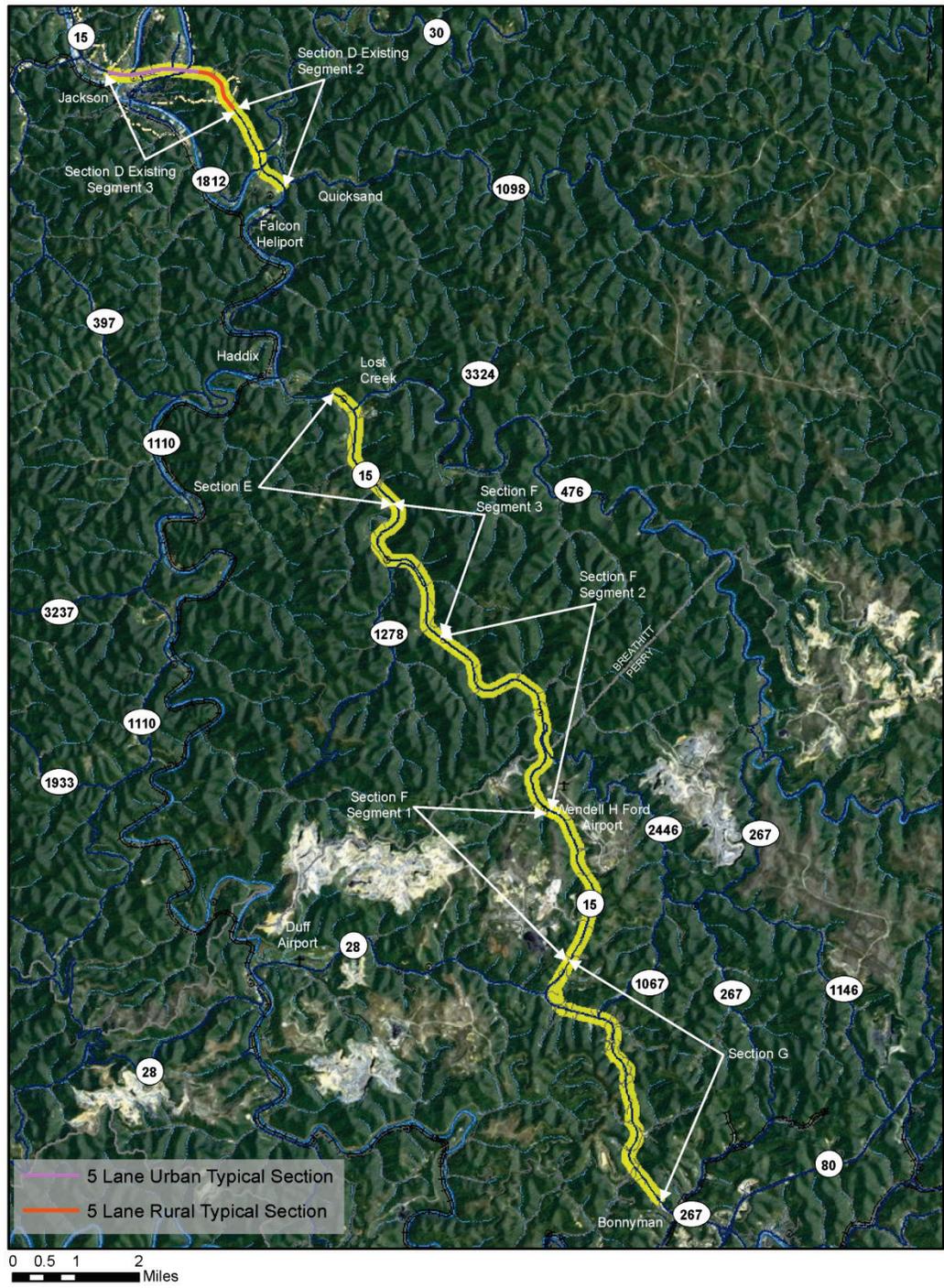


Figure 6: Priorities #1 through #7

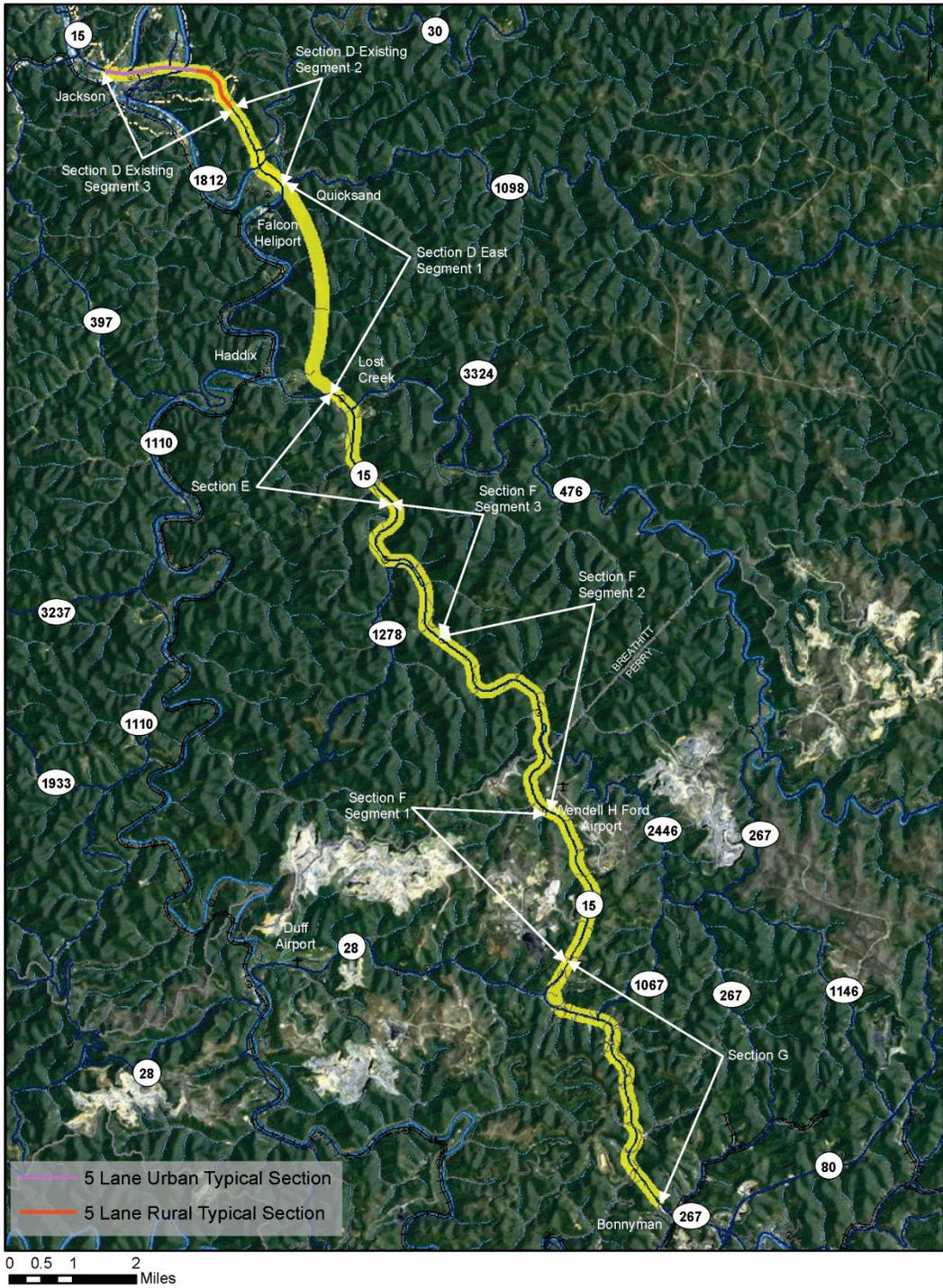


Figure 7: Priorities #1 through #8

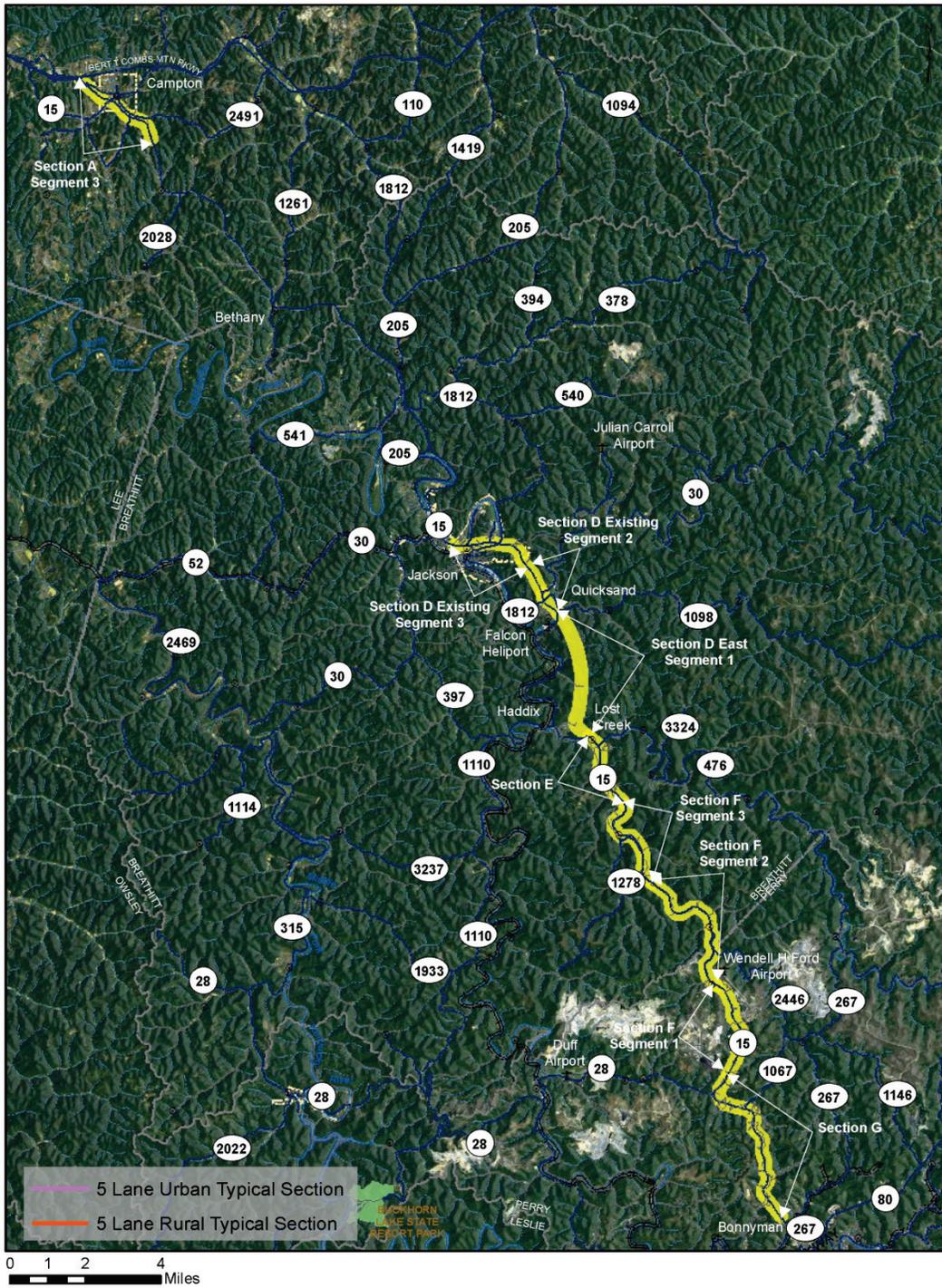


Figure 8: Priorities #1 through #9

Priority #10

The tenth recommended priority is Segment 3 of Section D, on new alignment east of existing KY 15 from just south of the Walmart Shopping Center to near the north end of the existing construction, a distance of 3.45 miles. This improvement would be a 4-lane cross section with a 40-foot-wide median. In the discussion above, recommended Priority #1 would improve existing KY 15 in this same vicinity to address (1) immediate congestion concerns and (2) the projection that construction of a Jackson bypass prior to major improvements between Hazard and Jackson would result in relatively low traffic volumes. Previous recommended priorities have included improvements to all sections between Hazard and the south side of Jackson. Thus, construction of a Jackson bypass would be appropriate at this stage. The estimated cost of these improvements to Segment 3 of Section D on a new alignment east of Jackson is \$82.9 million, including \$77 million for the construction phase. This is considerably less costly than improvements on a new alignment west of Jackson (\$133.8 million, including \$123.4 million for the construction phase), and is more compatible with Priorities #2 and #8 above. Priorities 1 through 10 are shown in Figure 9.

Priority #11

The eleventh recommended priority is Segment 2 of Section A, along the existing alignment from MP 2.9 north of Bethany in Wolfe County to the 5-lane curb-and-gutter segment in Priority #9, a distance of 5.25 miles. This improvement would be a 4-lane cross section with a 40-foot-wide median. Of the two remaining unprioritized segments, this one has a slightly higher projected daily traffic volume (5,400) than the one to the south discussed below (4,800). The estimated cost of these improvements to Segment 2 of Section A is \$44.7 million, including \$37.4 million for the construction phase. Priorities #1 through #11 are shown in Figure 10.

Priority #12

The twelfth and final recommended priority is Segment 1 of Section A, along the existing alignment from the north terminus of the existing 4-lane section at MP 24.4 near Vancleve in Breathitt County to MP 2.9 north of Bethany in Wolfe County, a distance of 4.93 miles. This improvement would be a 4-lane cross section with a 40-foot-wide median. The estimated cost of these improvements to Segment 2 of Section A is \$45.6 million, including \$38.6 million for the construction phase. Priorities #1 through #12 are shown in Figure 11.

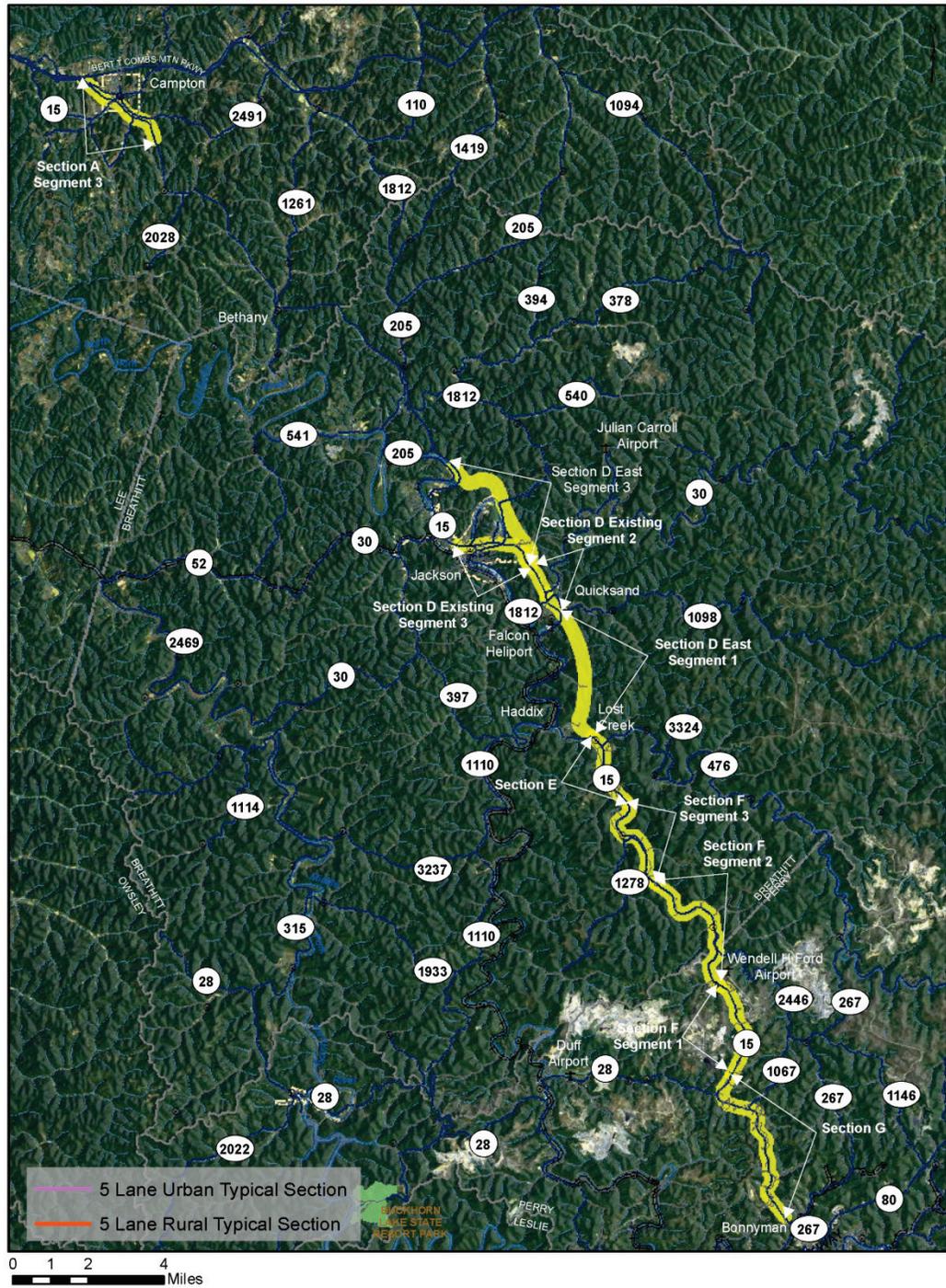


Figure 9: Priorities #1 through #10

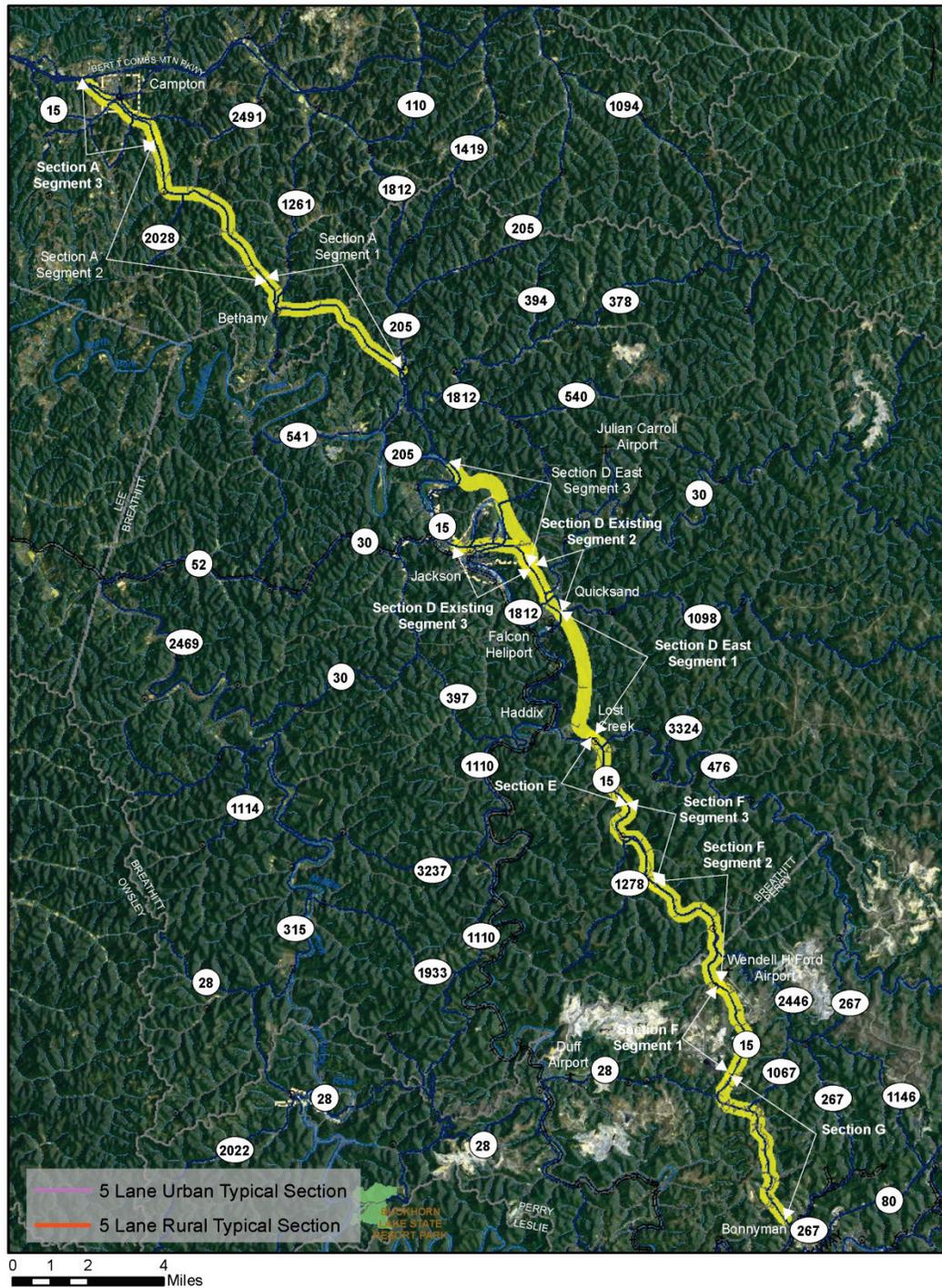


Figure 11: Priorities #1 through #12

RECOMMENDED PRIORITIES

Priority	County (ies)	Section	Segment	Description	Beginning MP	Ending MP	Length (Miles)	Cost Estimate (Millions)					Estimated Future Daily Traffic	Current CCRF	Current LOS
								Design	R/W	Util	Construction	Alternate Construction			
1	Breathitt	D Existing	3	From just south of Wal-mart Shopping Center to Existing Construction near Panbowl Road north of Jackson	15.6	17.9	2.3	\$1.6	\$5.3	\$1.0	\$16.1	\$33.7	21,000	1.15-1.67	E
2	Breathitt	D Existing	2	From a half-mile south of the intersection with KY 30 East to just south of Wal-mart shopping center	14.1	15.6	1.5	\$1.8	\$0.3	\$0.8	\$17.6		14,400	1.2	E
3	Perry	G Existing	All	Along existing alignment (except for a new KY 28 interchange) from near Capitol Hill Drive through new interchange at KY 28	16.9	21.5	4.5	\$3.2	\$6.3	\$1.2	\$40.1	\$56.1	13,800	0.61-0.82	E
4	Perry	F	1	Along existing alignment from new interchange at KY 28 to just north of Wendell Ford Airport entrance road	21.5	24.3	2.8	\$1.6	\$1.5	\$1.0	\$16.0		10,200	0.35	E
5	Breathitt/Perry	F	2	Along existing alignment from just north of Wendell Ford Airport Road entrance in Perry County to vicinity of Noble Road south of Watts in Breathitt County	24.3	3.0	3.9	\$2.5	\$2.7	\$1.3	\$29.5	\$53.7	7,600	0.35	D-E
6	Breathitt	F	3	Along existing alignment from vicinity of Noble Road south of Watts to approx 2.23 miles south of KY 476 East	3.0	5.4	2.4	\$2.3	\$1.6	\$0.9	\$24.2		7,600	0.35	D
7	Breathitt	E	All	Along existing alignment from approx 2.23 miles south of KY 476 East to approx 300 feet north of KY 476 East	5.4	7.7	2.3	\$2.5	\$1.5	\$0.8	\$27.8	\$27.8	7,600	0.24	D
8	Breathitt	D East	1	New alignment (east of existing) from approx 300 feet north of KY 476 East to a half-mile south of the intersection with KY 30 East	7.7	14.1**	3.9	\$3.5	\$0.6	\$0.1	\$43.3	\$43.3	8,500	0.37	E
9	Wolfe	A	3	5-lane Curb & Gutter segment in Campton from just south of current 3-lane section near MP 8.2 on KY 15 to KY 15S at the Mountain Parkway	8.2	1.1	2.6	\$1.8	\$1.6	\$1.0	\$17.9	\$17.9	6,900-8,800	0.30-1.04	C-D
10	Breathitt	D East	3	From just south of Wal-mart Shopping Center on new alignment east of existing KY 15 to near north end of existing construction	15.6**	17.9**	3.5	\$4.6	\$0.9	\$0.3	\$77.0	\$77.0	5,100	0.36	E*
11	Wolfe	A	2	Along existing alignment from approx MP 2.9 north of Bethany to 5-lane curb and gutter segment in priority 9 above	2.9	8.2	5.3	\$3.0	\$2.6	\$1.7	\$37.4	\$37.4	5,400	0.39	C
12	Breathitt/Wolfe	A	1	Along existing alignment from north end of existing 4-lane (MP 24.38 in Breathitt County) to approx MP 2.9 in Wolfe County north of Bethany	24.4	2.9	4.9	\$3.1	\$2.3	\$1.6	\$38.6	\$38.6	4,800	0.31-0.42	C

* Currently LOS E. If Priority 1 were to be constructed before Priority 8, the LOS would be B

** Milepoints of existing alignment. New alignment will result in milepoint modifications. Thus, length does not equal difference in milepoints.

APPENDIX C

SECTION A

SEGMENT 1

ESTIMATES

CONSTRUCTION

APPENDIX C

SECTION A

SEGMENT 1

ESTIMATES

RIGHT-OF-WAY

APPENDIX C

SECTION A

SEGMENT 2

ESTIMATES

CONSTRUCTION

APPENDIX C

SECTION A

SEGMENT 2

ESTIMATES

RIGHT-OF-WAY

APPENDIX C

SECTION A

SEGMENT 3

ESTIMATES

CONSTRUCTION

APPENDIX C

SECTION A

SEGMENT 3

ESTIMATES

RIGHT-OF-WAY

KY 15 PLANNING STUDY - SECTION A (Segment 3)

STA. 2537+50 to 2674+00

Median Width	Approximate Gross Proposed R/W		Approx. Ex. KY15 R/W Assume 80' Width		Approximate Net Prop. R/W Purchased		Acreage Cost @ \$500 (Dollar)	Residential		Business		TOTAL R/W COST (Dollar)
			KY15 Length (SF)	13650 (Acres)				Reloc. # (each)	Cost @ \$75,000 (Dollar)	Reloc. # (each)	Cost @ \$75,000 (Dollar)	
	(SF)	(Acres)										
40 ft	3,317,653	76.2	1,092,000	25.1	2,225,653	51.1	\$25,547	1	\$75,000	20	\$1,500,000	\$1,600,547
20 & 30ft	3,112,903	71.5	1,092,000	25.1	2,020,903	46.4	\$23,197	1	\$75,000	19	\$1,425,000	\$1,523,197
5L C&G	2,771,653	63.6	1,092,000	25.1	1,679,653	38.6	\$19,280	1	\$75,000	10	\$750,000	\$844,280

APPENDIX C

SECTION D

EAST

ESTIMATES

SEGMENT 1B

CONSTRUCTION

DEPARTMENT OF TRANSPORTATION

Bureau of Highways

ESTIMATE SHEET

County of: <u>Breathitt</u>	From STA: <u>838+50.00</u>
UPN _____	To STA: <u>1044+50.00</u>
Fed No. _____	Net Length, mile: <u>3.90</u>
Item No. _____	Type of Construction: <u>Grade, Drain & Surfacing</u>
Road Name: <u>KY 15 -East Section D Seg 1b (30ft Median)</u>	Class of Road: <u>Rural Arterial</u>

Item #	Item	Quantity	Unit	Unit Price	Amount
	Roadway Exc (Mainline)	7,087,699	CU YD	\$ 2.50	\$ 17,719,248
	Asph Surf CL3 (Mainline Driving Lanes)	7,553	TON	\$ 85.00	\$ 642,005
	Asph Base CL3 (Mainline Driving Lanes)	60,757	TON	\$ 80.00	\$ 4,860,560
	CS Base (Mainline Driving Lanes)	27,200	TON	\$ 16.00	\$ 435,200
	Asph Surf CL2 (Mainline Shoulders)	3,462	TON	\$ 85.00	\$ 294,270
	Asph Base CL2 (Mainline Shoulders)	9,001	TON	\$ 80.00	\$ 720,080
	CS Base (Mainline Shoulders)	72,210	TON	\$ 16.00	\$ 1,155,360
	Roadway Exc (Approaches/Entrances)	242,795	CU YD	\$ 2.50	\$ 606,988
	Asph Surf CL2 (Approach Rd Driving Lanes)	639	TON	\$ 85.00	\$ 54,315
	Asph Base CL2 (Approach Rd Driving Lanes)	2,196	TON	\$ 80.00	\$ 175,680
	CS Base (Approach Rd Driving Lanes)	2,292	TON	\$ 16.00	\$ 36,672
	Asph Surf (CL2 Approach Rd Shoulders)	103	TON	\$ 85.00	\$ 8,755
	Asph Base CL2 (Approach Rd Shoulders)	262	TON	\$ 80.00	\$ 20,960
	CS Base (Approach Rd Shoulders)	892	TON	\$ 16.00	\$ 14,272
	MISC ITEMS (@ 25%)				\$ 6,686,091
	868+35 ~ 5' x 4' RCBC		LP SUM		\$ 105,000
	879+00 ~ 10' x 6' RCBC		LP SUM		\$ 350,000
	934+40 ~ 12' x 8' RCBC		LP SUM		\$ 760,000
	936+50 ~ 12' x 6' RCBC		LP SUM		\$ 725,000
	1012+80 ~ 6' x 4' RCBC		LP SUM		\$ 200,000
	MOBILIZATION		@ 3%		\$ 1,067,114
	DEMOBILIZATION		@ 1.5%		\$ 533,557
Construction-SubTotal					\$ 37,171,127
+10 Engr & Contg					3,717,113
Construction-Total					\$ 40,888,239
Construction Cost/Mile					\$ 10,480,092

Estimated by: <u>D. Ford</u>	Last Edited: <u>12/1/2012</u>
Checked by: _____	Last Edited: _____

Right-of-way	\$555,329
Utilities	\$145,000
Construction	\$40,888,239
Total Cost	\$41,588,568
Cost/Mile	\$10,659,594

APPENDIX C

SECTION D

EAST

ESTIMATES

SEGMENT 1B

RIGHT-OF-WAY

APPENDIX C

SECTION D

EAST

ESTIMATES

SEGMENT 2

CONSTRUCTION

APPENDIX C

SECTION D

EAST

ESTIMATES

SEGMENT 2

RIGHT-OF-WAY

APPENDIX C

SECTION D

EAST

ESTIMATES

SEGMENT 3B

CONSTRUCTION

APPENDIX C

SECTION D

EAST

ESTIMATES

SEGMENT 3B

RIGHT-OF-WAY

APPENDIX C

SECTION D

EXISTING ALIGNMENT

SEGMENT 1A

ESTIMATES

CONSTRUCTION

APPENDIX C

SECTION D

EXISTING ALIGNMENT

SEGMENT 1A

ESTIMATES

RIGHT-OF-WAY

APPENDIX C

SECTION D

EXISTING ALIGNMENT

SEGMENT 2

ESTIMATES

CONSTRUCTION

APPENDIX C

SECTION D

EXISTING ALIGNMENT

SEGMENT 2

ESTIMATES

RIGHT-OF-WAY

APPENDIX C

SECTION D

EXISTING ALIGNMENT

SEGMENT 3A

ESTIMATES

CONSTRUCTION

APPENDIX C

SECTION D

EXISTING ALIGNMENT

SEGMENT 3A

ESTIMATES

RIGHT-OF-WAY

APPENDIX C

SECTION D

WEST

ESTIMATES

CONSTRUCTION

DEPARTMENT OF TRANSPORTATION

Bureau of Highways

ESTIMATE SHEET

County of: <u>Breathitt</u>	From STA: <u>838+50.00</u>
UPN _____	To STA: <u>1206+50.64</u>
Fed No. _____	Net Length, mile: <u>6.97</u>
Item No. _____	Type of Construction: <u>Grade, Drain & Surfacing</u>
Road Name: <u>KY 15 - West Section D (20ft Median)</u>	Class of Road: <u>Rural Arterial</u>

Item #	Item	Quantity	Unit	Unit Price	Amount
	Roadway Exc (Mainline)	13,574,406	CU YD	\$ 2.50	\$ 33,936,015
	Asph Surf CL3 (Mainline Driving Lanes)	13,655	TON	\$ 85.00	\$ 1,160,675
	Asph Base CL3 (Mainline Driving Lanes)	109,667	TON	\$ 80.00	\$ 8,773,360
	CS Base (Mainline Driving Lanes)	48,992	TON	\$ 16.00	\$ 783,872
	Asph Surf CL2 (Mainline Shoulders)	9,979	TON	\$ 85.00	\$ 848,215
	Asph Base CL2 (Mainline Shoulders)	25,945	TON	\$ 80.00	\$ 2,075,600
	CS Base (Mainline Shoulders)	126,164	TON	\$ 16.00	\$ 2,018,624
	Roadway Exc (Ramps)	50,474	CU YD	\$ 2.50	\$ 126,185
	Asph Surf CL3 (Ramps)	181	TON	\$ 85.00	\$ 15,385
	Asph Base CL3 (Ramps)	1,460	TON	\$ 80.00	\$ 116,800
	CS Base (Ramps)	658	TON	\$ 16.00	\$ 10,528
	Asph Surf CL2 (Ramp Shoulders)	66	TON	\$ 85.00	\$ 5,610
	Asph Base CL2 (Ramp Shoulders)	170	TON	\$ 80.00	\$ 13,600
	CS Base (Ramp Shoulders)	1,226	TON	\$ 16.00	\$ 19,616
	Roadway Exc (Approaches/Entrances)	283,068	CU YD	\$ 2.50	\$ 707,670
	Asph Surf CL2 (Approach Rd Driving Lanes)	910	TON	\$ 85.00	\$ 77,350
	Asph Base CL2 (Approach Rd Driving Lanes)	4,159	TON	\$ 80.00	\$ 332,720
	CS Base (Approach Rd Driving Lanes)	3,267	TON	\$ 16.00	\$ 52,272
	Asph Surf (CL2 Approach Rd Shoulders)	35	TON	\$ 85.00	\$ 2,975
	Asph Base CL2 (Approach Rd Shoulders)	84	TON	\$ 80.00	\$ 6,720
	CS Base (Approach Rd Shoulders)	291	TON	\$ 16.00	\$ 4,656
	Concrete Median Barrier	35,350	LF	\$ 55.00	\$ 1,944,250
	MISC ITEMS (@ 25%)				\$ 13,258,175
	Mainline Bridges (Sta. 961+04)	55,660	SQ FT	\$ 175.00	\$ 9,740,500
	Mainline Bridges (Sta. 1179+55)	15,180	SQ FT	\$ 175.00	\$ 2,656,500
	Mainline Bridges (Sta. 1190+02)	89,240	SQ FT	\$ 175.00	\$ 15,617,000
	Ramp A	18,246	SQ FT	\$ 175.00	\$ 3,193,050
	Ramp D	25,400	SQ FT	\$ 175.00	\$ 4,445,000
	868+35 ~ 5' x 4' RCBC		LP SUM		\$ 107,500
	878+80 ~ 10' x 6' RCBC		LP SUM		\$ 355,000
	977+60 ~ 8' x 6' RCBC		LP SUM		\$ 240,000
	1048+68 ~ 24' x 10' 3-Sided Arch Culvert		LP SUM		\$ 1,200,000
	1082+59 ~ 12' x 10' RCBC		LP SUM		\$ 1,035,000
	1119+74 ~ 6' x 4' RCBC		LP SUM		\$ 95,000
	1155+20 ~ 6' x 5' RCBC		LP SUM		\$ 225,000
	MOBILIZATION		@ 3%		\$ 3,156,013
	DEMOBILIZATION		@ 1.5%		\$ 1,578,006
Construction-SubTotal					\$ 109,934,442
+10 Engr & Contg					10,993,444
Construction-Total					\$ 120,927,886
Construction Cost/Mile					\$ 17,350,221

Estimated by: D. Ford
 Checked by: _____

Last Edited: 11/26/2012
 Last Edited: _____

Right-of-way	\$2,573,407
Utilities	\$860,000
Construction	\$120,927,886
Total Cost	\$124,361,293
Cost/Mile	\$17,842,832

DEPARTMENT OF TRANSPORTATION

Bureau of Highways

ESTIMATE SHEET

County of: <u>Breathitt</u>	From STA: <u>838+50.00</u>
UPN _____	To STA: <u>1206+50.64</u>
Fed No. _____	Net Length, mile: <u>6.97</u>
Item No. _____	Type of Construction: <u>Grade, Drain & Surfacing</u>
Road Name: <u>KY 15 - West Section D (30ft Median)</u>	Class of Road: <u>Rural Arterial</u>

Item #	Item	Quantity	Unit	Unit Price	Amount
	Roadway Exc (Mainline)	13,175,670	CU YD	\$ 2.50	\$ 32,939,175
	Asph Surf CL3 (Mainline Driving Lanes)	13,655	TON	\$ 85.00	\$ 1,160,675
	Asph Base CL3 (Mainline Driving Lanes)	109,667	TON	\$ 80.00	\$ 8,773,360
	CS Base (Mainline Driving Lanes)	48,992	TON	\$ 16.00	\$ 783,872
	Asph Surf CL2 (Mainline Shoulders)	5,870	TON	\$ 85.00	\$ 498,950
	Asph Base CL2 (Mainline Shoulders)	15,263	TON	\$ 80.00	\$ 1,221,040
	CS Base (Mainline Shoulders)	122,163	TON	\$ 16.00	\$ 1,954,608
	Roadway Exc (Ramps)	50,474	CU YD	\$ 2.50	\$ 126,185
	Asph Surf CL3 (Ramps)	181	TON	\$ 85.00	\$ 15,385
	Asph Base CL3 (Ramps)	1,460	TON	\$ 80.00	\$ 116,800
	CS Base (Ramps)	658	TON	\$ 16.00	\$ 10,528
	Asph Surf CL2 (Ramp Shoulders)	66	TON	\$ 85.00	\$ 5,610
	Asph Base CL2 (Ramp Shoulders)	170	TON	\$ 80.00	\$ 13,600
	CS Base (Ramp Shoulders)	1,226	TON	\$ 16.00	\$ 19,616
	Roadway Exc (Approaches/Entrances)	283,068	CU YD	\$ 2.50	\$ 707,670
	Asph Surf CL2 (Approach Rd Driving Lanes)	910	TON	\$ 85.00	\$ 77,350
	Asph Base CL2 (Approach Rd Driving Lanes)	4,159	TON	\$ 80.00	\$ 332,720
	CS Base (Approach Rd Driving Lanes)	3,267	TON	\$ 16.00	\$ 52,272
	Asph Surf (CL2 Approach Rd Shoulders)	35	TON	\$ 85.00	\$ 2,975
	Asph Base CL2 (Approach Rd Shoulders)	84	TON	\$ 80.00	\$ 6,720
	CS Base (Approach Rd Shoulders)	291	TON	\$ 16.00	\$ 4,656
	MISC ITEMS (@ 25%)				\$ 12,205,942
	Mainline Bridges (Sta. 961+04)	47,190	SQ FT	\$ 200.00	\$ 9,438,000
	Mainline Bridges (Sta. 1179+55)	12,870	SQ FT	\$ 200.00	\$ 2,574,000
	Mainline Bridges (Sta. 1190+02)	75,660	SQ FT	\$ 200.00	\$ 15,132,000
	Ramp A	15,469	SQ FT	\$ 200.00	\$ 3,093,800
	Ramp D	21,535	SQ FT	\$ 200.00	\$ 4,307,000
	868+35 ~ 5' x 4' RCBC		LP SUM		\$ 110,000
	878+80 ~ 10' x 6' RCBC		LP SUM		\$ 360,000
	977+60 ~ 8' x 6' RCBC		LP SUM		\$ 245,000
	1048+68 ~ 24' x 10' 3-Sided Arch Culvert		LP SUM		\$ 1,225,000
	1082+59 ~ 12' x 10' RCBC		LP SUM		\$ 1,050,000
	1119+74 ~ 6' x 4' RCBC		LP SUM		\$ 97,500
	1155+20 ~ 6' x 5' RCBC		LP SUM		\$ 227,500
	MOBILIZATION		@ 3%		\$ 2,966,685
	DEMOBILIZATION		@ 1.5%		\$ 1,483,343
	Construction-SubTotal				\$ 103,339,537
	+10 Engr & Contg				10,333,954
	Construction-Total				\$ 113,673,490
	Construction Cost/Mile				\$ 16,309,391

Estimated by: D. Ford
 Checked by: _____

Last Edited: 11/26/2012
 Last Edited: _____

Right-of-way	\$2,573,407
Utilities	\$860,000
Construction	\$113,673,490
Total Cost	\$117,106,897
Cost/Mile	\$16,802,002

DEPARTMENT OF TRANSPORTATION

Bureau of Highways

ESTIMATE SHEET

County of: <u>Breathitt</u>	From STA: <u>838+50.00</u>
UPN: _____	To STA: <u>1206+50.64</u>
Fed No.: _____	Net Length, mile: <u>6.97</u>
Item No.: _____	Type of Construction: <u>Grade, Drain & Surfacing</u>
Road Name: <u>KY 15 - West Section D (40ft Median)</u>	Class of Road: <u>Rural Arterial</u>

Item #	Item	Quantity	Unit	Unit Price	Amount
	Roadway Exc (Mainline)	14,740,272	CU YD	\$ 2.50	\$ 36,850,680
	Asph Surf CL3 (Mainline Driving Lanes)	13,655	TON	\$ 85.00	\$ 1,160,675
	Asph Base CL3 (Mainline Driving Lanes)	109,667	TON	\$ 80.00	\$ 8,773,360
	CS Base (Mainline Driving Lanes)	48,992	TON	\$ 16.00	\$ 783,872
	Asph Surf CL2 (Mainline Shoulders)	7,470	TON	\$ 85.00	\$ 634,950
	Asph Base CL2 (Mainline Shoulders)	19,422	TON	\$ 80.00	\$ 1,553,760
	CS Base (Mainline Shoulders)	136,077	TON	\$ 16.00	\$ 2,177,232
	Roadway Exc (Ramps)	50,474	CU YD	\$ 2.50	\$ 126,185
	Asph Surf CL3 (Ramps)	181	TON	\$ 85.00	\$ 15,385
	Asph Base CL3 (Ramps)	1,460	TON	\$ 80.00	\$ 116,800
	CS Base (Ramps)	658	TON	\$ 16.00	\$ 10,528
	Asph Surf CL2 (Ramp Shoulders)	66	TON	\$ 85.00	\$ 5,610
	Asph Base CL2 (Ramp Shoulders)	170	TON	\$ 80.00	\$ 13,600
	CS Base (Ramp Shoulders)	1,226	TON	\$ 16.00	\$ 19,616
	Roadway Exc (Approaches/Entrances)	283,068	CU YD	\$ 2.50	\$ 707,670
	Asph Surf CL2 (Approach Rd Driving Lanes)	910	TON	\$ 85.00	\$ 77,350
	Asph Base CL2 (Approach Rd Driving Lanes)	4,159	TON	\$ 80.00	\$ 332,720
	CS Base (Approach Rd Driving Lanes)	3,267	TON	\$ 16.00	\$ 52,272
	Asph Surf (CL2 Approach Rd Shoulders)	35	TON	\$ 85.00	\$ 2,975
	Asph Base CL2 (Approach Rd Shoulders)	84	TON	\$ 80.00	\$ 6,720
	CS Base (Approach Rd Shoulders)	291	TON	\$ 16.00	\$ 4,656
	MISC ITEMS (@ 25%)				\$ 13,356,654
	Mainline Bridges (Sta. 961+04)	50,820	SQ FT	\$ 200.00	\$ 10,164,000
	Mainline Bridges (Sta. 1179+55)	13,860	SQ FT	\$ 200.00	\$ 2,772,000
	Mainline Bridges (Sta. 1190+02)	81,480	SQ FT	\$ 200.00	\$ 16,296,000
	Ramp A	16,659	SQ FT	\$ 200.00	\$ 3,331,800
	Ramp D	23,192	SQ FT	\$ 200.00	\$ 4,638,400
	868+35 ~ 5' x 4' RCBC		LP SUM		\$ 112,500
	878+80 ~ 10' x 6' RCBC		LP SUM		\$ 365,000
	977+60 ~ 8' x 6' RCBC		LP SUM		\$ 250,000
	1048+68 ~ 24' x 10' 3-Sided Arch Culvert		LP SUM		\$ 1,245,000
	1082+59 ~ 12' x 10' RCBC		LP SUM		\$ 1,060,000
	1119+74 ~ 6' x 4' RCBC		LP SUM		\$ 100,000
	1155+20 ~ 6' x 5' RCBC		LP SUM		\$ 230,000
	MOBILIZATION		@ 3%		\$ 3,220,439
	DEMOBILIZATION		@ 1.5%		\$ 1,610,220
	Construction-SubTotal				\$ 112,178,629
	+10 Engr & Contg				11,217,863
	Construction-Total				\$ 123,396,492
	Construction Cost/Mile				\$ 17,704,406

Estimated by: D. Ford
 Checked by: _____

Last Edited: 11/12/2012
 Last Edited: _____

Right-of-way	\$2,804,787
Utilities	\$860,000
Construction	<u>\$123,396,492</u>
Total Cost	\$127,061,279
Cost/Mile	\$18,230,214

APPENDIX C

SECTION D

WEST

ESTIMATES

RIGHT-OF-WAY

KY 15 PLANNING STUDY - West SECTION D

STA. 838+50 to 1209+00

Median Width	Approximate Gross Proposed R/W		Approx. Ex. KY15 R/W Assume 80' Width		Approximate Net Prop. R/W Purchased		Acreage Cost @ \$500 (Dollar)	Residential		Business		TOTAL R/W COST (Dollar)
			KY15 Length (SF)	0 (Acres)				Reloc. # (each)	Cost @ \$75,000 (Dollar)	Reloc. # (each)	Cost @ \$75,000 (Dollar)	
	(SF)	(Acres)										
40 ft	15,663,005	359.6	0	0.0	15,663,005	359.6	\$179,787	26	\$1,950,000	9	\$675,000	\$2,804,787
20 & 30ft	15,107,255	346.8	0	0.0	15,107,255	346.8	\$173,407	24	\$1,800,000	8	\$600,000	\$2,573,407

APPENDIX C

SECTION D

WEST ALTERNATIVE 2

SEGMENT 1

ESTIMATES

CONSTRUCTION

APPENDIX C

SECTION D

WEST ALTERNATIVE 2

SEGMENT 1

ESTIMATES

RIGHT-OF-WAY

APPENDIX C

SECTION D

WEST ALTERNATIVE 2

SEGMENT 2

ESTIMATES

CONSTRUCTION

APPENDIX C

SECTION D

WEST ALTERNATIVE 2

SEGMENT 2

ESTIMATES

RIGHT-OF-WAY

APPENDIX C

SECTION E

ESTIMATES

CONSTRUCTION

DEPARTMENT OF TRANSPORTATION

Bureau of Highways

ESTIMATE SHEET

County of: <u>Breathitt</u>	From STA: <u>717+50.00</u>
UPN _____	To STA: <u>838+50.00</u>
Fed No. _____	Net Length, mile: <u>2.29</u>
Item No. _____	Type of Construction: <u>Grade, Drain & Surfacing</u>
Road Name: <u>KY 15 - West Section E (20ft Median)</u>	Class of Road: <u>Rural Arterial</u>

Item #	Item	Quantity	Unit	Unit Price	Amount
	Roadway Exc (Mainline)	656,260	CU YD	\$ 3.25	\$ 2,132,845
	Asph Surf CL3 (Mainline Driving Lanes)	4,201	TON	\$ 85.00	\$ 357,085
	Asph Base CL3 (Mainline Driving Lanes)	33,764	TON	\$ 80.00	\$ 2,701,120
	CS Base (Mainline Driving Lanes)	15,098	TON	\$ 16.00	\$ 241,568
	Asph Surf CL2 (Mainline Shoulders)	3,159	TON	\$ 85.00	\$ 268,515
	Asph Base CL2 (Mainline Shoulders)	8,214	TON	\$ 80.00	\$ 657,120
	CS Base (Mainline Shoulders)	39,967	TON	\$ 16.00	\$ 639,472
	Roadway Exc (Approaches/Entrances)	166,735	CU YD	\$ 3.25	\$ 541,889
	Asph Surf CL2 (Approach Rd Driving Lanes)	913	TON	\$ 85.00	\$ 77,605
	Asph Base CL2 (Approach Rd Driving Lanes)	3,378	TON	\$ 80.00	\$ 270,240
	CS Base (Approach Rd Driving Lanes)	3,235	TON	\$ 16.00	\$ 51,760
	Asph Surf (CL2 Approach Rd Shoulders)		TON	\$ 85.00	\$ -
	Asph Base CL2 (Approach Rd Shoulders)		TON	\$ 80.00	\$ -
	CS Base (Approach Rd Shoulders)		TON	\$ 16.00	\$ -
	Concrete Median Barrier	11,150	LF	\$ 55.00	\$ 613,250
	MISC ITEMS (@ 25%)				\$ 2,138,117
	Mainline Bridges (Sta. 771+80)	25,300	SQ FT	\$ 175.00	\$ 4,427,500
	Mainline Bridges (Sta. 782+53)	26,496	SQ FT	\$ 175.00	\$ 4,636,800
	Mainline Bridges (Sta. 831+81)	23,000	SQ FT	\$ 175.00	\$ 4,025,000
	749+50 ~ 6' x 5' RCBC		LP SUM		\$ 60,000
	761+76 ~ 6' x 5' RCBC		LP SUM		\$ 65,000
	Appr 763+00 Rt. ~ 5' x 5' RCBC		LP SUM		\$ 35,000
	801+40 ~ 6' x 5' RCBC		LP SUM		\$ 65,000
	MOBILIZATION		@ 3%		\$ 720,147
	DEMOBILIZATION		@ 1.5%		\$ 360,073
	Construction-SubTotal				\$ 25,085,106
	+10 Engr & Contg				2,508,511
	Construction-Total				\$ 27,593,617
	Construction Cost/Mile				\$ 12,040,851

Estimated by: D. Ford
 Checked by: _____

Last Edited: 11/26/2012
 Last Edited: _____

Right-of-way	\$1,078,739
Utilities	\$830,000
Construction	\$27,593,617
Total Cost	\$29,502,356
Cost/Mile	\$12,873,755

APPENDIX C

SECTION E

ESTIMATES

RIGHT-OF-WAY

APPENDIX C

SECTION F

SEGMENT 1

ESTIMATES

CONSTRUCTION

APPENDIX C

SECTION F

SEGMENT 1

ESTIMATES

RIGHT-OF-WAY

APPENDIX C

SECTION F

SEGMENT 2

ESTIMATES

CONSTRUCTION

APPENDIX C

SECTION F

SEGMENT 2

ESTIMATES

RIGHT-OF-WAY

APPENDIX C

SECTION F

SEGMENT 3

ESTIMATES

CONSTRUCTION

APPENDIX C

SECTION F

SEGMENT 3

ESTIMATES

RIGHT-OF-WAY

APPENDIX C

SECTION G

EXISTING ALIGNMENT

ESTIMATES

CONSTRUCTION

APPENDIX C

SECTION G

EXISTING ALIGNMENT

ESTIMATES

RIGHT-OF-WAY

APPENDIX C

SECTION G

WEST

ESTIMATES

CONSTRUCTION

DEPARTMENT OF TRANSPORTATION

Bureau of Highways

ESTIMATE SHEET

County of: <u>Perry</u>	From STA: <u>+00</u>
UPN: _____	To STA: <u>228+50.00</u>
Fed No.: _____	Net Length, mile: <u>4.33</u>
Item No.: _____	Type of Construction: <u>Grade, Drain & Surfacing</u>
Road Name: <u>KY 15 - West Section G (20ft Median)</u>	Class of Road: <u>Rural Arterial</u>

Item #	Item	Quantity	Unit	Unit Price	Amount
	Roadway Exc (Mainline)	5,705,598	CU YD	\$ 2.50	\$ 14,263,995
	Asph Surf CL3 (Mainline Driving Lanes)	8,133	TON	\$ 85.00	\$ 691,305
	Asph Base CL3 (Mainline Driving Lanes)	65,419	TON	\$ 80.00	\$ 5,233,520
	CS Base (Mainline Driving Lanes)	29,285	TON	\$ 16.00	\$ 468,560
	Asph Surf CL2 (Mainline Shoulders)	6,253	TON	\$ 85.00	\$ 531,505
	Asph Base CL2 (Mainline Shoulders)	16,259	TON	\$ 80.00	\$ 1,300,720
	CS Base (Mainline Shoulders)	78,963	TON	\$ 16.00	\$ 1,263,408
	Roadway Exc (Appr/Entrances/Ramps)	192,235	CU YD	\$ 2.50	\$ 480,588
	Asph Surf CL2 (Approach Rd Driving Lanes)	1,207	TON	\$ 85.00	\$ 102,595
	Asph Base CL2 (Approach Rd Driving Lanes)	6,234	TON	\$ 80.00	\$ 498,720
	CS Base (Approach Rd Driving Lanes)	4,305	TON	\$ 16.00	\$ 68,880
	Asph Surf (CL2 Approach Rd Shoulders)	78	TON	\$ 85.00	\$ 6,630
	Asph Base CL2 (Approach Rd Shoulders)	188	TON	\$ 80.00	\$ 15,040
	CS Base (Approach Rd Shoulders)	655	TON	\$ 16.00	\$ 10,480
	Asph Surf CL3 (Ramp Driving Lanes)	585	TON	\$ 85.00	\$ 49,725
	Asph Base CL3 (Ramp Driving Lanes)	4,695	TON	\$ 80.00	\$ 375,600
	CS Base (Ramp Driving Lanes)	2,094	TON	\$ 16.00	\$ 33,504
	Asph Surf CL2 (Ramp Shoulders)	208	TON	\$ 85.00	\$ 17,680
	Asph Base CL2 (Ramp Shoulders)	539	TON	\$ 80.00	\$ 43,120
	CS Base (Ramp Shoulders)	4,281	TON	\$ 16.00	\$ 68,496
	Concrete Median Barrier	22,850	LF	\$ 55.00	\$ 1,256,750
	MISC ITEMS (@ 25%)				\$ 6,695,205
	Mainline Bridges (Sta. 195+62)	48,944	SQ FT	\$ 175.00	\$ 8,565,200
	Mainline Bridges (Sta. 208+63)	16,468	SQ FT	\$ 175.00	\$ 2,881,900
	30+55 ~ 14' x 10'		LP SUM		\$ 570,000
	195+65 ~ 14' x 10' RCBC		LP SUM		\$ 660,000
	220+08 ~ 10' x 6' RCBC		LP SUM		\$ 300,000
	MOBILIZATION		@ 3%		\$ 1,393,594
	DEMOBILIZATION		@ 1.5%		\$ 696,797
	Construction-SubTotal				\$ 48,543,517
	+10 Engr & Contg				4,854,352
	Construction-Total				\$ 53,397,869
	Construction Cost/Mile				\$ 12,338,764

Estimated by: D. Ford
 Checked by: _____

Last Edited: 11/21/2012
 Last Edited: _____

Right-of-way	\$2,571,883
Utilities	\$1,155,000
Construction	\$53,397,869
Total Cost	\$57,124,752
Cost/Mile	\$13,199,943

DEPARTMENT OF TRANSPORTATION

Bureau of Highways

ESTIMATE SHEET

County of: <u>Perry</u>	From STA: <u>+1.00</u>
UPN _____	To STA: <u>228+50.00</u>
Fed No. _____	Net Length, mile: <u>4.33</u>
Item No. _____	Type of Construction: <u>Grade, Drain & Surfacing</u>
Road Name: <u>KY 15 - West Section G (40ft Median)</u>	Class of Road: <u>Rural Arterial</u>

Item #	Item	Quantity	Unit	Unit Price	Amount
	Roadway Exc (Mainline)	6,280,931	CU YD	\$ 2.50	\$ 15,702,328
	Asph Surf CL3 (Mainline Driving Lanes)	8,133	TON	\$ 85.00	\$ 691,305
	Asph Base CL3 (Mainline Driving Lanes)	65,419	TON	\$ 80.00	\$ 5,233,520
	CS Base (Mainline Driving Lanes)	29,285	TON	\$ 16.00	\$ 468,560
	Asph Surf CL2 (Mainline Shoulders)	4,669	TON	\$ 85.00	\$ 396,865
	Asph Base CL2 (Mainline Shoulders)	12,139	TON	\$ 80.00	\$ 971,120
	CS Base (Mainline Shoulders)	85,223	TON	\$ 16.00	\$ 1,363,568
	Roadway Exc (Appr/Entrances/Ramps)	192,235	CU YD	\$ 2.50	\$ 480,588
	Asph Surf CL2 (Approach Rd Driving Lanes)	1,207	TON	\$ 85.00	\$ 102,595
	Asph Base CL2 (Approach Rd Driving Lanes)	6,234	TON	\$ 80.00	\$ 498,720
	CS Base (Approach Rd Driving Lanes)	4,305	TON	\$ 16.00	\$ 68,880
	Asph Surf (CL2 Approach Rd Shoulders)	78	TON	\$ 85.00	\$ 6,630
	Asph Base CL2 (Approach Rd Shoulders)	188	TON	\$ 80.00	\$ 15,040
	CS Base (Approach Rd Shoulders)	655	TON	\$ 16.00	\$ 10,480
	Asph Surf CL3 (Ramp Driving Lanes)	585	TON	\$ 85.00	\$ 49,725
	Asph Base CL3 (Ramp Driving Lanes)	4,695	TON	\$ 80.00	\$ 375,600
	CS Base (Ramp Driving Lanes)	2,094	TON	\$ 16.00	\$ 33,504
	Asph Surf CL2 (Ramp Shoulders)	208	TON	\$ 85.00	\$ 17,680
	Asph Base CL2 (Ramp Shoulders)	539	TON	\$ 80.00	\$ 43,120
	CS Base (Ramp Shoulders)	4,281	TON	\$ 16.00	\$ 68,496
	MISC ITEMS (@ 25%)				\$ 6,649,581
	Mainline Bridges (Sta. 195+62)	44,688	SQ FT	\$ 200.00	\$ 8,937,600
	Mainline Bridges (Sta. 208+63)	15,036	SQ FT	\$ 200.00	\$ 3,007,200
	30+55 ~ 14' x 10'		LP SUM		\$ 600,000
	195+65 ~ 14' x 10' RCBC		LP SUM		\$ 690,000
	220+08 ~ 10' x 6' RCBC		LP SUM		\$ 315,000
	MOBILIZATION		@ 3%		\$ 1,403,931
	DEMOBILIZATION		@ 1.5%		\$ 701,966
Construction-SubTotal					\$ 48,903,602
+10 Engr & Contg					4,890,360
Construction-Total					\$ 53,793,962
Construction Cost/Mile					\$ 12,430,834

Estimated by: D. Ford
 Checked by: _____

Last Edited: 11/12/2012
 Last Edited: _____

Right-of-way **\$2,800,817**
Utilities **\$1,155,000**
Construction **\$53,793,962**
Total Cost **\$57,749,779**
Cost/Mile **\$13,344,953**

APPENDIX C

SECTION G

WEST

ESTIMATES

RIGHT-OF-WAY

KY 15 PLANNING STUDY - West SECTION G

STA. + to 228+50

Median Width	Approximate Gross Proposed R/W		Approx. Ex. KY15 R/W Assume 80' Width		Approximate Net Prop. R/W Purchased		Acreage Cost @ \$500 (Dollar)	Residential		Business		TOTAL R/W COST (Dollar)
			KY15 Length (SF)	6085 (Acres)				Reloc. # (each)	Cost @ \$75,000 (Dollar)	Reloc. # (each)	Cost @ \$75,000 (Dollar)	
	(SF)	(Acres)										
40 ft	9,269,981	212.8	486,800	11.2	8,783,181	201.6	\$100,817	23	\$1,725,000	13	\$975,000	\$2,800,817
20 & 30ft	8,927,231	204.9	486,800	11.2	8,440,431	193.8	\$96,883	21	\$1,575,000	12	\$900,000	\$2,571,883