FINDING OF NO SIGNIFICANT IMPACT

October 19, 2011

Item Numbers: 8-108.00, 8-115.10

Clinton and Russell Counties, Kentucky

US 127 Reconstruction and Relocation
And
Individual Section 4(f) Evaluation

The proposed highway project involves the reconstruction and relocation of one of several independent sections of US 127 in Kentucky. The project corridor begins at KY 90 in Clinton County, and continues north to the Jamestown Bypass in Russell County, a distance of approximately 20 miles. For almost the entire length, the project would traverse new alignment. Only at the northern terminus would the project use the existing right-of-way of US 127.

The purposes for the project are to provide an improved link in this important local and regional Rural Principal Arterial roadway by relocating US 127 on new alignment. The relocated US 127 will offer benefits that include removing this Rural Principal Arterial from atop Wolf Creek Dam and providing a roadway having improved geometrics compared with existing US 127, which is substandard to contemporary design. The need for the improvement within the corridor is based on the U.S. Army Corps of Engineers' concerns regarding the potential for closing US 127 over Wolf Creek Dam due to national security issues; potential problems with the operations and maintenance of the dam due to the presence of the roadway atop the dam; and the existing roadway's substandard design, which includes many access points, substandard geometrics, passing sight distance ranging from 0% to 10% in most sections, 10-foot-wide lanes, and a section identified as "severely deficient for the posted speed limit."

An Environmental Assessment (EA) for this project was approved by the Kentucky Transportation Cabinet (KYTC) on May 10, 2010, and by the Federal Highway Administration (FHWA) on June 24, 2010. FHWA independently reviewed the prepared EA and the Draft Individual Section 4(f) Evaluation contained therein; and, based on the review and analysis, finds that the EA analyzed and considered the relevant potential environmental impacts and issues. FHWA therefore finds that (1) Alternative D is the Selected Alternative for the US 127 project, (2) Alternative D best meets the need and purpose of the project with the least amount of impacts to the resource areas, and (3) the proposed project would have no significant impacts on the quality of the human or natural environment under NEPA. Accordingly, preparation of an Environmental Impact Statement is not required.

The Environmental Assessment was approved by FHWA on June 24, 2010.

Submitted Pursuant to 42 U.S.C. 4332(2)(c) by the U.S. Department of Transportation, Federal Highway Administration and Kentucky Transportation Cabinet, Division of Environmental Analysis

Division Administrator
Federal Highway Administration

11-14-2011
Date

Director of Division of Environmental Analysis
Kentucky Transportation Cabinet

10/20/11
Date

Recommended by

10/20/11

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1.0 PURPOSE AND NEED

1.1 Project Description and Setting

The proposed highway project involves the reconstruction and relocation of one of several independent sections of US 127 in Kentucky. The project corridor begins at KY 90 in Clinton County and continues north to the Jamestown Bypass in Russell County, a distance of approximately 20 miles. (See Figures 1 and 2 in the Environmental Assessment [EA], which is included with this FONSI, on compact disk, as Appendix C.) Because the existing US 127 has substandard curves and hills for almost its entire length, the proposed project is on new location for most of its length. The various alignments cross several state and local roads, including US 127 at several locations. Only at the northern terminus would the project use the existing right-of-way of US 127. The project also includes a crossing of the Cumberland River below Wolf Creek Dam.

The project corridor is situated in a rural area of slow growth and little development between two county seats that are the nearest population and economic activity centers—Albany in Clinton County and Jamestown in Russell County. The majority of the land along the existing US 127 roadway is agricultural/ single-family rural residential or undeveloped hilly and wooded. Isolated commercial and institutional (church) uses occupy some parcels. Exceptions include a few rural residential clusters and unincorporated communities that include Seventy Six, Aaron, Desda, Manntown, Creelsboro, Freedom, and Sewellton. The proposed project would also serve many other residents of rural Clinton and Russell counties by improving the transportation network in the region, providing access to regional centers of employment, health care, shopping, recreation, and other services.

In the project area, US 127, coupled with KY 90, links two major tourist attractions: Lake Cumberland State Resort Park to the northeast and Dale Hollow Lake State Resort Park to the southwest. The Kentucky Tourism, Arts and Heritage Cabinet, the Kentucky Department of Travel, and the Kentucky Tourism Council heavily promote the area's tourist and recreational attractions. Seasonal travelers from Kentucky, Indiana, and Ohio frequent these parks from the north via I-65 or I-75 to the Louie B. Nunn/Cumberland Parkway, which intersects US 127 at the city of Russell Springs, about 6.0 miles north of the proposed project. In addition, the U.S. Fish and Wildlife Service's (USFWS) Wolf Creek National Fish Hatchery and U.S. Army Corps of Engineers' (USACE) Kendall Campground are located at Wolf Creek Dam on the Cumberland River (see locations on EA Exhibit 1). According to the agencies[1], these two destinations attract more than 200,000 fishing enthusiasts, campers, students, and tourists per year.

The communities that will be served by the project include the cities of Albany and Jamestown near the project termini, and several unincorporated communities along and near US 127 in the project corridor.

1.2 Description of Existing Facilities

The primary roadways serving the area are US 127 and KY 90. US 127 extends south to north through the corridor as a two-lane undivided highway. It is classified in the KYTC's Functional Classification System as a Rural Principal Arterial, and on the state system as a State Primary (Other) roadway. KY 90 is a major east-west corridor that is a two-lane undivided road and the area's main route connecting Burkesville and Somerset. KY 90 is classified in KYTC's Functional Classification System as a Rural Minor Arterial, and on the state system as a State Primary (Other) roadway. Descriptions of these facilities are presented in EA Section 1.1.3, *Major Roads in the Area*. In addition to these roads, eight state and numerous local roads intersect US 127, providing access to rural communities and farmland.

[1] Source: Telephone contacts with USACE and USFWS in September 2011.

Following are the state routes that intersect existing US 127: in Clinton County—KY 3156, KY 639, KY 1590, KY 734, and KY 3063; and in Russell County—KY 1730, KY 55, and KY 2284. All of these roads will have access to existing and proposed US 127.

1.3 Project History

In the early 1980s, KYTC began improving various sections of US 127 from I-71 in Gallatin County (near Warsaw) south to Jamestown (about 150 miles south of Warsaw, and 30 miles north of Albany) to meet current roadway design and safety standards. As an initial step toward continuing the improvements south to the Tennessee state line, KYTC published a scoping study in March 1990 entitled *US 127 Jamestown to Tennessee*. The study analyzed the transportation issues throughout the US 127 project corridor, and evaluated the need to improve the corridor. The scoping study found that the section of US 127 from Jamestown to the Tennessee state line was deficient through most of the route, and recommended design considerations and realignment to improve safety and service.

Since the planning study, the corridor has been divided into two Sections of Independent Utility (SIUs) at KY 90. The southern section, from the Tennessee state line to KY 90 and including a bypass of Albany (KYTC Item No. 8-260), is in various phases of construction and is expected to be open to traffic in 2013.

In 2000, the section of US 127 between KY 90 and the Jamestown Bypass was added to state's Highway Plan. In November 2002, a kick-off meeting was held with state and local officials and other interested parties. The participants identified issues for consideration during the alternative selection process, problems to be corrected by the project, and needs to be addressed by the project (see EA Section 1.2, *Purpose and Need, Goals*). A public meeting followed in January 2003, at which the project was presented to area citizens and attendees were given the opportunity to provide comments.

Current status—The project is in the state's fiscal years (FY) 2010-2012 Enacted Biennial Highway Plan (approved in April 2010). Funds for design work have been programmed, and funding for acquisition of right-of-way and utility work is scheduled to be programmed in FY 2012. Construction is scheduled for FY 2014 for the portion of the project from KY 90 to KY 55 near Freedom (KYTC Item No. 8-115.10 in Clinton and Russell counties). For the northernmost portion of the project—KY 55 to the Jamestown Bypass (Item No. 8-108.00 in Russell County), acquisition of right-of-way and utility work are scheduled for FY 2010 and construction for FY 2011. Most of the money for this project has been allocated from the State Construction Fund; however, federal funding will likely be required.

Since the Preliminary Engineering and Environmental Documentation phases were programmed, KYTC has studied three alignment options and many possible combinations of alignment segments, and has held two public meetings and a Public Hearing. The alignments were reduced to four Build Alternative combinations and a No-Build Alternative, which were studied and presented in EA Chapter 2, *Proposed Alternative Concepts*.

1.4 Project Purpose and Need

The primary purpose for the project is to provide an improved link in this important local and regional Rural Principal Arterial roadway by relocating US 127 on new alignment. The relocated US 127 will offer benefits that include:

- Removing this Rural Principal Arterial from atop Wolf Creek Dam (see EA Figure 3).
- Providing a roadway having improved geometrics compared with existing US 127, which is substandard to contemporary design.

The needs for the project are also threefold:

- **Potential for closing US 127 over Wolf Creek Dam due to national security threat—**The existing roadway crosses Wolf Creek Dam, which is operated by the U.S. Army Corps of Engineers (USACE) and has an average daily traffic (ADT) volume of 1,700 vehicles per day (vpd). USACE requested that KYTC partner with USACE to remove US 127 from the dam and relocate the roadway downstream due to concerns about the effects of traffic on dam integrity, safety, and security. In addition, closing the dam road without ample notice would require motorists needing to cross the river to travel from 85 to over 100 miles (see EA Figure 4) to the nearest river crossings.
- **Other concerns related to USACE operations and maintenance of the dam—** In its 2004 letter of comment on US 127 improvement options, USACE provided the following additional reasons for their concern about the presence of US 127 atop the dam:
    - *The Wolf Creek Dam and Powerhouse and associated facilities are considered eligible for listing on the National Register of Historic Places. Extensive coordination between the Corps and the Kentucky Transportation Cabinet would be required in the design and administration of any work modifying the existing roadway crossing Wolf Creek Dam. Crucial dam safety instrumentation…could potentially be impacted and have to be modified or relocated* [and] *meet Corps of Engineers' standards….A thorough plan addressing how instruments would be modified or relocated and their impacts on the current performance monitoring, would be necessary before a thorough evaluation of this alternative could be provided. However…a substantial effort would be required to maintain the current level of performance monitoring.*
    - *Prior to any construction to the existing roadway across the dam, stability analyses of the embankment and the concrete portion of the dam would have to be conducted.... The cost of these analyses and studies would be the responsibility of the Transportation Cabinet and again would require a close coordination effort.*

    In addition, USACE noted:

    - *Unless no reasonable alternative exists, we request that construction activities be kept a minimum of 2,000 feet from the dam and powerhouse, which obviously would eliminate Alternatives II and III.* (Alternative III would construct a new roadway in the vicinity of Kendall Campground).
- **Substandard design—**As demonstrated by the existing roadway cross section (traveled way, shoulders, and roadsides/ditches) and horizontal and vertical alignments, the roadway is substandard to contemporary design.

See EA Section 2.1, *Purpose and Need, Goals*, and Section 2.2, *Rebuild the Existing Road,* for detailed discussions of the project needs and goals, and USACE's concerns.

1.4.1 Transportation Demand, Capacity, and Level of Service

The traffic volume moving through an area is directly related to the social and economic characteristics of that area. Prevailing land uses also influence the traffic volume and movement, which, in turn, affect the future location of neighborhoods and commercial areas. For each major highway construction project existing traffic volumes are gathered through actual traffic counts in the study corridor, and future traffic volumes are projected using social and economic characteristics, for both the build and no-build options.

Baseline traffic volumes were obtained for the year 2006 and traffic projections were developed for the year 2026 to determine how US 127 would function if no improvements beyond normal maintenance were made during that time period (i.e., the No-Build Alternative). A Level of Service (LOS) analysis was

conducted for the baseline and projected scenarios. EA Tables 3a and 3b present the results of the traffic analysis; and EA Exhibit 1 shows the baseline and projected No-Build traffic volumes and percent trucks.

In 2006 the average daily traffic (ADT) on US 127 ranged between 1,800 vpd and 3,100 vpd. By 2026, without any major construction activity on US 127 (i.e., the No-Build Alternative), traffic volumes are projected to increase to 3,000 vpd and 5,100 vpd—an increase of approximately 60%. Table 3b shows the baseline and projected traffic volumes and LOS for the corridor. The most recent traffic volumes available for US 127 in the project area are from 2011 and show estimated ADTs ranging from 3,870 vpd at the project's southern terminus to 2,650 vpd near the project's northern terminus.

Level of service is a qualitative measure of expected traffic conflicts, delay, driver discomfort, and congestion. Levels of service are described according to a letter rating system (similar to school grades) ranging from LOS "A" (free flow, minimal or no delays—best conditions) to LOS "F" (stop and go conditions, very long delays—worst conditions). With the No-Build Alternative, the approximately 60% increase in traffic volumes on existing US 127 by 2026 does not result in a decline in the level of service (LOS) because the projected volumes are not sufficient to produce a decline: the level of service is projected to be "B" at the south end of the corridor and "C" along the rest of US 127—the same as the LOS for the year 2006 condition.

With the Build Alternatives, year 2026 traffic volumes are projected to decrease on existing US 127 most notably between KY 3063 and the state park entrance (from 3,000 vpd down to 200 or 500 vpd, depending on alternative)—thereby improving the LOS from "C" to "B" along that section of roadway. Along the other sections, the existing and projected LOS would remain the same. Although the project would attract traffic from the existing US 127, the LOS would remain the same because the deficiencies on the existing road include poor passing sight distance at many locations. The presence of trucks, recreational vehicles, and other slow-moving vehicles and the absence of safe passing opportunities often keep motorists from achieving the road's design speeds, which, as a consequence, causes delays despite a decrease in the volume of traffic on the road. The LOS on newly constructed US 127 is projected to be "B" throughout.

1.4.2 System Linkage and Logical Termini

The US 127 project extends from the Jamestown Bypass south to the point at which it will tie in to the planned western bypass of Albany (on which construction is scheduled to begin in late 2011, with completion expected in November 2013). It would result in an improved section of a critical north-south highway corridor that enters Kentucky at the Kentucky-Tennessee line and exits in Warsaw. It would link communities along the route, including Jamestown and Albany, with a road constructed to current design standards, eliminating design deficiencies and improving safety.

One aspect to address when considering how system continuity relates to the purpose and need of a project is the rationale for the proposed beginning and ending points of the project (i.e., logical termini). The proposed project's southern terminus, KY 90, was selected because it is a major state road and the northern terminus of the reconstruction of US 127 south to Tennessee. The project's proposed northern terminus is the southern end of the US 127 Jamestown Bypass, which was opened to traffic in 2007.

1.4.3 Safety/Crash Analysis

The KYTC crash database for the 2002–2006 study period listed the following crashes by type on US 127: 2 fatalities, 38 injuries, and 77 Property Damage Only crashes. The traffic crash analysis indicates three US 127 roadway sections are experiencing high crash rates. The crash density is generally higher north of the Clinton-Russell county line. Poor/restricted visibility and speed differentials between vehicles,

combined with a roadway not meeting current design standards, are the likely contributing factors for the high crash rates on US 127. This assumption is supported by the documented poor visibility on these roadways, and essentially zero-percent passing sight distances. A detailed crash analysis is provided in the EA Section 1.2. Locations of high crash rate roadway sections are shown on EA Exhibit 1. In summary, below are the locations on US 127 that have or are approaching a high crash rate[2]:

- Clinton County Line north to KY 1730 (CCRF 4.65)
- KY 1730, then across dam, to Dam Road (CCRF 1.64)
- Dam Road north to Lake Cumberland State Resort Park's Lure Lodge Road (CCRF 1.04)
- US 127 from KY 55 to KY 2284 has a CCRF that approaches CCRF 1.0 (i.e., 0.95)

1.4.4 Previous Planning and Scoping

The *US 127 Jamestown to Tennessee* scoping study evaluated the need to improve US 127 from the Tennessee line to the south through Jamestown to the north. The study identified capacity deficiencies along the route in Albany and Jamestown and major geometric deficiencies throughout the entire route. The study recommended solutions that included:

- Elevating the level of service through the two communities by constructing bypasses around both.
- Linking the communities via a roadway constructed to current design standards, thereby eliminating design deficiencies and improving safety.

The Jamestown Bypass is now open to traffic and right-of-way is being purchased for the reconstruction of US 127 from KY 90 south to Tennessee, including a western bypass of Albany. The proposed project would provide a key link in this important local and regional Rural Principal Arterial roadway.

As noted above, the project is in the state's fiscal years (FY) 2010-2012 Enacted Biennial Highway Plan (approved in April 2010). Funds for design work have been programmed, and funding for acquisition of right-of-way and utility work is scheduled to be programmed in FY 2012. Construction is scheduled for FY 2014 for the portion of the project from KY 90 to KY 55 near Freedom (KYTC Item No. 8-115.10 in Clinton and Russell counties). For the northernmost portion of the project—KY 55 to the Jamestown Bypass (Item No. 8-108.00 in Russell County), acquisition of right-of-way and utility work are scheduled for FY 2010 and construction for FY 2011. Most of the money for this project has been allocated from the State Construction Fund; however, federal funding will likely be required. .

2.0 SELECTED ALTERNATIVE

The identification and evaluation of alternatives was an important and critical step of the current preliminary engineering and environmental analysis phase. A range of alternatives that could meet the purpose and need for the project were identified and given consideration. The alternatives were refined as more detailed information was collected and analyzed. Purpose and need, environmental factors, engineering feasibility, public comment, and cost were evaluated before a preferred alternative was recommended. The following sections summarize data presented in EA Chapter 2.0, *Proposed Alternative Concepts.*

[2] The "high crash rate" for a roadway is the maximum crash rate expected to occur on a roadway given the statewide average for functional class of road, the ADT of the road, and the length of roadway section analyzed. Based on a statistical analysis, if the Critical Crash Rate Factor (CCRF) is greater than 1, that section is classified as a high crash location.

2.1 Alternatives Considered

Alternatives considered in determining whether they met the purpose and need for the project were:

No-Build Alternative—It was determined that this alternative would not meet the project's purpose and need. The No-Build Alternative would be expected to result in progressively deteriorating conditions for safe and efficient vehicular traffic movement that would, in turn, impede improvement of access for residents to services and employment in Clinton County, Russell County, and the region. Selecting the No-Build Alternative would also fail to improve access to the area's major tourist centers. Public safety would continue to be a concern. The increasing volume of passenger vehicles, recreational vehicles, and large trucks forced to negotiate the narrow lanes, sharp curves, and steep hills could result in elevated crash rates in areas that are already experiencing high rates and in other areas that are approaching a Critical Crash Rate Factor (CCRF) of 1.0. Although the alternative was rejected, this alternative was carried through the detailed evaluation of alternatives, as required by NEPA, for purposes of comparison with the Build Alternatives that were studied.

Rebuild the existing road either in total or at selected locations ("spot" improvements)—This alternative was evaluated but not advanced for detailed study for reasons that included failure to meet purpose and need related to removal of a Rural Principal Arterial from atop Wolf Creek Dam, constraints posed by the crossing of Lake Cumberland at the Wolf Creek Dam, notable design deficiencies and topographical constraints along the roadway, numerous residential relocations that would result from the need for additional right-of-way along the existing road, and difficulty in maintaining traffic during construction though this area (see EA Section 2.2, *Rebuild the Existing Road*).

Build a road on new alignment within the same general roadway corridor—Because neither the No-Build Alternative nor rebuilding the existing road would meet the project's purpose and need, Build Alternatives on new alignment were developed. The locations of the alternatives took into account several constraints including USACE requirements/recommendations related to the Wolf Creek Dam; aligning US 127 at KY 90 (the intersection is currently offset approximately 0.63 mile); historical and recreational resources (involving Section 106 and Section 4(f) issues); natural resources such as wetlands, streams, and endangered species habitat; farmland and residential/commercial impacts; and engineering constraints related to the terrain and the Cumberland River crossing. Initially, three new alignment alternatives were developed.

Corridor Sections: At four locations along the corridor all of the Build Alternatives intersect, in effect dividing the corridor into four sections—South, South Central, Central, and North. At various locations within the sections, two or more of the alternatives intersect each other and existing US 127 to create individual segments, which were numbered 1 through 23 for ease of reference and analysis. In addition, a segment numbered 16.1 (a derivative of Segment 16) was developed as the evaluation of alternatives revealed an opportunity to retain beneficial features of the original segment (Segment 16) while avoiding/minimizing several potential impacts. The 23 segments that form alignment combinations within the sections are described in EA Section 2.3.1, *Development of Build Alternative Sections and Segments.*

Segment Alternatives: During the evaluation of these alternatives within the four corridor sections, other combinations of segments were reviewed to ensure a thorough consideration of potential end-to-end Build Alternatives. The alternatives were refined as more detailed information was collected and analyzed. This process allowed flexibility in the development of sections within the segments; for example, included among these was an alternative referred to as the "Little Indian Creek Alternative," which was suggested by a public meeting participant. Elements considered in the selection of end-to-end

Build Alternatives to be evaluated in detail included the project's purpose, needs, and goals; social and environmental impacts; public input; engineering and design feasibility/constraints; and project costs.

Build Alternatives: End-to-end Build Alternatives A, B, and C were created by combining the segments that would then extend the full length of the corridor. The No-Build Alternative and the three Build Alternatives were advanced for detailed study. Continuing analysis resulted in the development of a fourth Build Alternative—Alternative D. Based on the evaluation of alternatives and their respective impacts described throughout the EA, **Alternative D was identified as the preferred alternative in the EA,** which was approved FHWA on June 24, 2010**.** The Build Alternatives evaluated in the EA, are listed in Table 1 by corridor section and segment.

Table 1: Build Alternatives by Corridor Section and Segment

Alternative	Segment Combinations by Corridor Section				Length (Miles)
	South	South Central	Central	North	
Alternative A	**2, 4**	**8**	**11**	**18, 19, 21, 23**	**17.45**
Alternative B	**3**	**6, 10**	**12, 15**	**17, 20, 23**	**17.35**
Alternative C	**1, 5**	**7, 9**	**13, 14**	**16, 22, 23**	**17.56**
Alternative D (Selected)	**3**	**6, 9**	**11**	**16.1, 21, 23**	**16.68**

Considerations leading to the elimination of the end-to-end Build Alternatives and the Little Indian Creek Alternative are provided in detail in EA Section 2.4.2, *Rationale for the Recommendation of Preferred Alternative D.* EA Exhibits 2 and 3 depict the Build Alternatives with their segment combinations; EA Exhibit 4 shows environmental constraints encountered by the alternatives; and EA Exhibits 5a, 5b, and 6 show the project corridor's cultural historic resources in relation to the alternatives. FONSI Exhibits 1 and 2 illustrate the Selected Alternative and the environmental constraints.

Alternative D was presented as the preferred alternative at the Public Hearing on August 19, 2010, which was attended by approximately 220 persons. Comments were solicited from the public, and 38 submittals were received. Consideration was given to each comment, as discussed in Chapter 4.0, *Public Involvement,* herein. Based on environmental, social, design, public input, and cost factors, Alternative D is the Selected Alternative.

Section 4(f)—All Build Alternatives would traverse the Creelsboro Rural Historic District, which is eligible for listing in the National Register of Historic Places (NRHP). Significant historic sites that are NRHP-listed or eligible are protected under Section 4(f) of the 1966 Department of Transportation Act unless specified conditions apply. Section 2.4, *Creelsboro Rural Historic District: Avoidance/Minimization Alternatives,* herein, discuses the conditions as they apply to the District. A Draft Section 4(f) Evaluation was prepared as EA Section 3.7, and is summarized in Section 3.6 of this FONSI.

This FONSI constitutes FHWA's approval of the Section 4(f) Evaluation and, in accordance with Section 774.3(c), its finding that Alternative D causes the "least overall harm."

2.2 Rationale for the Selection of Alternative D

Because the proposed road would be on new alignment for almost its entire length, all four Build Alternatives would equally satisfy the project's purpose and need of removing the Rural Principal Arterial from the Wolf Creek Dam and providing a road with geometrics that would be an improvement over those of the existing US 127. While the existing road would continue to provide service across the dam, it would no longer be the primary north-south route through the area. With purpose and need met by all Build Alternatives, the other criteria—social and environmental impacts, engineering and design

feasibility/constraints, Section 106 and Section 4(f) requirements, public input, and project costs—were employed to evaluate the alternatives. Considerations leading to the recommendation of Alternative D as the preferred alternative are summarized below, by corridor section and segment. Tables 2 through 5, below, identify potential impacts of segment combinations within each of the four corridor sections. Table 6 presents a summary of the estimated costs and key potential environmental impacts of Alternative D (as described throughout EA Chapter 3.0, *Affected Environment and Environmental Consequences*).

SOUTH SECTION

Selected alignment: **Segment 3** (stand alone)

Other alignments considered: Segments 2-4 (Alternative A), Segments 1-5 (Alternative C), and non-aligned[3] Segments 1-4 and Segments 2-5

Considerations for selecting Segment 3—

Whereas Segment 3 would potentially impact one wetland 0.14 acre in size, overall the potential impacts were considered to be less than those of the other alignments in the South Section. Key determinants in selecting Section 3 were the segment's few relocations/displacements and reconstruction of the KY 90 intersection.

Segment 3 …

- Has 1 residential relocation (other segments would relocate 4 to 6 residences); and no commercial displacements (same as Segments 2-4 and 2-5. Segments 1-4 and 1-5 would displace 2 each).
- Requires no reconstruction of the newly constructed intersection with KY 90.
- Has least length-of-stream impact (2,007 linear feet) and second fewest stream crossings (8).
- Has one potential hazardous materials site impact, compared with 2 to 4 with other segments.
- Potentially affects one cave and one sinkhole, which is large but possibly could be avoided. Segments 1-5 and 2-5 have no sinkhole impacts, while Segments 1-4 and 2-4 potentially have 10. All segment combinations would potentially impact one cave.
- Has an estimated construction cost of $14.5 million: from $1.1 million to $7.8 million less than all alternatives except Segments 2-5 ($13.0 million estimated construction cost but a higher cost for residential relocations). The cost difference was considered to be offset by the residential relocations impacts: 1 with Segment 3, but 6 with Segments 2-5.

Changes since the Environmental Assessment—

- The EA identified 0 residential relocations with Alternative D's Segment 3. Since the EA was published, a residence has been identified that is in the right-of-way of Alternative D. The residence is relatively new and did not appear on the project mapping. The property owner submitted a comment regarding the property following the Public Hearing and KYTC personnel visited the site at the request of the owner (see Chapter 4.0, *Public Involvement* herein, for additional information about the site). Subsequently, Segment 3's proposed tie-in and approach road relocation were reviewed to see if impacts could be avoided/minimized and, if so, how revisions to the alignment might affect neighboring properties. It was determined that a revised tie-in to US 127 to the west of that which is now proposed would not satisfy the project goal of connecting the new road with the already-

[3] "Non-aligned" indicates segment combinations that were evaluated early on but not incorporated into an end-to-end alternative.

improved section of US 127. Impacts to neighboring properties could be sufficient to forego an alignment change. Therefore, there would be one residential relocation with Segment 3 of Alternative D. The right-of-way cost estimate column in Table 6 has been revised to reflect this change.

- Since the EA, Phase I archaeological investigations have been completed for locations where access could be obtained within the right-of-way of Alternative D. The survey identified three archaeological sites that potentially could be impacted by the project in the South Section. One site (15Ct61) has been determined to be eligible for listing in the National Register of Historic Places (NRHP). Two sites (15Ct160 and 15Ct161) have been determined to be potentially NRHP eligible, thereby requiring additional testing to determine their eligibility if impacts cannot be avoided. Section 3.5 in this FONSI discusses archaeological resources, potential impacts, and proposed mitigation.

Table 2: Cost and Potential Impacts—Selected Alternative D, Segment 3

Design / Environmental Considerations	Totals
Estimated Construction Costs (Millions)	$14.5
Sinkholes	1
Caves	1
Wetlands: Number of sited / total acres	1 / 0.14
Ponds	3
Floodplain: Acres	0
Stream crossings: Number / linear feet (LF)	8 / 2,007
Woodland: Acres	26
Endangered species	Potential BA
Cultural historical/archaeological resources	3 Potential archaeological
Section 4(f) use	0
Hazardous materials sites (excludes utility, oil drilling equipment, residential USTs/ASTs—further reconnaissance needed)	1
Relocations / Displacements:	1

SOUTH CENTRAL SECTION

Selected alignment: **Segments 6-9**

Other alignments considered: Segments 8 (stand alone, Alternative A), Segments 6-10 (Alternative B), Segments 7-9 (Alternative C), and non-aligned Segments 7-10

Considerations for selecting Segments 6-9—

The key reason for the selection of Segments 6-9 is because Segment 6 provides the best connection with the recommended Segment 3 and the combination's impacts are similar to those of the other alignments. In addition, the Segments 6-9 combination has an estimated construction cost that is less than all but Segment 8 (which would impact a hillside cave and have two crossings of US 127 within 1.0 mile, thereby causing maintenance of traffic problems on US 127 during construction) .

The Segments 6-9 combination…

- Has 4,995 linear feet of stream impact, which is less than all but Segment 8; and 12 stream crossings: 2 less than Segments 6-10 and 7-10, the same as Segments 7-9, and 3 more than Segment 8.
- Has 2 residential relocations: the same as Segments 6-10, one more than Segment 8, and 2 more than Segments 7-9 and 7-10.

- Does not cross existing US 127, unlike Segment 8 which crosses twice.
- Does not impact a hillside cave, unlike Segment 8.
- Has an estimated construction cost of $13.3 million, which is approximately $1.4 million more than Segment 8 and approximately $1.5 to $4.1 million less than the other alternatives considered in this section.

Since the EA, there have been no changes or updates to the data in this section.

Table 3: Cost and Potential Impacts—Selected Alternative D, Segments 6-9

Design / Environmental Considerations	Totals
Estimated Construction Costs (Millions)	**$13.3**
Sinkholes	0
Caves	0
Wetlands : Number of sites / total acres	0
Ponds	0
Floodplain : Acres	0
Stream crossings: Number / linear feet (LF)	12 / 4,995
Woodland: Acres	107
Endangered species	Potential BA
Cultural historical/archaeological resources	0
Section 4(f) use	0
Hazardous materials sites (excludes utility, oil drilling equipment, residential USTs/ASTs—further reconnaissance needed)	0
Relocations / Displacements: Residential, only	2

CENTRAL SECTION

Selected alignment: **Segment 11** (stand-alone)

Other alignments considered: Segments 12-15 (Alternative B), Segments 13-14 (Alternative C), and non-aligned Segments 12-14 and Segments 13-15

Considerations for selecting Segment 11—

Cost, the lack of residential relocations, and the ability to avoid maintenance of traffic issues were key factors in the selection of Segment 11 over the other alignments.

Segment 11…

- Avoids maintenance of traffic and local access problems associated with the other alignments' impacts to Williams Road.
- Has no residential relocations, unlike the other alignments, which have either 2 or 3.
- Has 8,136 linear feet of stream impact: more than Segments 12-14 and 13-14 but less than Segments 12-15 and 13-15.
- Has 15 stream crossings: fewer than Segments 12-14, the same as Segments 13-14, and more than Segments 12-15 and 13-15.
- Has an estimated construction cost of $27.0 million, which is from $2.6 to $10.5 million less than the other alternatives in this section.

Since the EA, there have been no changes or updates to the data in this section.

Table 4: Cost and Potential Impacts—Selected Alternative D, Segment 11

Design / Environmental Considerations	Totals
Estimated Construction Costs (Millions)	**$27.0**
Sinkholes: Adjacent to or in disturbance limits	0
Caves: Adjacent to or in disturbance limits	0
Wetlands : Number of sited / total acres	0
Ponds	0
Floodplain : Acres	0
Stream crossings: Number / linear feet (LF)	15 / 8,136
Woodland: Acres	57
Endangered species	Potential BA
Cultural historical/archaeological resources	0
Section 4(f) use	0
Hazardous materials sites (excludes utility/ oil drilling equipment / residential USTs/ASTs—further reconnaissance needed)	6
Relocations / Displacements	0

NORTH SECTION

The North Section is the longest project section with the most segment combinations. Its location requires the crossing of the Creelsboro Rural Historic District (District) and the Cumberland River. This section would experience more substantial environmental impacts than would the other sections; and an alignment's ability to minimize impacts to Section 106 and Section 4(f) resources was a deciding factor in the recommendation of a preferred alternative in this section. Because all of the alignment options encountered similar physical conditions—natural and manmade—no single combination of segments proved the best choice in every evaluation category. However, one segment—16—was determined to best address Section 106 and Section 4(f) issues. As the project developed, Segment 16.1 was derived from Segment 16 to avoid direct impacts to Blackfish Creek while retaining Segment 16's ability to minimize impacts to the District.

Selected alignment: **Segments 16.1-21-23**

Other alignments considered: Segments 18-19-21-23 (Alternative A), Segments 17-20-23 (Alternative B), Segments 16-22-23 (Alternative C), non-aligned Segments 16-21-23, Segments 16.1-22-23, Segments 17-19-21-23, Segments 17-19-22-23, Segments 18-19-22-23, and Segments 18-20-23; and *Little Indian Creek Alignment (an option to Segment 16's alignment)*

Considerations for selecting Segments 16.1-21-23—

Although the combination of Segments 16.1-21-23 would not have the fewest impacts in every category, it is the selected alignment in the North Section primarily because it is best able to minimize impacts to the Creelsboro Rural Historic District, which is a Section 106 and Section 4(f) resource; to avoid direct impacts to a 2.74-acre wetland in Swan Pond Bottom, and to Blackfish Creek north of the Cumberland River.

Segment 16.1 of Alternative D…

- Minimizes impacts to the Creelsboro Rural Historic District, and avoids direct impacts to a wetland and Blackfish Creek. Due to the location and size of the District and the locational requirements dictated by the project's purpose and need, avoidance of the District was not possible. (EA Section

2.5, *Creelsboro Rural Historic District: Avoidance/Minimization Alternatives,* summarizes the potential impacts to the District, and the avoidance and minimization alternatives considered.) The focus turned to selecting an alignment that would have the least impact to the District. Initially, Segment 16 fulfilled this roll, and the Kentucky State Historic Preservation Officer (SHPO) concurred that Section 16 "will have the least physical and visual impact to contributing historic resources" (see correspondence dated April 22, 2009, in EA Appendix C).

However, Segment 16's impacts to streams, in particular Blackfish Creek and its tributaries north of the District, were substantial (20,261 linear feet). Therefore, Segment 16.1 was developed, reducing the overall impact to 14,281 linear feet. Segment 16.1's slight shift to the east of Segment 16 does not alter the basis for the SHPO's conclusion. The segment's shift begins just south of the Cumberland River crossing and places the roadway farther than Segment 16 from two of the contributing elements to the District (see RU-582 and RU-583 on EA Table 23, p. 78). Where Segment 16.1 is nearer than Segment 16 to contributing elements, only the Wooldridge Cemetery (RU-584) is closer than 1,000 feet from the roadway. The cemetery is approximately 375 feet from a proposed access road with Segment 16, and about 100 feet from that road with Segment 16.1.

- Leaves a larger percent of the District acreage intact. The majority of the land within the District would be on the west side of the proposed road. Swan Pond Bottom would be traversed from southwest to northeast by the proposed road, which would leave the larger area of its land east of the road and cut off from the rest of the District. However, Swan Pond Bottom is already cut off from the main body of the District by the Cumberland River.
- Has the least use (24.97 acres) of District land, which is protected under Section 4(f) of the Department of Transportation Act of 1966, 49 USC 303(c). Segment 16 (Alternative C) would use 31.83 acres, Segment 17 (Alternative B) would use 29.47 acres, and Segment 18 (Alternative A) would use 39.68 acres.
- Provides the same improved access to/from of Swan Pond Bottom as Segment 16. Several consulting parties favored Segment 16, primarily because of the improved access. The primary access to Swan Pond Bottom is currently via a road that is very substandard (see EA Figure 6) and poses hazards that include falling rocks, icy/slippery conditions, and a steep drop-off toward the Cumberland River along one side.
- Impacts no known caves.
- Avoids a wetland impact in Swan Pond Bottom. The shift of the alignment to the east enables Segment 16.1 to avoid impacts to a wetland that would be affected by Segment 16 (Wetland 3, discussed in EA Section 3.3.5, *Wetlands and Ponds*).
- Has the least floodplain impact—0.5 acre. The impacts of Segments 16, 17, and 18 would be 6.0 acres, 12.2 acres, and 5.0 acres, respectively.

Alternative D combination of Segments 16.1-21-23…

- Has the fewest stream crossings—23, compared to 35 with Alternative A, 42 with Alternative B, and 34 with Alternative C.
- Has the second fewest linear feet of stream impact: approximately 15,835 linear feet—3,236 linear feet more than Alternative A, 223 linear feet less than Alternative B, and 6,215 linear feet less than Alternative C.
- Has the second least impact to wetlands: 0.14 acre—less than Alternatives A (0.27 acre) and C (0.23 acre). Alternative B has no wetland impact.

- Has one sinkhole adjacent to the disturb limits—the fewest of all Build Alternatives and one more than non-aligned segments 16.1-22-23.
- Potentially requires an institutional (church) relocation (Segment 23), as would all alternatives.
- Requires 12 residential relocations: one less than Alternative A and C, and 3 more than Alternative B.
- Displaces 3 businesses: one more than Alternative A and one less than Alternative C. Alternative B would displace no businesses.
- Has no caves within the disturb limits, compared with Alternative A's one cave within the disturb limits. Alternatives B and C have no caves within their disturb limits.
- Impacts 3 potential hazardous materials sites: the same as Alternative C, one more than Alternative A, and 2 more than Alternative B.
- Has an estimated construction cost of approximately $62.3 million: approximately $2.1 million less than Alternative C, $7.9 million more than Alternative B, and $12.6 million more than Alternative A. (Alternatives C and D are substantially more costly than Alternatives A and B in the North Section due in large part to the excavation through Blackfish Hollow and structures crossing tributaries to Blackfish Creek.)

Changes since the Environmental Assessment—

- Since the EA, Phase I archaeological investigations have been completed within the right-of-way of Selected Alternative D. The survey identified two archaeological sites that potentially could be impacted by the project. One site (15Ru140) has been determined to be eligible for listing in the NRHP, and one site (15Ru83) has been determined to be potentially NRHP eligible, thereby requiring additional testing to determine its eligibility if impacts cannot be avoided. Section 3.5 in this FONSI discusses archaeological resources, potential impacts, and proposed mitigation.

Table 5: Cost and Potential Impacts—Selected Alternative D, Segments 16.1-21-23

Design / Environmental Considerations	Totals
Estimated Construction Costs (Millions)	**$62.3**
Sinkholes	1
Caves	0
Wetlands : Number of sited / total acres	0*
Ponds	3
Floodplain : Acres	0.5
Stream crossings: Number / linear feet (LF)	23 / 15,835
Woodland: Acres	239
Endangered species	Potential BA
Cultural historical resources—Creelsboro Rural Historic District: Acres to be acquired / contributing elements to be acquired Effect Archaeological resources	 24.97 / 0 Adverse Visual 2 (Potential)
Section 4(f) use: Acres	24.97
Hazardous materials sites (excludes utility, oil drilling equipment, residential USTs/ASTs—further reconnaissance needed)	3
Relocations / Displacements: Residential Commercial Institutional	 12 3 1

* *This corrects EA Tables 8 and 10, which identify wetland impacts in Segment 16.1 as 0.14 acre. The total wetland impact for all of Alternative D is 0.14 acre, which occurs in Segment 3.*

2.3 Estimated Costs and Impacts Summaries

The entire length of Selected Alternative D is approximately 16.68 miles. The anticipated Average Daily Traffic (ADT) ranges from 2,100 vpd to 4,900 vpd, with a Level of Service (LOS) of B. The combined right-of-way, utilities, and construction costs are estimated to be $141,156,900. Tables 2 through 5, above, identify selected cost and environmental impacts of each segment comprising Alternative D. Tables 6 and 7 provide the estimated costs and environmental impacts (respectively) of the combined segments. (Note: the right-of-way cost estimate has been updated since the publication of the EA.)

Table 6: Selected Alternative D—Summary of Cost Estimates

Cost	Totals
Estimated right-of-way (ROW) costs	$15,750,000
Estimated utility costs	$8,320,000
Estimated construction costs	$117,086,900
Estimated total costs	$141,156,900

Depending on funding availability, the project likely will be divided into logical operationally independent construction segments. It is anticipated that construction will begin at the northern terminus of the project and move southward in its progression. State bond funds for right of way, utility and construction were programmed in *Kentucky's FY2010-FY2012 Enacted Biennial Highway Plan* (July 2010) for the northernmost section of the project between the Jamestown bypass and KY 55. Future sections will generally be defined between locations where crossroads exist, such as at KY 55, KY 1730 and Aaron Ridge Road, or may also be determined by locations where the new alignment crosses existing US 127 or major geographical barriers such as the crossing at the Cumberland River. Future right of way, utility and construction phases will likely require a number of varying funding sources, potentially involving both state and federal funds.

Table 7: Selected Alternative D—Summary of Environmental Impacts

Alternative D (3-6-9-11-16.1-21-23)	
DESIGN	
Length (Miles)	16.68
Number of parcels from which right-of-way to be acquired	131
Length (miles)	16.68
TRAFFIC	
ADT on new route	2,100 - 4,900
Residual ADT on existing road	200 - 2,800
LOS on new route	B
LOS on US 127, "No-Build" Condition	B - C
ABILITY TO MEET PURPOSE AND NEED	
Remove Rural Principal Arterial from atop Wolf Creek Dam	high
Provide road having improved geometrics	high
POTENTIAL ENVIRONMENTAL IMPACTS	
Natural Environment	
Sinkholes	2
Caves	1
Wetlands: Number of sites / total acres / acres potentially jurisdictional	1 / 0.14 / 0.14
Ponds	6
Floodplain (acres)	0.5
Woodland (acres)	430
Stream crossings (number / linear feet [LF]): Perennial Intermittent Ephemeral Total stream crossings (number / LF)	 5 / 1,167.0 16 / 13,249.8 37 / 16,556.2 58 / 30,973.0
Endangered species	Potential BA
Air Quality	In compliance with NAAQS
Cultural Environment	
Number of sites with noise criteria exceedance	0
Section 106 resources: Creelsboro Rural Historic District: Number of individual sites / effects Archaeological sites potentially affected	 13 / Adverse (visual) 5
Section 4(f): Creelsboro Rural Historic District (acres used) NRHP-Eligible individual sites potentially acquired for ROW Section 4(f) Evaluation status	24.97 0 Approved
Recreation areas: State Park/Kendall Campground/Fish Hatchery	Reduced traffic on US 127 could reduce visits
Environmental Justice impacts	None
Hazardous materials sites (excludes utility, oil drilling equipment , residential USTs/ASTs—further reconnaissance needed)	4
Potential residential relocations, of which ( ) are farms Potential residential relocations from residential clusters	15 (1) 0
Potential institutional displacements	1
Potential commercial displacements	3
Agricultural / Open Land: Total acres within disturb limits Prime & unique farmland (acres)** State & local important farmland (acres)** Farmland rating points**	130.0 40.1 82.5 129.0

** Source: Farmland Conversion Impact Rating, Form AD-1006 (see EA Appendix B).*

2.4 Creelsboro Rural Historic District: Avoidance/ Minimization Alternatives

The Creelsboro Rural Historic District is eligible for listing in the National Register of Historic Places (NRHP) through consensus between USACE and the SHPO in 1987. The District encompasses 4,349 acres in the river bottoms that lie along both sides of the Cumberland River near the town of Creelsboro.

All of the Build Alternatives include alignment segments that would take land from within the District boundary and also would have an adverse effect due to visual impacts to elements that contribute to NRHP eligibility. In the *Cultural Historic Resources Survey* report prepared for this project, the following segments were identified as having an adverse effect on the District: Alternative A, Segment 18; Alternative B, Segment 17; and Alternative C, Segment 16. Alternative D, which includes Segment 16.1 through the District, was developed after the report was submitted. However, its alignment through the District is similar to that of Segment 16, which was evaluated in the report; and its impacts to the District would be similar to (in some respects less than) those of Alternative C. The Segment 16.1 alignment was presented to the SHPO at a November 24, 2009, meeting to discuss potential measures to mitigate impacts to the District. EA Section 3.6.2, *Cultural Historic Resources*, summarizes coordination with the SHPO and the results of the historic surveys conducted for this project, including the finding of effects to historic resources located within the project's area of potential effects (APE).

Section 4(f) of the 1966 Department of Transportation Act protects the use of significant publicly owned parks, recreation areas, and wildlife and waterfowl refuges, as well as significant public and private historical sites listed in or eligible for listing in the NRHP. Coordination with the SHPO has occurred and it has been determined that each Build Alternative evaluated in the EA would both use and have an adverse effect on the NRHP-eligible District. If there would be an adverse effect to a protected resource, then USDOT may approve use of the protected resource only if:

- There is no feasible and prudent alternative to the use of land.
- The action includes all possible planning to minimize harm to the Section 4(f) property resulting from use.

Because the District is protected under Section 4(f), and because both of the above conditions apply, a Draft Individual Section 4(f) Evaluation was included in the EA as Section 3.7. To demonstrate that the above conditions apply, the following avoidance/minimization options were discussed in the Section 4(f) Evaluation presented in the EA:

- Avoidance Alternative 1—No-Build Alternative
- Avoidance Alternative 2—Rebuild Existing US 127
- Avoidance Alternative 3—Western Alignment
- Avoidance Alternative 4—Eastern Alignment
- Minimization Alternatives—Segments 16 and 16.1 of Alternatives C and D, respectively

The evaluation also included a discussion of the reasons the avoidance alternatives were eliminated as not prudent and potentially not feasible. EA Figure 16 shows the locations of the Western and Eastern alignments. EA Exhibits 5a and 5b show, respectively, the location of the Build Alternatives through District and the contributing elements within the District, including photographs of several contributing elements.

3.0 ENVIRONMENTAL IMPACTS

3.1 Water Quality and Stream Impacts

An *Aquatic and Terrestrial Baseline Report* (Baseline Report) was prepared for this project, and is on file with the Kentucky Transportation Cabinet (KYTC). The following discussion recounts the results of that assessment. See EA Section 3.3, *Aquatic Ecosystems*, for detailed discussions of water quality, including macroinvertebrates, fishes, and mussels (Subsection 3.3.1); streams and stream crossings (Subsection 3.3.2); public water sources (Subsection 3.3.3); floodplains (Subsection 3.3.4); and wetlands and ponds (Subsection 3.3.5).

The results of the analysis indicate that water quality is generally fair to good, although there are some streams with poor water quality or that do not fully support [4] aquatic wildlife.

Selected Alternative D would cross perennial streams 5 times, intermittent streams 16 times, and ephemeral streams 37 times. Table 8 shows the stream crossing impacts by type of streams.

Table 8: Stream Crossing Impacts by Stream Type[1]

Build Alternative	Stream Types	Number of Crossings	Total LF of Impact*
Alternative D	Perennial	5	1,167.0
	Intermittent	16	13,249.8
	Ephemeral	37	16,556.2
TOTAL		**58**	**30,973.0**

Sources: Aquatic and Terrestrial Baseline Report, June 2008 – stream data tables concluding Appendix C, "Field Data Sheets." The report is on file with KYTC. Also, Qk4 (for Segment 16.1 of Alternative D).

Avoidance, minimization and mitigation—Efforts to avoid and minimize impacts to the water quality of streams have been made during the development of the preliminary alternatives and will be continued throughout the development of the Selected Alternative. Through intergovernmental coordination, the U.S. Fish and Wildlife Service (USFWS), Kentucky State Nature Preserves Commission (KSNPC), Kentucky Department of Fish and Wildlife Resources (KDFWR), and Kentucky Division of Water (KDOW) have identified potential impacts and recommended avoidance, minimization, and mitigation options. These options will be provided to the engineering design team to be considered during the final design.

As noted above, Alternative C would have had the greatest overall impact to streams, crossing a total of 36,170 linear feet, 20,261 linear feet of which are attributable to Segment 16. That segment impacts 6,764 linear feet of Blackfish Creek and a total of 2,842 linear feet of 12 of its tributaries. Despite the stream impacts, the Segment 16 alignment was initially preferred in this section of the project corridor because the SHPO concurred that it would have "the least physical and visual impact to contributing historic resources" in the Creelsboro Rural Historic District (see EA Appendix C, letter dated April 22, 2009). Impacts to Blackfish Creek spurred efforts to modify Segment 16 with an alignment that would retain the "least…impact" finding for the District while minimizing the impacts along Blackfish Creek. The result was the development of Segment 16.1, which shares Segment 16's alignment within the District to approximately 0.9 mile south of the Cumberland River crossing, and then shifts eastward from Segment 16, crosses the river, and remains east of Segment 16. The shift not only removes the alignment from the Blackfish Creek streambed, but also reduces the number of tributary crossings from 12 to 6, and avoids a wetland that Segment 16 would impact. Segment 16.1 is a feature of Selected Alternative D. In summary, Segment 16.1 would minimize impacts to the District in a manner similar to Segment 16 while also:

[4] *A supporting / non-supporting designation indicates that a stream may / may not provide suitable habitat to sustain the flora (plants) and fauna (animals) typically found in the region.*

- Reducing the length-of-stream impact to approximately 14,281 linear feet compared with Segment 16's approximately 20,261 linear feet.
- Reducing the stream crossings to 21, compared with Segment 16's total of 30.
- Reducing the crossings of Blackfish Creek tributaries from 12 to 6.

  Note: Although there are fewer crossings, the total impact to the Blackfish Creek tributaries is an estimated 3,625 linear feet rather than Segment 16's impact of 2,842 linear feet. The estimated 780+ linear feet difference is the result of construction requirements (excavation and fill) necessitated by the terrain to the east of Blackfish Creek. For both Segments 16 and 16.1, the majority of the impacts appear[5] to be to ephemeral streams.
- Avoiding Segment 16's 0.23-acre impact to Wetland 3. Segment 16.1 would have no wetland impacts. (See EA Section 3.3.5, *Wetlands and Ponds,* for a discussion of wetland impacts.)

Insofar as impacts to the District, wetlands, and streams are concerned, Segment 16.1 is the alignment that best provides both avoidance and minimization of impacts.

Agency consultation and mitigation—In a letter of October 8, 2002 (see EA Appendix B), USFWS noted the importance of applying Best Management Practices during construction to prevent excessive sedimentation: "Rigid application of [KYTC's] construction erosion control standards can preclude most sedimentation problems; however, in some cases additional measures will need to be taken…." The agency also stated that additional comments would be provided during the agency review process should the project necessitate USACE permits. "However, we would likely have no objection to the issuance of permits if any necessary stream channel work is held to a minimum and Best Management Practices are utilized and enforced, effectively controlling erosion, sedimentation, and other potential hazards." USFWS listed several recommendations to address stream impacts, including:

- Provide an erosion control plan, diversion channels, silt barriers, temporary seeding and mulching of all cuts and fill slopes, and limitation of in-stream activities.
- Place concrete box culverts in a manner that prevents impediment to low flows or to movement of indigenous aquatic species.
- Restrict channel excavations for pier placement to the minimum needed.
- Immediately stabilize all fill.
- Stabilize stream banks with riprap or other techniques.
- Use existing transportation corridors in lieu of temporary crossings where possible.
- Maintain good water quality during construction.

KSNPC and KDOW noted that the project area is located within a known karst landscape characterized by numerous sinkholes, underground conduits, or caves. KSNPC stated that construction disturbances or release of pollutants within the specified area could easily cause contamination of groundwater. In addition, KSNPC noted that caves are often associated with sensitive ecosystems and may provide habitat for a number of rare or endangered species. KSNPC explained that cave organisms are heavily dependent on water quality and that steps should be taken to avoid introducing contaminants into the water system. KSNPC has stated in a letter dated June 27, 2007 (see EA Appendix B):

[5] *Three streams that would be encountered by Segment 16.1 were not included in the ecological baseline study because, at the time the study was conducted, that alignment was not under consideration. The length-of-impact to those streams was estimated based on the width of the disturb limits at each stream crossing. The assumption of "ephemeral" rather than "intermittent" or "perennial" was based on the prevalence of ephemeral streams along Blackfish Creek.*

A written erosion control plan should be developed that included stringent erosion control methods (i.e., straw bales, silt fences and erosion mats, immediate seeding and mulching of disturbed areas) which are placed in a staggered manner to provide several stages of control. All erosion control measures should be monitored periodically to ensure that they are functioning as planned.

From below Wolf Creek Dam to the Kentucky/Tennessee state line the Cumberland River is designated a Coldwater Aquatic Habitat (CAH) (as defined in 401 KAR 10:031 Section 4). KDOW stated that due to the CAH designation, a "no stormwater discharge drainage design should be considered" for the bridge across the Cumberland River.

Coordination with KDFWR resulted in a letter dated August 2, 2007 (see EA Appendix B), in which the agency recommended the following for those sections of the project that cross streams:

- Incorporate natural stream channel design into channel changes associated with the project.
- Place culverts even with substrate to allow free movement of aquatic organisms.
- Design culverts so degradation upstream and downstream does not occur.
- Develop or excavate in or near streams during low flow periods to minimize disturbance.
- Properly place erosion control structures below disturbed areas to minimize silt entry into streams.
- Replant disturbed areas after construction, including stream banks and rights-of-way, with native vegetation for soil stabilization and enhancement of fish and wildlife populations. A 100-foot-wide forested buffer along each stream bank is recommended.
- Return disturbed in-stream habitat to a stable condition upon completion of construction in area.
- Preserve tree canopy overhanging the stream.

The letter from KDFWR also recommended coordination with USACE and KDOW prior to any work within streams or wetlands.

The potential minimization and mitigation options identified by the agencies noted above will be provided to the engineering design team to consider during the final design.

In the final design stage, additional efforts would be made to avoid or limit stream impacts, thereby minimizing direct impacts. Water quality impacts from erosion and sedimentation during construction would be controlled in accordance with KYTC's *Policy on Best Management Practice (BMP) to be used for Karst and Significant Resource Areas* (Design Memorandum No. 12-05, July 27, 2005), and *Standard Specifications*. Mitigation measures proposed for impacts during construction are addressed in Chapter 6.0, *Project Commitments*, in this FONSI.

USACE and KDOW are the agencies responsible for regulating jurisdictional waters. If excess fill deposition sites located outside of the project corridor are needed, these areas should be surveyed for potential "waters of the United States." USACE regulates headwater streams and several of the valley fills in the project area contain headwater streams or larger. As such, fill sites (if needed) will require permitting. USACE will make jurisdictional determinations that will take into account all aquatic resources subject to Section 404 jurisdiction. The nature of the Section 404 permits (whether Individual or general) requires USACE to make a jurisdictional determination on all stream and wetland impacts prior to the permit application. The Section 401 Water Quality Certification is a state's review of applications for Section 404 USACE permits for compliance with state water quality standards. If a Section 404 permit(s) is required for the project, a Section 401 certification from KDOW would also be required. Detailed permit coordination would occur during the final design phase of the project. If this permitting is to be the responsibility of the contractor, the contractor must be made aware of such obligations.

3.2 Floodplains

The Federal Emergency Management Agency (FEMA) Q3 data was reviewed for the project area. (FEMA insurance rate mapping is not available for this area.) All Build Alternatives cross the Cumberland River; thus, its floodplain cannot be avoided. Alternative D (Segment 16.1) would impact 0.5 acre of the floodplain. EA Figure 9 shows the floodplain areas in relation to the Build Alternatives.

The opening of the proposed bridge would be sized so that 100-year floodway elevations would not be substantially affected. Since the bridge would be designed to "pass" the 100-year flood volume with adequate clearance under the bridge, the US 127 crossing is not expected to increase flooding. As a result, there would be no significant impacts to the natural and beneficial value of the Cumberland River floodplain; there would be no change in flood risk due to the project; and there would be no increase in potential for interruption or termination of emergency service or emergency evacuation routes. Appropriate regulatory agencies will be consulted regarding potential floodplain impacts, and a floodway analysis will be performed to determine the need for a No-rise certification and floodplain plan. If required, a floodplain plan would be developed in coordination with FEMA.

3.3 Wetlands

This project has been developed in conformity with Executive Order 11990 and USDOT Order 5660.1A. The *Aquatic and Terrestrial Baseline Report* prepared for this project (June 2008) is available for review from the KYTC. Local county soil surveys, National Wetlands Inventory (NWI) maps, aerial photographs, and USGS topographic maps were used to determine potential wetland areas within the project corridor, and field reconnaissance was conducted using the 1987 USACE *Wetland Delineation Manual*. Field reconnaissance and USGS topographic maps were also used to locate ponds.

Selected Alternative D would impact all 0.14 acre of Wetland 6, which occurs in Segment 3 at the south end of the project corridor. Wetland 6 (estimated 0.14 acre) is located in the floodplain of Indian Creek, a named perennial stream. It is a Palustrine emergent, persistent, seasonally flooded, saturated wetland (PEM1E; Cowardin 1979). It was not displayed on NWI mapping. Water testing was not conducted at this site; however, the hydrology of the wetland is believed to be fed by a sulfur spring/abandoned oil well. The water from this wetland flows directly into Indian Creek and was milky white in color with a strong “rotten-egg” odor (hydrogen sulfide). The plant community is dominated by cat-tail, Japanese stilt-grass, false nettle, common rush, green ash, red maple, wild cane, and fescue. The site meets the hydrophytic vegetation, hydrology, and hydric soil criteria of a wetland. The wetland appears to have a connection to waters of the United States, and is potentially jurisdictional.

Other wetlands are located within the project corridor but outside of the disturb limits of Alternative D, including two that are potentially jurisdictional and one non-jurisdictional. These wetlands are illustrated on EA Exhibit 4 and should be avoided during construction activities should any shifts in the alignment, temporary construction sites, or borrow and fill sites be identified.

Minimization/avoidance—Although Alternative D would unavoidably impact all 0.14 acre of Wetland 6, its segment (Segment 3) was selected because it would require the fewest residential relocations and no commercial displacements, require no reconstruction of the newly constructed intersection with KY 90, have the least length-of-stream impacts, and impact the fewest potentially hazardous materials sites.

Mitigation/permitting—Preliminary and informal coordination has occurred with USACE. Wetland disturbance acreages falling between 0.1–0.5 acre qualify for coverage under a Nationwide permit issued by USACE. Prior to construction (i.e., after final design) an exact determination of impacts to jurisdictional wetlands will be made. Detailed permit coordination will occur with USACE during the final design phase

of the project. If the wetland impact is determined to exceed 0.10 acres, mitigation will be required by the USACE. This would take the form of restoration of wetlands on-site or off-site, use of mitigation credits from one of KYTC's advance mitigation sites, or payment of an in lieu fee to the KDFWR.

3.4 Federally Threatened and Endangered Species

KSNPC, KDFWR, and USFWS listed 29 species of fauna and flora that are of special concern, threatened, or endangered and could be affected by the project. However, 21 of these listed species, mainly freshwater mussels, are believed to be extirpated from the area (see KSNPC letter dated June 2007, in EA Appendix B). No plants or animals listed by these agencies were found within the project area during field investigations. However, suitable habitats for the following federally listed and one state-listed bat species, and four state-listed endangered/threatened/special concern plant species were identified in the project area during this study, as well as possible breeding habitat for one hawk species. Another bird species is state-listed as having potential to occur in Clinton County, though appropriate habitat within the project corridor is sparse. The descriptions below include the listing designations. As discussed in EA Section 3.5.4, *Threatened and Endangered Species*, the project should not have direct, indirect, or cumulative impacts to any of these species.

- Indiana bat (*Myotis sodalis*)—federal endangered, state endangered
- Gray bat (*Myotis grisescens*)—federal endangered, state threatened
- Eastern small-footed bat (*Myotis leibii*)—state threatened
- Mercury spurge (*Euphorbia mercurialina*)—state threatened
- Kidneyleaf grass-of-Parnassus (*Parnassia asarifolia*)—state endangered
- Cutleaf meadow-parsnip (*Thaspium pinnatifidum*)—state threatened
- White cedar (*Thuja occidentalis*)—state threatened
- Sharp-shinned hawk (*Accipiter striatus*)— state species of special concern
- King rail (*Rallus elegans*)—state endangered

Mitigation—KDFWR recommended in its letter of August 2, 2007 (see EA Appendix B), that: 1) the project area be surveyed for caves, rock shelters, and abandoned underground mines that may be suitable for bat habitat, and any identified sites should be avoided; and 2) that tree clearing in the project area be restricted to between October 15 and March 31 unless Indiana bat hibernacula are located within 10 miles of the project, in which case tree clearing should be restricted to between November 15 and March 31. KDFWR noted: "Written acceptance of and strict adherence to the recommendations should satisfy the consultation requirements of Section 7 of the Endangered Species Act."

Further coordination will be undertaken with USFWS to address any federally threatened and endangered species for which habitat exists within the project corridor. If necessary, a Biological Assessment (BA) will be prepared, prior to requesting authorization of federal right-of-way funds, to determine the presence/absence of the species. Appropriate mitigation for potential impacts would be included in the BA.

3.5 Section 106—Cultural Historic and Archaeological Resources

A *Cultural Historic Resource Survey* assessment and *Management Summary for the Preliminary Archaeological Investigations* were prepared and are on file with KYTC. These assessments identified resources located within the area of potential effects (APE); evaluated their historical significance; and provided a preliminary evaluation of the proposed alternatives' potential effects on the identified resources. The boundary of the APE for the project is shown on EA Exhibit 4 (sheets 1–5).

Consultation with the Kentucky State Historic Preservation Office (SHPO) and with consulting parties has been conducted to identify the Area of Potential Effects (APE) for the project and the eligibility of cultural historic and archaeological resources for listing on the National Register of Historic Places (NRHP). EA Section 3.6, *Section 106: Cultural Historical and Archaeological Resources,* describes Section 106-related activities that occurred prior to the Public Hearing. Appendix C in the EA contains the pre-Public Hearing coordination correspondence and related Section 106 documentation.

Section 106 also requires consultation with the SHPO and consulting parties to identify measures to mitigate project-related adverse effects to cultural historic and archaeological resources. Since the Public Hearing, a Memorandum of Agreement (MOA) has been prepared to address mitigation of the Selected Alternative's impacts to the Creelsboro Rural Historic District and potential impacts to archaeological resources. The "Cultural Historic Resources" and "Archaeological Resources" sections, below, summarize key Section 106-related activities, including mitigation stipulations in the MOA.

Cultural historic resources—As reported in EA Section 3.6, the SHPO concurred with the boundary of the historic APE and with FHWA's determinations of eligibility and effects (see correspondence dated August 14, 2006, and April 22, 2009, in EA Appendix C). The "Cultural Historic Resource Survey" assessment concluded that:

- Within the project corridor, there are four individual sites (Seventy-Six Baptist Church, Wolf Creek Dam and Powerhouse, Texaco Service Station, and Dr. M. M. Lawrence House) and one rural historic district (Creelsboro) eligible for listing in the NRHP (see FONSI Exhibit 2; and EA Appendix A, Exhibits 5a, 5b, and 6.)
- All of the project's alternatives would have an "Adverse Visual Effect" on the District, and one (Alternative B) would have an "Effect" (not adverse) on the Dr. M. M. Lawrence House). The SHPO concurred with the finding of effects.

Selected Alternative D (Segment 16.1) would have an "Adverse Effect" on the District. The site is NRHP-eligible under Criteria A and C: Association with exploration and settlement patterns, commerce, trade, transportation, agriculture, and architecture; and, possibly, under Criterion D: Information regarding nineteenth century building techniques. There are 13 individual sites identified within the District as contributing elements potentially affected by the project; however, none would be acquired for right-of-way. The Selected Alternative would potentially acquire 24.97 acres of land within the District—the least of all alternatives. The SHPO consultation correspondence, including the summary of a meeting held on November 24, 2009, to discuss mitigation, is in EA Appendix C.

Since the Public Hearing on August 19, 2010, additional consultation with the SHPO has occurred regarding the mitigation of the project's adverse effects to the District. As noted above, measures to mitigate the impacts have been identified in an MOA, which, in summary stipulates that the project:

- Ensure the District is listed in the NRHP.
- Develop a digital video to describe the history and development of the District.
- Develop at least three interpretive panels describing the history and significance of the District (installation locations to be determined).
- Give the SHPO an opportunity to review and comment on the proposed Cumberland River bridge lighting treatments.

A draft of the MOA was developed in consultation with the SHPO. The MOA was signed by KYTC (September 28, 2011), the Kentucky SHPO (October 18, 2011), and FHWA (November 14, 2011), and is

included in FONSI Appendix B. Following the signing of the MOA, the document was sent to the consulting parties and the Advisory Council on Historic Preservation (ACHP).

Impacts to the District also necessitated the preparation of an Individual Section 4(f) Evaluation, the draft of which was included in the EA (see Section 3.7), and summarized below in Section 3.6, *Section 4(f) Evaluation*.

It should be noted that, following the Public Hearing, comments on Alternative D were submitted by residents who noted their house to be "the oldest occupied house in the area." Per their request, a site visit was made by KYTC staff and project historian. Photographs and information about the property were obtained, reviewed, and then submitted to the SHPO. It was determined by the SHPO that the site did not meet the criteria for listing in the NRHP (see letter dated December 22, 2010, in FONSI Appendix B).

Archaeological resources—In 2007, for the Cumberland River Valley area, research was conducted, a predictive model prepared, and a limited Phase I archaeological investigation was completed to investigate previously un-surveyed areas and known archaeological sites along all of the Build Alternative alignments in Jackman Bottom, Swan Pond Bottom, and Blackfish Hollow. The results of the preliminary investigation were documented in the *Management Summary for the Preliminary Archaeological Investigations*.

Beginning in January 2011, a Phase I archaeological survey was conducted within the Selected Alternative's right-of-way. The survey results were documented in the *Management Summary of an Archaeological Survey for the Preferred Alternate (D) Route of the U.S. 127 Relocation/Reconstruction Project, Clinton and Russell Counties, Kentucky: Preliminary Results* (August 2011). Based on a review of the data, FHWA and KYTC determined that (1) three sites are potentially eligible and require Phase II testing if they could not be avoided—sites 15Ct160, 15Ct161, and 15Ru83; and (2) two sites are eligible and should be mitigated if they cannot be avoided—sites15Ct61 and 15Ru140. Regarding sites that are un-surveyed because access could not be obtained, or sites that could be affected should there be a shift in the right-of-way, FHWA and KYTC determined that archaeological investigations will be conducted and coordinated with the SHPO once a right of entry is obtained.

In a letter to the SHPO dated September 1, 2011, FHWA and KYTC summarized these determinations and requested the SHPO's concurrence. The SHPO responded on September 2, 2011, concurring with the determinations but noting "this concurrence is conditional upon the review and acceptance of the final Phase I report by November 30, 2011."

The MOA that has been prepared for this project identifies stipulations to ensure that all required archaeological work will be carried out, including mitigation of adverse effects to NRHP-eligible archaeological sites. The stipulations include:

- Conducting Phase I archaeological surveys for all un-surveyed parcels within the project right-of-way prior to ground-disturbing activities to determine if they contain archaeological sites that are eligible for listing in the NRHP.
- If sites 15Ct160, 15Ct161, and 15Ru83 cannot be avoided by the project, conducting Phase II testing, prior to ground-disturbing activities, to determine whether the sites are eligible for NRHP listing.
- Preparing a treatment plan if, during implementation of the project, a previously unidentified site is discovered that would be affected by the project.
- Consulting with the SHPO, Indian Tribes, and others (as determined by FHWA), and developing a data recovery plan to mitigate adverse effects if sites 15Ct61 and 15Ru140, which are eligible for listing in the NRHP and are within the project right-of-way, cannot be avoided.

In addition, the MOA identifies alternative measures to mitigate adverse effects to archaeological sites, if deemed appropriate by FHWA in consultation with the SHPO. These measures may include development of one or more of the following:

- A film regarding relevant archaeology and the archaeological process in Kentucky
- A booklet about relevant archaeology in Kentucky
- Lesson plans or other educational components for use in K-12 Project Archaeology classroom exercises.
- Web-based materials including but not limited to web pages and pod casts relating to relevant archaeology.

3.6 Section 4(f) Evaluation

Section 4(f) of the 1966 Department of Transportation Act includes protection of the use of public and private historical sites unless proscribed conditions apply. Because each Build Alternative would both use land within and have an adverse effect on the Creelsboro Rural Historic District, a Draft Individual Section 4(f) Evaluation was included as Section 3.7 of the EA, appended hereto. Avoidance alternatives were studied and dismissed as not prudent (see EA Section 3.7.4, *Measures to Minimize Harm*). Segment 16.1 of Alternative D was identified as the minimization alternative. It was a modified version of an alignment, Segment 16, with the least impact to the District of all the Build Alternatives but would have impacted a small wetland within the District and approximately 20,261 linear feet of streams, in particular Blackfish Creek and its tributaries to the north of the District. Prior to the development of Segment 16.1, the SHPO concurred that Segment 16 would have the "least physical and visual impact" to the District. The Kentucky SHPO has been consulted on the determination of eligibility and finding of effects for properties within the project APE, and the resolution of the adverse effects as documented in the project MOA.

The Individual Section 4(f) Evaluation was presented in the EA as a "Draft" to allow for possible revision should there be comments at/following the Public Hearing on the project. There were no comments on the evaluation. On November 16, 2010, FHWA submitted "the approved Environmental Assessment (EA) and 4(f) determination" for the project to the U.S. Department of the Interior (USDOI), per Section 774.3(a). In comments returned by that agency on January 12, 2011 (see FONSI Appendix A), USDOI noted "no objection to Section 4(f) approval of this project, contingent on the subsequent full execution of the requirements identified in the proposed MOA with the SHPO." The EA and Section 4(f) Evaluation were also submitted for FHWA's requisite legal sufficiency review. On December 8, 2010, tentative approval was received pending the conclusion of the coordination process and public comment period (dee FONSI Appendix A).

FHWA has determined that, based on preliminary designs and analyses: (1) there is no feasible and prudent alternative that avoids the affected resource; (2) the project includes all possible planning to minimize harm to the Section 4(f) property resulting from the use; and (3) in accordance with Section 774.3(c), **Alternative D "causes the least overall harm."**

3.7 Land Use

Land uses in Clinton and Russell counties' are predominantly agricultural and rural residential. The county seats (Albany and Jamestown, respectively) are the economic activity centers in each county. The majority of the land along the existing US 127 roadway is either agricultural and single-family rural residential or undeveloped hilly and wooded. Isolated commercial and institutional (church) uses occupy some parcels. Exceptions include a few rural residential clusters and the unincorporated community of Freedom, which is located at the intersection of US 127/KY 55. The Freedom area is somewhat more

densely settled, primarily with residential development but including two churches and some businesses (including a motel, utility facilities, home-based businesses, and some abandoned commercial buildings).

Direct land use impacts—Table 9 identified the anticipated direct land use impacts by the Selected Alternative. The project would convert these land uses to highway use. Land uses in the project area and through the project corridor are described in the EA Section 3.8, *Land Use.*

Table 9: Selected Alternative D—Direct Land Use Impacts

Land Uses	Total Land Area (Acres)
	Alternative D (3-6-9-11-16.1-21-23)
Developed	14
Agricultural / Open	130
Forest	430
Wetland	<1
Recreational	0
TOTAL	**574**

Indirect and other land use impacts—Although there are no long-range planning documents available for Clinton/Russell counties or the cities of Jamestown and Albany, the potential for induced land use changes has been discussed with local officials. From such discussions it has been concluded that the project could induce some minor development in the vicinities of the two cities, which are outside the corridor but could benefit from improved local and regional access—an anticipated goal of the project. However, project-induced development along the corridor, itself, is not likely or anticipated in the foreseeable future.

3.8 Compatibility with Regional and Community Plans

There are no current or future land use plans, or development controls (such as zoning ordinances or subdivision regulations) for Clinton County or Russell County. Because of its poor economic status (see details in EA Section 3.8), Clinton County was designated a federal Enterprise Zone, which permits the county to offer financial incentives to expand and diversify employment and economic opportunities. New development is not expected to locate along the proposed roadway solely as a result of implementing the proposed project. Economic incentives associated with the Enterprise Zone designation are anticipated to encourage additional economic development and investment in the county. The improved transportation network could assist in encouraging new employment opportunities and attracting business to the counties.

Funds for design work have been programmed, and funding for acquisition of right-of-way and utility work is scheduled to be programmed in FY 2012. Construction is scheduled for FY 2014 for the portion of the project from KY 90 to KY 55 near Freedom (KYTC Item No. 8-115.10 in Clinton and Russell counties). For the northernmost portion of the project—KY 55 to the Jamestown Bypass (Item No. 8-108.00 in Russell County), acquisition of right-of-way and utility work are scheduled for FY 2010 and construction for FY 2011. Most of the money for this project has been allocated from the State Construction Fund; however, federal funding would likely be required.

3.9 Community Impacts

EA Section 3.9, *Community Impacts* contains a description of the general characteristics of the affected communities within and surrounding the project corridor, including Russell and Clinton counties and the study area. The analysis includes socioeconomic and demographic characteristics (Section 3.9.1) including populations trends and projections; age distributions; racial characteristics; labor force characteristics and employment by industry; income, poverty data, and unemployment; and residents' commuting patterns. EA Section 3.9.2 identifies communities served by the project and EA Section 3.9.3 discusses areas of community cohesion and potential impacts to rural residential clusters. It should be noted that Selected Alternative D would not acquire any residences from the identified residential clusters. EA Section 3.9.4 includes a description of the community resources in the project study area, including health care services, educational facilities, churches and institutions, parks and recreational facilities, and shopping and business districts. Since this information is current, not alternative-specific, and is available in the appended EA, it is not repeated herein.

In 2010 the U.S. Census Bureau conducted its decennial census. The majority of the census data is not yet available. Demographic data that has been released reveals that the state and both Clinton and Russell counties gained in population since the 2000 Census, as follows:

Kentucky population—4,041,769 in 2000 vs. 4,339,367 in 2010 (7.4% gain)

Clinton County population—10,272 in 2010 vs. 9,135 in 2000 (12.4% gain)

Russell County population—17,565 in 2010 vs. 16,315 in 2000 (7.7% gain)

Racial characteristics remain similar to those identified in the EA, with the "one-race, White" populations remaining in the majority (Clinton, 98.8% and Russell 96.5%. However, this does represents a slight decline from the approximately 99% in the counties reported in the EA. The updated data show that slight gains made in the all of the other race categories, with the largest gains being in the "Hispanic or Latino (any race)" category: 1.0% increase in Clinton County and 2.4% increase in Russell County.

3.10 Relocations Impacts

Information regarding potential relocations/displacements was gathered by field visits and by reviewing detailed mapping of the alignment options. For purposes of the study, it was assumed all residences are owner occupied, and that the number of employees of potentially impacted business ranges from one to three. Table 10, below, summarizes the potential residential and business impacts and estimated costs by Selected Alternative D. Potential relocation impacts and detailed information about KYTC's Relocation Assistance Program are described in EA Section 3.10, *Relocations and Displacements*.

Residential relocations—Acquisition of 15 single-family residences is anticipated. No apartment complexes or other multi-family dwellings are located within or adjacent to the right-of-way. No minorities, handicapped individuals, or residences with five or more family members were observed living in the project corridor. Ancillary building displacements (*i.e.*, sheds, farm structures, garages, etc.) are likely.

Commercial/industrial displacement—Three business displacements could occur. In addition, the new road would attract traffic from existing US 127, potentially resulting in loss of revenues for some businesses along US 127.

Institutional or non-profit organizations displacements—No displacement of governmental, church, non-profit, or other institutional establishments is anticipated. However, a building that serves as a meeting hall on Sewellton Church of God of Prophecy property at the intersection of US 127 and Wooldridge Road could be within the right-of-way of all Build Alternatives (see Exhibit 2, Sheet 5). Should

the meeting hall be essential to the functioning of the church and not be able to be relocated on the property, the result could be an institutional displacement.

To minimize the unavoidable effects of right-of-way acquisition and displacement of people, the KYTC offers a Relocation Assistance Program in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* (Public Law 91-646), as amended in 1987. Housing and relocation resources would be available to the residential relocatee without regard to race, creed, color, national origin, or economic status, as required by Title VI of the *Civil Rights Act of 1964.* In accordance with *Environmental Justice Executive Order 12898*, the Selected Alternative would not have a disproportionately high and adverse effect on minority or low-income populations. Information about KYTC's Relocation Assistance Program is detailed in Section 3.10.1 in the appended EA.

Table 10: Selected Alternative D—Anticipated Impacts from Relocations/Displacements

Segment	Residential Relocation			Business Displacement	
	Potential No. Residential Relocations	Potential No. Individuals Relocated	Estimated Relocation Cost	Potential No. Business Displacements	Estimated Displacement Cost
3	1	3	$ 25,000	0	$ 0
6	2	6	$ 50,000	0	$ 0
9	0	0	$ 0	0	$ 0
11	0	0	$ 0	0	$ 0
16.1	6	18	$ 150.000	2	$ 25,000
21	3	8	$ 75,000	1	$ 5,000
23	3	9	$ 75,000	0	$ 0
TOTAL	**15**	**44**	**$ 375,000**	**3**	**$ 30,000**

3.11 Farmland Impacts

The approximately 130 acres of farmland in the project corridor are used for livestock grazing (dairy cows and beef cattle) and crop cultivation (hay, tobacco). No agricultural districts are located in or near the project area.

Formal consultation with the U.S. Department of Agriculture's Clinton County and Russell County offices of the Natural Resources Conservation Service (NRCS) for compliance with the *Farmland Protection Policy Act of 1981* was completed. In accordance with state and federal regulations concerning farmland protection, the Farmland Conversion Impact Rating Form AD-1006 was used to evaluate this project's effect on farmland (see EA Appendix B). A scoring system is used to identify the relative value of farmland to be converted (0–100 points) and to assess the project corridor (based on 10 criteria ranging from 0–5 to 0–25 points). The relative value and corridor assessment points are combined to provide a total score per alternative. USDA recommends in 7 CFR 658.4(c)(3) that "sites receiving scores totaling 160 or more be given increasingly higher levels of consideration for protection." Alternative D received a score of 127. As Farmland Conversion Impact Rating Form AD-1006 shows, about 40 acres of prime and unique farmland and 82.5 acres of statewide or local important farmland would be converted to from agricultural to transportation use as a result of Selected Alternative D. This represents 0.1% of the two counties' farmland to be converted to transportation use.

Based on these results, it was determined the project's impact on farmland would not be adverse and the protection of this farmland should not override the need for the project. As noted in the EA (Section 3.11, *Farmland Impacts*): "No alternatives other than those discussed in this document will be considered without a re-evaluation of the project's potential impacts upon farmland."

3.12 Environmental Justice

Title VI of the 1964 Civil Rights Act requires each federal agency to ensure that "no person, on the ground of race color or national origin, be excluded from participating in, denied the benefits of, or subjected to discrimination" under any program or activity receiving Federal Aid. Title VI implications on the transportation planning process were further refined on February 11, 1994, in Executive Order 12898 titled *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*. The President's Memorandum on Environmental Justice requires each federal department and agency to "identify and address disproportionately high and adverse human health or environmental effects of their policies, programs and activities on minority populations or low income populations." On April 15, 1997, the U.S. Department of Transportation (USDOT) published DOT Order 5680-1 as a component of the June 29, 1995, Federal Highway Administration's Environmental Justice Strategy. The Order, which appeared in the *Federal Register*, *Volume 62*, *Number 72*, describes the process USDOT implemented to incorporate environmental justice principles into existing programs, policies, and activities. In terms of transportation policy, environmental justice contains three fundamental principles:

- To avoid, minimize or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected minority or low-income communities in the transportation decision making process; and
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits to minority and low-income populations.

Minority means a person who is black, Hispanic, Asian, American Indian and Alaskan Native, and Native Hawaiian or Other Pacific Islanders. Low-income means a household income at or below the Department of Health and Human Services poverty guidelines. Minority populations or low-income populations are any readily identifiable groups of minority of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers) who would be similarly affected by a proposed policy or project.

Methodology—To meet the objectives listed above, efforts were conducted to identify areas of low-income and minority populations within the study area, including a review of census data and project mapping. After the preliminary data was collection, specific effects on minority or low-income populations were evaluated by contacting local governmental officials and community leaders, and conducting field observations.

Minority populations, race—For year 2010 Census data, the percentage "one race-white" for Clinton and Russell counties were 98.8% and 96.5%, respectively. Based on this data, any impacts to minorities would likely be considered disproportionate. Therefore, consultation with local officials and field surveys and public involvement outreach, including limited door to door interviews, were conducted to determine if there were any minorities living in the project corridor. These efforts confirmed there are no known minorities residing in the project corridor, and therefore it is concluded there would be no known direct impacts to minority populations as a result of this project.

Low-income populations—Year 2000 Census is the most current data available regarding income, and that data is from 1999. In that year, the total percentage of individuals living below poverty level in Clinton and Russell counties were 25.8% and 24.3%, respectively. The U.S. Census Bureau did a similar analysis for the year 2009. For that year, the respective percentages were 27.1% and 25.3%. The same data for Kentucky was 15.8% in 2000 and 18.4% in 2009. The proposed project is anticipated to affect

low-income people due to the fact that much of the populations of both counties have a high percentage of such individuals.

There are an anticipated 15 unavoidable residential relocations with the selected alignment. Although efforts were made to minimize all relocations throughout the corridor, it is estimated that approximately four to five of these 15 are of low income status. Because the number is relatively small and in generally reflects the income level of the encompassing counties, this impact does do not result in a disproportionately high or adverse effect to low-income populations, per *Environmental Justice*. Further, no low-income communities are being impacted, and no community resources that serve the low income relocatees will be affected or moved from these residences. A Right-of-Way Agent will work with the low-income relocatees to address their needs during the right-of-way acquisition phase.

Summary—Overall, in accordance with *Environmental Justice Executive Order 12898*, the proposed project would not have a disproportionately high and adverse effect on minority or low-income populations. However, it would be expected that the new roadway would provide improved access (including shorter driving time and safer driving conditions) to employment and to services in Jamestown, Albany, and other regional locations. The No-Build Alternative would have no direct impacts to minority and low-income populations; however, the current substandard conditions on existing US 127 would remain unimproved, and there is the potential that the road across the dam could be closed by USACE in the event of an emergency—both of which situations could adversely affect local residents, including minorities and low-income populations.

3.13 UST / Hazardous Materials

A *Hazardous Materials/Underground Storage Tank (UST) Assessment* was performed to identify potential hazardous materials sites. Land use in the area is mostly residential and agricultural, with a few commercial properties concentrated near the northern and southern termini. The Phase I investigation identified 10 properties in the project area that are reported or potential hazardous materials site locations. Four of these sites are within/adjacent to the disturb limits of Selected Alternative D and, thus, could be impacted by the project (see EA Section 3.14, *Hazardous Materials*).

Additional environmental concerns found at multiple locations within the project area, but not included in the mapping within this report, include the following:

- Multiple power pole-mounted electrical transformers that are suspected to contain polychlorinated biphenyls (PCBs) were found throughout the project area. The majority of transformers were inspected and no visible leakage of contents from the transformers was observed; however, several casings exhibited staining and rust from weathering. Due to the quantity of PCBs typically found in these types of transformers, any releases or associated contamination would be minimal.
- Area farms are likely to use pesticides and herbicides. Pesticides or herbicides pose a hazard if they are improperly disposed of or misapplied. No obvious evidence of chemical misapplication or improper storage of chemicals was observed during investigations. No large-scale agricultural crop operations were observed in the Study Area that would utilize large quantities of these chemicals.
- Residential dwellings in the subject area could use underground or aboveground storage tanks (USTs/ASTs) to store heating fuel oil. No vent or fill pipes were observed on area residences; however, the majority of structures were viewed only from a distance during the inspections for the overview study. The presence of these types of tank systems would only be determined by a visual inspection of the structures on a case-by-case basis.

- Some properties, particularly in the southern third of the project area, contain contract oil drilling operations. These sites typically involve the well, three or four aboveground storage tanks, and other appurtenances. If any of these operations lie within the Selected Alternative, their operators or owners would be contacted for proper closure of the sites.

Table 11, below, identifies those sites that could be affected by Selected Alternative D, the potential contaminants at those sites, and recommendations for remediation. The sites' locations are shown on Exhibit 4 in the EA.

Table 11: Selected Alternative D—Suspected Contaminated Sites and Recommendations

Site ID # (Exhibit 2)*	Site Name or Description	Suspected Contaminants	Recommendation
13	Gas station, US 127 at KY 55	Possible contamination from petroleum, heavy metals, and semi-volatile organic compounds.	**Conduct Phase II investigation if necessary:** Identify and evaluate extent of any soil contamination, and dispose of contaminated soil according to applicable laws and regulations.
14	Electric Substation KY 55 at US 127	Oil/grease, and volatile organic compounds	**Conduct Phase II investigation if necessary:** Identify and evaluate extent of any soil contamination, and dispose of contaminated soil according to applicable laws and regulations. Contact local electric utility for removal of equipment.
18	Boat Storage, US 127	Heavy metals, volatile and semi-volatile organics, other petroleum constituents from winterized and stored vessels	**Conduct Phase II investigation if necessary:** Identify and evaluate extent of any soil contamination, and dispose of contaminated soil according to applicable laws and regulations.
19	Field, North of KY 639	Old oil well; potential for petroleum constituents in soil	**Conduct Phase II investigation if necessary:** Identify and evaluate extent of any soil contamination. Close well according to applicable laws and regulations.
Not mapped	Power pole-mounted electrical transformers throughout corridor	Polychlorinated biphenyls (PCBs)	**Conduct Phase II investigation if necessary:** Found throughout project area. Evaluate condition of electrical equipment. Inspect for evidence of leaking contents. Coordinate relocation and handling with local utility company.
Not mapped	Oil drilling operations throughout corridor	Aboveground storage tanks, petroleum constituents in soil	**Conduct Phase II investigation if necessary:** Found throughout project area. Identify and evaluate extent of any soil contamination. Close tanks and wells, and handle and dispose of any contaminated soil according to applicable laws and regulations.
Not mapped	Residential and agricultural properties throughout corridor	Aboveground or underground storage tanks, pesticides, herbicides, Lead-based paints, asbestos building materials	**Conduct Phase II investigation if necessary:** Found throughout project area. Identify and evaluate the condition of any stored pesticides or herbicides. Handle and dispose according to applicable laws and regulations. Conduct inspections of residences to be taken by selected alignment for presence of regulated materials.

* *The site numbering is non-consecutive because several sites included in the Hazardous Materials / UST Assessment report do not affect any of the Build Alternatives, so are not discussed herein.*

Mitigation—Additional reconnaissance to determine the need for Phase II hazardous materials investigations is recommended at the suspect site(s) that would be impacted. If Phase II hazardous materials investigations are found to be necessary, they should be completed prior to right-of-way acquisition unless KYTC is unable to obtain site access. In those cases, the work would be completed as early as possible following the securing of the legal right to enter the property. The proposed project would not be advertised for construction until all clearances are obtained.

Structures identified for acquisition should be inspected for aboveground or underground storage tanks. Confirmed tanks will be removed prior to demolition, and handled and disposed of consistent with existing local, state, and federal regulations. Structures identified for acquisition should be inspected for asbestos

containing building materials (ACBM) by an accredited inspector. Confirmed ACBM will be removed prior to demolition, and handled and disposed of consistent with existing local, state, and federal regulations.

Any oil or gas wells impacted by construction activities would be closed in accordance with state and federal regulations. If excavation occurs within 50 feet of an oil or gas well, an inspection will be conducted to identify any contaminated soil. Coordination with owners will occur.

During right-of-way acquisition and/or construction, if a site suspected of containing hazardous materials is discovered, then activities at that site will cease and further investigations must be performed before construction can proceed.

3.14 Visual Impacts

The project area presents a visual character that is typical for the area and, with the exception of existing US 127's crossing of the Wolf Creek Dam, possesses no unique aesthetic features or viewsheds potentially impacted by the proposed project. In those locations where new roadway construction would replace open ground, trees, and other vegetation, the aesthetic appeal would be reduced along the corridor.

The Wolf Creek Dam crossing (see EA Figure 20) has been identified by some local residents and through field visits as providing an aesthetic and memorable view of Lake Cumberland and the river valley to the east. While the new proposed crossing of the dam would remove much of the traffic from the dam, the crossing would remain open to traffic for those wishing to access the dam, USFWS's Fish Hatchery, USACE's Kendall Campground, or simply to enjoy the view. The new road would not be visible from the dam due to the area's vegetation and topography.

A crossing of the Cumberland River on new alignment would result in a change in the viewshed of the area in which the new road and bridge are located. The river crossing for Selected Alternative D traverses a sparsely populated area. The preliminary design has determined that the bridge will be approximately 87 feet above the river for the Selected Alternative D (Segment 16.1).

Motorists on the new alignment would have a view of the scenic river valley, while some residents would have a view of the bridge that could be considered an obstruction of the scenic valley vista. The river crossing for Selected Alternative D would occur within the Swan Pond Bottom portion of the Creelsboro Rural Historic District, which is in the river bottoms that lie along both sides of the Cumberland River in proximity to the town of Creelsboro. The boundaries were determined primarily by landscape features, and were drawn to include the cleared areas of the river bottoms and tributary coves. The historic resource survey indicated the Selected Alternative would have an adverse effect due to visual impact on the District. The District extends east-west along the Cumberland River and beyond; therefore, impacts to the District as a result of any of the Build Alternative are unavoidable. FHWA's approval of the determination recommendation, together with the SHPO's concurrence with same, resulted in the preparation of an MOA that stipulates measures to mitigate the adverse visual effects to the District.

With the exception of the District, the project would have minimal impacts on the visual character of the corridor, and should enhance driving pleasure by providing a safe, efficient, and economical route. In the vicinity of the dam—the one location that has been identified as memorable for its view of the river and river valley—the traffic reduction would be expected to enhance the view, as well as make the viewing a safer experience for motorists.

3.15 Construction Impacts

The proposed project could be expected to produce both positive and negative temporary impacts in the area. A beneficial short-term economic impact would occur by stimulating the local economy in terms of construction related jobs, sales, income, government revenue and expenditures, and other variables. Highway construction activities would have minimal and temporary air, water quality, noise, traffic flow, and associated impacts within the project area. Steps that will be taken to minimize or avoid these temporary impacts include the following:

- The air quality impact would be temporary and primarily in the form of emissions from diesel-powered construction equipment and dust from exposed earth. Air pollution associated with airborne particles creation would be effectively controlled through the use of watering or the application of calcium chloride in accordance with the KYTC's *Standard Specifications for Road and Bridge Construction* (*Standard Specifications*), as directed by the KYTC project manager.
- Noise and vibrations impacts would originate from heavy equipment movement, blasting, and construction activities such as pile driving and vibratory compaction of embankments. Noise control measures would include those contained in KYTC's *Standard Specifications*.
- Water quality impacts from erosion and sedimentation would be controlled in accordance with KYTC's *Standard Specifications* and through the use of Best Management Practices. Temporary erosion control features, as specified in KYTC's *Standard Specifications*, would consist of measures that could include the temporary placement of sod, mulching, sandbagging, slope drains, sediment basins, sediment checks, artificial coverings, and berms.
- Traffic flow maintenance and construction sequence would be planned and scheduled to minimize traffic delays. Signs would be used as appropriate to provide notice of road closures and other pertinent information to the traveling public. The local news media would be notified in advance of road closings and other construction-related activities that could excessively inconvenience the community so motorists could plan travel routes in advance. Access to properties would be maintained to the extent practical through controlled construction scheduling. Traffic delays would be controlled to the extent possible where many construction operations are in progress simultaneously. The contractor would be required to maintain one lane of traffic in each direction at all times, and to comply with Best Management Practices.
- Structure and debris removal would be performed in accordance with local and state regulatory agencies permitting the operation. The contractor would be responsible for pollution control methods in borrow pits, other materials pits, and areas used for waste materials disposal.

3.16 Economic Impacts—Taxes and Revenues

Considering both positive and negative revenue impacts of the proposed project, the following issues were identified: tax revenue and a short-term construction income surge.

Potential adverse impacts—Since the project would construct a road primarily on new alignment, it would cause the direct conversion of private, taxable property to non-taxable, government-owned right-of-way. The majority of land required is either open undeveloped agricultural land, or rural-residential. Constructing a Build Alternative would result in the permanent removal of land and buildings from the tax rolls. The taxable land loss would result in an initial minimal tax revenue loss to Clinton and Russell counties. Some farmers could experience a loss in income or land value due to the partial taking of farm holdings for right-of-way. The farmers may also realize a reduction in gross agricultural wealth (value of production) and gross farm income due to the removal of land from production for right-of-way.

Businesses bypassed by the construction of a road on new alignment could also experience revenue losses; however, other economic development would be expected to occur that could offset such losses.

Lake Cumberland State Resort Park, USACE's campground, USFWS's fish hatchery, and Cumberland Lake-based businesses depend on existing US 127 to provide access to visitors. These facilities could experience reduced visitation and revenues due to the reduction of traffic on the existing road. As a measure to mitigate this impact, KYTC would coordinate with local officials and agencies regarding the placement of signage along the new roadway to direct motorists to these destinations.

Potential benefits—The short-term economic benefit of this project would be expected to stimulate the local economy in terms of jobs, sales, income, government revenue and expenditures, and other variables. Regarding long-term socioeconomic benefits, the proposed project is expected to enhance the competitive and locational advantages for Clinton and Russell counties. An improved roadway would improve freight accessibility, which would also lessen the transportation costs for businesses and industries. Major upgrades to the transportation network (*i.e.*, system linkage) would be expected to improve opportunities for employment and economic development for the local economy. Although new development is not expected to locate along the proposed roadway solely as a result of implementing the project, the improved transportation network would be expected to complement local efforts to encourage new employment opportunities and attract business to the area, as well as to enhance efforts of the Kentucky Tourism, Arts, and Heritage Cabinet, the Kentucky Department of Travel, and the Kentucky Tourism Council to promote this area's tourist and recreational attractions. An increase in the tourism industry could increase business and employment opportunities in the two counties.

The overall *beneficial* socioeconomic impacts of implementing the project would be expected to be substantial, since it would provide an improved roadway that is constructed to current design and safety standards, thereby providing drivers with an alternative to existing US 127, which has numerous deficiencies. The project would provide improved access to the region's tourist industry attractions and, throughout the local area, increase overall travel speed, reduce travel time, and thereby improve the economy of travel by lowering operating costs. Accessibility, response time, and safety for law enforcement, fire protection, EMS, and school buses would be improved. Long-term economic benefits associated with regional accessibility could offset revenues lost.

4.0 PUBLIC INVOLVEMENT

An ongoing public involvement process has been used to provide ample opportunities for the public and interested parties to express their views to KYTC regarding the project. Communications have included advance notification to local, state, and federal agencies; officials and interested parties; discussions with potentially affected residents.

Public involvement activities are described in detail in EA Section 5.1. In summary, they included a project "kick-off' meeting with local elected officials, state agency representative, and community groups on November 19, 2002; public meetings on January 30, 2003, and December 13, 2007, at which the project was presented to area citizens who were given the opportunity to provide their suggestions and comments; consulting parties consultation via a January 11, 2007, meeting to discuss the APE and the potential NRHP-eligibility of several properties and the Creelsboro Rural Historic District; and correspondence to consulting parties dated July 14, 2009, soliciting comments on effects determinations including adverse effects findings associated with the District.

Public Hearing—A Public Hearing was held on August 19, 2010, to present to the public the approved EA—including the alternatives considered but rejected and the recommended Preferred Alternative D, as identified in the EA. The Public Hearing was advertised in the local media and approximately 220 individuals signed-in. The hearing was conducted in an open-house format: aerial photographs showing the recommended preferred alternative were displayed for review, and project staff members were on hand to help identify properties, discuss the recommendation of the alternative as preferred, and answer questions from the public. Comment sheets were made available, and an opportunity was provided for the public to make oral statements that would be entered into the public record. No oral statements were given. Following the public hearing, the comment period remained open until September 9, 2010. However, comments received after then were still given full consideration and included in the public record. A transcript of the Public Hearing documentation—including newspaper notices, handouts, comments sheets/emails, and KYTC's responses to same—is on file with KYTC.

Public comments and KYTC responses—Thirty-eight comment submittals were received, of which 11 stated support for/lack of objection to Selected Alternative D and 10 noted opposition. For the most part, opposition came from property owners whose property would be near or directly affected by right-of-way acquisition for the proposed road. Some of the commenters, including several who stated their opposition to Alternative D, suggested other routes be considered, including improving the existing roadway; asked that specific properties be avoided; or requested their houses be acquired if they are to be close to the proposed roadway. The comments and responses are summarized in Table 12.

The majority of KYTC's letters of response thanked commenters for their comment/participation; noted their support for or opposition to the project, where indicated; and stated that the submittal would be included in the transcript prepared for the project. Where letters recommended other alignments be considered, or noted specific concerns, the letters also stated that "all substantive comments are given serious consideration," and the project would be "reviewed in light of those comments in an effort to further minimize impacts identified during the preliminary and design and environmental assessment phases of the project." Where additional information was provided or activities occurred, such is noted in the "KYTC Response" column in Table 12, below.

Three commenters requested visits from KYTC to review site conditions, in hopes alignment options could be identified that would avoid impacts to the properties:

- Holt Road House (Feese property): As noted in Table 12, herein, the property owners requested a historian visit the house, which they identified as "oldest occupied house in the area." They provided information about the house, noting it was built around 1919 by a World War I veteran, and has been continuously occupied since then. They also stated that the Feese family purchased the house in 1934 and still occupies it; and they have photos and documentation about all who have lived there.

  Per commenters' request, a KYTC staff member visited the site on November 2, 2010, and obtained information about the house from the owners. The information and photographs of the home were then provided to the project's cultural historian, who conducted research on the property and submitted an evaluation stating the site is not eligible for listing in the National Register because the "alterations compromise the dwelling's integrity of design and materials." The evaluation was submitted to the SHPO, and the SHPO concurred with the determination in a letter dated December 22, 2010 (see FONSI Appendix B).

  The property owners also asked KYTC to look at the sinkholes and cave system in the vicinity of their property—particularly near Holt Road and Jump Off Road. In response, a visit was made by KYTC staff on November 10, 2010, to view the sinkholes that were referenced by the property owners.

Several sinkholes had been identified in the ecological assessment prepared for the project, and the field visit confirmed the existence of several that would be within/near the project right-of-way. The sinkholes were large, but were silted-up and filled in at the time of the visit. One shallow cave was found within a sinkhole; however, it was not suitable habitat for any endangered bat species. The sinkholes would be geotechnical issues to be dealt with during final design, and were not constraints that would require eliminating or shifting the preferred alignment.

- Arboretum (Sloan property): As requested by the property owner, KYTC staff visited the site on November 11, 2010, to obtain information about the property. The family residence is relatively new and was not on project mapping at the time the Environmental Assessment was published. The property owner has developed an arboretum of trees native to Kentucky in hopes it would be an educational site for students to visit. Alternative D would traverse the arboretum. Regarding the house, with Alternative D the residence would be within the right-of-way of a realigned approach road, and relocation of the residents would be necessary. Regarding the arboretum, it was learned that it does not make use of any state/federal managed lands funds; therefore, there would be no requirement to mitigate impacts to the arboretum, other than those associated with the right-of-way acquisition process.

  The commenter opposed Alternative D and recommended, instead, improving the existing US 127 through the area.

- Sinkhole/Cave Sites (Tupman property): The property owners opposed Alternative D primarily because it would impact four family homes, including the one in which they have lived since the 1930s. They asked that KYTC staff visit the site to view caves and sinkholes in the vicinity. The site is the same one visited by KYTC on November 10, 2010, described above (see "Holt Road House").

These and all other substantive comments were given consideration prior to the preparation of this FONSI.

Table 12: Summary of Public Hearing Comments and Responses

Name	Comments Summary	KYTC Response
Camp, Elizabeth	Approved of Alternative D.	Response letter
Collins, Carlos & Annetta	Would like their property to be acquired by project.	Response letter
Collins, RC & MaryAnn	Asked to be kept informed as process continues.	Response letter
Connor, Jeffrey	Would like project to avoid his uncle's home located below bridge near Swan Pond Rd.	Response letter
Connor, Eric	Would like project to avoid his uncle's home located below bridge near Swan Pond Rd.	Response letter
Conover, Steve & Pamela	Opposed to Alternative D, stating it would impact many elderly neighbors' homes. The Feese property (108 Holt Rd.) has been in their family since 1934. A barn that would be acquired was built by her grandfather in the 1930s. Also referenced Carnes property (234 Jump Off Road). Concerned about loss of homes and their history.	Response letter. (See "Holt Road House (Feese property)" text that follows this table.)
Cummins, Ted A.	Approved of Alternative D. Commended KYTC for hearing his concerns, reviewing historical information, and selecting an alternative that preserves river bottoms in the Creelsboro area.	Response letter
Flanagan, John	Approved of Alternative D. 45-year Creelsboro district resident commended KYTC for selecting "Environmentally…best route…"	Response email.
Feese, Bobby Joe & Joyce	Opposed to Alternative D, which they noted would go through the "oldest occupied house in the area." They requested a historian to come to look at the house prior to making a final decision about the alignment. Also asked KYTC to look at the sinkholes and cave system in the area. They noted two potential routes through their farm that would save their buildings and both of the Tupmans' (see below) buildings. They referenced health issues and noted they only have one daughter to help them. She lives on the neighboring property and there is nowhere else on their land they could relocate..	Response letter. (See "Holt Road House (Feese property)" text above.)
Groce, Randell & Karen	Approved of Alternative D.	Response letter
Hunter, Donald	Regarding Parcel 731, he stated it has been subdivided into 4ths with different owners; however information is not reflected on maps. (Property owners are listed on Comment Sheet.)	Response letter

Table 12: Summary of Public Hearing Comments and Responses (Continued)

Name	Comments Summary	KYTC Response
Hurst, Edalene & Dennis	Opposed to Alternative D, stating family farm and livelihood (dairy farm) would be destroyed, and compensation for loss of business would be needed.	Response letter
Jones, Deborah	Opposed to Alternative D, noting it would acquire the house that they've owned for 27 years.	Response letter
Kottak, Lee	Asked that his name be added to the mailing list.	Response letter noted he would be included in future correspondence.
Litton, Cathy	No objections to Alternative D.	Response letter
Lowhorn, Laura Ann	Opposed to Alternate D. Concerned that the proposed alternative is not an economically responsible route and suggested widening the existing road to preserve natural resources and to be a less expensive option.	Response letter, also referenced *Chapter 2.0 of the EA Proposed Alternative Concepts* to explain why widening the existing route had been eliminated from consideration.
Mann, Judy	Suggested reconstructing the existing road instead of a new alignment to avoid bypassing existing businesses that are supported by tourism. She referenced a bridge built by Hal Rodgers in Monticello to Burnside over the lake and wondered why not build a bridge at the Rowena Ferry across the lake to Albany. She is does not have property impacted by the road but was concerned about impacts to local businesses.	Response letter
Mann, Steve	Approved of Alternative D. Admired KYTC's decision to put road through "beautiful remote area" so it can be appreciated.	Response letter
Mason, Frances	Opposed to Alternative D. Referenced all the land that could be used for the road without taking homes.	Response letter
McClure, Jerri	Provided a drawing of a new route for consideration that does not go through Swan Pond Bottom (SPB), Wells Bottom, and Long Bottom. Her farm in SPB is in the CRP program and gets points for air quality and wildlife preserves. She referenced the Wolf Creek Dam repair project and said if the dam cannot be fixed, a second dam would have to be built the location of which could impact the proposed US 127 bridge over the river. She asked for a copy of the EA.	In response to her request at the Public Hearing, a CD of the EA was sent on 8/31/10. The cover letter noted serious consideration is given to substantive comments. A second letter in response to her submitted comments stated her proposed route would not be viable because it would impact a Section 4(f) resource, and would be too close to the dam for USACE approval. References to applicable sections of the EA were included in the letter.
McClure, Richard	Approved of Alternative D. A former Swan Pond Bottom resident, he noted project would improve access for SPB residents.	Response letter
Murphy, Thomas & Linda	Approved of Alternative D. However, would like to see more access for farms that are being split up, for the sake of safety.	Response letter
Severns, William & Carol	Approved of Alternate D. The recommended alternative runs through their property in SPB, but the improved access to that area received their support, despite the noise and traffic they anticipate.	Response letter
Sloan, Jimmie Tallent	Opposed to Alternate D. As a 79 year resident in the area, she stated the road from Desda to Hwy 90 is almost a straight shot and should be used as a redevelopment route. Her property was purchased by her grandfather (civil war soldier) and she has developed a native KY arboretum on the property in hopes it would be an educational site for students. The proposed route cuts through the arboretum. She identified other concerns: her new home of 5 years will be affected, along with farmland; neighbor's pastureland would be divided by the project; the proposed route would be "an enormous bill compared to using the present route." By phone, she invited the KYTC to visit the arboretum .	KYTC staff visited Ms. Sloan on 11/10/10 to answer her questions about the process and to view the arboretum. (See "Arboretum (Sloan property)" text above.)
Stanley, Lisa and Thelma Wooldridge (her mother)	Opposed Alternative D. Ms. Stanley called to explain neither she nor her mother had received an invitation to the Public Hearing, and asked to be added to mailing list. She has constructed a house that isn't on the manuscript. Her desire is that the house be taken if the road is going to be close. She noted her mother's property is located near the US127/KY55 intersection and has the preferred alignment running through it.	Responses, by phone, noted mailing list addition and explained that, during Phase II design, the impacts of the road on the property will be identified in greater detail. At this point, there could be no promise that the structure would or would not be taken.
Stoyell, Paulette	Approved of Alternative D.	Response letter
Sutton, Gail C. Wright Bunch	Provided her married last name, address, and deed for property in Swan Pond Bottom. Brother is Ronnie Wright (see above). She asked that the project avoid Swan Pond because it is historic and because fog and icy conditions could impair safety on the bridge.	

Table 12: Summary of Public Hearing Comments and Responses (Continued)

Name	Comments Summary	KYTC Response
Tallent, Eddie	Did not attend Public Hearing. Almost has new home completed on parcel 174. Asked this information be considered a comment.	Response email
Tallent, Sylvia & Wendell	Approved of Alternative D.	Response letter
Tupman, William & Carole	Opposed to Alternative D, citing impacts to four family homes; Mr. Tupman's poor health; and caves and sinkholes behind their property. They asked that someone from KYTC visit the site.	Response letter A site visit was conducted 11/10/10. (See "Sinkhole/ Cave Sites (Tupman property)" text above.)
Tupman, Tony & Kathy	Opposed to Alternative D. They noted the new road would drop property value, be noisy, take away privacy, and either take or be beside the house. They would rather the new road take the house than be close to it.	Response letter stated serious consideration would be given to their comments and concerns.
Wright, Ronnie	Noted the recommended alternative would benefit the families living in Swan Pond Bottom. He was concerned because the bridge will enter SPB and bisect his small farm. He suggested adjusting the alignment so the bridge and road could follow the property line between his and the adjacent farm. He described his family's historical ties to the land back through his great-grandparents. He noted if there no way to move the bridge west, then the road will cut off his access to the west half of his farm, and he will need an access ramp off the new highway.	Response letter

5.0 PROJECT EVENTS

Events that have occurred since the approval of the Environmental Assessment are summarized below.

- A Public Hearing was held on August 19, 2010. (See FONSI Section 4.0, *Public Involvement.*)
- The EA and Individual Section 4(f) Evaluation draft were submitted to USDOI on November 16, 2010, for review, as required by Section 4(f) regulations [23 CFR Section 774.5(a)]. In comments returned January 12, 2011, the agency noted "no objection to Section 4(f) approval of this project, contingent on the subsequent full execution of the requirements identified in the proposed MOA with the SHPO." (See correspondence in FONSI Appendix A.)
- Phase I archaeological survey of the Selected Alternative D was conducted, beginning in January 2011, within the Selected Alternative's right-of-way (see FONSI Section 3.5, *Section 106—Cultural Historic and Archaeological Resources*). Based on a review of the Phase I survey data, FHWA and KYTC determined that (1) three sites are potentially eligible and require Phase II testing if they could not be avoided; (2) two sites are eligible and should be mitigated if they cannot be avoided; and (3) if the proposed project's right-of-way impacts an un-surveyed property(s), archaeological investigations will be conducted and coordinated with the SHPO. In a letter dated September 1, 2011, FHWA and KYTC submitted these determinations to the SHPO and requested concurrence with the determinations contained therein. The SHPO responded on September 2, 2011, concurring with the determinations but noting "this concurrence is conditional upon the review and acceptance of the final Phase I report by November 30, 2011." (See correspondence in FONSI Appendix B.)
- Memorandum of Agreement signed by KYTC (September 28, 2011), the Kentucky SHPO (October 18, 2011), and FHWA (November 14, 2011) identifying measures to mitigate impacts to the Swan Pond Bottom portion of the Creelsboro Historic District, and to address further investigations of archaeological sites and the treatment of potential discoveries. (See FONSI Section 3.5, *Section 106,* and Section 6.0, *Project Commitments,* for further discussion; and Appendix B for Section 106 consultation since the EA, including the MOA.)
- Based on safety considerations associated with partial access control roadways, KYTC decided to consider, during Phase 2 design, modifying the preliminary roadway design to establish partial access

control rather than control by permit originally proposed along the relocated US 127. Whereas control by permit would give every local road and private drive access to the new roadway, partial access control would require access locations to be a minimum of 1,200 feet apart. Therefore, individual drives and several local roadways would not have direct access to the new road. In most instances, frontage roads would be constructed to provide individual properties with access to the nearest roads that would intersect US 127. In addition to safety considerations, establishing partial access control along this section of US 127 would continue the partial access control that is a feature of the Jamestown by-pass and US 127 south of KY 90—the north and south termini of the US 127 Reconstruction and Relocation project.

Alternative D is the Selected Alternative because it best meets the project's purpose and need, and is the alternative determined to cause the least overall harm. While shifts in alignments are often reviewed during final design to minimize relocation or other impacts, consideration of any such changes would include determining potential changes in impacts to Sections 106/4(f) sites; streams and other sensitive environmental resources; and whether/how neighboring properties would be affected.

Once the FONSI has been approved, a letter informing the citizens of 1) which alternative was selected, and 2) the availability of FONSI will be sent to persons listed in the project database, which is based on sign-in sheets from public meetings, the consulting parties meeting, and/or the Public Hearing.

6.0 PROJECT COMMITMENTS

The KYTC and KY-FHWA ensure that all project commitments are communicated through the implementation, operation, and maintenance of each highway project, as appropriate. The approved Environmental Assessment (appended hereto on CD) addressed both the affected environment and environmental impacts of the alternatives that were studied during project development. The EA was made available to the public before, during, and following the Public Hearing. This Finding Of No Significant Impact (FONSI) was not developed until all public comments on the EA were received and taken into consideration. Based on the information obtained from the EA, the comments received since its approval, the following are the commitments the KYTC has made to minimize and/or mitigate any potential adverse impacts caused by the Selected Alternative.

- **Streams**

  Impacts—Selected Alternative D would have 5 crossings of perennial streams (1,167 linear feet), 16 crossings of intermittent streams (13,250 linear feet), and 37 crossings of ephemeral streams (16,556 linear feet)—a total of 58 crossings and 30,973 linear feet of impact.

  Mitigation—The nature of the Section 404 permits (whether Individual or general) requires USACE to make a jurisdictional determination on all stream and wetland impacts prior to approval of the permit application. The Section 401 Water Quality Certification is a state's review of applications for Section 404 USACE permits for compliance with state water quality standards. If a Section 404 permit(s) is required for the project, a Section 401 certification from KDOW will be obtained, as required. Detailed permit coordination would occur during the final design phase of the project. If this permitting is to be the responsibility of the contractor, the contractor must be made aware of such obligations.

  Through intergovernmental coordination, USFWS, KSNPC, KDFWR, and KDOW have identified potential impacts and recommended avoidance, minimization, and mitigation options, which are summarized below. Unless otherwise noted, documents referenced below are included in EA Appendix B.

USFWS: In a letter of October 8, 2002, USFWS stated: "…we would likely have no objection to the issuance of permits if any necessary stream channel work is held to a minimum and Best Management Practices are utilized and enforced, effectively controlling erosion, sedimentation, and other potential hazards." USFWS listed several recommendations to address stream impacts, including:

- Provide an erosion control plan, diversion channels, silt barriers, temporary seeding and mulching of all cuts and fill slopes, and limitation of in-stream activities.
- Place concrete box culverts in a manner that prevents impediment to low flows or to movement of indigenous aquatic species.
- Restrict channel excavations for pier placement to the minimum needed.
- Immediately stabilize all fill.
- Stabilize stream banks with riprap or other techniques.
- Use existing transportation corridors in lieu of temporary crossings where possible.
- Maintain good water quality during construction.

KSNPC and KDOW both noted that the project area is located within a known karst landscape. In a letter dated June 27, 2007, KSNPC called for development of an erosion control plan to include *stringent erosion control methods… [that] should be monitored periodically to ensure that they are functioning as planned.* KDOW noted that, from below Wolf Creek Dam to the Kentucky/Tennessee state line the Cumberland River is designated a Coldwater Aquatic Habitat (CAH); therefore, a "no stormwater" discharge drainage design should be considered for any bridge design that crosses the Cumberland River.

KDFWR: Coordination with KDFWR resulted in a letter dated August 2, 2007 (see EA Appendix B), in which the agency recommended:

- Incorporate natural stream channel design into channel changes.
- Place culverts even with substrate to allow free movement of aquatic organisms.
- Design culverts so degradation upstream and downstream does not occur.
- Develop or excavate in or near streams during low flow periods to minimize disturbance.
- Properly place erosion control structures below disturbed areas to minimize silt entry into streams.
- Replant disturbed areas after construction, including stream banks and rights-of-way, with native vegetation for soil stabilization and enhancement of fish and wildlife populations. A 100-foot forested buffer along each stream bank is recommended.
- Return disturbed in-stream habitat to a stable condition upon completion of construction.
- Preserve tree canopy overhanging the stream.
- Coordinate with USACE and KDOW prior to any work within streams or wetlands.

Each of the options identified by the above-referenced agencies will be taken into consideration by the engineering team during final design. In the final design stage, additional efforts will be made to avoid or limit stream impacts. Water quality impacts from erosion and sedimentation during construction will be controlled in accordance with KYTC's Standard Specifications and through the use of KYTC's *Policy on Best Management Practice (BMP) to be used for Karst and Significant Resource Areas* (Design Memorandum No. 12-05, July 27, 2005).

If excess fill deposition sites located outside of the project corridor are needed, these areas will be surveyed for potential "waters of the United States." USACE regulates headwater streams and the several of the valley fills in the project area contain headwater streams or larger. As such, fill sites (if needed) will require permitting. If this permitting is to be the responsibility of the contractor, the contractor will be made aware of such obligations.

- **Floodplains**

  Impacts—Selected Alternative D (Segment 16.1) crosses 0.5 acre of floodplain.

  Mitigation—Appropriate regulatory agencies will be consulted regarding potential floodplain impacts, and a floodway analysis will be performed to determine the need for a No-rise certification and floodplain plan. If required, a floodplain plan would be developed in coordination with FEMA.

- **Wetlands**

  Impacts—One potentially jurisdictional wetland—Wetland 6 (0.14-acre)—will be directly affected by the Selected Alternative.

  Mitigation—Wetland disturbance acreages falling between 0.1–0.5 acre qualify for coverage under a Nationwide permit issued by USACE. Selected Alternative D would impact 0.14 acre of wetland and, therefore, would qualify for a Nationwide permit. Prior to construction (i.e., after final design) an exact determination of impacts to jurisdictional wetlands will be made. Detailed permit coordination will occur during the final design phase of the project. If the wetland impact is determined to exceed 0.10 acres, mitigation will be required by the USACE. This would take the form of restoration of wetlands on-site or off-site, use of mitigation credits from one of KYTC's advance mitigation sites or payment of an in lieu fee to the KDFWR.

- **Federally Listed Threatened and Endangered Species**

  Impacts—No plants or animals listed by USFWS, KSNPC, and KDFWR were found within the project area during field investigations. However, habitats suitable to the federally endangered Indiana bat (*Myotis sodalist*) and gray bat (*Myotis grisescens*) exist in the project area.

  Mitigation—KDFWR recommended in its letter of August 2, 2007 (see Appendix B), that: 1) the project area be surveyed for caves, rock shelters, and abandoned underground mines that may be suitable for bat habitat, and any identified sites should be avoided; and 2) that tree clearing in the project area be restricted to between October 15 and March 31 unless Indiana bat hibernacula are located within 10 miles of the project, in which case tree clearing should be restricted to between November 15 and March 31. KDFWR noted: "Written acceptance of and strict adherence to the recommendations should satisfy the consultation requirements of Section 7 of the Endangered Species Act." Further coordination will be undertaken with USFWS to address any federally threatened and endangered species for which habitat exists within the project corridor. If necessary, a Biological Assessment (BA) will be prepared, prior to requesting authorization of federal right of way funds, to determine the presence/absence of the species. Appropriate mitigation for potential impacts would be included in the BA.

- **Relocations/Displacements**

  Impacts—Acquisition of 15 single-family residences and three business displacements are anticipated. In addition, the new road would attract traffic from existing US 127, potentially resulting in loss of revenues for some businesses along US 127. A building that serves as a meeting hall on Sewellton Church of God of Prophecy property at the intersection of US 127 and Wooldridge Road could be within the right-of-way of the Selected Alternative. Should the meeting hall be essential to the functioning of the church and not be able to be relocated on the property, the result could be an institutional displacement.

  Mitigation—In accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* (Public Law 91-646), as amended in 1987, acquisition and relocation resources would be available to all residential relocatees without discrimination. It is anticipated that the sufficient housing would be available in the area at the time right-of-way acquisition would take place (planned for 2012), and that Last Resort Housing program will not be necessary to successfully meet the needs of the relocated residences.

- **Cultural Historical and Archaeological Resources**

  Cultural Historical Resources

  Impacts—Selected Alternative D (Segment 16.1) will have an Adverse Impact (Visual) on the Creelsboro Rural Historic District, and will acquire approximately 25 acres of land from the District. (No contributing elements would be acquired for right-of-way.)

  Mitigation—Measures to mitigate the impacts to the District have been identified in a Memorandum of Agreement (MOA) (see FONSI Appendix B) and which, in summary, stipulates that the project:

  - Ensure the District is listed in the NRHP.
  - Develop a digital video to describe the history and development of the District.
  - Develop at least three interpretive panels describing the history and significance of the District (installation locations to be determined).
  - Give the SHPO an opportunity to review and comment on the proposed Cumberland River bridge lighting treatments.

  Archaeological Resources

  Impacts—A Phase I archaeological investigation within the right-of-way of the Selected Alternative identified three sites that have been determined potentially eligible and two sites that have been determined eligible for listing in the National Register of Historic Places (NRHP). Phase II testing will determine the eligibility status of the three potentially eligible sites.

  Mitigation—If sites that are NRHP-eligible cannot be avoided by Selected Alternative D, mitigation will be required. The MOA prepared for this project (discussed above) identifies alternative measures to mitigate adverse effects to archaeological sites, if deemed appropriate by FHWA in consultation with the SHPO. These measures may include development of one or more of the following:

  - A film regarding relevant archaeology and the archaeological process in Kentucky.
  - A booklet about relevant archaeology in Kentucky.
  - Lesson plans or other educational components for use in K-12 Project Archaeology classroom exercises.
  - Web-based materials including but not limited to web pages and pod casts relating to relevant archaeology.

Regarding sites that are un-surveyed because access could not be obtained, or sites that could be affected should there be a shift in the right-of-way, FHWA and KYTC determined that archaeological investigations will be conducted and coordinated with the SHPO.

The executed MOA is included in Appendix B of this FONSI.

- **Hazardous Materials**

Impacts—Four sites were identified as potential hazardous materials sites located within or adjacent to the construction limits of the Selected Alternative. In addition, oil drilling operations, and sources of PCBs/ASTs and herbicides/pesticides are located throughout the project area.

Mitigation—If these sites cannot be avoided, additional reconnaissance to determine the need for Phase II hazardous materials investigations is recommended. If Phase II hazardous materials investigations are found to be necessary, they would be completed prior to needed right-of-way acquisition, unless the KYTC is unable to obtain site access. In those cases, the work would be completed as early as possible following the securing of the legal right to enter the property. The proposed project would not be advertised for construction until all clearances are obtained.

Structures identified for acquisition should be inspected for aboveground or underground storage tanks. Confirmed tanks will be removed prior to demolition, and handled and disposed of consistent with existing local, state, and federal regulations. Structures identified for acquisition should be inspected for asbestos containing building materials (ACBM) by an accredited inspector. Confirmed ACBM will be removed prior to demolition, and handled and disposed of consistent with existing local, state, and federal regulations.

Any wells impacted by construction activities would be closed in accordance with state and federal regulations. If excavation occurs within 50 feet of an oil or gas well, an inspection will be conducted to identify any contaminated soil. Coordination with owners will occur.

During right-of-way acquisition and/or construction, if a site suspected of containing hazardous materials is discovered, then activities at that site will cease and further investigations must be performed before construction can proceed.

- **Construction**

Impacts—Highway construction activities would have minimal and temporary air, noise, water quality, traffic flow, and associated impacts within the project area.

Mitigation—

Air pollution associated with airborne particles would be effectively controlled through the use of watering, or the application of calcium chloride, in accordance with the KYTC's *Standard Specifications for Road and Bridge Construction* (*Standard Specifications*), as directed by the KYTC project manager.

Water quality impacts resulting from erosion and sedimentation would be controlled in accordance with KYTC's *Standard Specifications* and through the use of Best Management Practices. Appropriate stormwater management practices would be used to mitigate stormwater runoff impacts.

Traffic flow maintenance and construction sequence would be planned and scheduled to minimize traffic delays. Signs would be used as appropriate to provide notice of road closures and other pertinent information to the traveling public. The local news media would be notified in advance of

road closings and other construction-related activities that could excessively inconvenience the community so motorists can plan travel routes in advance. Access to all properties would be maintained to the extent practical through controlled construction scheduling. Traffic delays would be controlled to the extent possible where many construction operations are in progress simultaneously. The contractor would be required to maintain one lane of traffic in each direction at all times, and to comply with Best Management Practices.

Structure and debris removal would be performed in accordance with local and state regulatory agencies permitting this operation. The contractor would be responsible for pollution control methods in borrow pits, other materials pits, and areas used for project waste materials disposal.

Temporary erosion control features, as specified in KYTC's *Standard Specifications*, would consist of the temporary placement of sod, mulching, sandbagging, slope drains, sediment basins, sediment checks, artificial coverings, and berms.

- ***Economic***

Impacts—Lake Cumberland State Resort Park, USACE's campground, USFWS's fish hatchery, and Cumberland Lake-based businesses depend on existing US 127 to provide access to visitors. These facilities could experience reduced visitation due to the reduction of traffic on the existing road as a result of the project.

Mitigation—As a measure to mitigate this impact, KYTC would coordinate with local officials and agencies regarding the placement of signage along the new roadway to direct motorists to these destinations.