

KY 44 Alternate Study

Shepherdsville to Mount Washington

Bullitt County
Item No. 05-150.00



Prepared by:
Kentucky Transportation Cabinet
Department of Highways
District 5, Planning

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Executive Summary

The Bullitt County – KY 44 Alternate Study, prepared by the Kentucky Transportation Cabinet, analyzes the KY 44 Transportation Corridor between Shepherdsville and Mount Washington. Traffic, vehicle collision, roadway geometry, and land use data were collected, Wilbur Smith Associates completed an environmental overview for the project area, and future traffic volumes and land uses were estimated and presented to the public. Public and Transportation Cabinet input was used to develop project goals, identify alternatives, and create a project implementation plan for the corridor.

KY 44 is the only highway corridor connecting the cities of Shepherdsville and Mount Washington. The general area in the past has been of a rural nature, but has been slowly developing an urban character with the addition of more subdivisions and businesses. Issues associated with this corridor are as follows:

- The majority of the existing facility is rural two-lane with high traffic volumes and frequent heavy delays;
- Several locations on the corridor have high occurrences of traffic crashes;
- Emergency vehicles are often forced to block both directions of travel when responding to a crash;
- This area of Bullitt Co. is one of the fastest growing areas in the state.

The KYTC District 05 Planning office undertook this study with the following goals and objectives:

- Address safety and crash concerns - The Critical Rate Factor for the KY 44 corridor from KY 61 to US 31E is 1.496. There are numerous high crash locations;
- Increase capacity to accommodate present and future traffic volumes - The current Level of Service (LOS) is D with some locations experiencing LOS of E. Current Average Annual Daily Traffic (AADT) on this road ranges from 9,000 (2-lane) to nearly 30,000 (Shepherdsville/I-65). A typical current AADT for the corridor is 13,000. Future LOSs in 2030 are E and F, with an AADT range from 16,000 (2-lane) to nearly 40,000 (Shepherdsville/I-65). A typical AADT in 2030 for this corridor is 18,000;
- Improve access to Shepherdsville and Mount Washington from I-65 to support economic activity in the region - Industrial Parks in both Shepherdsville and Mount Washington have been established and expect rapid growth. This may increase truck traffic along the corridor;
- Roadway improvements to provide better access for emergency vehicles- Provide room for emergency vehicles to respond to a crash without blocking travel on KY 44.

Comments resulting from the public meetings and local officials meetings support the above stated goals. Respondents expressed support for a project that would provide improved traffic safety, accommodate future growth, and relieve congestion. Respondents also expressed interest in short-term spot improvements at key intersections, along with support for an ultimate five-lane facility.



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Public comments led to the development of several spot improvement alternatives, as well as the review of possible north-south connections such as KY 1526. After reviewing the project goals and public comments, the following recommendations were derived:

- Pursue intersection improvements at the following locations along KY 44:
 - Bells Mill (KY 1526), approx. \$1,250,000;
 - D: \$200,000 R: \$300,000 U: \$200,000 C: \$550,000
 - Bogard/Lloyd Lane, approx. \$1,500,000;
 - D: \$200,000 R: \$250,000 U: \$200,000 C: \$850,000
 - Armstrong at Fisher, approx. \$1,250,000.
 - D: \$150,000 R: \$300,000 U: \$150,000 C: \$650,000

- Initiate Access Management Project for KY 44 in Shepherdsville.
 - This could involve minor widening, installing a barrier median, reducing access points, and signal modifications, approx. \$2,500,000.
 - D: \$100,000 R: \$100,000 U: \$100,000 C: \$2,200,000

- Intermediate project to widen KY 44 to five-lanes within city limits of both Shepherdsville and Mount Washington.
 - Shepherdsville, approx. \$10,000,000
 - D: \$600,000 R: \$2,800,000 U: \$800,000 C: \$5,800,000
 - Mount Washington, approx. \$14,500,000.
 - D: \$800,000 R: \$4,300,000 U: \$1,400,000 C: \$8,000,000

- Ultimately, widen KY 44 to five lanes, approx. \$80,000,000.
 - D: \$4,500,000 R: \$21,500,000 U: \$7,000,000 C: \$47,000,000

- Encourage connections between neighborhoods and developments along KY 44 to reduce trips on KY 44 and allow access to primary intersections.

See Figure ES-1 (next page) to view a map of the recommendations and their affected areas.

Conclusions

1. The No Build option does not address project goals.
2. Connections north-south, such as improving KY 1526 to provide alternative access to I-65, do not eliminate the need to improve KY 44.
3. Recommended improvements at high crash intersections (Bells Mill, Bogard/Lloyd, and Armstrong/Fisher), and the Access Management Study in Shepherdsville should be addressed as resources allow in the near future.
4. Funding to design recommended intermediate and/or ultimate improvements for the KY 44 corridor should be requested and project(s) initiated.

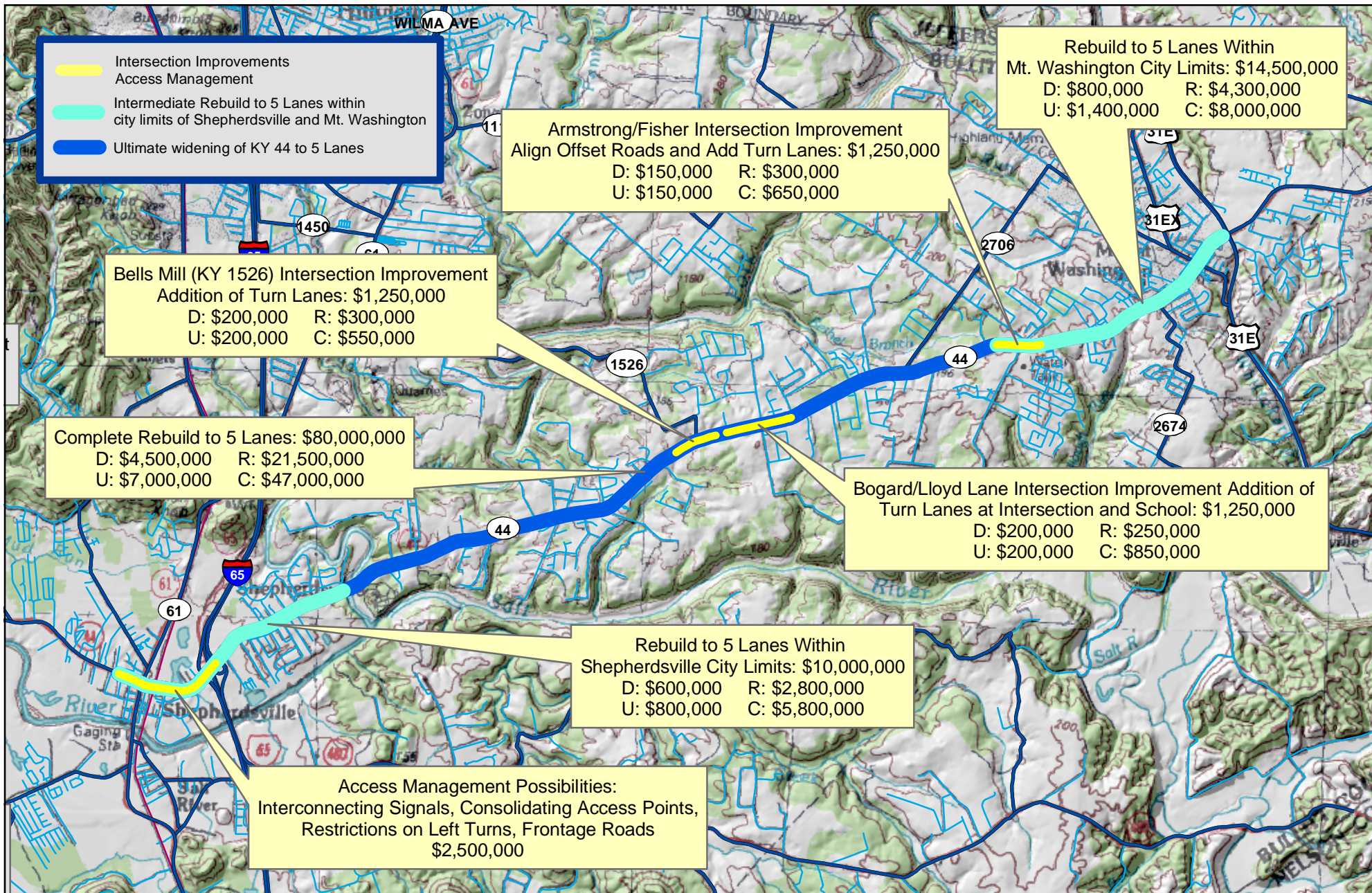
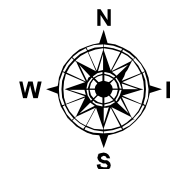
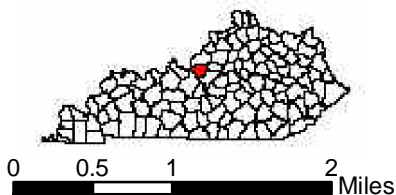


FIGURE ES-1
Recommendations

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I. INTRODUCTION

A. Tasks, Issues and Goals

This project reviews the KY 44 corridor between KY 61 in Shepherdsville and US 31E in Mount Washington. This corridor is the primary highway route between these two cities, and is experiencing steadily increasing traffic volumes. The existing road has fair geometrics, but has average lane widths and narrow shoulders. In order to ascertain a good course of action for future improvements, the district initiated an alternate study to undertake the following tasks:

- Define project issues;
- Define project goals;
- Define project limits;
- Define preliminary design criteria and potential improvement options;
- Involve public officials, government agencies, and other groups with a special interest in the project;
- Identify known environmental concerns; and
- Public involvement.

The most imperative issues on this section of KY 44 pertain to safety. Several locations along the alignment have a high occurrence of crashes, with the most frequent type being rear-end crashes. Other issues are as follows:

- The existing corridor has a large volume of traffic for a two-lane roadway, thus creating capacity and delay problems;
- There is concern over economic development and regional access;
- Emergency vehicles are often forced to block both directions of travel when responding to a crash;
- This area of Bullitt County is one of the fastest growing areas of the state, and new industrial parks and a high growth rate are expected to further congest the corridor.

Specific goals at the onset of the study were to:

- Address safety and identify high crash locations;
- Provide capacity to accommodate present and future traffic volumes, decreasing overall delay along KY 44;
- Improve access to Shepherdsville and Mount Washington to support economic activity in the region;
- Provide room for Emergency Services and personnel to respond to crashes on KY 44.



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II. EXISTING CONDITIONS

A. Roadway Characteristics

1. Termini and Length

The project termini are KY 61 in Shepherdsville and US 31E in Mount Washington. A section of KY 44 in Mount Washington from US 31EX to US 31E (Bypass) was recently widened to three lanes, therefore it did not receive a principle review in this study. The effective milepoints of KY 44 are from MP 12.215 (KY 61) to MP 22.865 (US 31EX), a length of 10.65 miles. See Exhibit 1 for a Project Location map and Exhibit 2 for a map of the Alternate Study Limits.

2. Systems

KY 44 is currently on the State Secondary Road System but is not listed on the National Highway System. The route from MP 12.215 (KY 61) to MP 20.702 (Cedar Brook Drive) is classified as an Urban Principal Arterial, while the section from MP 20.702 to MP 22.865 (US 31EX) is classified as an Urban Minor Arterial. The project area is within the Year 2000 Louisville Urban Area Boundary.

3. Road Widths and Speed Limits

The following table shows roadway characteristics by milepoints along KY 44:

Table 1. Roadway Characteristics by Milepoint

<u>Begin</u>	<u>End</u>	<u>Length</u> (Miles)	<u>Roadway Type</u>	<u>Lane Width</u> (Feet)
MP 12.215	MP 12.60	0.39	Three Lane	12
MP 12.60	MP 13.20	0.60	Four Lane	12
MP 13.20	MP 13.60	0.40	Three Lane	11
MP 13.60	MP 14.20	0.60	Two Lane	10
MP 14.20	MP 14.57	0.37	Two Lane	12
MP 14.57	MP 22.22	7.65	Two Lane	10
MP 22.22	MP 22.42	0.20	Three Lane	10
MP 22.42	MP 22.865	0.45	Two Lane	10

Note:

- a) The four-lane section from MP 12.60 to MP 13.20 is curb and gutter with a 20 foot raised median.
- b) There is a bridge over Floyds Fork at MP 14.498 (2-lane concrete bridge; constructed 1998; length: 331 ft.; bridge width curb to curb: 39.4 ft., out to out: 42.6 ft.; Operating Rating: 245)
- c) Shoulder widths on two-lane segments are generally 2 feet (earth).



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Speed limits on KY 44 within the cities of Shepherdsville and Mount Washington are either 35 or 45 miles per hour. The speed limit on KY 44 between Shepherdsville and Mount Washington is 55 miles per hour.

4. Roadway Geometrics

Central Office Planning evaluated horizontal and vertical curves to determine if the road met 55 mile per hour speed criteria. Results of this evaluation are shown in Table 2 below.

Table 2. Horizontal Curves

<u>County</u>	<u>Milepoint</u>	<u>Degree of Curve</u>	<u>Design Speed $e = 8\%$</u>
Bullitt	12.666	7	52
Bullitt	13.405	6	54

The two horizontal curves shown in Table 2 do not meet a design speed of a 55 mph, however both milepoints fall within the city limits of Shepherdsville where the speed limit is either 35 mph or 45 mph.

Vertical curves on KY 44, located at milepoints 19.40, 22.79 and 22.86, do not meet current design criteria. The latter two are in Mount Washington where the speed limit at these points is 35 mph. The sag vertical curve at milepoint 19.4 will be improved when a major widening project is undertaken. For reference purposes, photographs of the project area are included in Appendix I.

B. Traffic and Level of Service

KY 44 was divided into several segments for the purpose of evaluating existing and design year (2030) traffic volumes for performing Level of Service (LOS) analyses. Central Office Planning developed data for this section. The LOS is a qualitative measure of operational conditions such as freedom of movement, speed, and traffic interruptions. The LOS is given a letter designation of A through F, with F being the worst. We strive to provide the highest LOS as is practical and consistent with anticipated conditions. A LOS of B for rural arterial and a LOS of C for urban and suburban arterial rated roads is considered a desired goal. Table 3 presents a detailed breakdown of the LOS and traffic volumes on this project. The LOS for the no build alternative in 2030 will run from D to F which clearly does not meet the desired project goals of an LOS of B or C. Although improving slightly over the no build alternative, the LOS ratings for a three-lane run from D to F. The LOS for a five-lane is much better at meeting the project goals, and will run from A to C with one short section of LOS D at I-65. See Exhibits 3 and 4 for Year 2002 and Year 2030 traffic volumes and LOS estimates.



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Table 3. LOS and Traffic Volumes by Milepoint

Year 2002				Year 2030*					
Milepoint		Length (miles)	LOS	ADT	Milepoint		Length (miles)	LOS	ADT
From	To				From	To			
12.014	12.215	0.201	E	15,000	12.014	12.215	0.201	F	24,700
12.215	12.337	0.122	E	19,700	12.215	12.337	0.122	F	32,500
12.337	12.934	0.597	C	23,800	12.337	12.934	0.597	E	39,200
12.934	13.232	0.298	D	27,200	12.934	13.323	0.389	F	44,800
13.232	13.592	0.360	E	17,700	13.323	13.592	0.269	F	29,200
13.592	16.407	2.815	D	12,400	13.592	16.407	2.815	F	20,400
16.407	18.527	2.120	D	9,910	16.407	18.527	2.120	E	16,300
18.527	21.015	2.488	D	12,200	18.527	21.015	2.488	F	20,100
21.015	21.853	0.838	D	12,200	21.015	21.853	0.838	E	20,100
21.853	22.354	0.501	D	14,100	21.853	22.354	0.501	E	23,200
22.354	22.659	0.305	E	16,000	22.354	22.659	0.305	F	26,400
22.659	22.865	0.206	D	15,700	22.659	22.865	0.206	F	25,900
22.865	22.920	0.055	D	13,900	22.865	22.920	0.055	E	22,900
22.920	23.636	0.716	D	10,600	22.920	23.636	0.716	E	17,500

*A growth rate of 1.8% was used to estimate these values.

C. Crash Analysis

A segment of roadway is considered to have a high crash rate when the total crash rate is higher than the critical crash rate for similar roads in the state. When a segment has a critical rate factor (CRF) greater than one (1.0), this indicates that crashes at this location may not be occurring randomly. The critical rate factors are calculated based on the methodology presented in the Kentucky Transportation Center's Analysis of Traffic Accident Data in Kentucky. There are several locations along KY 44 with critical rate factors greater than 1.0, with 50% or more of collisions being rear-end crashes. The overall CRF for the KY 44 corridor from KY 61 to US 31E is 1.496. Table 4 shows high crash locations by milepoint along with the number of collisions, types of collisions, and critical rate factors for each segment.



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Table 4. Crash Analysis by Milepoint

March 1, 2001 to March 1, 2004 CRASH Data

Begin Milepoint	End Milepoint	Segment Length (Miles)	Average Daily Traffic (2004)	Crashes			Total	Critical Rate Factor
				Fatal	Injury	Property Damage Only		
12.212	12.755	0.543	27,900	0	36	144	180	2.88
12.755	12.787	0.032	27,900	0	0	2	2	0.31
12.787	13.069	0.282	27,900	0	15	99	114	3.64
13.069	13.170	0.101	19,300	0	7	30	37	3.37
13.170	13.458	0.288	19,300	0	9	38	47	1.72
13.458	13.521	0.063	19,300	0	1	12	13	1.45
13.521	14.084	0.563	19,300	0	11	52	63	1.41
14.084	15.000	0.916	12,400	0	13	27	40	0.86
15.000	15.300	0.300	12,400	0	7	10	17	0.89
15.300	17.962	2.662	12,400	0	27	52	79	0.68
17.962	18.200	0.238	12,500	0	11	38	49	3.05
18.200	18.600	0.400	12,500	0	14	13	27	1.13
18.600	18.900	0.300	12,500	1	20	23	44	2.30
18.900	21.100	2.200	17,000	3	29	44	76	0.59
21.100	21.350	0.250	17,000	1	10	28	39	1.85
21.350	21.781	0.431	17,000	0	6	12	18	0.56
21.781	22.002	0.221	17,000	0	6	26	32	1.67
22.002	22.600	0.598	16,400	0	2	20	22	0.51
22.600	23.200	0.600	16,400	0	24	85	109	2.65

Note: 1. Gray areas indicate a Critical Rate Factor greater than 1.0.

2. Critical Rate Factors greater than one indicate that crashes may not be random occurrences.

3. Critical Rate Factor for the corridor is 1.496.

Exhibit 5 shows high crash segments by milepoint which are color coded to illustrate the critical rate factor. The total number of accidents occurring at each location between March 1, 2001 and March 1, 2004 are also presented on this map. Specific intersections with high accident rates were selected for more detailed study.



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III. ENVIRONMENTAL OVERVIEW

A. Introduction

Wilbur Smith Associates presented the results of an Environmental and Social Economic Overview in a report dated April 2004. This report also contains an Environmental Justice review, which was completed by Kentuckiana Regional Planning and Development Agency (KIPDA). The report considered the following issues:

- Natural and Manmade Water Features
- Biotic Communities
- Social, Economic and Environmental Justice Concerns
- Historic and Archaeological Sites
- Prime and Unique Farmland
- Monitored Sites and Wells
- Other Concerns

See Exhibit 6 for an environmental footprint for this project.

B. Summary of Environmental Issues

Potential environmental concerns for the study area along KY 44 have been identified through this preliminary analysis. Environmental issues requiring consideration during future phases of this project include:

- Public and private water sources, such as water lines, sewer lines, water wells, and water tanks covering the entire KY 44 study area and the Salt River watershed;
- “Zone A” (100-year) floodplain zones located along Floyds Fork tributaries towards the western end of the study area, just outside of Shepherdsville;
- Public and private water sources, such as water lines, sewer lines, water wells, and three (3) water tanks covering the entire KY 44 study area and the Salt River watershed;
- Potential endangered, threatened, or special concern species, including nine (9) floral, eight (8) fauna, and one (1) forest block located within the KY 44 study area;
- Twenty-nine (29) community sensitive locations, including fourteen (14) churches, six (6) schools, nine (9) cemeteries, and no parks;
- Industry within Mount Washington and Shepherdsville;
- Potential environmental justice issues related to low income populations within the project area census tracts in Bullitt County;
- Potential Historical District in Mount Washington and other historic sites totaling: 98 structures, two (2) National Register Sites, two (2) archaeological sites, and seven (7) survey sites;



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- Prime farmland located sparingly along the KY 44 study area, and the Bullitt County Agricultural Development Council; and,
- Underground storage tanks (UST), RCRIS, and FINDS monitored sites.

The complete environmental overview can be found in Appendix II.

C. Geotechnical Investigation

The Division of Materials completed a Geotechnical Review designating the study area as being located on the outer edge of the Bluegrass Physiographic Region of Kentucky. The project area is characterized by topography of gently rolling lowlands with meandering rivers 200 to 300 feet below the plains and low hills in the review. A copy of the Geotechnical Review can be found in Appendix III. Concerns identified in the review include:

- Alluvium, Lacustrine and Terrace deposits are composed of variable amounts of gravel, sand, silt and clays ranging from zero to 20+ feet thick. These materials are considered highly erodible and may require slope protection for cut sections. Due to anticipated overburden depths, bridge piers located within these deposits may need to be founded on drilled shafts or piles. Embankments and structures constructed on top of the unconsolidated sediments may call for preloading and waiting periods to allow foundation settlement to occur.
- The New Albany Shale is black in color and contains abundant amounts of pyrite. The shale will produce an acidic runoff when it is in direct contact with air and water. Special provisions will be required to insure the cut slopes and embankments consisting of this formation are encased with clay shale and soil, and the acid runoff is remediated during construction. Alignments through this corridor should avoid the New Albany Shale in order to prevent additional costs and environmental problems.
- The Louisville Limestone and Laurel Dolomite are excellent for all highway purposes. However, both formations are capable of developing sinkholes, caves, and variable rocklines. It is possible these karst features will be encountered throughout most of the corridor. Springs and wet hillside conditions may be encountered at the base of the Laurel Dolomite. Abandoned and operating quarries may be found in these formations.
- The Waldron Shale is described as an olive-gray to greenish-gray clay shale. This shale has very poor engineering characteristics and may result in flatter than normal cut and fill slopes. Fill slopes on side hill conditions are discouraged for all alignments, especially through the Waldron Shale in order to maintain stability of the embankments. Alignments chosen should remain within the Louisville Limestone/Laurel Dolomite Formations as much as possible to avoid the Waldron and New Albany Shales.
- This project is in a classified Seismic Zone 2, which is defined as an area of moderate damage due to earthquake activity.



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D. Additional Concerns

Other items identified within the KY 44 study area include:

- Four (4) major utility lines cross the KY 44 study area;
- A wildlife crossing (deer) area is located near the intersection of KY 44 and Hordes Store Road, 0.8 miles east of Shepherdsville.
- CSX Railroad line crosses the KY 44 study area in Shepherdsville, 0.1 miles east of KY 61.
- According to the Division of Environmental Analysis (DEA), there is a potential for noise issues as a result of this project; and,
- Also, according to KIPDA, Bullitt County was designated as ‘non-attainment’ for the 8-hour standard in April 2004.



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IV. Cabinet, Public, and Agency Input

A. Project Team Meeting

A project team meeting was held on April 23, 2003. Minutes of the meeting are included in Appendix IV, and are summarized in the following paragraphs.

The purpose of the meeting was to conduct a field review of the project area, and to discuss the following:

- The purpose of the study
- Project goals and objectives
- Possible alternatives
- The environmental footprint
- Design criteria
- Agency coordination needs
- Public involvement needs
- Documentation/Reports

1. Project Description

The general project area is defined as KY 44 from Shepherdsville to Mount Washington. Available data for this project included: traffic data, crash data and roadway geometry. It was noted that both Mount Washington and Shepherdsville are trying to develop industrial parks that would be major traffic generators. Plan profiles showed few horizontal or vertical curve deficiencies, however roadway and shoulder widths do not meet current design guidelines. A new bridge has been recently constructed over Floyds Fork, and a new connector road is being built between KY 61 and KY 44 in Shepherdsville.

2. Existing Roadway Issues

The following issues were identified as existing along KY 44 in the study area:

- There is a high occurrence of crashes, particularly near the ends of the project in Shepherdsville and Mount Washington.
- Several locations along KY 44 experience crash rates higher than 1.0, with 50% or more being rear end collisions.
- Delays occur often as a result of heavy traffic and the lack of storage for vehicles making left turns.
- KY 44 is strip developed and is continuing to become more so. This area of Bullitt County is one of the fastest growing in the state.



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- Crashes are expected given current traffic volumes and access control.
- Safety issues are perceived at Pleasant Grove Elementary School located approximately halfway between Shepherdsville and Mount Washington. The school would like signals installed to help alleviate safety and access issues.

3. Needed Information

Traffic count data is needed. Bullitt County has a higher population growth rate than that of most of the state. Bike lanes and pedestrian movements should be considered due to the residential areas and number of schools within the study area.

4. Environmental Justice

An environmental justice review will be requested of the Area Development District, including houses and businesses in close proximity to the existing road. This project is not initially anticipated to require a large number of relocations, however there is comparable housing available in the event that a wide improvement option necessitates relocations.

5. Logical Termini

The project termini should remain as described in the Six-Year Highway Plan: KY 61 in Shepherdsville to US 31E in Mount Washington. Problematic areas include the railroad crossing on KY 44 near KY 61, and Publishers Printing Company located on the corner of KY 61 and KY 44. Publishers Printing Company employs 1700 people, and is very close to the existing roadway.

6. Project Goals and Objectives

The following goals and objectives were developed:

- Address safety and accident concerns;
- Increase capacity to accommodate present and future traffic volumes;
- Address growing needs of the community;
- Improve access to Shepherdsville and Mount Washington to support economic activity in the region;
- Provide room for emergency vehicles to respond to crashes without blocking traffic flow.

7. Environmental Footprint

The environmental footprint area for this project should be a 2000-foot corridor along the existing alignment.



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8. Probable Design Criteria

The project team agreed that the functional class should be urban minor arterial near Shepherdsville and Mount Washington, and rural major collector between the two cities. Using a 1.8% growth rate from the KYTC Division of Multimodal's Traffic Forecasting Report, it was determined that design year 2030 traffic projections have an ADT of 44,800 vehicles per day and a DHV of 5,150 vehicles per hour. These numbers will be updated once the counts program is considered for actual traffic growth.

B. Local Officials and Public Meetings

1. Stakeholder and Local Officials Meetings

An initial meeting for stakeholders and local officials was held on May 29, 2003 at the Bullitt County Fiscal Court Building. The purpose of this meeting was to present the purpose, goals and objectives of the project, as well as discuss possible alternatives, agency coordination and public involvement needs. Existing deficiencies and projected future problems along KY 44 were also discussed. Twelve (12) area stakeholders and officials attended the meeting. A copy of the meeting minutes can be found in Appendix IV.

A second stakeholder and local officials meeting was held on September 02, 2004. The purpose of this meeting was to inform the attendees of the upcoming public meeting on September 09, 2004. Attendees were invited to view a short PowerPoint presentation, and visit displays of present and future traffic volumes as well as the proposed improvement alternatives. Approximately twelve (12) area stakeholders and local officials were in attendance. No meeting minutes were taken.

2. Public Meetings

Two Public Information Meetings and two Public Question/Answer Feedback Sessions were conducted as part of the public involvement process. The first public meeting was held on May 6, 2004 at Pleasant Grove Elementary School in Mount Washington. The meeting was well attended by approximately 125 area residents and officials. The purpose of the meeting was to:

- Gather information from the public regarding specific issues/concerns with KY 44
- Identify possible solutions to address those issues/concerns
- Discuss the future of KY 44

After a brief formal presentation, attendees were invited to visit several exhibit areas containing maps of the project area, present and future traffic volumes, high crash locations, present and future levels of service, and an environmental overview along with an environmental footprint of the project area.



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Attendees were encouraged to complete and return the questionnaire provided in the handouts. They were also invited to draw any sensitive areas to avoid on the provided maps. The overwhelming response from the 93 completed questionnaires was that a project on KY 44 would be beneficial to the region. Respondent comments expressed concerns supporting a project on KY 44 that included safety, future growth, increasing congestion, and KY 44 being the only viable east-west route between Shepherdsville and Mount Washington. Other concerns were safety related and site-specific, including the intersections of Armstrong/Fisher Lanes, KY 1526 (Bells Mill Road), Bogard/Lloyd Lanes and Bleemel Lane, with a complete three- or five-lane rebuild mentioned repeatedly. A copy of the original questionnaire and a summary of responses can be found in Appendix V.

The second Public Meeting was held on September 09, 2004, at Pleasant Grove Elementary School in Mount Washington. This meeting was also well attended, by approximately 94 area residents and officials. The purpose of this meeting was to:

- Present information including:
 - Draft – KY 44 Improvement Goals
 - Summary of Study Analysis
 - Improvement Alternatives
- Receive feedback from the public on the proposed alternatives

Following a formal presentation, attendees were invited to visit several exhibit areas containing maps of the project area with proposed alternatives, future traffic volumes and levels of service, an environmental overview along with an environmental footprint of the project area, and aerial photographs of high crash intersections.

Attendees were encouraged to complete and return the survey provided in the handouts. They were also invited to indicate any sensitive areas to avoid on the provided maps. Responses from the 95 completed surveys indicate that the majority of respondents are highly supportive of spot improvements at the intersections of Armstrong/Fisher Lanes, KY 1526 (Bells Mill Road), and Bogard/Lloyd Lanes, with an eventual complete rebuild of KY 44 to five lanes. General comments from the surveys expressed concerns of: safety, congestion, east-west access and support for a five-lane rebuild.

Particular attention was given on several surveys regarding a senior citizen community (Lakeview Station) located at Huston Lane and KY 44. Comments expressed concerns of safety to seniors negotiating onto KY 44, with several requesting the installation of a traffic signal. (District 5 traffic will be requested to analyze this intersection to determine if it meets warrants for a signal.)

Two Public Question/Answer Feedback Sessions were held on September 10, 2004. The first session was located at the Mount Washington City Hall Annex and was attended by 10 area residents and officials. The second session was located at the Shepherdsville City Hall and was attended by 4 area residents and officials.



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The purpose of the Public Question/Answer Feedback sessions was to:

- Provide another opportunity for the public to view the exhibits from the September 09, 2004 public meeting, and ask questions about the proposed improvement alternatives
- Collect feedback regarding the proposed improvement alternatives

Attendees were invited to view exhibit maps of the project area with proposed alternatives, and future traffic volumes with levels of service, then asked to complete a survey provided in the handouts.

A copy of the original survey and a summary of responses with public comments for both meetings can be found in Appendix V.

C. Resource Agency Coordination

Coordination letters were sent to various resource agencies, local officials, Cabinet offices, and interested organizations in order to gather input and comments from the groups regarding needs and potential impacts of this project. Copies of the request letter, mailing lists, and responses are included in Appendix VI. Issues and concerns raised through this effort are as follows:

- **Bullitt Co. Health Department** recommended elevated (overhead) pedestrian crosswalks to aid in creating a “walkable community” and improve safety for children crossing KY 44.
- **Department for Environmental Protection (DEP)** provided a list of regulations applicable to the project, regarding fugitive emissions and open burning. DEP stated that the project must conform to the requirements of the Clean Air Act, and Titles 23 and 49 of the United States Code. DEP recommended investigating compliance with the applicable regulations of local governments.
- **Department of Fish & Wildlife Resources (DFWR)** identified various federally endangered or threatened species within a 10 mile radius of the project area and State listed species within a 1 mile radius of the project area. DFWR recommended exploration and conservation of caves within the project area, conservation of trees with exfoliating bark, dead limbs or cavities, avoiding disturbances to the Salt/Rolling Fork River, and overall minimization of disturbance to streams and restoration of disturbed streams to their original condition. DFWR recommended contacting the US Army Corps of Engineers office and the Kentucky Division of Water regarding wetlands potentially impacted by the project.
- **Department of Health & Human Services (DHS)** recommended consideration of the following topics during the NEPA process: Air quality, water quality/quantity, wetlands and floodplains, hazardous materials/wastes, non-hazardous solid waste/other materials, noise, occupational health and safety, land use and housing, environmental justice. DHS requested a copy of the draft EIS for review.
- **Division of Conservation (DC)** was concerned with a 320-acre farm in agricultural district #015-03, near Bogard Lane and KY 44. DC stated that state agencies must mitigate impacts on land in agricultural districts and expressed concern over the loss of prime farmland and



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farmland of statewide importance that is potentially impacted by the project. DC recommended utilization of best management practices (BMPs) for the control of erosion and sedimentation during construction to prevent nonpoint source water pollution.

- **Division of Permits, KYTC CO, Frankfort** urged project classification as partially or fully controlled access; encouraged access points set according to 603 KAR 5:120; and directed that new deeds for adjoining property owners be executed to identify access control points. Permits stated that design speed should match the posted speed limit, requested access control fence installation, and requested notification if KY 44 would be added to the NHS.
- **Division of Traffic, KYTC CO, Frankfort** was concerned with safety issues of the railroad crossing near KY 61 and the interstate ramp queues. Traffic suggested implementing measures to prevent vehicles from stopping on the railroad tracks and to prevent ramp congestion backing up to the interstate mainline.
- **Division/Department of Vehicle Enforcement** was concerned with increase in large truck traffic from I-65 to Mt. Washington industrial park. Vehicle Enforcement stated that the trucks will be within their 15-mile access.
- **Kentucky Geological Survey** summarized geologic concerns for the project area, including: physiographic region, karst potential, landslide potential, unconsolidated sediments, resource conflicts, materials suitability, fault potential and earthquake ground motions.
- **Kentucky State Nature Preserves Commission (KSNPC)** identified a KSNPC “endangered” plant species within the KY 44 corridor. KSNPC stated that the entire global range for the species is concentrated in an area surrounding Mount Washington and extending south to the Nelson-Bullitt county line. It was recommended that the corridor be checked for the species during the early planning stages and that all measures possible be employed to avoid impacts to plant populations.
- **Natural Resources Conservation Service (NRCS)** was concerned with impacts on prime farmland soils and farmlands of statewide importance. NRCS stated that Form AD-1006 (or Form NRCS-SPA-106 for corridor type projects) must be filed with local NRCS office if farmlands are converted for non-agricultural uses.
- Letters of “No affect” were received from the following agencies:
 - Delta Regional Authority;
 - Department of Parks;
 - Department for Natural Resources;
 - Department of Agriculture;
 - Corps of Engineers (Memphis District),
 - Kentucky State Police; and
 - Cabinet for Health and Family Services.



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V. IMPROVEMENT OPTIONS

A. Introduction

Several corridor improvement options were considered to achieve project goals and objectives. Alternatives were established and studied prior to presentation for comment at the second Bullitt County public meeting. These options are shown on Exhibit 7 and are discussed in the following sections.

B. No Build

This option does nothing to address safety and crash problems on this roadway. This option also does not increase roadway capacity, nor meet other project goals.

C. Spot Improvements

Detailed study of traffic capacity and crash analysis identified several spot improvements that could enhance safety and improve traffic flow. The intersections listed below were also identified by public comments to be areas in need of immediate improvement. These projects are labeled Level 1 Improvements (short term) while funding is sought for major widening improvements. The proposed spot improvement options listed below are discussed in greater detail in the paragraphs to follow:

1. Access Management from KY 61 to I-65 in Shepherdsville
2. KY 1526 (Bells Mill Road)
3. Bogard/Lloyd Lane
4. Armstrong/Fisher Lane

1. Access Management

KY 44 in Shepherdsville from KY 61 to 0.1 miles east of I-65 is an existing three-lane section that carries high traffic volumes. Access management could provide improved traffic flow and accident reduction. The improvement would involve the interconnection of signals, consolidating access points, and restrictions on left turns. Cost for this improvement is estimated at \$2,500,000.

2. KY 1526 (Bells Mill Road)

The improvement at this location would require adding a turn lane and improving the turn radii. The KY 1526 route is a connector from the KY 44 area to the I-65 Brooks area. Estimated cost is \$1,250,000.



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3. Bogard/Lloyd Lane

This improvement would add a turn lane at the Bogard/Lloyd Lane crossing and extend the turn lane approximately 0.20 miles east to beyond an entrance to Pleasant Grove Elementary School. Estimated cost is \$1,500,000.

4. Armstrong/Fisher Lane

Armstrong/Fisher is an offset intersection experiencing traffic delays and numerous crashes. The improvement would rebuild the intersection and align the intersecting roads. A turn lane would be added on KY 44 at the intersection, which would simplify the turning movements and should reduce crashes and traffic delays. The estimated cost is \$1,250,000.

D. Major Rebuild

Two proposals were studied to rebuild the existing KY 44, a three-lane facility and a five-lane facility. These proposals are labeled Level 3 Improvements (long range) on Exhibit 7, but individual sections could be selected for advance improvements prior to rebuilding the entire route. These advance sections are labeled as Level 2 Improvements (intermediate). Costs were developed for several sections and are shown in Table 5 below for the three-lane section and Table 6 on the next page for five-lane sections.

Table 5. Three-Lane Cost Estimate

Section	Length (miles)	PE* (\$)	ROW** (\$)	Utilities (\$)	Construction (\$)	Total (\$ millions)
End of 3-lane section, MP13.6 to Floyds Fork Bridge	0.80	0.25	0.80	0.55	2.40	4.00
Floyds Fork Bridge to MP15.2	0.80	0.25	0.80	0.55	2.40	4.00
MP15.2 to MP18.4	3.20	0.60	5.00	2.00	9.00	16.60
MP18.4 to Armstrong Lane	2.60	0.50	3.20	1.20	7.30	12.20
Armstrong Lane to US31EX	2.00	0.50	3.50	1.20	6.00	11.20
					Grand Total	48.00

*PE – Preliminary Engineering & Environmental

**ROW – Right of Way

Note: Estimates based on curb and gutter section except section from MP 15.2 to Armstrong Lane, which is estimated for rural section.

The three-lane section was considered as the next logical improvement to a two-lane road. A three-lane typical section provides for a continuous turn lane, which helps traffic flow and reduces certain types of crashes by providing a storage area for left turning vehicles. This left turn storage allows



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through traffic to continue past the intersection, improving delay times and reducing the occurrence of rear end collisions. A three-lane section requires less right of way than a five-lane section; however a traffic capacity analysis indicated that a three-lane facility does not achieve an adequate level of service for future traffic volumes in the cities of Shepherdsville and Mount Washington.

Table 6. Five-Lane Cost Estimate

Section	Length (miles)	PE* (\$)	ROW** (\$)	Utilities (\$)	Construction (\$)	Total (\$ millions)
KY61 to I-65	0.70	0.30	3.00	0.50	2.70	6.50
I-65 to Floyds Fork Bridge	1.40	0.60	2.80	0.80	5.80	10.00
Floyds Fork Bridge Widening	0.08	0.20	-----	-----	1.80	2.00
Floyds Fork Bridge to MP15.2	0.80	0.30	1.30	0.80	3.60	6.00
MP15.2 to Armstrong Lane	5.80	2.50	10.00	3.50	25.00	41.00
Armstrong Lane to US31EX	2.00	0.80	4.30	1.40	8.00	14.50
					Grand Total	80.00

*PE – Preliminary Engineering & Environmental

**ROW – Right of Way

Note: Estimates based on curb and gutter section from KY 61 to MP 15.2, rural section from MP 15.2 to Armstrong Lane. Curb and Gutter section from Armstrong Lane to US 31EX.

The five-lane section facilitates future traffic volumes at a higher level of service than the three-lane section, but has high right of way impacts and is the most expensive option. However, this typical section meets the project goals. Five-lane sections were considered in Shepherdsville and Mount Washington as possible Level 2 improvements.



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VI. RECOMMENDATIONS

After reviewing the road geometry, traffic data, accident information, environmental overview, and public input, the district recommends an incremental approach to improving the KY 44 Corridor. These incremental improvements have been labeled Level 1, 2, and 3.

Level 1 improvements are spot improvements that are feasible in terms of scope and financing. These Level 1 improvements would improve safety and accident rates at spot locations but would not address the long-term goals of added capacity, room for emergency services, nor improve access between Shepherdsville and Mount Washington. Concerning priorities for the spot intersection improvements, the district considers the KY1526 (Bells Mill Road), Bogard/Lloyd Lane, and Armstrong/Fisher Lane intersections with KY44 to be equal in need. These locations each have approximately the same number of crashes and are in need of immediate improvement. Since a longer time frame is needed to develop an access management plan, it is not recommended as a priority at this time. The district also recommends an ongoing review of the crash data at all locations in order to remain current and establish priorities.

Levels 2 and 3 are five-lane widening projects that will require greater funding and a longer schedule. These improvements meet the goals as previously described, except that the Level 2 improvement would not address the goals between Shepherdsville and Mount Washington. A three-lane improvement would provide a continuous turn lane that would relieve congestion somewhat and reduce crashes; however it would not significantly add more traffic capacity for the future. Also, the public (at the last public meeting) generally agreed to a five-lane facility as opposed to a three-lane facility. Therefore, a five-lane improvement is recommended over a three-lane improvement since future traffic volumes are expected to exceed 20,000 vehicles per day (except for a 2.1-mile stretch from MP16.4 to MP18.5).

Recommendations along with estimated costs are shown in Table 7 on the next page.



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Table 7. Recommendations

Level 1 - Intersection Spot Improvements

Intersection	Design (\$)	Right of Way (\$)	Utilities (\$)	Construction (\$)	Total Cost (\$)
KY 1526 (Bells Mill Rd)	200,000	300,000	200,000	550,000	1,250,000
Bogard/Lloyd Lanes	200,000	250,000	200,000	850,000	1,500,000
Armstrong/Fisher Lanes	150,000	300,000	150,000	650,000	1,250,000

Level 2 - Intermediate 5-Lane Improvements

Area	Mile points	Length (mi.)	Design (\$)	Right of Way (\$)	Utilities (\$)	Construction (\$)	Total Cost (\$)
I-65 to Floyds Fork Creek	12.934- 14.363	1.429	600,000	2,800,000	800,000	5,800,000	10,000,000
Armstrong Lane to US 31EX	21.080- 22.865	1.785	800,000	4,300,000	1,400,000	8,000,000	14,500,000

Level 3 - Ultimate 5-Lane Improvement

Area	Mile points	Length (mi.)	Design (\$)	Right of Way (\$)	Utilities (\$)	Construction (\$)	Total Cost (\$)
KY 61 to US 31EX	12.215- 22.865	10.65	4,700,000	21,400,000	7,000,000	46,900,000	80,000,000



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VII. CONTACTS

In the event that additional information regarding this project is needed, the following persons may be contacted:

- Greg Groves, P.E., T.E.B.M. for Preconstruction, KYTC District 5 – Louisville
- Daryl Greer, P.E., Transportation Engineer Branch Manager, CO Division of Planning
- David Martin, P.E., CO Division of Planning
- Kyle Cooper, Tech. I, KYTC District 5 - Louisville
- Jason Richardson, E.I.T., Design Engineer, KYTC District 5 – Louisville

The following addresses and phone numbers may be used for:

KYTC District 5

Phone: 502-367-6411
Address: Kentucky Transportation Cabinet
P.O. Box 37090
Louisville, KY 40209

CO Division of Planning

Phone: 502-564-7183
Address: Kentucky Transportation Cabinet
200 Mero Street (W5-05-01)
Frankfort, KY 40622

EXHIBITS

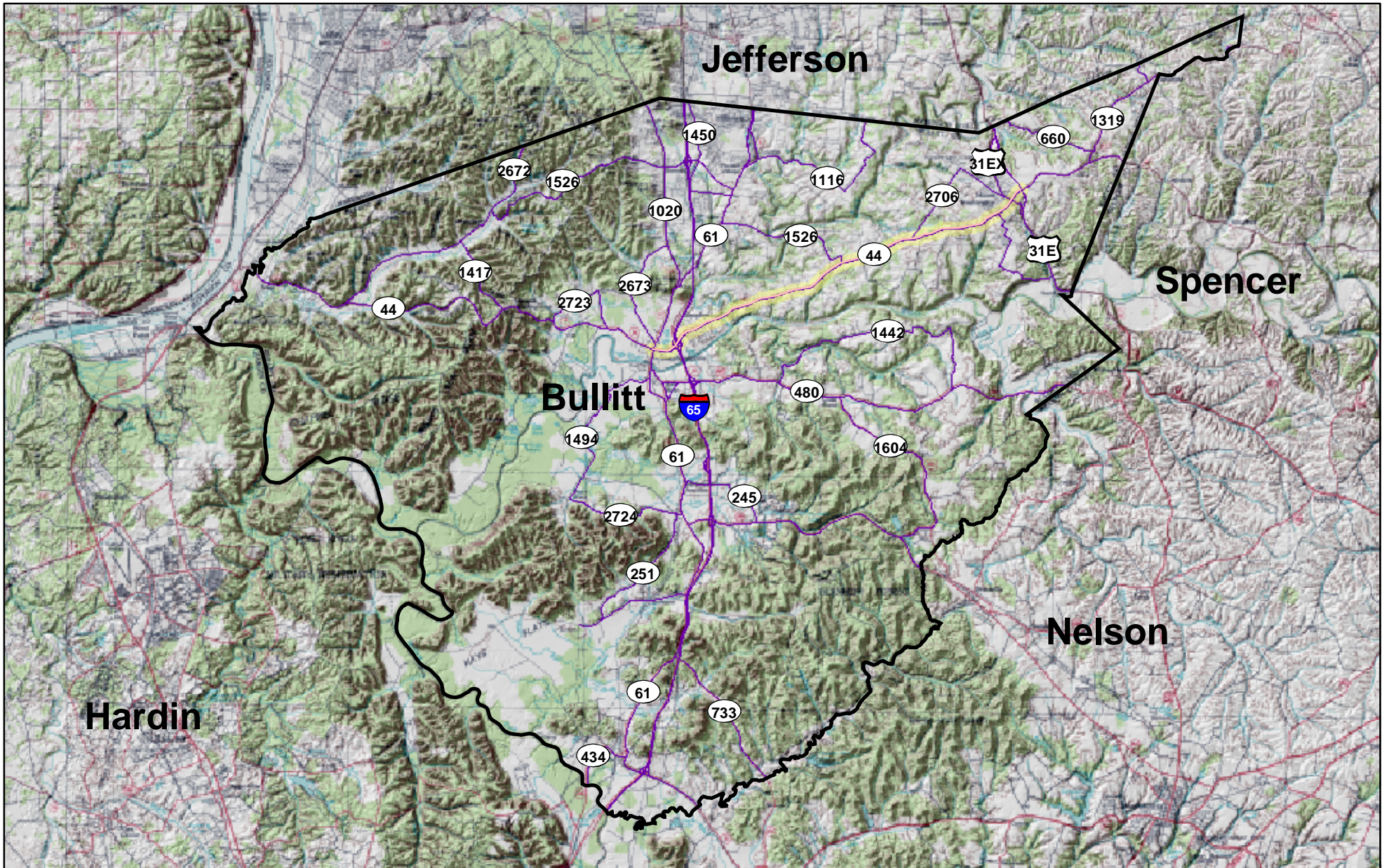
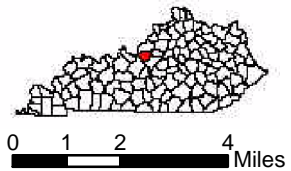
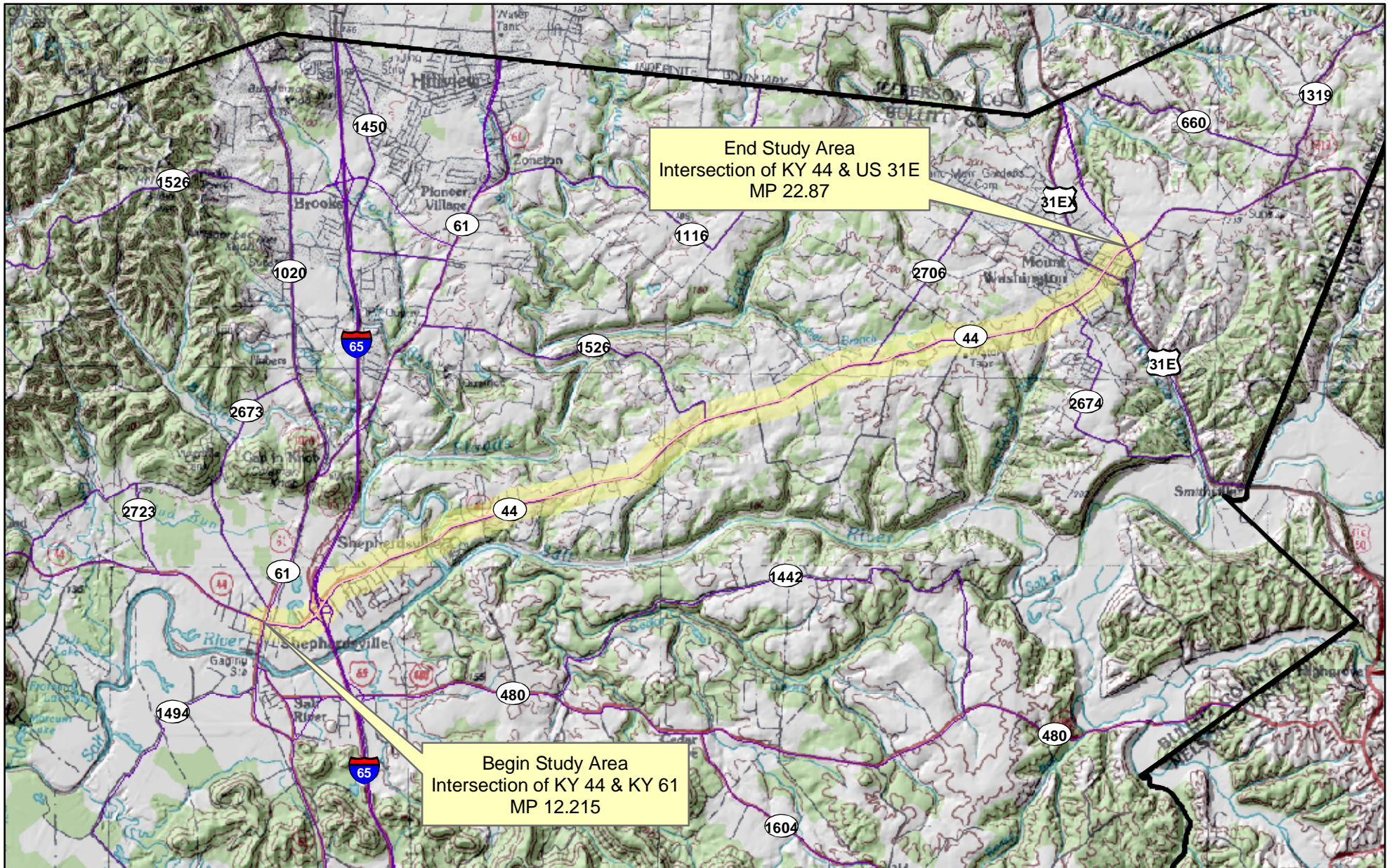


Exhibit 1
Project Location

KY 44 Shepherdsville to
Mount Washington
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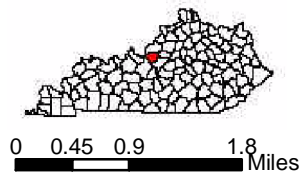


End Study Area
 Intersection of KY 44 & US 31E
 MP 22.87

Begin Study Area
 Intersection of KY 44 & KY 61
 MP 12.215

Exhibit 2
 Alternate Study Limits

KY 44 Shepherdsville to
 Mount Washington
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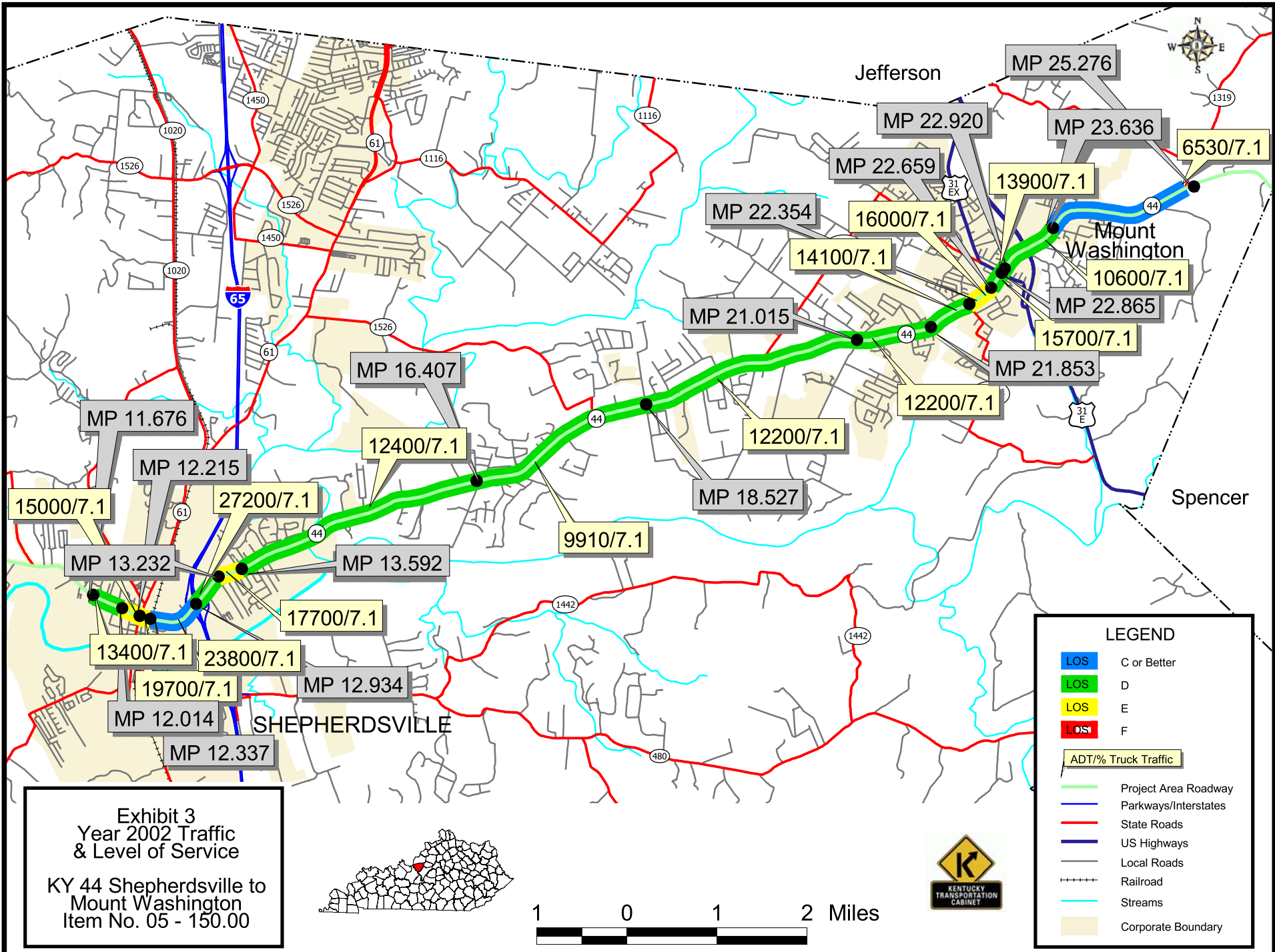
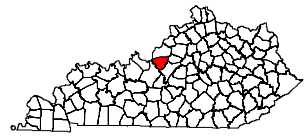


Exhibit 3
Year 2002 Traffic
& Level of Service

KY 44 Shepherdsville to
 Mount Washington
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LEGEND

█ LOS	C or Better
█ LOS	D
█ LOS	E
█ LOS	F
ADT/% Truck Traffic	
—	Project Area Roadway
—	Parkways/Interstates
—	State Roads
—	US Highways
—	Local Roads
	Railroad
—	Streams
	Corporate Boundary

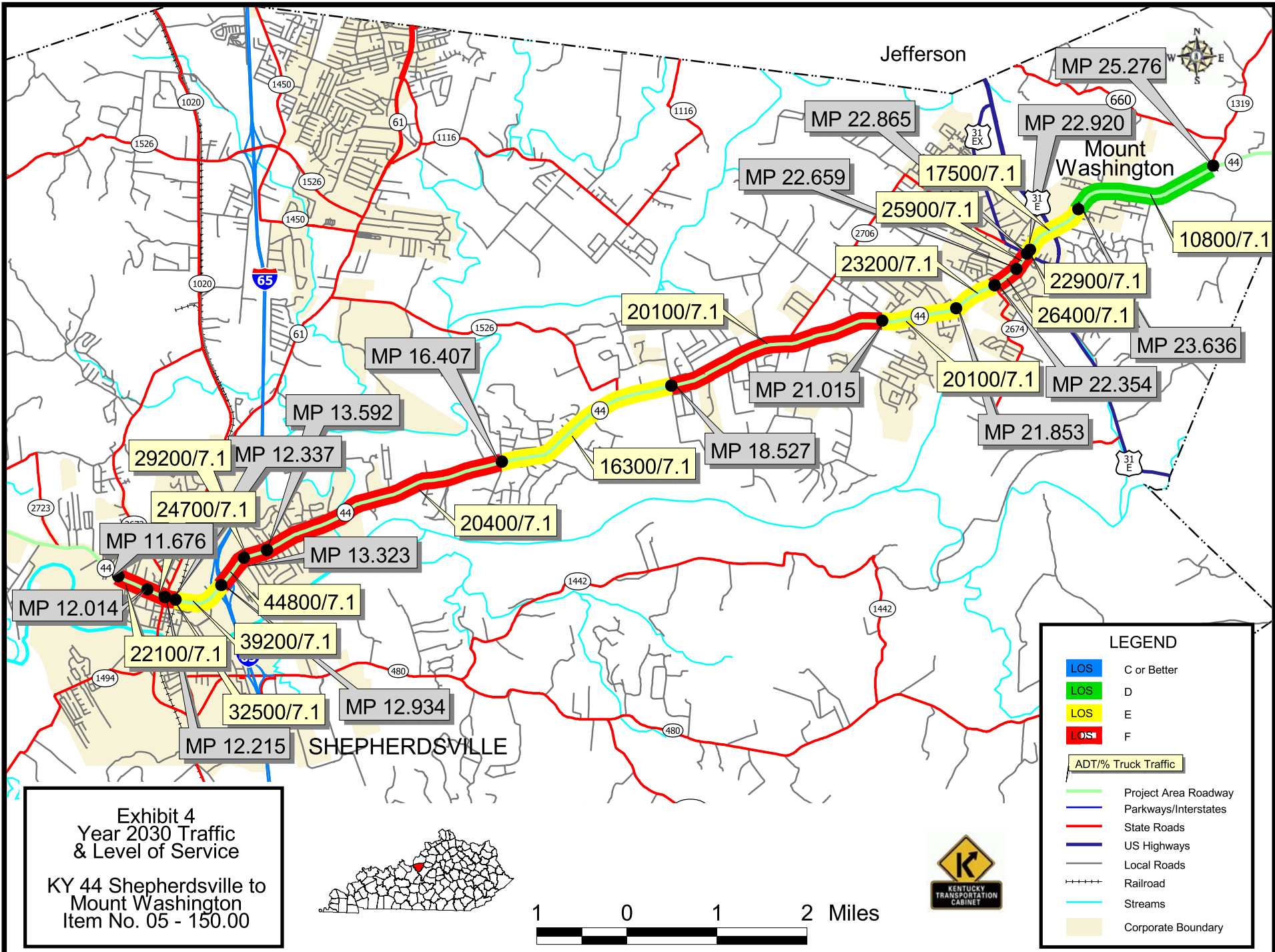
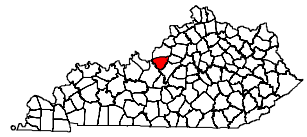


Exhibit 4
Year 2030 Traffic
& Level of Service
 KY 44 Shepherdsville to
 Mount Washington
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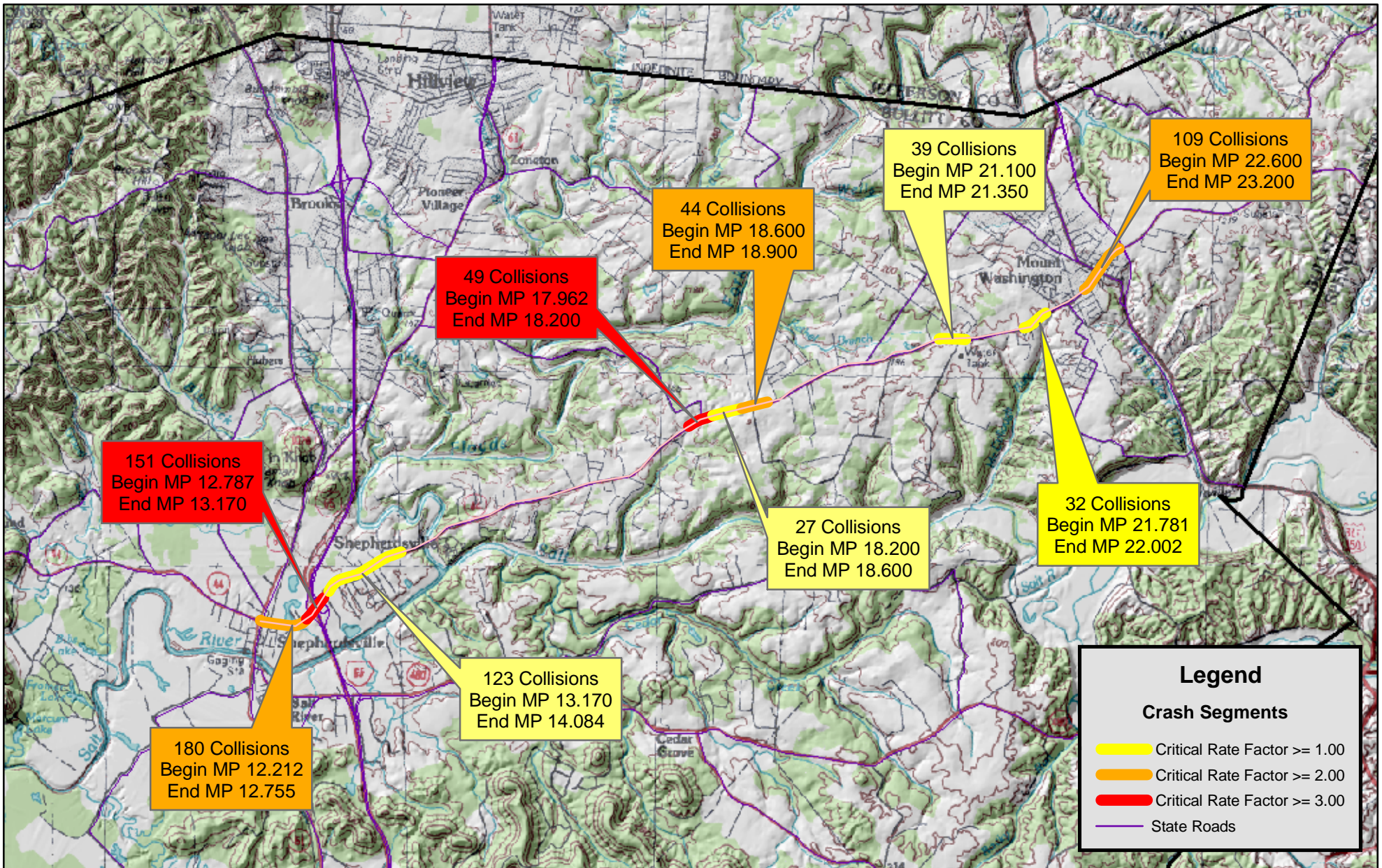
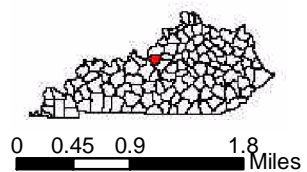
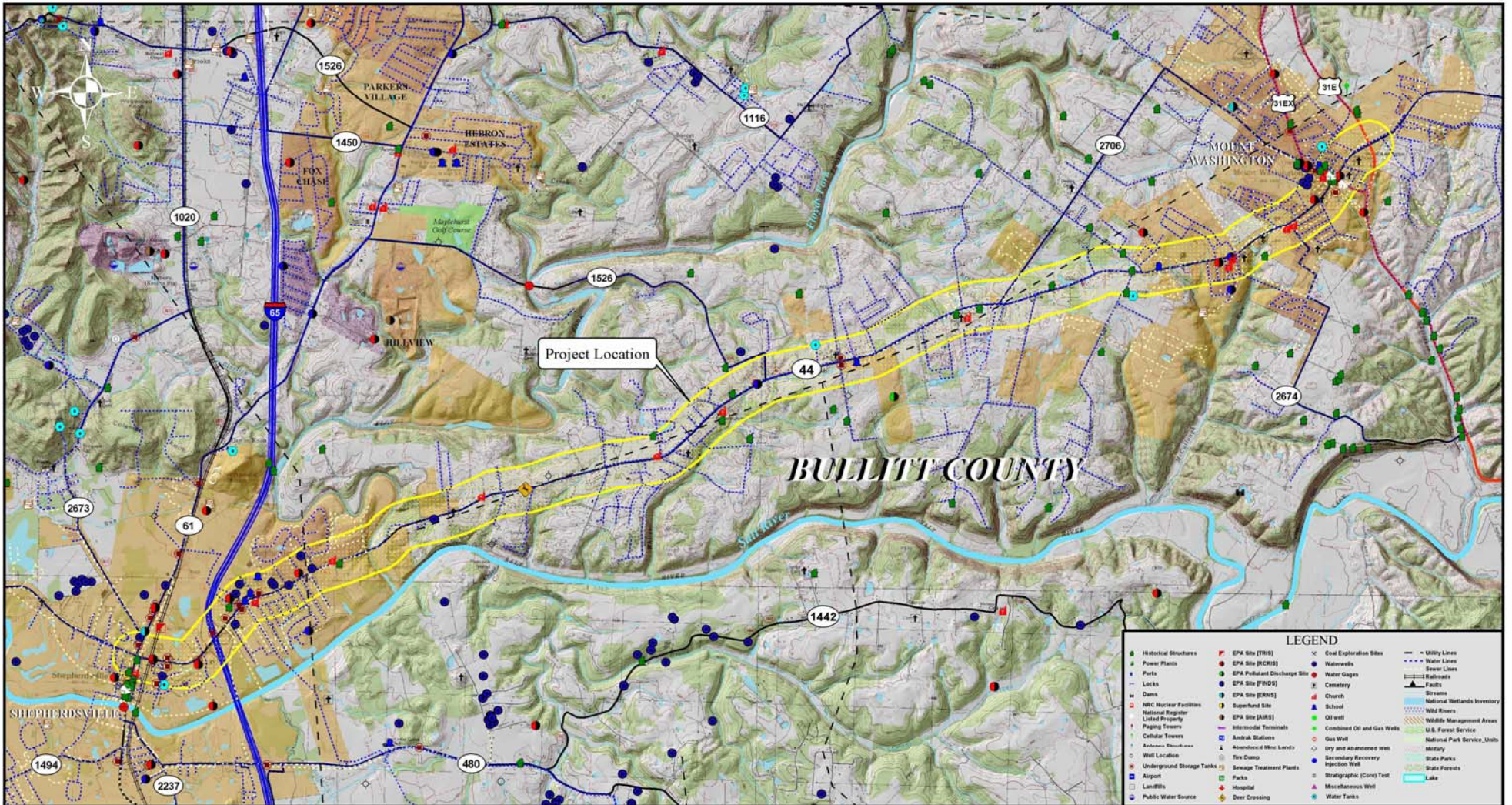


Exhibit 5
 High Crash Locations & Segments
 March 1, 2001 to March 1, 2004
 KY 44 Shepherdsville to
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LEGEND

Historical Structures	EPA Site (TRIS)	Coal Exploration Sites	Utility Lines
Power Plants	EPA Site (PCRS)	Waterways	Water Lines
Ports	EPA Pollutant Discharge Site	Water Gages	Sewer Lines
Locks	EPA Site (FINDS)	Cemetery	Railroads
Dams	EPA Site (ERIS)	Church	Faults
NRC Nuclear Facilities	Superfund Site	School	Streams
National Register Listed Property	EPA Site (URR)	Oil Well	National Wetlands Inventory
Paging Towers	Intermodal Terminals	Combined Oil and Gas Wells	Wild Rivers
Cellular Towers	Amtrak Stations	Gas Well	Wildlife Management Areas
Antenna Structures	Abandoned Mine Lands	Dry and Abandoned Well	U.S. Forest Service
Well Location	Tire Dump	Secondary Recovery Injection Well	National Park Service, Units
Underground Storage Tanks	Storage Treatment Plants	Stratigraphic (Core) Test	Military
Airport	Parks	Miscellaneous Well	State Parks
Landfills	Hospital	Water Tanks	State Forests
Public Water Source	Deer Crossing		Lake



Bullitt County (KY 44)



Project Location



U.S.G.S. Topographic Environmental Footprint

Exhibit 6
Bullitt County
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KY 44, From KY 61 in Shepherdsville to US 31E in Mount Washington

Note: Archaeological sites and threatened / endangered species are not shown due to the sensitive nature of the data.

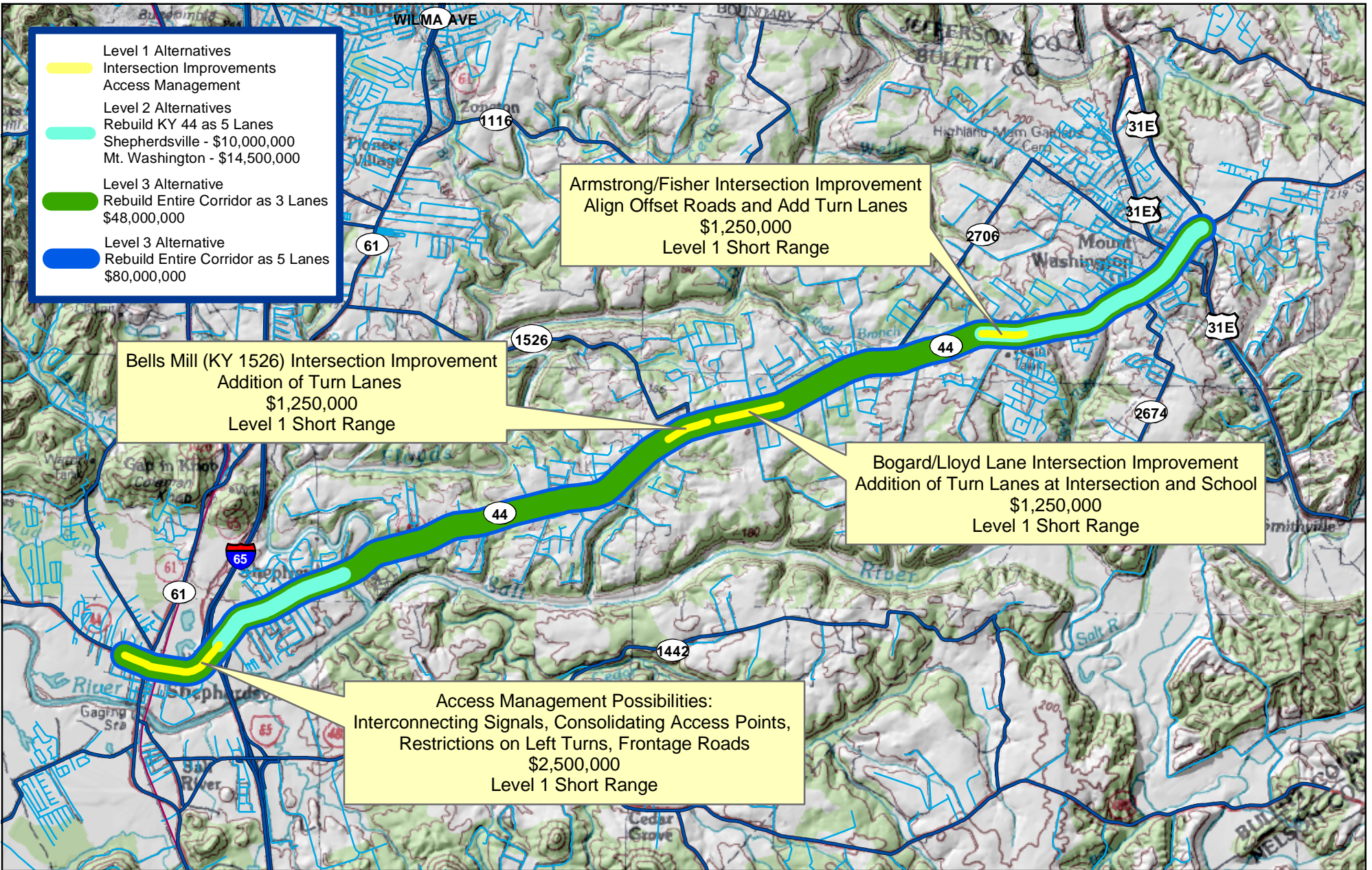


Exhibit 7
 Improvement Alternatives

KY 44 Shepherdsville to
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