

Table of Contents

I. INTRODUCTION	1
PART 1. Project Area Characteristics	3
II. HIGHWAY CHARACTERISTICS.....	4
III. FUTURE TRAFFIC CONSIDERATIONS.....	9
IV. ENVIRONMENTAL OVERVIEW	13
V. SOCIAL AND ECONOMIC CONSIDERATIONS.....	18
VI. GEOTECHNICAL OVERVIEW	23
PART 2. Corridor Development Process	25
VII. INITIAL CORRIDOR DEVELOPMENT.....	26
VIII. CORRIDOR DEVELOPMENT – PHASE 1.....	29
IX. CORRIDOR DEVELOPMENT – PHASE 2.....	38
PART 3. Corridor Analysis and Recommendations	47
X. DRAFT PROJECT GOALS	48
XI. ANALYSIS OF FINAL CORRIDORS FOR CONSIDERATION	50
XII. RECOMMENDATIONS AND NEXT STEPS	56
XIII. ACKNOWLEDGEMENTS AND CONTACTS	62
APPENDIX A. FIGURES	
APPENDIX B. PHOTOGRAPHS OF PROJECT AREA	
APPENDIX C. TABLES	
APPENDIX D. ENVIRONMENTAL OVERVIEW	
APPENDIX E. GEOTECHNICAL OVERVIEW	
APPENDIX F. MEETING MINUTES	
APPENDIX G. RESOURCE AGENCY COORDINATION RESPONSES	

I. INTRODUCTION

This project involves planning for the reconstruction and relocation of KY 30 in Jackson and Owsley Counties. The project is identified in the Kentucky Transportation Cabinet's *Approved 2000-2002 Biennial Highway Construction Program and Identified Preconstruction Program Plan for FY 2003 through FY 2006* (generally referred to as the Six Year Highway Plan) as Item No. 10-279.50.



Existing KY 30

This report provides a general introduction and description of the project; presents a traffic, geotechnical and environmental overview of the proposed project area; summarizes the public and agency input received to-date on the project; considers potential route alternatives; and provides recommendations and next steps for project development.

A. Project Location

The proposed highway project is located between US 421 near Tyner and KY 11 near Booneville in Jackson and Owsley Counties in the eastern portion of Kentucky. This is a rural area with rolling to mountainous terrain, situated in the Appalachian region and faced with severe economic challenges and needs for transportation infrastructure improvements. **Figure 1** in **Appendix A** provides a more detailed view of the project area. Shown below are photographs of the project termini:



Southern Terminus:
Intersection of KY 30 and US 421



Northern Terminus:
Intersection of KY 30 and KY 11

B. Project Purpose and Activities

The purposes of this study are 1) to identify potential location(s) for a new alignment and 2) to recommend a preferred alignment. Tasks involved with this study include:

- Define project goals;
- Consider existing conditions and future needs;

- Identify geotechnical issues and other concerns;
- Identify environmental issues and other concerns;
- Identify project termini and potential alternate corridors;
- Initiate contact with public officials and agencies;
- Listen to and share information with the public; and
- Provide recommendations for a 2000-foot corridor.

C. Programming and Schedule

The project addressed in this study was scheduled in the FY 2001 (2000-06) Six Year Highway Plan, with committed funds of \$500,000. The FY 2003 (2003-08) Six Year Highway Plan does not include funds for additional phases of project development.

D. Report Organization

This document is organized into three (3) parts. **Part 1** provides a description of the general project area, characteristics and potential identified issues. **Part 2** documents the corridor development process, public involvement and related issues. **Part 3** provides an analysis of identified corridors and makes recommendations for future improvements in the project area.

PART 1. Project Area Characteristics

Part 1 of this document provides an overview of the general project area for the KY 30 Scoping Study. Included in **Chapter II** are transportation systems, geometric data, bridges, existing traffic conditions, vehicle crash history and planned highway improvements. **Chapter III** provides an analysis of future traffic conditions with and without area transportation improvements. The environmental overview in **Chapter IV** addresses water quality issues, soils and geology, species and habitats, historic and archaeological resources, and monitored sites. Items considered as part of the social and economic overview in **Chapter V** include: housing, community sites, employment, population characteristics and environmental justice issues. **Chapter VI** provides a geotechnical overview for the project area, including: topography, groundwater, mining, oil and gas wells, and constructability issues.

II. HIGHWAY CHARACTERISTICS

Characteristics of the major highways in the project area are identified in the following sections. Included are transportation systems, geometric data, bridge data, traffic data, vehicle crash history and planned highway improvements. Features of the highways in the project area are summarized from the Kentucky Transportation Cabinet's Highway Information System (HIS) database. Maps and detailed table summaries of HIS information are provided in the attached appendices and are referenced below. Photographs of some features along KY 30 and within the project area are included in **Appendix B**.

A. Highway Systems

The various highway systems represented by project area roadways are summarized in **Table 1** in **Appendix C**. These include the State System, the National Truck Network (NN) and the National Highway System (NHS). Functional classification and truck weight class are also listed for the project area routes. The highway systems information is summarized as follows:

- KY 30 is classified as a State Primary Route on the State System and is functionally classified as a Rural Minor Arterial.
- KY 30 is not designated as a National Truck Network (NN) corridor. This route is designated a AA truck weight class highway in Jackson County and a A truck weight class highway in Owsley County. US 421 in Jackson County and KY 11 in Owsley County are the only routes designated as AAA truck weight class highways in the project area.



US 421 near KY 30

DEFINITIONS

State System: State-maintained roads in Kentucky are classified into four categories under the state system, ranging from Supplemental Road to State Primary.

National Truck Network: The National Truck Network (NN) includes roads that have been specifically designated for use by trucks with increased dimensions (102 inches wide; 13 feet, 6 inches high; semi-trailers up to 53 feet long; trailers up to 28 feet long – not to exceed two trailers per truck).

National Highway System: The National Highway System (NHS), a system of nationally important roads, was established in the Intermodal Surface Transportation Efficiency Act (ISTEA). It includes the Interstate Highway System and other significant principal arterial roads important to the nation's economy, defense and mobility.

Functional Classification: One (1) of 12 functional classification categories is assigned to each state-maintained road in Kentucky.

Truck Weight Class: The Kentucky Revised Statute requires weight limits on the state-maintained highway system. With the exception of permits for over-dimensional or over-gross-vehicle-weight-classification-limit vehicles issued by the Kentucky Transportation Cabinet, Division of Motor Carriers, there are three weight classification limits: 1) AAA – 80,000 lbs. gross vehicle weight; 2) AA – 62,000 lbs. gross vehicle weight; and 3) A – 44,000 lbs. gross vehicle weight.

- No roadways within the project area are part of the National Highway System (NHS).
- While KY 30 is not currently classified as a major arterial highway or truck route, improvements to this corridor could serve to upgrade the standards and classification for the route and thereby improve regional accessibility.

B. Geometric Characteristics

In the project area, KY 30 is generally characterized by rolling terrain and narrow lanes and shoulders. Geometric characteristics for major routes in the project area, listed in **Table 1** in **Appendix C**, include items such as the number of lanes, lane widths, shoulder widths, type of terrain and posted speed limits. Geometric characteristics along KY 30 include:

- Two nine-foot lanes;
- One to two-foot shoulders;
- An undivided highway cross-section;
- No passing sight distances;
- Rolling terrain;
- A posted speed limit of 55 mph for most of the corridor, with a 35 mph speed limit between MP 10.799 (KY 11 Spur at Levi) and MP 11.000 (near Old KY 11) in Owsley County.



Narrow lanes and curves along KY 30

The existing geometric characteristics of KY 30 do not meet the design criteria for a 60-mph design speed. A visual inspection of the corridor indicated the following:

- Along KY 30 from US 421 at Tyner to KY 846 near Sturgeon, there are about 41 substandard vertical curves and 59 substandard horizontal curves; and
- Between KY 846 and KY 11 there are about 27 substandard horizontal curves along the existing KY 30 route.

Because of the existing KY 30 geometry, full reconstruction of the route may be preferred as an alternative to improvements to spot sections or segments.

C. Bridges

Bridge data for the routes considered in this project are listed in **Table 2** in **Appendix C**, including bridge length, width, horizontal clearance, sufficiency ratings and feature intersected.

The bridge data indicate two bridges along KY 30 in Jackson County are considered to be functionally obsolete; however, neither has a sufficiency rating below 50.0:

- B00033 over Blackwater Creek, and
- B00034 over Sturgeon Creek.

METHODOLOGY

Bridge Ratings: A bridge with a sufficiency rating less than fifty (50.0) is considered to be eligible for replacement with federal funds under the Federal-Aid Highway Bridge Replacement and Rehabilitation Program. Bridges can also be rated either structurally deficient or functionally obsolete.

Two bridges along KY 30 in Owsley County fall below a sufficiency rating of fifty (50.0):

- B00013 over Little Sturgeon Creek has a rating of 45.5; and
- B00014 over Little Sturgeon Creek has a rating of 29.3 and is structurally deficient.

Three other bridges along KY 30 in Owsley County are rated functionally obsolete, with horizontal clearances of less than 20 feet:

- B00030 over Little Sturgeon Creek;
- B00033 over Buck Creek; and
- B00034 over Buck Creek.

D. Existing Traffic and Level of Service

Both existing (Year 2001) and future (Year 2025) traffic volumes have been identified for study area routes as part of this project. The existing traffic and levels of service (LOS) are discussed further in the following subsections and are identified in **Figure 2** in **Appendix A**. A detailed analysis of future traffic volumes and levels of service is included in **Chapter III** of this report.

1. Existing Traffic Volumes

The existing traffic volumes and the corresponding truck percentages along study area routes are shown in **Figure 2** in **Appendix A** and **Table 1** in **Appendix C**. Along KY 30 between US 421 and KY 11:

- Existing traffic volumes are relatively low and range from about 450 vpd near the Jackson-Owsley County line to about 1,340 vehicles per day (vpd) just south of Booneville; and
- Existing truck percentages average from approximately 7.6 percent to 9.0 percent of the total traffic. The highest truck percentages in the study area are found along US 421.

2. Existing Operational Conditions

Figure 2 in **Appendix A** and **Table 1** in **Appendix C** also show existing levels of service calculated for segments of each route in the project area. Existing operational conditions in the project area are as follows:

- US 421, KY 30, and KY 11 operate at LOS E in the study area; and
- Other roadways in the project area currently operate at LOS C or better.



Bridge along KY 30 at Vincent



Bridge along KY 30 at Travellers Rest

METHODOLOGY

Traffic Volumes: Existing traffic volumes (Year 2001) along KY 30 and other project area routes are summarized based on information provided in the HIS database. Existing truck percentages were determined for routes using the HIS data and Kentucky Transportation Cabinet default values for functional highway classes.

Level of Service: Level of Service (LOS) is a qualitative measure defined in the *2000 Highway Capacity Manual*, published by the Transportation Research Board (TRB) and used to describe traffic conditions. Individual levels of service characterize these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions and comfort and convenience. Six levels of service are defined and are given letter designations from A to F with LOS A representing free flow conditions and LOS F representing severe congestion. Typically, a minimum of LOS D is acceptable in urban areas and LOS C in rural areas. Chapters 15, 20 and 21 of the *2000 Highway Capacity Manual* provide guidelines on the analytical procedures for estimating LOS for streets and highways.

E. Vehicle Crash Analysis

Vehicle crashes identified within the study area are shown in **Figure 3** in **Appendix A** and in **Table 3** in **Appendix C**. Along KY 30 between US 421 and KY 11, the accident analysis reveals:

- No fatal crashes;
- 11 injury crashes;
- 18 property-damage-only crashes; and
- No spot locations or segments identified as high crash or potential high crash locations.

It should also be noted that there were several vehicle crashes recorded along US 421 in the proximity of the KY 30 and US 421 intersection. There were three (3) property-damage-only crashes and one (1) fatality crash recorded within 0.5 miles of this intersection.

METHODOLOGY

Crash Data: Vehicle crash data for routes in the project area were considered for a four-year period from January 1, 1997 through December 31, 2000. The location of vehicle crashes with valid milepoint designations were identified through data obtained from the Kentucky Transportation Cabinet's Highway Information System (HIS).

Crash Analysis: When a roadway segment has a critical rate factor greater than one (1.00), this indicates that accidents 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 (1995-1999)*. A spot location or segment of roadway is considered to have a high crash rate when the total crash rate is higher than the critical accident rate for similar roadways in the state.

F. Programmed Highway Improvements

In addition to the KY 30 Scoping Project, other projects are planned and programmed for project area routes in the FY 2003-2008 Six Year Highway Plan, as outlined in **Table 4** in **Appendix C**. Major projects within the KY 30 study area include:

- \$2.7 million for right-of-way and utility activities for the relocation of KY 30 from the Rockcastle River to Welchburg Road in Jackson and Laurel Counties;
- \$17.1 million for right-of-way, utility and construction activities for the relocation of KY 30 from Welchburg Road to US 421 near Tyner in Jackson County; and
- \$7.1 million for design, right-of-way, and utility activities for the reconstruction of KY 11 from KY 30 at Levi in Owsley County to Beattyville in Lee County.

One bridge replacement project is planned along KY 30 in Owsley County:

- \$0.24 million for right-of-way, utility and construction activities for the replacement of the bridge and approaches at Little Sturgeon Creek just west of KY 846 (milepoint 3.415).

III. FUTURE TRAFFIC CONSIDERATIONS

This chapter provides an analysis of future traffic growth scenarios for the KY 30 corridor in Jackson and Owsley Counties. Historic travel data for a region along with future socioeconomic trends typically provide a baseline forecast for future traffic growth trends. In addition, potential improvements to KY 30 and other routes within and adjacent to the study area can also influence traffic growth. Such improvements are given consideration in order to develop a future scenario for KY 30 that considers the impacts to regional accessibility that could be realized through highway improvements. The following sections provide an analysis of these future scenarios:

- Year 2025 traffic forecasts without improvements to KY 30, based on historic traffic growth rates for Jackson and Owsley Counties; and
- Year 2025 traffic forecasts with improvements to KY 30, based on the Kentucky Statewide Traffic Model (KYSTM).

A. Future Traffic without Highway Improvements

This section provides a discussion of the expected Year 2025 traffic conditions without any transportation improvements in the study area. The future traffic volumes, based on historical growth rates, are shown in **Figure 4** in **Appendix A** and **Table 1** in **Appendix C**. Year 2001 traffic volumes and levels of service are also shown in the table for comparison purposes.

As shown in the figure, traffic volumes in Year 2025 along KY 30 between Tyner and Booneville range from about 740 vehicles per day (vpd) to 2,060 vpd, with higher traffic volumes occurring in the urban areas. KY 11 near Booneville and US 421 near Tyner have the highest future year traffic volumes of 6,460 vpd and 5,890 vpd, respectively.

METHODOLOGY

The historical traffic growth rate for the KY 30 project area was based on 12 years of travel data for Jackson County and 15 years of travel data for Owsley County, both verified by the Kentucky Transportation Cabinet's forecasts of statewide Vehicle Miles Traveled (VMT). Based on these factors, a compounded annual growth rate of 2.0 percent for Jackson County and 1.8 percent for Owsley County was assumed through Year 2025, resulting in a cumulative increase in vehicle travel of 60.8 percent for Jackson County and 53.4 percent for Owsley County from 2001 to 2025.

In calculating levels of service, it was assumed that the existing truck percentage values, shown in **Table 1** in **Appendix C**, would remain constant through Year 2025. However, it is possible that some truck percentages could increase or decrease as highway improvements are completed in the project area.

B. Future Traffic with Highway Improvements

This section provides a discussion of the expected Year 2025 traffic conditions with transportation improvements in the study area that could serve to divert additional traffic into the KY 30 corridor. As part of the future traffic analysis, the Kentucky Statewide Traffic Model was used to study four (4) improvement scenarios:

- Scenario 1: No transportation improvements within or around the project area.
- Scenario 2: Reconstruction of KY 30 between East Bernstadt and Tyner.
- Scenario 3: Construction of a new KY 30 alignment between Tyner and Booneville and reconstruction of KY 30 between East Bernstadt and Tyner.
- Scenario 4: Construction of a new roadway providing a direct connection between Booneville and I-64, construction of a new KY 30 alignment between Tyner and Booneville and reconstruction of KY 30 between East Bernstadt and Tyner.

The analysis of these four (4) scenarios was intended to provide an overview of potential results related to area transportation improvements. Through the KYSTM, the improvement of KY 30 between Tyner and Booneville was considered as part of a regional connection between I-75 and I-64 through the study area.

METHODOLOGY

The Kentucky Statewide Traffic Model is a software tool that is often used to predict future traffic growth along highways throughout Kentucky. The model has been utilized on a variety of highway planning study activities that have involved both traffic forecasting and feasibility analysis efforts.

In order to determine whether the KYSTM would provide acceptable results along the KY 30 corridor, traffic counts in the area were compared to the model's assigned volumes. For the 1999 model, traffic counts in the study area varied by an average of less than 7% when compared to the volumes in the KYSTM. Based on this minimal difference, it was concluded that the KYSTM could be a reliable tool for considering future traffic characteristics along KY 30.

Once the validity of the model was verified, base year (1999) and future year (2030) model runs were prepared for four (4) theoretical future improvement scenarios. The resulting traffic volumes were then factored to the parameters discussed in this study: Year 2001 and Year 2025.

Figure 5 in **Appendix A** and **Table 5** in **Appendix C** provide the results obtained from each of the above simulations and the following sections address each scenario.

1. Scenario 1 – No Transportation Improvements

This scenario is similar to **Section A** of **Chapter III** and is presented for the purposes of comparison with the other scenarios. The traffic volumes for this analysis have been generalized into three segments in the study area (East Bernstadt to Tyner, Tyner to Booneville, and Booneville to Slade) to allow for comparison with the other alternative scenarios.

As shown in **Figure 5**, Year 2025 traffic volumes without any transportation improvements in the study area are expected as follows:

- Approximately 5,100 vpd along KY 30 between East Bernstadt and Tyner;
- Approximately 1,700 vpd along KY 30 between Tyner and Booneville; and,
- Approximately 5,000 vpd along KY 11 from Booneville to Slade.

2. Scenario 2 – Reconstruction of KY 30 between East Bernstadt and Tyner

This scenario considers the effect of the KY 30 reconstruction between East Bernstadt and Tyner, reflecting committed improvements along this route. Design activities have been completed for this section, with additional funding scheduled for right-of-way, utility and construction activities.

Year 2025 traffic volumes for this scenario are expected to be as follows:

- About 6,800 vpd along KY 30 between East Bernstadt and Tyner;
- Approximately 1,800 vpd along KY 30 between Tyner and Booneville; and,
- About 5,000 vpd along KY 11 from Booneville to Slade.

As shown through this analysis, improvements between East Bernstadt and Tyner are estimated to only moderately increase traffic within the study section of KY 30 between Tyner and Booneville. This would suggest that the limited design and operational conditions along the study section of KY 30 continue to serve to discourage travel along this route.

3. Scenario 3 – Construction of a new KY 30 alignment between Tyner and Booneville and reconstruction of KY 30 between East Bernstadt and Tyner

Scenario 3 provides for construction of a new KY 30 route between Tyner and Booneville, plus the improvements considered in Scenario 2. For the improved section between Tyner and Booneville, a new 2-lane road with a design speed of 65 mph was added to the KYSTM.

Year 2025 traffic volumes for this scenario are expected to be as follows:

- Approximately 7,200 vpd along KY 30 between East Bernstadt and Tyner;
- Approximately 2,600 vpd along KY 30 between Tyner and Booneville; and,
- Approximately 5,500 vpd along KY 11 from Booneville to Slade.

With an improved route between East Bernstadt and Booneville in place, Year 2025 traffic volumes are anticipated to substantially increase over the no improvement scenario. As shown through this analysis, these improvements are estimated to increase traffic by over 50% in the study section of KY 30 between Tyner and Booneville as additional traffic from Booneville is diverted into the corridor along with traffic from the Mountain Parkway that accesses the corridor via an upgraded KY 11.

4. Scenario 4 – Construction of a new roadway providing a direct connection between Booneville and I-64, construction of a new KY 30 alignment between Tyner and Booneville and reconstruction of KY 30 between East Bernstadt and Tyner

Scenario 4 provides for construction of new route between Booneville and I-64, plus the improvements identified for Scenarios 2 and 3. The scenario represents the completion of an improved facility between I-75 in East Bernstadt and I-64 in Grayson. For the improved section between Booneville and I-64, additions to the model included an improved route with a design speed of 65 mph.

Year 2025 traffic volumes for this scenario are forecast as follows:

- Approximately 8,500 vpd along KY 30 between East Bernstadt and Tyner;
- Approximately 3,900 vpd along KY 30 between Tyner and Booneville; and,
- Approximately 7,100 vpd along KY 11 from Booneville to Slade.

With an improved route between East Bernstadt and I-64 in place, Year 2025 traffic volumes are anticipated to again increase substantially above the volumes projected for the other improvement scenarios. The Scenario 4 improvements are estimated to increase traffic by almost 130% over Scenario 1 conditions in the study section of KY 30 between Tyner and Booneville. This increase translates to an average volume of about 3,850 vpd in the study area in the Year 2025.

By extending the corridor to I-64, an additional amount of traffic is diverted into the study corridor for KY 30 such that the future traffic is almost three (3) times higher than the traffic on the roadway today.

IV. ENVIRONMENTAL OVERVIEW

This chapter provides a summary of the environmental issues identified in the project area. Most of the data provided herein is based on a separate document entitled *Environmental Overview KY 30 Scoping Study*, September 2001. This report is included in **Appendix D**.

Figure 6 in **Appendix A** shows environmental features identified within the project area. The same information is overlaid on a digital orthophotograph in **Figure 7**. The following sections summarize issues in the general project area.

METHODOLOGY

A local area Geographic Information System (GIS) was assembled for the defined project area using relevant environmental data collected from numerous sources that include: federal, state and local databases; archival research; agency contacts; field investigations; and windshield surveys. The compiled data was geo-referenced as needed using the GIS developed for the project.

Issues considered as part of the environmental overview include: geologic formations, hydrology, watersheds, streams, wetlands, floodplains, soils, flora and fauna, threatened or endangered species, cultural historic resources, archaeological sites, underground storage tanks and other monitored sites.

A. Potential Issues Identified

Should future reconstruction efforts take place along the KY 30 corridor, careful consideration will need to be given to addressing key environmental issues during the design and construction phases. Environmental issues identified for further analysis throughout the future phases of this project include:

- The majority of Jackson and Owsley Counties is within the Eastern Coal Fields physiographic region. The project area contains three geologic formations: Alluvium, Breathitt, and Breathitt and Lee. The Breathitt formation is known for instability of thick sequences of shale and siltstone, a factor often affecting construction projects since steepening of slopes by artificial cuts may cause landslides.

Input from local community members indicates the potential presence of Karst topography along the western edge of the project area in Jackson County.
- The Breathitt and Lee Formations are important to the hydrology of the area. Joints and openings along the bedding planes supply most of the water to drilled wells. There are numerous domestic water wells in the corridor, mostly concentrated around the community of Travellers Rest.
- The watershed within the project area is composed of three main creeks and their tributaries, all of which appear to provide good habitats for macroinvertebrates and fish. A bridge or culvert will likely be needed to cross these area streams:
 - Sturgeon Creek is considered to have a Class 1 Botanical Resource Corridor character from river mile 13.7 to 15.6 in Owsley County. In some areas of

Sturgeon Creek, the riparian zone provides a dense canopy that shades the entire stream width. Tributaries include Herd Fork, Rocky Branch and Wilfreds Fork.

- Tributaries to Little Sturgeon Creek include Hatsock Branch, Rowlette Branch, Beals Fork and Wilson Fork.
- Buck Creek the only stream in the project area that drains into the South Fork of the Kentucky River.
- National Wetland Inventory (NWI) maps for Tyner, Maulden, Sturgeon and Booneville indicate the presence of wetlands throughout the project area:
 - In the Tyner Quadrangle, there is an extensive wetland along the entire length of Herd Fork. This wetland is characterized as riverine, lower perennial, unconsolidated bottom and permanently flooded.
 - In the Maulden Quadrangle, there is a riverine, lower perennial, unconsolidated bottom, permanently flooded wetland along Maulden Branch.
 - The Sturgeon Quadrangle includes numerous wetlands, most of which are riverine and follow the numerous streams in the area. Locations include Sturgeon Creek, along KY 30 north of Elias, northeast of Travellers Rest, Little Sturgeon Creek and Rowlette Branch.
 - In the Booneville Quadrangle, there is a riverine, lower perennial, unconsolidated bottom, permanently flooded wetland along Buck Creek. There are also two palustrine, emergent, persistent, semi-permanently flooded wetlands that have been excavated west of Booneville, located on a reclaimed mine site.

Riverine wetlands include all deepwater and wetland habitats contained within a channel, with two exceptions: 1) waters containing salts in excess of 0.5 percent and 2) wetlands dominated by mosses, shrubs and trees.

- All of the floodplains in the project area have been impacted by human activities such as bridging and changing of topography to allow for agricultural activities or construction. The floodplains along Sturgeon Creek and Little Sturgeon Creek are designated as areas of 100-year flood in Owsley County. Designated 100-year floodplains are also on the South Fork of the Kentucky River near the Booneville area. In Jackson County, the floodplains along Sturgeon Creek are considered Special Flood Hazard Areas.
- The Kentucky Department of Fish and Wildlife Resources (KDFWR) and U.S. Fish and Wildlife Service (USFWS) have indicated that no federally listed endangered or threatened species occur within the project area. However, information from the Kentucky State Nature Preserves Commission (KSNPC) indicates the following:
 - There is the possibility of two special concern species in the project area, including the Kentucky ladies slipper (*Cypripedium kentuckiense*) and the Rafinesque's big-eared bat (*Corynorhinus rafinesquii*).



Kentucky Ladies Slipper
(<http://www.biosurvey.ou.edu>)

- The Indiana bat (*Myotis sodalis*) is known to occur in Jackson County. Extensive realignment of KY 30 could potentially impact roosting and foraging habitat for this species.
- Sturgeon Creek supports a high diversity of native mussel species. This project has the potential to impact rare plant populations, aquatic species and water quality along Sturgeon Creek.
- Input from local community members also indicates that endangered species may be found along cliff lines in the project area, potentially including the Virginia big-eared bat and the Indiana bat.

Further fieldwork will be necessary in future project phases to determine if these species exist in the project's corridor and within right-of-way limits.

- Research from the Kentucky Heritage Council indicates that there are 57 historic properties recorded in and near the project area. Of the 57 historic properties, 21 are located in downtown Booneville and are not likely to be affected by the KY 30 project. The historic properties include:
 - 22 historic residences dating from the mid 19th century to the 20th century;
 - One (1) store/commercial building;
 - Four (4) schools/churches;
 - One (1) other (bridge, road, etc.): and
 - Eight (8) historic properties of unidentified or unknown function.

For the properties recorded in the study region, no information is available related to National Register status. The Kentucky Heritage Council indicates that there may be additional standing structures in the project area that are eligible or potentially eligible on the National Register of Historic Places (NRHP).

A final determination of eligibility of potential sites and National Register boundaries cannot be made until each site has been examined more closely and site-specific archival research has been completed in future project phases. The Jackson County Development Cooperative has documented some of the historic characteristics of Jackson County, which may be helpful to future research efforts.



Potential historic structure along KY 30

Input from local community members indicates that the Moore farm near the US 421/KY 30 intersection may have an historic smokehouse.

- Records from the Office of State Archaeology indicated previously documented archaeological sites in the project area. The majority of the documented sites are at elevations between 900 and 1010 feet, reflecting habitation on the ridge tops in this region. None of these sites are documented for assessment of National Register eligibility. The archaeological sites include:
 - 13 dwellings or farmstead sites with historic components; and

- Five (5) prehistoric sites, including Early Archaic, Late Archaic and Woodland components.

The presence of recorded archaeology sites within the project area suggests that unrecorded archaeological sites may be encountered. It is also likely that there is under-enumeration of sites in Owsley, based on the higher number of sites recorded in Jackson County where Daniel Boone National Forest archaeologists have recorded many historic and prehistoric sites. Surveys should be conducted to determine if any archaeological sites are eligible for listing on the NRHP.

- Records research and field review of underground storage tanks (USTs) in the project area revealed the following:
 - Three (3) 3,000-gallon steel tanks were removed from the former site of Bo's Grocery Store near Vincent in 1998. A 280-gallon steel tank containing gasoline reportedly remains on site and a vent pipe was observed in the area of the former tank pit. On the other hand, input from local community members indicates that the underground storage tanks at Bo's Grocery Store have been removed.
 - Records indicate that the Gary Roberts property near Levi contains a 1,000-gallon tank and a 560-gallon tank, both containing gasoline. The site owner indicates that both tanks were removed in 2000 and that remediation may be required at the site.

Any underground storage tanks or contamination encountered during this project must be properly reported and remediated.

- One (1) superfund site is identified south of Mumme in Jackson County about 5,000 feet southeast of existing KY 30. Vickers Enterprise, Incorporated, is identified as an approved bioremedial recycling site in the Kentucky Solid Waste Facility database. The site contact indicates that there is not a registered solid waste facility in this location. Further research of this site will be required in future phases of this project should design alternatives fall within proximity of this site.
- Input from local community members indicates the presence of one illegal dumpsite at the intersection of KY 30 and Creech Road. Cleanup activities are reportedly underway at this site.
- Several propane tanks and above-ground gasoline/diesel storage tanks (ASTs) were observed in the project corridor. Such tanks should be accommodated or decommissioned during the right-of-way acquisition phase of this project.

B. Other Issues Considered

Other issues considered as part of this analysis include:

- The two dominant soil associations for the project area are the Shelocta-Gilpin and the Gilpin-Shelocta-Rayne. These soils are deep to moderately deep, well-drained, steep to gently sloping, with loamy subsoil.
- The surface streams and groundwater in the project area have all been impacted by human activities within their drainage areas. Agricultural practices contribute fertilizer, pesticide and herbicide chemicals to the streams that receive runoff from agricultural areas. Groundwater has been impacted by the same pollution contributing forces that influence surface water quality.

- The project area supports flora and fauna that are typical of second-growth deciduous forests. Wildlife species that would be expected in the project area are generally adapted to the encroachment of man. The elimination of forested areas could limit habitat for small mammals and/or larger game animals that might inhabit the area.
- There are no Wild and Scenic Rivers; Outstanding Water Resources; exemplary natural communities; natural areas; recreational areas; or wildlife and waterfowl refuges located with the project area. There are also no outdoor recreational land and water areas or facilities established from grants-in-aid from the Land and Water Conservation Fund Act.
- Pursuant to the 1990 Clean Air Act Amendments, the project area has been designated an attainment area for all transportation-related pollutants (CO, HC, NOx, and TSP). This project is in an area that does not require transportation control measures.
- There are approximately 10 potential air receptors in the project area; however, it is anticipated that concentrations of carbon monoxide will remain below both the one-hour standard (35 ppm) and the eight-hour standard (9 ppm), regardless of the corridor selected for this project.
- There are approximately 20 potential noise receptors in the project area, most of which are isolated single structures. Given the rural nature of the project area, the vehicle mix and traffic volumes, highway noise impacts are not expected to influence project feasibility or location decisions.

V. SOCIAL AND ECONOMIC CONSIDERATIONS

This chapter provides a discussion regarding the social and economic considerations in the project area. Most of the data provided herein is based on an internal working document entitled *Environmental Overview for Reconstruction of KY 30*, March 2001. An abbreviated version of the environmental report is included in **Appendix D**. The following sections summarize issues in the general project area.

METHODOLOGY

Items considered as part of the social and economic overview for this project include: residential areas, housing markets, schools, gathering places, cemeteries, local employment, population characteristics, environmental justice issues, land use and community impacts.

A. Potential Issues Identified

Within the project area, issues identified for further analysis throughout future phases of this project include:

- The project area is typical of mountainous regions, with residences and businesses typically located close to existing roadways. Highway improvements in the project area are likely to require some relocations. The number of potential residential relocations in the project area is expected to be less than 25.
- The existing businesses in the project area are expected to benefit from increased traffic expected along the reconstructed KY 30 route, if the reconstructed route is connected to the existing KY 30 corridor.
- A number of schools are located within the project area, including:
 - Tyner High School, Hickory Flat School and Big Springs School in Jackson County; and
 - Bethlehem School, Leroy School and Royal Oak School in Owsley County.
- Community gathering places in the project area include:
 - Twelve (12) churches (church names are listed on page 6 in Appendix D); and
 - The New Hope Masonic Lodge No. 564



Post Office and Craft Store along KY 30 near Vincent



Rock Springs Church near Green Hall

near Travellers Rest.

- Preliminary analysis of Property Valuation Assessor (PVA) data for Jackson and Owsley Counties shows the potential presence of family clusters in the project area. As shown in **Figure 8**, some of the adjacent properties are registered to the same family name. Further consideration of this data would be necessary to determine which properties are identified as family clusters.
- Several cemeteries are located within the project area, including:
 - Short Cemetery (approximately 60 graves);
 - A private cemetery at Maulden (approximately 14 graves);
 - A private cemetery on Radford Hill Road (5 graves);
 - Flannery Cemetery (approximately 40 graves); and
 - A private cemetery on Farmers Cemetery Road.



Sign to Flannery Cemetery along KY 30

Also common throughout the project area are small private cemeteries with a small number of graves (less than five). Other cemeteries are often unmarked with limited or no information available, and may likely be encountered during construction in this area.

Input from local community members indicates the presence of up to 200 unmarked gravesites within the Herd to Elias area and possibly other unmarked gravesites within the project area. The Booneville library has documents that could help locate some of these cemeteries. Officials in Owsley County are also willing to donate land for a public cemetery to facilitate any necessary gravesite relocations.

- Agriculture is not the main land use in Jackson or Owsley County. It is generally limited to narrow valleys and the predominant cash crop is tobacco. One Agricultural District, #055-01, is located in the project area. It encompasses the southern terminus of the existing KY 30 corridor north of Tyner.



Agricultural area along KY 30

About 20,000 acres (or 5.7%) of the Jackson and Owsley County land area is considered to be prime farmland and is scattered throughout the two counties. Input from local community members indicates that some of the best farmland in Jackson County lies between the Herd and Elias areas, south of existing KY 30.

Conversion of farmland to other uses as the result of improvements to KY 30 could result in a net loss of farmland along the project corridor. Coordination with the Natural Resources Conservation Service, development of farmland impact

assessment evaluations, and soil investigations by the United States Department of Agriculture will be required to satisfy the NEPA process.

- The Jackson County Empowerment Zone Community, Inc. and the Jackson County/McKee Industrial Development Authority have worked together to recruit new industry to the area and expand existing businesses. There are three (3) industrial parks in Jackson County, including McKee Industrial Park, Jackson County Regional Industrial Park and Jackson County Northern Industrial Park. Economic development officials are exploring the possibility of developing a fourth park near the McKee Industrial Park site.

Developed by the Booneville/Owsley County Industrial Authority, the Owsley County Industrial Park currently has three (3) buildings, but has the capability of expanding to about 100 acres.

Truck access to the local industrial parks in the project area is an issue for site development and the accompanying increase in local jobs. The Kentucky Cabinet for Economic Development has indicated that any improvement to the local transportation network would most likely have a positive impact on the industrial parks.

- According to the *Kentucky Economic Statistics Deskbook 2001*, the average commute time is about 35 minutes for Jackson County residents and about 23 minutes for Owsley County residents. The statewide average commute time is about 21 minutes. As of 1999, the major employment sector was manufacturing in Jackson County and state and local government in Owsley County.

Officials from both counties offer incentives to new and existing industries that would like to locate or expand in the area. Local officials indicate that reconstruction of KY 30 has the potential to increase the number of local job opportunities by improving access.

- The potential for improvements to the economic viability of Jackson, Owsley and surrounding counties will be greater with improved truck access to and from local industries. Jackson County is one of three Empowerment Zones across the state that share \$40 million in government funds for economic and community development. Owsley, Breathitt and Perry Counties are also applying for Empowerment Zone status. Local officials involved in the Empowerment Zone program list the reconstruction of KY 30 as the top priority for improving the economic development potential for Owsley, Breathitt and Perry Counties.

B. Environmental Justice Considerations

Jackson and Owsley Counties have historically been considered low-income areas. The proposed project area is located in a portion of Kentucky with some of the highest poverty rates. Jackson and Owsley Counties are considered to be distressed counties, meeting the following criteria: (a) have at least 150% of the U.S. average unemployment rate, (b) at least 150% of the U.S. poverty rate, and (c) 67% or less of the U.S. per capita market income, or (d) 200% poverty and one of the other two distressed indicators.

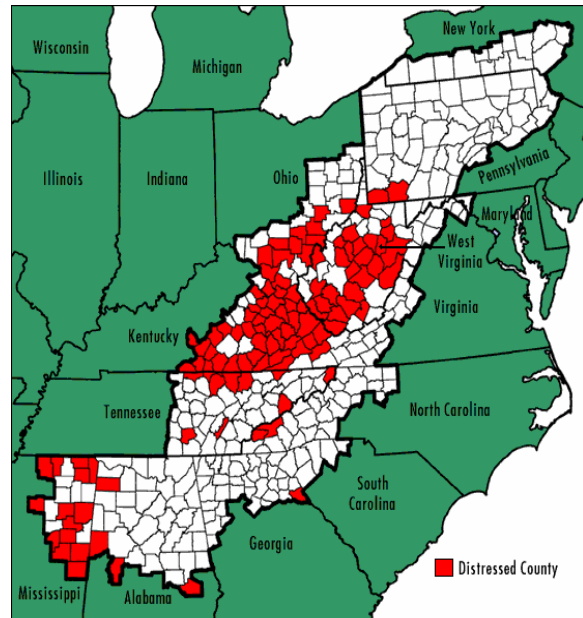
The median family income for the project area was far below the statewide and nationwide average for fiscal year 2000. Median family income values included:

- \$50,000 nationwide;
- \$42,200 in Kentucky;

- \$21,500 in Jackson County; and
- \$16,600 in Owsley County.

Environmental Justice concerns related to low-income populations are likely within the project area, which lies in Census Tract 9603 in Jackson County and Census Tracts 9901 and 9902 in Owsley County. As shown in **Table 6** in **Appendix C**, the 1999 Census data indicates that all census tracts and block groups in the project area have higher low-income rates than are average in Kentucky. The census data reveals the following:

- Low-income rates in Owsley County (45%) and Census Tracts 9901 (46%) and 9902 (44%) are nearly three times as high as the state average of 16%.
- Low-income populations in Block Group 3 in Census Tract 9901 and Block Group 2 in Census Tract 9902 exceed the Owsley County average by 5% and 8% respectively. The remaining four (4) block groups in these census tracts have low-income populations below the average for Owsley County.
- Low-income rates in Jackson County (30%) and Census Tract 9603 (30%) are nearly double the state average of 16%.
- In Census Tract 9603 in Jackson County, Block Group 1 exceeds the county average for low-income populations by 7%. The other three (3) block groups in this census tract have low-income populations below the average for Jackson County.



Distressed Counties in Appalachia
<http://arc.gov/programs/distresd/dsimap>

The Kentucky Mountain Housing Corporation (KMHC) has constructed two homes in the project area that could potentially be impacted by the KY 30 project. These homes were constructed under a Department of Housing and Urban Development (HUD) program and are likely to house low-income populations. The KMHC should be involved with future phases of this project to ensure consideration of these locations.

Also shown in **Table 6** are rates for minority populations. Jackson and Owsley Counties both have minority populations of about 1%, compared to the state average of 10%. While environmental justice concerns related to minority populations are not likely within the project area, attention should be given to consider such populations during future phases of this project.

C. Other Issues Considered

Other issues considered as part of this analysis include:

- In 2000, Jackson County's population was 13,495 and is expected to grow to as much as 14,619 by the year 2020, according to population forecasts developed by the Kentucky State Data Center. Owsley County's population was 4,858 in 2000 and is expected to grow to as much as 5,651 by the year 2020.

- Jackson and Owsley Counties have no formal land-use plan or zoning ordinances. The majority of the development currently in the project area is single-family residential and farming related outbuildings. There are no large concentrations of houses or residential subdivisions found in the area. The proposed improvements to KY 30 could induce new housing or commercial development as a result of the improved accessibility that is offered by a new highway. Future project development phases should give additional consideration to any pressure on public services that might be generated by the project.
- There are currently no community resources such as airports or hospitals that are likely to be impacted within the project area.
- The available housing market in Jackson and Owsley Counties is expected to be adequate for any replacement housing needed; however, every reasonable effort should be made to avoid and minimize residential displacements during the project design and construction phases.
- Jackson County provides many opportunities for tourism, such as the Daniel Boone National Forest, Scenic Byway KY 89, Sheltowee Trace, Horse Lick Bioreserve, Stringbean Memorial Music Festival and the Jackson County Homecoming and Fair. Owsley County is filled with beautiful forests, good fishing streams and decent hunting, but tourism will probably not be a major industry in the near future.



David "Stringbean" Akemon
(<http://www.kaht.net/events/stringb.htm>)

VI. GEOTECHNICAL OVERVIEW

This chapter provides a summary of the geotechnical characteristics in the general project area. Most of the data provided herein is based on an internal working document entitled *Geotechnical Overview for Kentucky State Route 30 Scoping Study*, November 2001, and is included in **Appendix E**. The overview report also includes an analysis of geotechnical issues within draft project corridors, which was used to develop the final corridors later in the project. This is discussed later in this document in **Chapter XI**. Geotechnical information was also summarized from a *1992 Preliminary Geotechnical Review of Laurel, Jackson, and Owsley Counties* provided by the KYTC Division of Materials, Geotechnical Branch.

METHODOLOGY

Items considered as part of the geotechnical overview for the project area include: general topography, geology, previous surface mining, previous deep mining, fill recommendations, groundwater seeps and springs, and oil and gas wells.

The following sections summarize issues in the general project area.

A. Potential Issues Identified

Within the project area, geotechnical issues identified for further consideration throughout future phases of this project include:

- As discussed in **Chapter IV**, the project area geology includes the Alluvium, Breathitt, and Lee Formations. The geologic column for the project area is shown in **Figure 9** in **Appendix A**. Consolidation of soft, alluvial soils near the valley bottoms may present some settlement concerns for embankments or for drainage structures.
- The Breathitt and Lee Formations contain sandstones, which are generally suitable for most roadway construction applications. Friable sandstones are associated with the Corbin sandstone. Where exposed, erosion control methods such as silt fences, straw bales and settling ponds will be needed to prevent stream siltation.
- As shown in **Figure 10** in **Appendix A**, surface (strip) mining is concentrated around Travellers Rest, to the west of Sturgeon, and to the north and south of Levi. The majority of the surface mining is contour stripping, with some minor amounts of mountaintop removal. As part of future phases of this project, further analysis may show hollow-fill or slope instability due to backfilling of mined areas.
- Unreclaimed strip mines generally predate 1977 and foundation materials have consolidated, making settlement problems less severe. Strip mines completed after 1977 are generally reclaimed and contain unconsolidated materials, making settlement in the foundation of fills very likely. In order to minimize fill settlement, removal of the top five feet of strip mine waste and recompaction in one-foot lifts is recommended.
- Sidehill conditions should be avoided wherever possible; however, embankment benches will be necessary in sidehill conditions. Spring boxes and pipe underdrains will be necessary when springs and water bearing coal seams are encountered in the embankment areas.

- Previous deep mining within the project area is also shown in **Figure 10**; however, mapping did not become commonplace until the 1970s and unmapped deep mining may exist. Recorded underground mining includes about 17 sites in the project area (listed on page 3 in **Appendix E**) and is found west of Levi and north of Maulden. Deep mined areas carry a risk of subsidence, or encountering the old mine works associated with shallow deep mines.
- Acid mine drainage is a possibility due to previous coal mining activities. It is recommended that the preferred corridor avoid contour strip or deep mined areas, if possible.
- Oil and gas wells in the project area are shown in **Figure 10**, with a large concentration east of Mumme. Such wells may present constructability issues related to blasting.
- Four coal seams are projected to be present in the study area. The Jellico is anticipated to contain levels of acid producing materials which require treatment. The “hot coal” should be wasted outside of the project and buried or encased with soil and/or nondurable shale.
- It is probable that coal seams in the project area act as aquifers and allow groundwater flow toward the east or southeast. Groundwater seeps or springs should be expected in down dip cut areas, particularly those intersecting a coal seam.

B. Other Issues Considered

Other project area characteristics identified as part of this analysis include:

- The regional dip in the project area is from the northwest to the southeast at a rate of plus-or-minus 40-feet per mile. The northeast corner of the Tyner Quadrangle ranges from 1060 to 1360 feet in elevation and the west side of the Booneville Quadrangle ranges from 740 to 1320 feet in elevation.
- No fault lines were identified by observation of the geologic maps.
- The project area is located in a classified Seismic Risk Zone 1, which is defined as an area of minor damage that could occur with earthquake activity.
- Fill for embankments will likely consist primarily of shot rock since soil overburden is thin in most areas. Shrink/swell of newly placed fill should not be of major concern in most areas.



General elevation change
along KY 30

PART 2. Corridor Development Process

Part 2 of this document provides a chronological account of the corridor development and public involvement process. The evolution of the identified project corridors is interwoven with the project team meetings and public involvement efforts undertaken as part of this project. **Chapter VII** provides a summary of the initial project team meetings and the preliminary improvement corridors identified. The first round of public involvement meetings and resource agency comments are included in **Chapter VIII**, along with a description of the subsequent set of revised corridors for consideration. **Chapter IX** provides a summary of the second round of public involvement and resource agency input, along with a description of the final corridors identified for consideration.

VII. INITIAL CORRIDOR DEVELOPMENT

At the outset of the KY 30 Scoping Study project, project team meetings were held to review project information and discuss options for preliminary project corridors. Meeting summaries and preliminary corridors for consideration are described in the following sections.

A. Project Team Meetings

Two (2) project team meetings were held in the first months of the project. Representatives at these meetings included KYTC District 10, KYTC District 11, KYTC Central Office (Division of Planning), Federal Highway Administration (FHWA), Cumberland Valley Area Development District (CVADD) and project consultants. Minutes for project meetings are located in **Appendix F**.

1. Preliminary District Team Meeting (January 25, 2001)

The first project team meeting was conducted on January 25, 2001 at the KYTC's District 10 office in Jackson, Kentucky. The meeting was held to discuss the preliminary purpose of the proposed project and identify any potential project area issues. Items discussed at the meeting include:

- The preferred corridor from the previously completed *KY 30 Scoping Study from East Bernstadt to Booneville, 1994* (referred to in this document as the *1994 Study*) was presented and discussed.
- KYTC District 10 also presented for discussion approximately ten (10) possible alternates for the KY 30 corridor that had been prepared previously.
- The new interchange with US 421 and improvements to KY 30 south of Tyner should be considered as this project moves forward.
- Project impacts could potentially include residences, family clusters and environmental justice populations.
- Identified coordination needs include the Daniel Boone National Forest and the Kentucky Highlands Empowerment Zone.

2. Project Team Meeting (July 17, 2001)

The second project team meeting was conducted on July 17, 2001 at the KYTC's District 10 office in Jackson, Kentucky. The purpose of the meeting was to discuss the goals and objectives of the proposed project, review preliminary existing conditions data and identify future study needs. The preferred corridor from the *1994 Study* was also presented for discussion.

Attendees noted the following issues along the existing KY 30 route:

- Poor geometrics, including narrow lanes, narrow shoulders, substandard horizontal and vertical curvature,



Typical section along KY 30
with curve sign

bridges with low sufficiency ratings, and lack of passing zones;

- Lack of access to the Interstate and Parkway systems, such as I-64, I-75 and the Mountain Parkway; and
- Access for trucks is restricted as KY 30 is not on the NHS or NN and is rated A/AA for truck weight classification.

Preliminary project goals discussed during the meeting include: 1) Provide improved Interstate or Parkway System access; 2) Improve systems connectivity and travel times; 3) Provide improved roadway geometry; 4) Provide improved access to a designated truck network; and 5) Enhance economic development opportunities.

Ideas discussed related to preliminary project corridors included:

- The southern terminus should tie in with the proposed KY 30 corridor improvements south of Tyner that are in the final design and construction phase;
- The northern terminus should tie in with KY 11 improvements, approximately 2 miles west of Booneville, near the existing KY 30 junction;
- The preferred alternate identified by the *1994 Study* should be considered as a study alternate;
- Portions of this previously identified route could be moved south, particularly near KY 846 and Sturgeon; and
- Locating the route along ridgelines, where possible, would minimize crossings of blue line streams.



US 421/KY 30
intersection



Existing KY 11/KY 30 intersection

B. Preliminary Corridors for Consideration

Following the project team meeting, a set of preliminary corridors was developed for further consideration. These preliminary project corridors are shown in **Figure 11** in **Appendix A**.

As shown in the figure, six (6) preliminary corridors were identified, as well as a no-build alternate. All of the build corridors begin at one common point along US 421 south of

The Preliminary Corridors for Consideration were developed *after* the project team meetings and as a result of the early project team discussions. These corridors were developed primarily to (1) Identify the project area to investigate and (2) guide environmental and geotechnical studies.

Tyner. The corridors follow various routes north and south of the existing KY 30 route and the preferred corridor from the *1994 Study*. The corridors end at one of two locations along KY 11, either just north or south of the KY 30/KY 11 intersection.

The preliminary corridors identified for the KY 30 improvements include:

- The no-build alternate would not provide for the development of a new KY 30 route between Tyner and Booneville.
- The preferred corridor from the *1994 Study* is represented by Corridor A in the figure. Between Tyner and Sturgeon, Corridor A shares the same path with Corridor B. At Sturgeon, Corridor A continues northeast toward KY 11.
- Between Sturgeon and KY 11, Corridor B follows the existing KY 30 route through Travellers Rest and Vincent, then turns north and follows KY 847 to KY 11.
- Corridor C follows a more southern route from Tyner toward Maulden, then turns north and joins Corridor B to Sturgeon. At Sturgeon, Corridor C dips south again through Endee, then joins Corridor A to KY 11.
- Corridor D follows a more northern route from Tyner toward Mumme, then turns east and joins Corridor B to Vincent. At Vincent, Corridor D continues northeast to KY 11.
- Corridor E is the most southern of the preliminary corridors. Between Tyner and Sturgeon, Corridor E shares the same path with Corridor F. At Sturgeon, Corridor E continues east toward Endee, then joins Corridor A to KY 11.
- Between Sturgeon and KY 11, Corridor F turns north through Travellers Rest and Vincent, then continues northeast to KY 11.

VIII. CORRIDOR DEVELOPMENT – PHASE 1

Throughout the course of this project, local officials, interest groups, community members and resource agencies were given the opportunity to provide input on the KY 30 improvement project. As part of the first round of public involvement, a total of seven (7) project meetings were held, including:

- Local Officials Meetings (2);
- Local Agencies & Interests Meetings (3); and
- Public Meetings (2).

Copies of meeting minutes for each of these local involvement meetings may be found in **Appendix F**.

General project information, such as project location, traffic volumes, crash information and preliminary environmental maps, was presented in these meetings for review and comment. A map of the preferred corridor from the *1994 Study* was also provided to the local officials and agencies as part of the history of this project; however, the preliminary corridors for review, discussed in **Chapter VII**, were not included in the meeting materials. During the first round of any public involvement program, it is generally preferred to approach the community without preconceived ideas about potential corridor locations.

The Preliminary Corridors for Consideration introduced in **Chapter VII** were developed primarily for internal use and environmental and geotechnical studies. These corridors were not presented to the public as part of the local meetings discussed in **Chapter VIII**. During the first round of any public involvement program, it is preferable to approach the community with a blank slate.

Input from these local stakeholders further shaped the definition of potential project corridors, resulting in a set of revised corridors for consideration that are described later in this chapter. Resource agency comments and concerns related to the general project area are also summarized as part of this chapter.

A. Local Meetings in Jackson County

As part of the public involvement phase of this project, separate meetings were held with local officials and agencies on August 13, 2001 at the Jackson County Empowerment Zone Office in McKee, Kentucky.

1. Local Officials Meeting (August 13, 2001)

Attendees at this meeting included the Jackson County Empowerment Zone, Jackson County Judge-Executive, 89th District Representative, CVADD, KYTC personnel and consultants. The following issues were identified by meeting attendees:

- Motorists tend to avoid the existing KY 30 route due to the poor geometric roadway conditions. Narrow lanes and bridges often make sharing the road with truck traffic difficult.
- Emergency service access for the local medical, fire and police departments would be improved with the proposed project.

- Introduction of new industry to the area has typically been difficult due to poor highway access. Industrial parks in the project counties should be considered in travel needs for this project.
- The KY 30 improvement project would also be a benefit for the region surrounding Jackson and Owsley Counties. Citizens in Lee County have expressed support for the improvements.

2. Local Agencies Meeting (August 13, 2001)

Attendees at this meeting included Jackson County Public Schools, Jackson County Transportation Committee, Community Based Services, Jackson Energy Cooperative, CVADD, KYTC personnel and consultants. Issues and concerns discussed at this meeting included the following:

- The project would provide improved access for emergency services (ambulance, fire and police) and school bus travel.
- Stores and businesses along the existing route may be adversely affected should any new alignment be located too far away from the existing route.
- The Jackson County Development Cooperative has documented the historic characteristics of Jackson County.
- Endangered species may be found along cliff lines in the project area, potentially including the Virginia Big Eared Bat and the Indiana Bat.
- Karst topography may be found along the western edge of the project area in Jackson County.



Business located along KY 30

B. Local Meetings in Owsley County

As in Jackson County, separate meetings were held with Owsley County local officials and agencies on August 14, 2001 at the Owsley County Courthouse in Booneville, Kentucky.

1. Local Officials Meeting (August 14, 2001)

Attendees at this meeting included the Owsley County Judge-Executive, 89th District Representative, Kentucky River Area Development District (KRADD), KYTC personnel and consultants. Issues and concerns discussed at the meeting include:

- Concerns cited by local officials along the existing route include increased truck traffic, high speeds and deer along the roadway.
- Owsley County does not currently have a zoning plan.
- The improvement of KY 30 is an important need for Owsley County and the surrounding area. Lee County also supports the project and would like to see any new route located north of the existing KY 30 for better access.

- Roadway improvements in the area may attract more industry and job opportunities. Truck climbing lanes should be considered along the new route.
- There are a number of unmarked cemeteries in Jackson and Owsley Counties. The Booneville library has documents that could help locate some of these cemeteries.
- The loss of tobacco crops in the project area should be minimized as part of this project.

2. Local Agencies Meeting (August 14, 2001)

Attendees at this meeting included Kentucky State Police-Richmond Post, KRADD, KYTC personnel and consultants. The following issues were identified by meeting attendees:

- Improvements to emergency response times are needed throughout the region. Current response times can be as much as 30-40 minutes.
- There is a local perception that a new route could cause more severe accidents because it will allow drivers to travel at higher speeds; however, attendees agreed that a straighter route is needed.
- Many Owsley County workers travel to jobs outside of the county. The largest employers in the county include the school system and a nursing home.

C. Public Meetings

Two (2) public meetings were held during the first round of public involvement for this project. The meetings were designed to inform the public and solicit questions and comments regarding local issues and potential locations for an improved KY 30 route. In addition to the information presented in this chapter, material related to the first round of public involvement meetings is included in two (2) separate notebooks on file in the KYTC Division of Highway Design and Division of Planning:

- *October 4, 2001 Public Information Meeting Notebook*; and
- *October 9, 2001 Public Information Meeting Notebook*.

Minutes of these public meetings may be found in **Appendix F**.

General project information, such as project location, traffic volumes, crash information and preliminary environmental maps, was presented in these meetings for review and comment. Potential corridors for the KY 30 improvements were not included in the meeting materials.

Each of the public meetings began with a short presentation explaining the overall project development process, a typical timeline, the current status of the project, next steps, and the preliminary project goals and issues. Following the presentation, attendees reviewed exhibits of the project area and preliminary environmental data and identified areas of concern. In this forum, attendees were able to address questions and comments with KYTC and consultant staff.

1. Public Meeting in Jackson County (October 4, 2001)

As part of the first round of public involvement, a public meeting was held at the Tyner Elementary School in Tyner, Kentucky. Fifty-six (56) people from the local

communities attended this meeting in addition to the 18 KYTC and consultant staff members in attendance.

In general, the meeting attendees expressed support for the need for improvements to KY 30. Concerns, comments and questions voiced by the attendees included the following:

- A southeastern route was preferred by several attendees, such as a corridor from Tyner through Herd and Elias to KY 11. A more southern route would be from Tyner to KY 1709 near Maulden and on to Island City in Owsley County. This would help to open up the Island City area.
- Some citizens expressed concern that the existing route would not be maintained if a new road were constructed to replace it.
- There may be many (up to 200) unmarked gravesites within the Herd to Elias area and possibly other unmarked gravesites within the project area.
- Taking or splitting prime farmland in the project area was a concern for several attendees. Citizens suggested that some of the best farmland in Jackson County lies between the Herd and Elias areas, south of existing KY 30. The Moore farm near the US 421/KY 30 intersection may have an historic smokehouse.



Jackson County Public Meeting
October 4, 2001

2. Public Meeting in Owsley County (October 9, 2001)

A similar public meeting was held at the Owsley County High School in Booneville, Kentucky. Forty-six (46) community members attended this public involvement meeting in addition to the 15 KYTC and consultant staff in attendance.

In general, the meeting attendees expressed support for the improvement of KY 30. Concerns, comments and questions voiced by the attendees included the following:

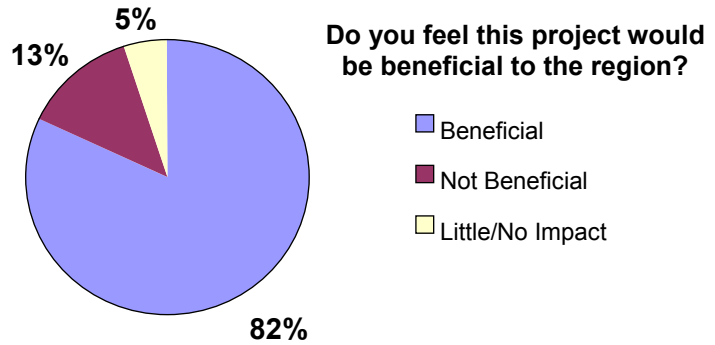
- Improvements to KY 30 should include a good connection to KY 399.
- Some residents expressed concern about the right-of-way acquisition process;
- There have been a number of fatalities on KY 30 in 2001. The crash data should be reviewed and updated if necessary.
- The underground storage tanks at Bo's Grocery have been removed.



Owsley County Public Meeting
October 9, 2001

3. Survey Questionnaire Responses

During the public involvement meetings, attendees were provided with a project survey questionnaire. The survey included questions about the project benefits, potential use, project termini, potential locations and environmental concerns.



A few survey questionnaires were returned during the October 2001 public meetings and others were returned by mail following the meetings. The survey responses are tabulated in **Table 7** in **Appendix C** and summarized below:

- About 82% of the survey respondents indicated that this project would be beneficial to the region.
- About one-third (33%) of those surveyed indicated they would use the route on a daily basis and about 47% would use it once a week.
- Over half (52%) of those surveyed indicated that they preferred the northern terminus to be near the existing KY 30 intersection.
- Approximately 42% of the surveys indicated that the alternate chosen should be a combination of south and north of the existing KY 30 route. About 38% indicated that improvements should be made along the existing KY 30 route.

D. Project Outreach Efforts

In an effort to inform the public about the KY 30 project and opportunities for public involvement, a series of outreach activities were undertaken. These activities included the following:

- In advance of the public meetings, flyers were posted in businesses and public places along the corridor, such as churches and post offices, to notify citizens about the upcoming meetings. In addition, advertisements were placed in the Jackson and Owsley County newspapers to notify readers about the meetings and the project.
- KYTC and consultant staff members also participated in a local radio talk show. They answered questions from the host and provided project information to listeners.
- A presentation was made to the Kiwanis Club at Opal's Restaurant in McKee, Kentucky on October 19, 2001. Attendees at the meeting included 33 club members, CVADD, KYTC personnel and consultants. Like the public involvement meetings, this meeting began with a short presentation explaining the overall project development process, a typical timeline, the current status of this project, next steps, and the preliminary project goals and issues. Issues and ideas discussed during the meeting included:
 - A new KY 30 route between Tyner and Booneville is needed for the growth of the area.

- Travel time between London and Natural Bridge (Slade, KY) could be reduced with improvements to KY 30.
- Jackson County residents would not travel a new route to Booneville very often.

E. Resource Agency Coordination

Many local, state and federal resource agencies, with diverse areas of public responsibility, were included in this planning process. Input was solicited through written requests. Each agency was sent a copy of the project purpose and goals statement, existing traffic on KY 30, a vehicle crash map, environmental footprint map, and a project location map.

This section describes the input received from these organizations. The remainder of recipients did not provide a response. Response letters from the various resource agencies are located in **Appendix G** and are summarized below.

The following agency indicated that the proposed improvement to KY 30 would have no adverse effects:

- Appalachian Regional Commission – The proposed project will not have any adverse effect on the Appalachian Development Highway System.

The following 19 agencies responded by offering comments or concerns regarding the project:

- City of Booneville, Office of the Mayor – This project would be of great benefit to Booneville and Owsley County. Booneville currently has no convenient access to major highways such as I-75, the Bert T. Combs Mountain Parkway, or I-64. The project would improve access to major highways, emergency services and economic development. There is a large amount of wildlife in the area and the new roadway should incorporate appropriate signage. Emergency lanes along the new highway should be provided for hikers and bikers, as Owsley County is part of a nationally designated bikeway. Other items to consider along a new route include appropriate lighting and underground utility lines.
- Jackson County Transportation Committee – Continuation of improvements to KY 30 would serve a regional need for an east to west route through Laurel, Lee, Jackson and Owsley Counties. The KY 30 project would provide improved access to I-75, I-64, and the Bert T. Combs Mountain Parkway, as well as the communities of Booneville, Beattyville, McKee, London, Manchester, Richmond and Berea. Improvement of this route is crucial to the continued health of the Regional Industrial Park at Annville. Benefits of an improved KY 30 include improved safety, better response times for emergency services, and opportunities for economic development. Owsley and Jackson Counties are currently isolated from centers of commerce. Owsley County is among those counties with the highest poverty rates, highest unemployment rates, lowest family incomes, and the least job opportunities in Kentucky. The improvement of KY 30 should be advanced as quickly as possible through the planning and design phases.
- Kentucky Department of Fish and Wildlife Resources – The Kentucky Fish and Wildlife Information System presently has no federally threatened or endangered species identified in the project area. Environmental impacts can be identified once the extent of the project has been determined. Three (3) recommendations to reduce construction impacts to streams were also provided: 1) development in or

near streams only during low flow periods; 2) proper placement of erosion control structures and; 3) replanting of disturbed areas following construction. Relocation or realignment of any stream channel should be put back to the original stream profile.

- Kentucky Division of Waste Management – All solid waste generated by this project should be disposed of at a permitted facility. Any old regulated and non-regulated underground storage tanks as well as other contamination encountered must be properly reported and remediated.
- Kentucky Division of Water – The Division listed their procedures and regulatory guidelines and the following comments. Design of this project should consider the locations of aquifers that are used as domestic and public water supply sources. Deep road cuts during construction can act as “French drains,” potentially impacting the aquifers.
- Kentucky Division of Conservation – One Agricultural District, #055-01, is located in the project area. Other areas of prime farmland and farmland of statewide importance are located in the project area. Best management practices (BMPs) should be utilized to prevent non-point source water pollution during and after earth-disturbing activities.
- Kentucky Division of Multimodal Programs – From KY 399 near Vincent to KY 11 in Booneville, KY 30 is a nationally designated bicycle route: the TransAmerica Trail. An unobstructed paved shoulder of at least four (4) feet should be provided on this section of KY 30.
- Kentucky Division of Traffic, Permits Branch – This project should provide for a partially controlled access facility, with access control fencing and all possible access points set on the plans in accordance with 603 KAR 5:120. The design speed should be the same as anticipated posted speed when the project is completed. The Permits Branch should be notified if the proposed route is to be placed on the National Highway System.
- Kentucky Heritage Council – The project area has a high potential for containing unrecorded prehistoric or historic archaeological sites. There are potential standing structures that are eligible or potentially eligible for listing in the National Register of Historic Places (NRHP). Surveys should be conducted to determine if any archaeological sites or structures are eligible for listing on the NRHP.
- Kentucky State Nature Preserves Commission – Depending on the level of reconstruction of KY 30, this project could have the potential to impact rare plant populations, rare bats, and water quality along Sturgeon Creek. Minor reconstruction might only threaten the water quality of the creek, which harbors rare aquatic species. Extensive realignment of the road could impact roosting and foraging habitat for rare bats, including the Indiana bat. The Indiana Bat, *Myotis sodalis*, is listed as Endangered by the United States Fish and Wildlife Service and the Kentucky State Nature Preserves Commission.
- Kentucky State Police, Post 7 Richmond – Improvements to KY 30 would improve emergency response times for emergency vehicles to Jackson, Owsley and Lee Counties. Issues to consider include: 1) road closures and access to rural parts of Jackson and Owsley Counties, 2) disturbance of cemeteries in rural parts of the counties and 3) theft and criminal mischief at rural construction sites.

- United States Army Corps of Engineers, Nashville District – Ninety-nine percent of the KY 30 project is in the Louisville U.S. Army Corps of Engineers District. Jim Townsen, in the Louisville District, will include the Nashville District’s comments to their reply.
- United States Coast Guard – A Coast Guard bridge permit is not required for this project, as it does not cross waterways over which the Coast Guard exercises jurisdiction for bridge administration purposes.
- United States Department of Energy – The Department of Energy has an interest in roadway safety and upgrades, as they benefit shippers. As long as appropriate detours are available as necessary during construction, the roadway improvements should pose no problems for the Department’s shipments.
- United States Department of Health and Human Services – The NEPA process for this project should consider: 1) air quality, 2) water quality and quantity, 3) wetlands and floodplains, 4) hazardous materials and wastes, 5) non-hazardous solid waste and other materials, 6) noise, 7) occupational health and safety, 8) land use and housing, and 9) environmental justice.
- United States Environmental Protection Agency, Region 4 – Overview maps of the project area show issues for consideration such as populated places, churches, cemeteries, schools, low-income areas and minority populations. The enclosed elements of a NEPA document for transportation projects should be considered in future phases of this project. The EPA’s review of the future NEPA document will include consideration of affects to water, air, land, and wildlife habitat in the project area.
- United States Federal Aviation Administration (FAA) – There are no public use airports in the immediate vicinity of the proposed project. As long as construction activities do not exceed 200 feet in height above ground level, there will be no impacts on FAA programs and no Notice of Proposed Construction will be required.
- United States Fish and Wildlife Service – Excessive sedimentation during construction can be prevented through Best Management Practices (BMPs). Concrete box culverts should be placed in a manner that prevents any impediment to low flows. Wetlands, streams and perennial tributaries of Sturgeon Creek and Herd Fork are located in the project area. Longitudinal stream encroachments and stream channel modifications should be minimized during design phases of this project. The federally endangered Indiana bat (*Myotis sodalis*) may occur along the project corridor. Two federal species of management concern could potentially occur in the project area: 1) Kentucky ladies slipper (*Cypripedium kentuckiense*) and 2) Rafinesque’s big-eared bat (*Corynorhinus rafinesquii*).
- United States Forest Service, Daniel Boone National Forest (DBNF) – The project area is outside the proclamation boundary for the DBNF. The nearest National Forest Service land is approximately two (2) air miles away. Potential impacts include degradation of the water quality of any watercourses that flow from the project area onto or across National Forest System lands. The DBNF is not aware of any environmental justice issues associated with the project. The nearest DBNF land is two air miles from the project area.

F. Initial Corridors for Public Review

During the first round of public involvement, no proposed corridors were exhibited to the public. After the first round of public input, the preliminary corridors that had been developed by the consultant were revised to develop a set of initial corridors for public review during the next round of public involvement activities. In addition to the no-build alternate, seven (7) corridor segments were identified (which roughly translate to the preliminary corridors identified in **Chapter VII**). These were based upon input on potential issues, impacts, and alternates obtained from (1) meetings with the public, local officials, and community members and (2) resource agency correspondence.

The Initial Corridors for Public Review were developed after the first round of local involvement, including meetings with officials, agencies and the public. Input received through these meetings facilitated the revision of the Preliminary Corridors for Consideration, which were developed primarily for internal use and environmental and geotechnical studies (**Chapter VII**).

As shown in the figure, a common intersection point for all of the build corridors was established at Sturgeon. In this way, corridor options could be considered separately from Tyner to Sturgeon and from Sturgeon to KY 11. The corridor nomenclature was also changed to reflect the sections west of Sturgeon and sections east of Sturgeon. The initial corridors for public review are shown in **Figure 12 in Appendix A**.

Between Tyner and Sturgeon, the initial “build” corridors include:

- Corridor A-1 follows a more northern route from Tyner toward Mumme, then turns east to Sturgeon. (This corridor was developed from preliminary Corridor D).
- Corridor B-1 follows the preferred corridor from the *1994 Study* and joins Corridor A-1 at the Jackson-Owsley County line. (This corridor was developed from preliminary Corridors A and B).
- Corridor C-1 follows a more southern route from Tyner toward Maulden, then turns north and joins Corridor B-1 to Sturgeon. (This corridor was developed from preliminary Corridor C).
- Corridor D-1 is the most southern of the initial corridors for public review, passing near Herd and Elias to the common intersection point at Sturgeon. (This corridor was developed from preliminary Corridors E and F).

Between Sturgeon and KY 11, the initial “build” corridors include:

- Corridor A-2 heads north toward Travellers Rest, then turns east to KY 11. (This corridor was developed from preliminary Corridor D).
- Corridor B-2 follows Corridor A-2 to just south of Vincent, then turns east and travels south of an existing segment of KY 30 route to KY 11. (This corridor was developed from preliminary Corridor B).
- Corridor C-2 is the most southern of the initial corridors for public review. This corridor heads northeast from Sturgeon and joins Corridor B-2 just south of KY 11. (This corridor was developed from preliminary Corridor E).

IX. CORRIDOR DEVELOPMENT – PHASE 2

In order to continue the public involvement process and gain input on potential project corridors, a second round of meetings was held and input was requested from local officials, interest groups, community members and resource agencies. As part of the second round of public involvement, a total of five (5) project meetings were held, including:

- Local Officials Meetings (2);
- Local Agencies & Interests Meetings (1); and
- Public Meetings (2).

Copies of meeting minutes for each of these local involvement meetings are located in **Appendix F**.

Project information presented at these meetings included: the study purpose, issues and goals statement; survey questionnaire results from the first round of public involvement; a map of potential project corridors; a comparative matrix of the potential corridors; and estimated costs by roadway segment and project phase.

Input from the local stakeholders further shaped the definition of potential project corridors, resulting in a set of final corridors for consideration that are described later in this chapter. Resource agency comments and concerns related to the second round of agency coordination are also summarized as part of this chapter.

A. Local Meetings in Jackson County

As a continuation of the public involvement segment of this project, additional meetings were held with local officials and agencies on March 27, 2002 at the Jackson County Empowerment Zone Office in McKee, Kentucky. In this phase of public involvement, the revised corridors for consideration, identified in **Chapter VIII** and **Figure 12** in **Appendix A**, were presented to the various groups and agencies for review and comment. These corridors include the combinations of Corridors A-1, B-1, C-1, D-1, A-2, B-2 and C-2.

1. Local Officials Meeting (March 27, 2002)

Attendees at this meeting included the Jackson County Empowerment Zone, Jackson County Judge-Executive, CVADD, KYTC personnel and consultants. Comments related to the four options (A1, B1, C1 and D1) between Tyner and Sturgeon included:

- A suggestion that it may be beneficial to reduce the curve into Sturgeon, providing a more direct connection between A1 and A2 north of Sturgeon.
- Corridor D1 has an advantage in being the shortest and straightest of the options.
- Corridor C1 may not be desirable due to its circuitous routing.

Comments related to the three options (A2, B2 and C2) Sturgeon and Levi included:

- Corridor A2 ties into a current project along KY 11 north of Levi.
- A2 may attract more traffic than C2, with its proximity to more populated areas.
- There are a number of cemeteries within Corridor B2. This route follows KY 30 more closely.

Other comments related to the potential project corridors included:

- Corridor D1-C2 has no intersections with the existing KY 30 route and would be easier from a construction standpoint, but would be harder for the public to gain access.
- Corridor D1-C2 is the shortest and one of the least expensive of the routes. The improved travel time with this corridor could contribute to business development in the area.
- Reconstruction of the existing KY 30 route may impact residential areas and other corridor development. A new route located close to the existing KY 30 corridor may also be limited by similar issues and may not have the potential for future expansion to serve industry and business.

2. Local Agencies Meeting (March 27, 2002)

Attendees at this meeting included the Jackson County Empowerment Zone, CVADD, KYTC personnel and consultants. Issues and concerns discussed at this meeting included:

- Cleanup activities are underway at the illegal dumpsite at the corner of KY 30 and Creech Road.
- The superfund site shown on the environmental map should be identified prior to the next round of public involvement meetings.

B. Local Meeting in Owsley County

As in Jackson County, a second round of involvement was undertaken with local representatives in Owsley County to discuss the project material gathered to date. An additional meeting was held with local officials and agencies on April 9, 2002 at the Owsley County Courthouse in Booneville, Kentucky. In this phase of public involvement, the revised corridors for consideration, identified in **Chapter VIII** and **Figure 12** in **Appendix A**, were presented to the various groups and agencies for review and comment. These corridors include the combinations of Corridors A-1, B-1, C-1, D-1, A-2, B-2 and C-2.

1. Local Officials and Agencies Meeting (April 9, 2002)

Attendees at this meeting included the Owsley County Judge-Executive, City of Booneville, Owsley County Roadway Foreman, Booneville/Owsley County Industrial Authority, KRADD, KYTC personnel and consultants. Comments related to the four options (A1, B1, C1 and D1) between Tyner and Sturgeon included:

- Corridor D1 has an advantage in being the shortest and straightest of the options.
- Corridor C1 may not be desirable.

Comments related to the three options (A2, B2 and C2) Sturgeon and Levi included:

- Corridor C2 is the most direct and straightest of the options.

Other comments related to the potential project corridors included:

- Corridor D1-C2 has no intersections with the existing KY 30 route and would be easier from a construction standpoint.

- Reconstruction of the existing KY 30 route may adversely affect residential areas and other corridor development.
- Any project corridor should avoid the wetlands around Endee and the cemeteries near Sturgeon.

C. Final Corridors for Consideration

Following the second round of meetings with local officials and agencies, a set of final corridors for consideration was identified for further analysis and presentation to the public. The final corridors were developed based upon input from local officials and local agencies related to the revised corridors for consideration. In addition to the no-build alternate, ten (10) final corridor segments were identified, which roughly translate to the revised corridors identified in **Chapter VIII**.

The Final Corridors for Consideration were developed *after* the second round of meetings with local officials and agencies. Input received through these meetings facilitated the revision of the Revised Corridors for Consideration.

As shown in the figure, two common intersection points were established just west of Sturgeon: a northern intersection point and a southern intersection point. In this way, corridor options could still be considered separately from Tyner to Sturgeon (Section 1) and from Sturgeon to KY 11 (Section 2), while a smoother transition is provided along the northernmost corridor (A-1 to A-2 in **Figure 12**).

The corridor nomenclature was changed again to reflect the sections west of Sturgeon and sections east of Sturgeon. For the final corridors for consideration, segments are designated as A, B, C, D, E, F, G, H, I and J. The final corridors for consideration are shown in **Figure 13** in **Appendix A**. Corridors A, B and C in Section 1 meet Corridors E, F and G in Section 2 at the northern intersection point. Corridor D in Section 1 meets Corridors H, I and J in Section 2 at the southern intersection point.

General project improvement options include the following:

- The no-build alternate would not provide for the development of a new or significantly improved KY 30 corridor between Tyner and Booneville.

In Section 1, between Tyner and Sturgeon, the final corridors for consideration include:

- Corridor A follows a more northern route from Tyner toward Mumme, then turns east to the northern intersection point near Sturgeon. This corridor crosses the existing KY 30 route west of Herd. (This corridor was developed from revised Corridor A-1).
- Corridor B generally follows the preferred corridor from the *1994 Study* and joins Corridor A at the Jackson-Owsley County line. This corridor crosses the existing KY 30 route west and east of Herd and east of Mumme. (This corridor was developed from revised Corridor B-1).
- Corridor C follows a more southern route from Tyner toward Maulden, then turns north and joins Corridor B to the northern intersection point near Sturgeon. This corridor crosses the existing KY 30 route on the east side of Mumme. (This corridor was developed from revised Corridor C-1).
- Corridor D is the most southern of the revised corridors for consideration, passing near Herd and Elias to the southern intersection point near Sturgeon. This corridor

does not cross the existing KY 30 route. (This corridor was developed from revised Corridor D-1).

In Section 2, between Sturgeon and KY 11, the final corridors for consideration include:

- Corridor E begins from the northern intersection point near Sturgeon and heads northeast toward Travellers Rest, passes south of Vincent and meets KY 11 just north of the KY 30 intersection. This corridor crosses the existing KY 30 route near Travellers Rest and east of Vincent. (This corridor was developed from revised Corridor A-2).
- Corridor F follows a common path with Corridor E to just south of Vincent, then turns east and travels south of the existing KY 30 route to KY 11. This corridor crosses the existing KY 30 route near Travellers Rest. (This corridor was developed from revised Corridor B-2).
- Corridor G begins at the northern intersection point and heads east toward Sturgeon. The route continues northeast and meets KY 11 just south of the KY 30 intersection. This corridor crosses the existing KY 30 route west of Sturgeon. (This corridor was developed from revised Corridor C-2).
- Corridor H begins at the southern intersection point near Sturgeon and heads north to join Corridor E south of Travellers Rest. This corridor crosses the existing KY 30 route west of Sturgeon, near Travellers Rest and east of Vincent. (This corridor was developed from revised Corridor A-2).
- Corridor I begins at the southern intersection point near Sturgeon and heads north to join Corridor F south of Travellers Rest. This corridor crosses the existing KY 30 route west of Sturgeon and near Travellers Rest. (This corridor was developed from revised Corridor B-2).
- Corridor J begins at the southern intersection point near Sturgeon and heads northeast to meet KY 11 south of the KY 30 intersection. This corridor does not cross the existing KY 30 route. (This corridor was developed from revised Corridor C-2).

D. Public Meetings

Two (2) public meetings were held during the second round of public involvement for this project. The meetings were arranged to discuss the corridor alternates developed through previous public involvement efforts and gain input from the meeting attendees. In addition to the information presented in this chapter, material related to the second round of public involvement meetings is included in two (2) separate notebooks on file in the KYTC Division of Highway Design and Division of Planning:

- *June 4, 2002 Public Information Meeting Notebook*; and
- *June 13, 2002 Public Information Meeting Notebook*.

Minutes of these public meetings may be found in **Appendix F**.

Project information presented at these meetings included: the study purpose, issues and goals statement; project location map; survey questionnaire results from the first round of public involvement; the final corridors for consideration; a comparative matrix of the potential corridors; and traffic and geometric data for the project area.

In this phase of public involvement, the final corridors for consideration, identified in **Section C** of this chapter and **Figure 13** in **Appendix A**, were presented to the public for review and comment. These corridors include the combinations of Corridors A, B, C, D, E, F, G, H, I and J, described in the previous section.

Each of the public meetings began with a short presentation explaining the current project information. Following the presentation, attendees were encouraged to examine exhibits of the project area and the revised corridors for consideration. In this forum, questions could be addressed and comments expressed to KYTC and consultant staff.

1. Public Meeting in Jackson County (June 4, 2002)

In order to continue the dialogue with the general public as part of the second round of public involvement, an additional public meeting was held at the Tyner Elementary School in Tyner, Kentucky. Eleven (11) people from the local communities attended this meeting in addition to the 15 KYTC and consultant staff members in attendance.



Jackson County Public Meeting
June 4, 2002

Concerns and comments voiced by the attendees included the following:

- Businesses in Tyner might be harmed by a new interchange at US 421 and the subsequent traffic diversion.
- Studying issues within a 2000-foot corridor seems unreasonable, since the actual roadway width will only be a fraction of such a corridor.
- This project will only benefit Laurel and Owsley Counties, not Jackson County.

2. Public Meeting in Owsley County (June 13, 2002)

A public meeting was also held at the Owsley County High School in Booneville, Kentucky. Thirty-three (33) community members attended this public involvement meeting in addition to the 12 KYTC, FHWA and consultant staff in attendance. Concerns and comments voiced by attendees included the following:

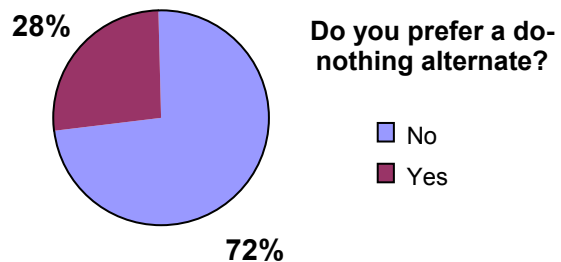
- The Kentucky Transportation Cabinet should have built this roadway long ago; it is needed as soon as possible.
- Travel time from Levi to London, currently about 51 minutes, would be reduced with any of the alternates.
- The straightest and least expensive route to replace KY 30 should be built.
- Some community residents would be willing to give up property or move in order to allow the new roadway to be built.
- Taking or splitting prime farmland and family farms in the project area was a concern voiced by several attendees, including Mr. Moore who owns a farm near the US 421/KY 30 intersection.

3. Survey Questionnaire Responses

As part of the second round of public involvement meeting materials, attendees were provided with a project survey questionnaire. The survey included questions about the do-nothing alternate, the final corridors for consideration (shown in **Figure 13**), and potential crossings with the existing KY 30 corridor.

A few survey questionnaires were returned during the June 2002 public meetings and others were returned by mail following the meetings. The survey responses are tabulated in **Table 8** in **Appendix C** and summarized below:

- About 28% of the surveys indicated that a do-nothing alternate is preferred.
- Corridor D-J is preferred by about 82% of those surveyed, followed by Corridor A-E (9%) and Corridor D-H (4%).
- About 56% of those surveyed indicated that corridors providing crossings with or access to the existing KY 30 route are preferred.



Comments in support of and against an improved KY 30 route were received through the completed survey questionnaires:

- Better roadways and access to I-75 are needed to promote job opportunities in the project area.
- Safe travel along the existing KY 30 corridor is limited given the existing conditions.
- The selected corridor should be the straightest, shortest and least expensive option.
- A new KY 30 route is not needed at this time. The existing routes in the project area should be improved first, including those heading north.
- The potential environmental impacts of a new KY 30 route cannot be offset by the benefits.

E. Resource Agency Coordination

A second round of input was solicited from various resource agencies through written requests. Each agency was sent a copy of the study purpose, issues and goals statement; survey questionnaire results from the first round of public involvement; the revised corridors for consideration identified in **Chapter VIII**; a comparative matrix of the potential corridors; and estimated costs by roadway segment and project phase.

This section describes the input received from these organizations. The remainder of recipients did not provide a response. Response letters from the various resource agencies are located in **Appendix G** and are summarized below.

The following eighteen (18) agencies responded by offering comments or concerns regarding the project:

- Jackson County Transportation Committee – Improvements to KY 30 would serve regional interests in economic development, safety and convenience for citizens. Property owners have concerns about impacts to farmsteads by construction or property acquisition and, therefore, design of the project should minimize impacts to farmsteads in the project area. Property owners have signed the attached petition in support of the project. The Committee does not recommend any specific alternate, but supports an alternate that is direct, low cost and meets construction standards, NEPA process requirements, and the property owners' concerns.
- Kentucky Cabinet for Workforce Development – The proposed project does not affect the Cabinet or its agencies at this time.
- Kentucky Division of Air Quality – There is no requirement for the issuance of an air quality permit as the project is currently presented, although Kentucky Administrative Regulations 401 KAR 63:010 (Fugitive Emissions) and 401 KAR 63:005 (Open Burning) apply to this project. Fact sheets related to fugitive emissions and open burning comments are included and provide guidelines for construction activities. Every effort should be made to maintain compliance with these regulations, including an investigation into compliance with applicable regulations in the local governments. The Division endorses the KY 30 project providing that air quality regulations are met.
- Kentucky Division of Waste Management – During this type of project, old regulated and non-regulated underground storage tanks or other contamination could be encountered, and should be properly reported or remediated.
- Kentucky Division of Water – The Division advises of the need to consult with the United States Army Corps of Engineers to ascertain if a water quality certification and/or dredge of fill material permit is required. Mitigation will be required for stream loss (more than 250 acres) and for wetland loss (more than 1 acre). Other guidelines are given regarding floodplains, erosion stabilization, aquatic habitats, sensitive groundwater areas, sinkholes, wellhead protection areas, and onsite wastewater disposal systems. Deep road cuts can act as “French” drains and potentially drain aquifers that are used as domestic and public water supply sources. The Division observes the following special waters in the KY 30 area and will require individual water quality certifications for each: South Fork Rockcastle River, Lake Beulah, Laurel Fork, Middle Fork Rockcastle River, South Fork Kentucky River, and Sturgeon Creek. South Fork of Kentucky River is a candidate for designation as a federal wild, scenic, or recreational river.
- Kentucky Division of Conservation – There are no agricultural districts established within or adjacent to the project area; however, the issue of loss of Prime Farmland and Farmland of Statewide Importance should be addressed. *The Soil Survey of Jackson and Owsley Counties* (NRCS 1989), and *Important Farmland Soils of Kentucky* (NRCS 1985) can be used to identify farmland designations. Controlling erosion and sedimentation should also be considered during and after earth-disturbing activities once construction begins by use of best management practices for construction activities.
- Kentucky Division of Materials – The 1992 Preliminary Geotechnical Review of Laurel, Jackson, and Owsley Counties is included and is applicable to this project. The report includes environmental considerations, geotechnical considerations, a log by station of existing detrimental conditions, and a geologic column map. Environmental considerations include Wild and Scenic River designation along

portions of the Rockcastle River, blueline streams, friable sandstones, coal seams, abandoned strip mines producing acid drainage, and underground storage tank sites. Geotechnical considerations include soil overburden and stripping depths, rock swell factors, CBR values, settlement of reclaimed strip mine sites with unconsolidated fill, embankment benches, cut slopes, pipe underdrains and spring boxes for springs in embankment areas, suitability of sandstone and shale for construction uses, and the location of the project in Seismic Risk Zone 1.

- Kentucky Division of Multimodal Programs – KY 30 from KY 399 in Vincent to KY 11 in Booneville is a nationally designated bicycle route, the TransAmerica Trail. An unobstructed paved shoulder of at least four (4) feet should be provided on this section of KY 30 for bicycle travel.
- Kentucky Division of Traffic – A flashing beacon is currently located at the KY 30/KY 847 intersection. It was originally installed in 1987 as a result of the unusual intersection geometry and as an alternative to reconstruction of the intersection. Any improvement that the reconstruction of KY 30 could provide to this intersection would be very beneficial.
- Kentucky Division of Traffic, Permits Branch – Classify this project as a partially controlled access facility and set all possible access points on the plans in accordance with 603 KAR 5:120. The design speed should be equal to the anticipated posted speed limit when the project is complete. Access control fencing should be installed with the project. The Permits Branch should be notified if the proposed highway is to be placed on the National Highway System to assist in the monitoring of outdoor advertising devices.
- Kentucky State Nature Preserves Commission – Direct and indirect impacts to the Sturgeon Creek corridor should be avoided. This stream and its associated corridor retain some significant natural quality and minimization of degradation should be taken into consideration during project planning.
- Kentucky State Police, Post 7 Richmond – The primary concern remains poor response times for emergency vehicles in the communities served by KY 30. Improving the geometrics of KY 30 would improve the response times of emergency vehicles throughout Owsley, Jackson, and Lee Counties. Additional concerns include the following: 1) road closures that will take place during construction, 2) measures to be taken to minimize impacts to family cemeteries, and 3) measures to be taken to deter theft and criminal mischief at construction sites.
- United States Army Corps of Engineers, Nashville District – The KY 30 project area is in the Louisville Army Corps of Engineers District. There would only be one or two very minor stream crossings in the Nashville District watershed. The District does not recommend any specific alternate.
- United States Coast Guard – A Coast Guard bridge permit is not required for this project. Pursuant to the Coast Guard Authorization Act of 1982, it has been determined this is not a waterway over which the Coast Guard exercises jurisdiction for bridge administration purposes.
- United States Department of Housing and Urban Development (HUD) – The proposed project may have an impact on HUD projects in Jackson or Owsley Counties. The Kentucky Mountain Housing Corporation has constructed two houses in the project area and should be contacted for information as this project develops. The Department does not recommend any specific alternate.

- United States Fish and Wildlife Service – Implementation of Best Management Practices to control sedimentation of streams and maintain water quality is recommended. The federally listed species Indiana bat (*Myotis sodalis*) may occur along the project corridor. A copy of the assessment and determination of impacts to the Indiana bat should be submitted to the United States Fish and Wildlife Service for review and concurrence. Two species of federal concern may occur in the project area: 1) Kentucky ladies slipper (*Cypripedium kentuckiense*) and 2) Rafinesque's big-eared bat (*Plecotus rafinesquii*). Measures should be taken to avoid impacts to these species.
- United States Forest Service, Daniel Boone National Forest (DBNF) – The project area is outside the proclamation boundary for the DBNF. Water quality of any watercourses that flow from the project area onto or across National Forest System lands should be considered.
- United States Natural Resources Conservation Service – Jackson County has very few acres of prime farmland available for cultivation, which could be further reduced by the proposed project. These alternatives are all located within the Sturgeon Creek watershed. There is a somewhat significant amount of prime farmland in each corridor, but especially in Corridors I and J. Corridor F also has a significant amount of prime farmland, but appears to be confined to the Travellers Rest community and is primarily residential. An issue of concern is the volume of soil erosion and sedimentation that will occur during construction. Timely re-vegetation and temporary vegetation should help to minimize the negative impacts to water quality caused by sedimentation.

PART 3. Corridor Analysis and Recommendations

Part 3 of this document includes a description of the preliminary goals established for this project, an analysis of the final corridors for consideration, and recommendations for further project development. The analysis and recommendations are based on data collected through the corridor development process. **Chapter X** provides a summary of the preliminary project goals and related issues. **Chapter XI** includes a review of potential issues and concerns within each of the final corridors for consideration, along with estimated costs. Recommendations for a preferred KY 30 corridor and further project development are provided in **Chapter XII**. Finally, acknowledgements and project contacts are included in **Chapter XIII**.

X. DRAFT PROJECT GOALS

As a result of the planning process and public involvement efforts, project goals were identified for the proposed KY 30 improvements. These goals address geometric conditions, travel times, accessibility and economic benefit opportunities along KY 30 and in the project area. The goals identified below are a compilation of input from highway officials, local government agencies, interest groups, members of the general public and the project team. These goals should be considered during future project development efforts, including design and environmental activities.

For the KY 30 project, the following goals and objectives were identified:

- **Provide an Improved Route between Tyner and Booneville**

The existing geometric characteristics of KY 30 do not meet the current design criteria for a 55-mph speed limit. The existing KY 30 route has two nine-foot lanes, one to two-foot shoulders and no passing sight distances. A visual inspection of the project corridor identified about 40 vertical curves and 85 horizontal curves that could be substandard. Local residents have expressed concerns about safety and travel times along KY 30 between Tyner and Booneville.



Typical Section along Existing KY 30

An improved route between Tyner and Booneville would address the concerns of its users. Because of the existing KY 30 geometry, full reconstruction of the route may be preferred as an alternative to improvements to spot sections or segments along the existing route. A new route would provide for a standard two-lane section, with adequate lane widths, shoulders and curvature. An additional lane on upgrade sections, either a truck lane or passing lane, could be provided to improve safety and travel times.

- **Improve Highway System Accessibility**

Access to and from key highway facilities continues to be an issue for many areas in the Appalachian region. **Table 9** in **Appendix C** provides a summary of major system accessibility needs for Tyner and Booneville in the project area. As shown, no major highway facility is within 20 miles of Tyner or Booneville. The average travel distance to an Interstate or Parkway facility from the project area is about 40 miles.

The long term goals for highway improvements in the region include a new corridor from I-75 in London to the Bert T. Combs Mountain Parkway. The portions of this corridor between London and Tyner and between Booneville and Beattyville are in various phases of design, right-of-way, and construction. Reconstruction of KY 30 between Tyner and Booneville would provide the remaining link in a regional corridor from I-75 to the Bert T. Combs Mountain Parkway.

Throughout this Scoping Study process, improving truck access to the region has been noted as a key for expansion of local industry. There are currently no routes within the project area included on the National Highway System (NHS) or the

National Truck Network (NN). In addition, only the two project termini (i.e. US 421 and KY 11) have a truck weight classification of AAA, thus restricting truck travel within the region. Should KY 30 be upgraded to AAA standards, it could provide improved connectivity for larger commercial vehicles between I-75, US 421, and KY 11.

- **Improve Emergency Response Times**

Through the public involvement portion of this project, local leaders and agencies have expressed concern about emergency service response times in the project area. The Kentucky State Police have also indicated that current response times can be as much as 30-40 minutes. These local stakeholders are in agreement that improvements to KY 30 would decrease emergency response times to Jackson, Owsley and Lee Counties.

A new route between Tyner and Booneville has the potential to improve travel times for police, fire and ambulance services by providing a standard roadway section for safe and efficient travel. This route would provide the remaining link in a regional corridor from I-75 to the Bert T. Combs Mountain Parkway. This regional corridor will provide improved access between the project area, emergency service hubs and regional medical centers in other parts of the state.

- **Improve Opportunities for Economic Development**

Jackson and Owsley Counties have historically been considered low-income areas. The median family income for the project area (\$21,500 in Jackson County and \$16,600 in Owsley County) was far below the statewide (\$42,200) and nationwide (\$50,000) average for fiscal year 2000. Low-income rates in Owsley County (45%) and Jackson County (30%) are much higher than the state average of 16%. Limited truck access to the local industrial parks in the project area is an issue for site development and the potential increase in local jobs.

The potential for improvements to the economic viability of Jackson, Owsley and surrounding counties will likely be greater with improved truck access to and from local industries. The Kentucky Cabinet for Economic Development has indicated that any improvement to the local transportation network would most likely have a positive impact on the industrial parks. Local officials indicate that reconstruction of KY 30 has the potential to increase the number of local job opportunities by improving access for new industries or expansion of existing ones.

XI. ANALYSIS OF FINAL CORRIDORS FOR CONSIDERATION

The final corridors considered for improvement of KY 30 were identified through the Scoping Study process. Corridor needs and input from local officials, interest groups, community members and resource agencies were considered in the corridor development process. As defined in **Chapter IX**, the final build corridors for consideration are shown in **Figure 13** in **Appendix A**.

The final corridors for consideration include the no-build alternate and build Corridors A, B, C, D, E, F, G, H, I and J. These 10 corridor segments combine to make 12 potential options for improvement of KY 30 from Tyner to Booneville. Corridors A, B and C (Section 1) meet Corridors E, F and G (Section 2) at a northern intersecting point. Corridor D (Section 1) meets Corridors H, I and J (Section 2) at a southern intersecting point.

This chapter provides an analysis of the identified improvement options in relation to traffic considerations, environmental concerns, monitored sites, social and economic considerations, geotechnical issues, construction and estimated costs, project goals and other issues. The no-build alternate has also been considered. A summary of some of the identified issues is presented in **Table 10** in **Appendix C** and is described in the following sections. The items summarized in the table represent issues within a 2,000-foot wide corridor and are intended for comparative purposes only. The actual roadway design is likely to use only about 10-15% of this corridor width and many or all of the issues within a corridor may be avoidable.

A. Traffic Considerations

Travel time and connectivity within the project area were considered for each of the corridor segments. Items shown in **Table 10** include travel time along each corridor; intersections with the existing KY 30 route; and intersections with other roadways. A summary of the traffic considerations includes:

- The lowest approximate travel times are expected along Corridor D in Section 1 (7.3 minutes) and Corridor E in Section 2 (7.9 minutes), primarily because these are the shortest of the corridors considered. Travel times were calculated at 55 mph with no delay.
- Corridor B in Section 1 and Corridor H in Section 2 each provide three (3) intersections with the existing KY 30 route. These corridor options provide the most opportunity for residents and businesses along the existing corridor to access the new road. Corridor D in Section 1 and Corridor J in Section 2 do not provide any intersections with the existing KY 30 route, but connectors to KY 30 were considered.
- As shown in **Figure 5** in **Appendix A**, traffic volumes for the no-build alternate are expected to be lower than for any build improvement along KY 30. With only committed improvements from East Bernstadt to Tyner, Scenario 2 shows average traffic volumes of approximately 1,800 vpd in Year 2025. With improvements from East Bernstadt to Booneville, Scenario 3 shows average traffic volumes of approximately 2,600 vpd in Year 2025, an increase of approximately 46% over Scenario 2.

- The proposed project is located in a portion of Kentucky with some of the highest poverty rates. The no-build alternate would not address the access needs of large trucks that may help promote economic development in this area, which could help bring jobs that would raise income levels and quality of life for local residents. The no-build alternate would also not provide improved access for emergency services in the project area.

B. Environmental Issues

Environmental issues and sensitive areas were considered within each of the corridors. **Table 10** shows summaries of streams, wetlands, floodplains, historic structures and archaeology sites within each of the corridors. A summary of the environmental considerations includes:

- Environmental impacts are not anticipated with the no-build alternate.
- Corridor D crosses five (5) streams in Section 1 and Corridor G crosses six (6) streams in Section 2. Of the build alternates, these corridors would require the least number of stream crossings and would likely have the least potential for water quality impacts.
- Wetlands, streams and perennial tributaries of Sturgeon Creek and Herd Fork are located in the project area and should be avoided. Water quality of any watercourses that flow from the project area onto or across National Forest System lands should be considered. The KYTC Division of Water observes the following special waters in the KY 30 area and will require individual water quality certifications for each: South Fork Rockcastle River, Lake Beulah, Laurel Fork, Middle Fork Rockcastle River, South Fork Kentucky River, and Sturgeon Creek.
- Mitigation for stream loss (more than 250 acres) and for wetland loss (more than 1 acre) will be required. Construction impacts to streams should be limited through erosion control strategies. Design of this project should consider the locations of aquifers that are used as domestic and public water supply sources.
- Sturgeon Creek supports a high diversity of native mussel species. This project has the potential to impact rare plant populations, aquatic species and water quality along Sturgeon Creek. All four (4) of the Section 1 corridors cross Sturgeon Creek between Herd and Elias.
- Extensive realignment of the road could impact roosting and foraging habitat for rare bats, including the Indiana bat. The Indiana Bat, *Myotis sodalis*, is listed as Endangered by the United States Fish and Wildlife Service and the Kentucky State Nature Preserves Commission. Two federal species of management concern could potentially occur in the project area: 1) Kentucky ladies slipper (*Cypripedium kentuckiense*) and 2) Rafinesque's big-eared bat (*Corynorhinus rafinesquii*).
- Wetlands and floodplains overlap in some instances within the project corridor. **Table 10** shows acreage summaries for areas designated only as wetlands, areas designated only as floodplains and areas designated as both. Wetland and floodplain areas are most prominent in Corridor A in Section 1 and in Corridors G and J in Section 2.
- Input from resource agencies and local residents indicates the potential presence of protected or monitored species within the project area, including: Kentucky ladies slipper; Rafinesque's big-eared bat; Indiana bat; and Virginia big-eared bat. All of

the project corridors, except the no-build, have the potential to impact such species within the project area. Further fieldwork will be necessary in future project phases to determine if these species exist within right-of-way limits.

- Each of the Section 1 corridors contains three (3) historic properties. In Section 2, Corridors E, F and J do not contain any known historic properties and have the least potential to impact historic sites. The Kentucky Heritage Council indicates that there may be additional standing structures in the project area that are eligible or potentially eligible on the National Register of Historic Places (NRHP).
- There are no recorded archaeological sites within any of the Section 1 corridors or within Corridors E and F in Section 2. Of the corridors that contain recorded sites, Corridors H and I have the least potential for impact, with one (1) site each. It is also likely that there is under-enumeration of sites in Owsley County, based on the higher number of sites recorded in Jackson County where Daniel Boone National Forest archaeologists have recorded many historic and prehistoric sites. The Kentucky Heritage Council has indicated that the project area has a high potential for containing unrecorded prehistoric or historic archaeological sites.

C. Monitored Sites

Monitored sites generally include locations which may contain potentially hazardous materials or other characteristics which should be avoided or considered. **Table 10** shows estimates of illegal dump sites, gas pipelines, electrical transmission lines and water lines within each of the project corridors. A summary of the monitored sites includes:

- Impacts to monitored sites are not expected with the no-build alternate.
- There are no underground storage tanks recorded within any of the project corridors. Propane tanks and above-ground gasoline/diesel storage tanks were observed in the project area and could be present within any of the project corridors.
- Corridor A in Section 1 does not contain any recorded or observed illegal dumpsites. In Section 2, all of the corridors have the potential of impacting at least one (1) illegal dumpsite.
- There are no gas pipelines within any of the Section 1 corridors. All of the Section 2 corridors have the potential to impact about 0.4 miles of gas pipelines.
- Corridor D in Section 1 has the least potential to impact electrical transmission lines in the project area. There are no electrical transmission lines within any of the Section 2 corridors.
- There are water lines running throughout the project area. Corridor D in Section 1 (2.3 miles) and Corridors G and J (2.9 miles each) contain the fewest linear feet of water lines and have the least potential for impact.

D. Social and Economic Considerations

Concerns relating to social and economic considerations include items such as churches, schools, cemeteries, farmland and populations. Some of these issues are summarized in **Table 10**. A summary of the social and economic considerations includes the following:

- Impacts to social and community land uses are not expected with the no-build alternate. Preliminary analysis of Property Valuation Assessor (PVA) data for Jackson and Owsley Counties shows the potential presence of family clusters in the project area which could be impacted by any of the project corridors.
- The local economic structure would not necessarily benefit from the no-build alternate. The existing KY 30 route does not address the access needs of large trucks that may help promote economic development in the project area.
- The total number of structures within each corridor was estimated based on visual counts from the aerial photographs for the project area (the aerial photography fly-date was March 1995). Corridor D in Section 1 (59 structures) and Corridor G in Section 2 (51 structures) have the least potential to impact existing structures.
- No school facilities were identified within any of the project corridors.
- Except for Corridors C and D in Section 1, all of the project corridors contain one (1) or two (2) churches. Church facilities often represent community gathering places and should be considered when identifying alignments within any of the project corridors.
- There are a number of cemeteries documented or observed within the project area. Corridors A and D in Section 1 (one cemetery each) and Corridor H in Section 2 (2 cemeteries) have the least potential to impact known cemeteries in the project area. Other cemeteries are often unmarked and may likely be encountered during construction in this area.
- Agriculture is not the main land use in Jackson or Owsley County, but prime farmlands are identified within the project area. Corridor B in Section 1 (71 acres) and Corridor G in Section 2 (95 acres) have the least potential to impact prime farmlands in the project area. Property owners have concerns about loss or damage to farmsteads. Where possible, design of the project should minimize impacts to farmsteads in the project area.
- Environmental Justice concerns related to low-income populations are likely within any of the project corridors. All census tracts and block groups in the project area have higher low-income rates than are average in Kentucky. Low-income populations in Block Group 3 in Census Tract 9901 and Block Group 2 in Census Tract 9902 exceed the Owsley County average by 5% and 8% respectively. The remaining four (4) block groups in these census tracts have low-income populations below the average for Owsley County. In Census Tract 9603 in Jackson County, Block Group 1 exceeds the county average for low-income populations by 7%. The other three (3) block groups in this census tract have low-income populations below the average for Jackson County.
- The proposed project may have an impact on HUD projects in Jackson or Owsley Counties. The Kentucky Mountain Housing Corporation has constructed two houses in the project area and should be contacted for information as this project develops.

E. Geotechnical Issues

Items considered as part of the geotechnical overview for the project area include general topography, geology, previous mining, and oil and gas wells. Some of these items are summarized in **Table 10** and discussed in the following sections:

- The Breathitt and Lee Formations contain sandstones, which are generally suitable for most roadway construction applications. Friable sandstones are associated with the Corbin sandstone and are suitable for free draining fill and embankments.
- Corridors B and C in Section 1 and Corridor J in Section 2 have the least potential for impacts related to strip-mined or deep-mined areas. Strip mines completed after 1977 are generally reclaimed and contain unconsolidated materials, making settlement in the foundation of fills likely.
- Four coal seams are projected to be present in the study area. It is probable that coal seams in the project area act as aquifers and groundwater seeps or springs should be expected in cut areas. Spring boxes and pipe underdrains will be necessary when springs and water bearing coal seams are encountered in the embankment areas. The Jellico seam is anticipated to contain levels of acid producing materials which require treatment.
- There are a number of oil wells in the project area, with primary concentrations north and east of Mumme in Jackson County. Corridor D has the least potential of the Section 1 corridors to have impacts related to gas and oil wells. All of the Section 2 corridors contain three (3) or four (4) oil or gas wells each. Such wells may present constructability issues related to blasting.
- An abbreviated version of the geotechnical overview document for this project is included in **Appendix E**. The recommendations provided in this working document translate to the final corridors for consideration presented in **Figure 13 in Appendix A**. Based on the geotechnical analysis, the more southern routes provide the best options for construction. Corridor D in Section 1 and Corridors G and J in Section 2 are recommended from a geotechnical standpoint.

F. Construction and Costs

Estimated costs for construction of each of the project corridors are included in **Table 10**. These relative costs were calculated based upon a per mile average for the type of terrain encountered along with utilization of cost estimates from other similar projects near the project area. The costs include construction of a new two-lane roadway with truck lanes and an interchange with US 421 south of Tyner:

- Corridor D in Section 1 (6.7 miles) and Corridor J in Section 2 (7.7 miles) are the shortest of the project corridors.
- These corridors also have two of the lowest estimated costs: \$62.1 million for Corridor D and \$56.3 million for Corridor J.
- The longest and most expensive project corridors are expected to be Corridor A (\$69.7 million and 7.7 miles) in Section 1 and Corridor I (\$62.9 million and 8.6 miles) in Section 2.

Intersections between the project corridors and other routes in the project area provide opportunities for connectivity; however, such intersections also increase costs for bridges and approaches.

- Corridor D in Section 1 and Corridor J in Section 2 will not require any intersections with KY 30, but connectors to KY 30 were considered.
- Corridors B and D in Section 1 and Corridor G in Section 2 require the least number of intersections with other roads in the project area.

G. Community Input

As discussed in **Chapter IX**, a round of meetings was held toward the end of the project in order to gain input on potential project corridors from local officials, interest groups and community members. Meetings with local officials and agencies included discussion of the Phase 1 project corridors (A-1, B-1, C-1, D-1, A-2, B-2 and C-2). Meetings with the general public included discussion of the Phase 2 project corridors (A, B, C, D, E, F, G, H, I and J). For clarity, project corridors in this section are referenced by the nomenclature described in **Chapter IX**, Section C. Final Corridors for Consideration.

Local officials and agency representatives in Jackson and Owsley Counties made the following recommendations:

- Corridor C may not be desirable.
- Corridor D in Section 1 and Corridors G and J in Section 2 are the shortest and straightest of the options. These corridors have no intersections with the existing KY 30 route and would be easier from a construction standpoint, but would be inaccessible to many residents living along the current KY 30 route.
- Corridor H in Section 2 ties into a current project along KY 11 north of Levi. This corridor may attract more traffic than Corridors G and J, due to its proximity to more populated areas.
- Any project corridor should avoid the wetlands around Endee and the cemeteries near Sturgeon.

As part of the second round of public involvement meeting materials, attendees were provided with a project survey questionnaire. The survey responses from meetings in Jackson and Owsley Counties included the following recommendations:

- The no-build alternate is preferred by about 28% of those surveyed.
- A combination of Corridor D in Section 1 and Corridor J in Section 2 is preferred by 82% of those surveyed. Other preferences include combinations of Corridors A and E (9%) and Corridors D and H (4%).
- Crossings with the existing KY 30 route are preferred by about 56% of those surveyed to allow access between the new KY 30 corridor and the old route. A combination of Corridors D and J would not provide any crossings with the existing KY 30 corridor.

XII. RECOMMENDATIONS AND NEXT STEPS

This chapter provides recommendations and conclusions for improvements to KY 30 between Tyner and Booneville, along with a summary of the identified issues and potential corridors considered. The recommendations made in this chapter are the result of the Scoping Study process for the KY 30 corridor.

A. Final Project Team Meeting (August 5, 2002)

A final project team meeting was held on August 5, 2002 at the KYTC District 10 Conference Room in Jackson, Kentucky. Attendees at the meeting included KYTC District 10, District 11 and the Division of Planning, and consultant staff. The purpose of the meeting was to discuss the project information identified through the course of the KY 30 Scoping Study and to finalize the recommendations for improvements along the route.

Project information provided for discussion at the meeting included: project goals; traffic forecasts; crash information; environmental footprint maps; survey questionnaire results from both rounds of public involvement; a map of proposed project corridors; and a comparative matrix of the proposed corridors. The minutes for this meeting are included in **Appendix F**.

The final corridors for consideration include the no-build alternate and build Corridors A, B, C, D, E, F, G, H, I and J. These 10 corridor segments combine to make 12 potential options for improvement of KY 30 from Tyner to Booneville. Corridors A, B and C (Section 1) meet Corridors E, F and G (Section 2) at a northern intersecting point. Corridor D (Section 1) meets Corridors H, I and J (Section 2) at a southern intersecting point.

The project team agreed that all of the build corridors identified for this project meet the preliminary project goals. The no-build alternate has not been eliminated for this project, but will not likely be recommended for further study as part of the final project recommendations. This alternate does not meet any of the preliminary project goals set forth by the KY 30 Scoping Study and does not address the substandard design concerns along existing KY 30.

A review of the public involvement input from the second round of survey questionnaires indicated that Corridor D-J was preferred as the straightest and least expensive route. Although 56% of those surveyed indicated a preference for crossings with the existing KY 30 route, Corridor D-J would not provide any crossings with KY 30. For access reasons, the project team agreed that a corridor with access to the existing KY 30 route would be preferred.

Based upon consideration of project goals, corridor issues, access needs, potential environmental impacts and public/agency input, the project team agreed that Corridor D-H was the preferred option.

A number of specific reasons were identified for recommending Corridor D-H over Corridor D-J, including the following:

- The anticipated intersection with KY 11, near Levi, would provide better access with scheduled KY 11 improvements from Booneville to Beattyville.

- Corridor D-H follows portions of the existing KY 30 route in Owsley County, providing access to the local communities Vincent and Travellers Rest.
- This corridor includes feasible intersection locations with the existing KY 30 route and sections of independent utility can be identified, providing priority sections based on funding availability.
- Corridor D-H crosses some previous mining areas, potentially minimizing the amount of undisturbed land that will be required for construction.
- Corridor H should minimize the amount of prime farmland affected.

In addition, the disadvantages related to Alternate Segment J included numerous cemeteries and multiple river crossings.

For purposes of prioritization, the meeting attendees recommended that Corridor D-H be divided into the following general sections: 1) Vincent to Levi, 2) Travellers Rest to Vincent, 3) Sturgeon to Travellers Rest, 4) Elias to Sturgeon, 5) Herd to Elias, and 6) Tyner to Herd.

B. Preferred Corridor

All of the build corridors identified for this project appear to meet the preliminary project goals; however, only one corridor combination will be recommended by this scoping study. It should be noted that the remaining corridors have not necessarily been eliminated, but are not recommended for further consideration as part of this study.

Based on the identified benefits, Corridor D-H was selected as the recommended corridor to move forward to the Environmental Assessment phase and Phase I Design. Corridor D-H is shown overlayed on the environmental footprint map in **Figure 14** in **Appendix A**. The project development priorities, identified in the final project team meeting, are also shown in the figure, including:

- Priority 1 begins east of Vincent near Brushy Creek Road and ends at a new intersection with KY 11 near Levi.
- Priority 2 begins at Travellers Rest and ends just east of Vincent.
- Priority 3 begins about one (1) mile northwest of Sturgeon and ends at Travellers Rest.
- Priority 4 begins near Elias and ends about one (1) mile northwest of Sturgeon.
- Priority 5 begins near Herd and ends near Elias.
- Priority 6 begins at a new interchange with US 421 south of Tyner and ends near Herd.

Preliminary cost estimates for each priority section are listed in **Table 11** in **Appendix C**, including phase costs for design, right-of-way, utility relocation and construction activities. The total cost of Alternate D-H is anticipated to be approximately \$119.2 million, with priority section costs ranging from about \$11 million to \$26 million. The project addressed in this study was scheduled in the FY 2001 (2000-06) Six Year Highway Plan, with committed funds of \$500,000. The FY 2003 (2003-08) Six Year Highway Plan does not include funds for additional phases of project development.

C. Potential Design Criteria and Considerations

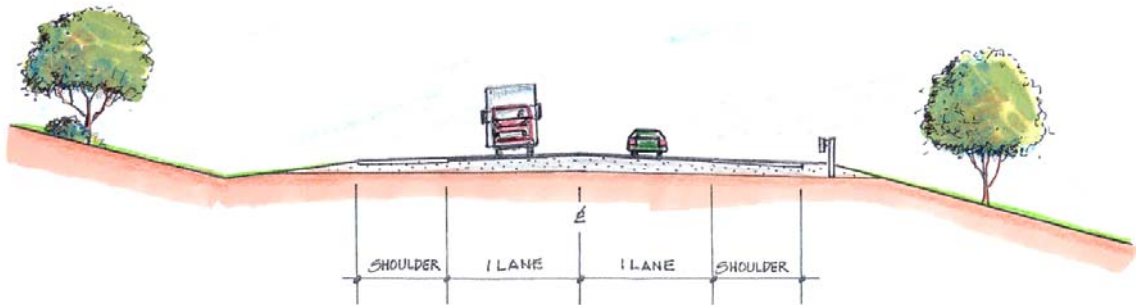
Potential design criteria and considerations for the proposed KY 30 route are noted here for planning purposes only. Design criteria, interchange/intersection recommendation, access control and bicycle issues are addressed. These criteria are general recommendations based upon the information gathered through this planning phase of study. Specific geometric parameters will be defined during future design phase(s) of the project.

- **Design Criteria Recommendations**

Based on design criteria for a rural arterial road in rolling terrain and current traffic volumes, the typical section for the proposed route will likely include:

- Two 12-foot lanes;
- Usable shoulder widths of 10 feet;
- Either a truck lane or passing lane in certain areas;
- A design speed of 60 miles per hour;
- Minimum passing sight distance of about 2,100 feet; and
- Minimum stopping sight distance of about 525 feet.

An artistic rendering of the two-lane section of the proposed corridor is shown below:



- **Interchange/Intersection Recommendations**

The intersection with US 421 south of Tyner is anticipated to be a grade-separated interchange design. This will include a bridge over US 421, as well as entrance and exit ramps from the new KY 30 route to US 421. The intersection with KY 11 is anticipated to be at-grade, either two-way stop-controlled or signalized, depending on traffic volumes and safety criteria.

- **Access Control Recommendations**

It is recommended that this project should be classified as a partially controlled access facility, with access control fencing and all possible access points set in accordance with 603 KAR 5:120. As this project will be constructed on mostly new corridor alignment, partial access control could be accommodated, with existing KY 30 continuing to serve as a secondary route for property access.

- **Bicycle Route Recommendations**

The KYTC's *Pedestrian and Bicycle Travel Policy (July 2002)* provides guidelines for improving accessibility and safety for pedestrian and bicycle travel in Kentucky. Policy statements provided in the document include recommendations for both urban and rural pedestrian and bicycle facilities, which may be applicable to improvements along the future KY 30 corridor. Among the criteria that require the consideration of bicycle accommodations are:

- *A bicycle facility or bicycle traffic already exists on the roadway; and*
- *A state, locally, or regionally adopted bicycle plan has designated bicycle improvements or a bikeway in the area of the specific project or for that classification of roadway.*

KY 30 is a nationally designated bicycle route, the TransAmerica Trail, which has also been recognized and designated by the Kentucky Transportation Cabinet as a state bicycle route. Therefore, consideration should be given to bicycle accommodations in any future development phases of this proposed project, especially for that portion from KY 399 near Vincent to KY 11 in Booneville. At a minimum, it is recommended that a paved shoulder of at least six (6) feet past the edge of the rumble strip be provided on this section of KY 30.

D. Construction Considerations

A number of issues were identified through the course of this study that should be considered as part of future construction phases. Potential issues related to the construction of the proposed corridor include:

- **Erosion and Sedimentation Control:** Measures to control erosion and sedimentation during, and after, earth-disturbing activities commences should be utilized. The construction of this project will initially increase the amount of erosion ground and surface water sources receive. There will also be an increase in non-point source pollution after the construction of this project. Careful consideration must be given to erosion control methods and to decreasing the amount of non-point source pollution that reaches surface and ground water.
- **Floodplains:** The construction of this project may impact floodplains in the project area. Care must be taken to maintain current flood stages without increasing them by more than one foot in uninhabited areas. The construction of this project must not increase the flood hazard for any property within the project's corridor.
- **Air Quality Impacts during Construction:** Construction period air quality impacts will need to be evaluated to expose the potential short-term effects of site preparation, demolition, materials storage and construction actions to determine if any appropriate mitigation commitments are to be incorporated into the project plans.
- **Geologic Conditions:** The project area contains three geologic formations: Alluvium, Breathitt, and Breathitt and Lee. The Breathitt Formation is known for instability of thick sequences of shale and siltstone, a factor often affecting construction projects since steepening of slopes by artificial cuts may cause landslides. The geology of Corridor D-H is shown in **Figure 15** in **Appendix A**.
- **Geologic Impacts on Cut Slopes:** The local geology suggests that there may be durable sandstone available within certain portions of the project area. Rock coring

and additional geologic evaluation will be required before specific cut slope recommendations can be defined.

- Abandoned Mine Areas: Due to the likelihood of highly variable subsurface conditions in mine spoil fill areas, special construction considerations may be required dependent upon the specific conditions encountered. Rock toe buttresses may be necessary at the toe of fill slopes in deep alluvium soil areas.
- Other Geotechnical Issues: A number of other geotechnical issues and special treatments should also be addressed, as identified and discussed in more detail in **Appendix E** and **Chapter VI, Section A**, of this report as part of the **Geotechnical Overview**. These include:
 - The project area geology includes the Alluvium, Breathitt, and Lee Formations. Consolidation of soft, alluvial soils near the valley bottoms may present some settlement concerns for embankments or for drainage structures.
 - The Breathitt and Lee Formations contain sandstones, which are generally suitable for most roadway construction applications. Friable sandstones are associated with the Corbin sandstone. Where exposed, erosion control methods such as silt fences, straw bales and settling ponds will be needed to prevent stream siltation.
 - Surface (strip) mining is concentrated around Travellers Rest, to the west of Sturgeon, and to the north and south of Levi. The majority of the surface mining is contour stripping, with some minor amounts of mountaintop removal. As part of future phases of this project, further analysis may show hollow-fill or slope instability due to backfilling of mined areas.
 - Unreclaimed strip mines generally predate 1977 and foundation materials have consolidated, making settlement problems less severe. Strip mines completed after 1977 are generally reclaimed and contain unconsolidated materials, making settlement in the foundation of fills very likely. In order to minimize fill settlement, removal of the top five feet of strip mine waste and recompaction in one-foot lifts is recommended.
 - Sidehill conditions should be avoided wherever possible; however, embankment benches will be necessary in sidehill conditions. Spring boxes and pipe underdrains will be necessary when springs and water bearing coal seams are encountered in the embankment areas.
 - Recorded underground mining includes about 17 sites in the project area found west of Levi and north of Maulden. Deep mined areas carry a risk of subsidence, or encountering old mine works associated with shallow deep mines.
 - Acid mine drainage is a possibility due to previous coal mining activities. It is recommended that the preferred corridor avoid contour strip or deep mined areas, if possible.
 - There is a large concentration of oil and gas wells in the project area area east of Mumme. Such wells may present constructability issues related to blasting.
 - Four coal seams are projected to be present in the study area. The Jellico is anticipated to contain levels of acid producing materials which require treatment. The “hot coal” should be wasted outside of the project and buried or encased with soil and/or nondurable shale.

- It is probable that coal seams in the project area act as aquifers and allow groundwater flow toward the east or southeast. Groundwater seeps or springs should be expected in down dip cut areas, particularly those intersecting a coal seam.

E. Summary of Environmental Issues for Further Study

A number of issues related to environmental factors and sensitive land uses were identified through the course of this study that should be considered as this project moves into future phases. These issues have been discussed in greater detail throughout earlier portions of this report, however, several important issues include:

- Threatened and Endangered Species: The Kentucky ladies slipper (*Cypripedium kentuckiense*) and the Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) are both special concern species that have been identified by the KSNPC. In addition, the Indiana bat (*Myotis sodalis*) is known to occur in Jackson County.
- Water Quality and Aquatic Habitats: Minor reconstruction activities have the potential to threaten the water quality of Sturgeon Creek, which harbors rare aquatic species. Extensive realignment of the road could impact rare plant populations along the creek area and roosting and foraging habitat for rare bats, including the Indiana bat. All reasonable efforts should be given to avoidance of such issues.
- Environmental Justice: Because of the proportionately high number of low-income residents within the study area, Environmental Justice concerns related to this specific group are likely within the project area. All census tracts and block groups in the project area have higher low-income rates than the average in Kentucky.
- Family Clusters: Preliminary analysis of Property Valuation Assessor (PVA) data for Jackson and Owsley Counties shows the potential presence of family clusters in the project area. Further consideration of this data would be necessary to determine which properties are identified as family clusters.
- Property Impacts and Relocations: The project area is typical of mountainous regions, with residences and businesses typically located close to existing roadways. Highway improvements in the project area are likely to require some relocations. **Figure 16** in **Appendix A** shows assessed property values for project area tracts.
- Cemeteries and Unmarked Graves: There are a number of cemeteries documented or observed within the project area. Other cemeteries may be unmarked and are likely to be encountered during construction in this area.
- Agriculture and Farmlands: Agriculture is not the main land use in Jackson or Owsley County, but prime farmlands are identified within the project area. Conversion of farmland to other uses as the result of improvements to KY 30 could result in a net loss of farmland along the project corridor. Design of the project should minimize impacts to farmsteads in the project area.
- Cultural Resources: The project area may contain unrecorded historic structures or archaeological sites that are eligible or potentially eligible for listing on the National Register of Historic Places (NRHP).

XIII. ACKNOWLEDGEMENTS AND CONTACTS

A number of individuals are responsible for the success of this important project:

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