

# EXECUTIVE SUMMARY

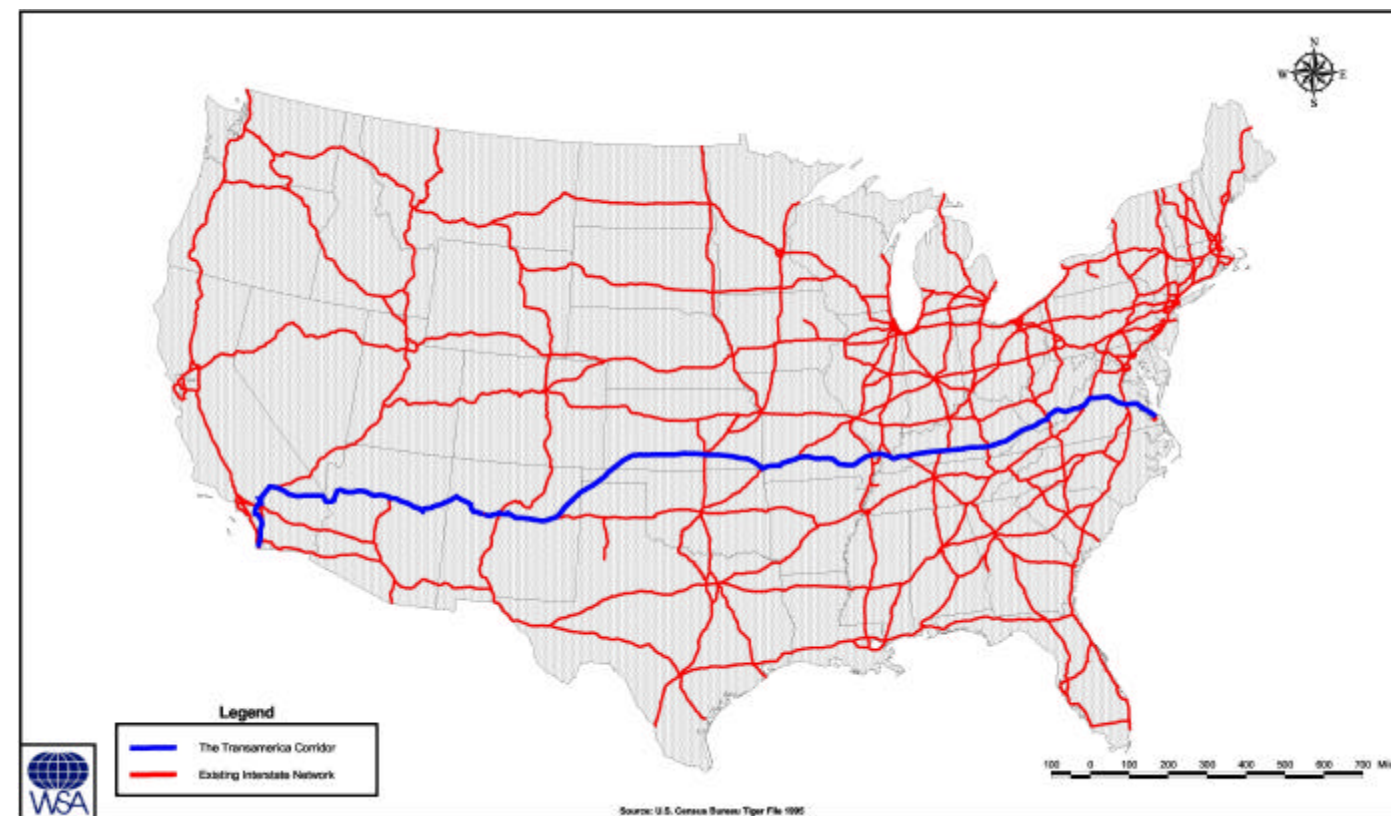
## SOUTHERN KENTUCKY CORRIDOR (I-66) PLANNING STUDY – SOMERSET TO LONDON

The Southern Kentucky Corridor (I-66) Planning Study is a planning study of a proposed interstate corridor between Somerset and London in Southern Kentucky. This priority segment of the I-66 corridor would serve as a linkage between the termination of the Louie B. Nunn (Cumberland) Parkway west of Somerset and the Daniel Boone Parkway east of London.

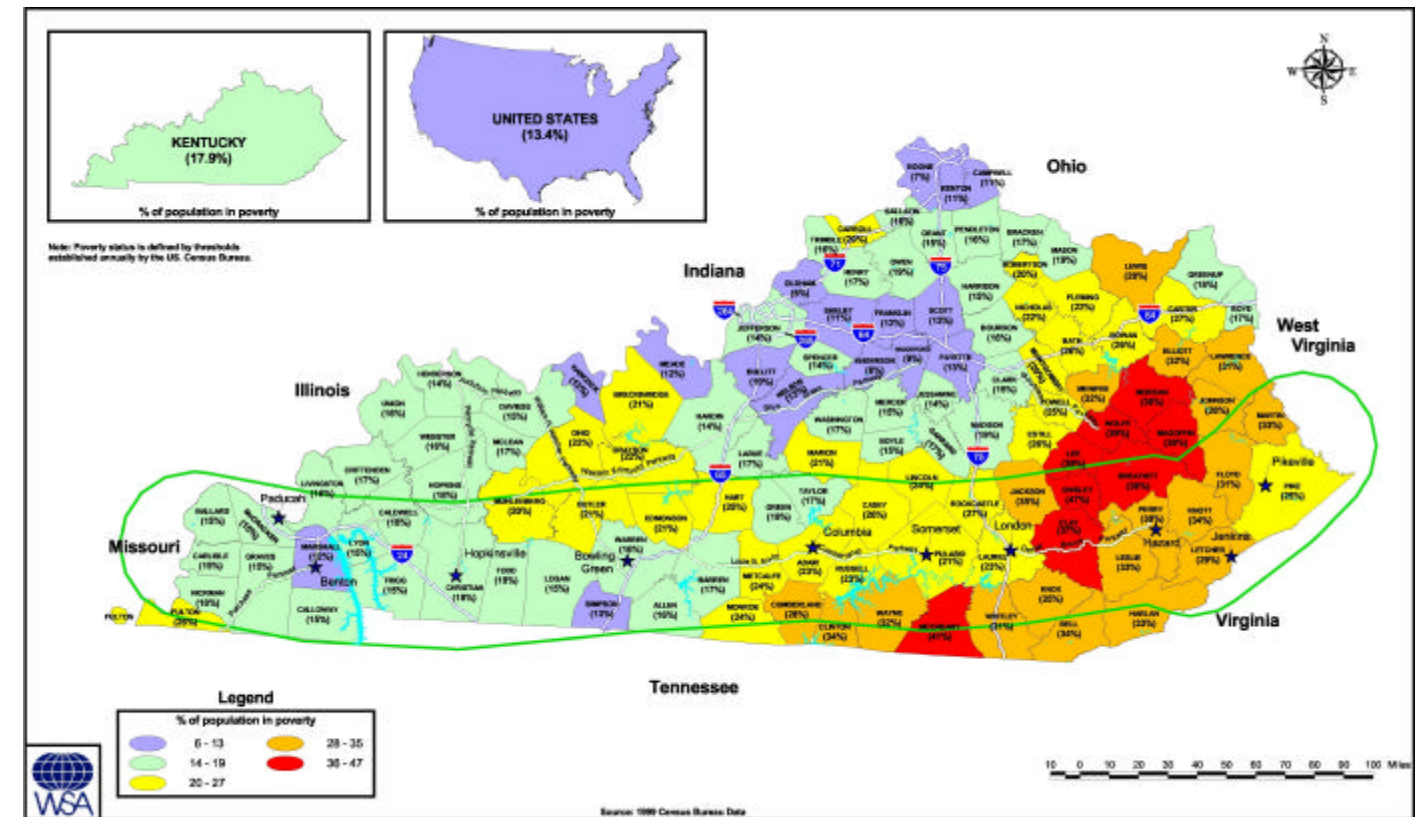
### Project Background

The 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) identified high priority corridors on the National Highway System. The East–West Transamerica Corridor (I-66) was one of these high priority corridors, generally located between and parallel to I-70 and I-40 with an eastern terminus in Virginia and a western terminus in southern California, as shown in **Exhibit S.1**. Based on Federal transportation legislation, the portion of the corridor through Kentucky is represented as a 50-mile wide band that is centered on the cities of Pikeville, Jenkins, Hazard, London, Somerset, Columbia, Bowling Green, Hopkinsville, Benton and Paducah.

The Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) established funding for initial studies for the Somerset to London segment of the I-66 corridor as a high priority corridor. Part of the high priority corridor initiative involves the improvement of depressed or impoverished regions by increasing access and mobility. The southeastern region of Kentucky has been traditionally known for its below-average income rates. **Exhibit S.2** shows poverty rates as a percentage of population for each county in Kentucky. As shown, the identified corridor for the proposed I-66 route crosses portions of Kentucky with some of the highest poverty rates.



**Exhibit S.1 Proposed Transamerica Corridor (I-66)**



**Exhibit S.2 Proposed Southern Kentucky Corridor (I-66)**

### Purpose

The purpose of this study is to identify areas of concern, benefits of such a project, public input, and an environmental footprint from known documentation; to evaluate corridor alternates; and to provide recommendations based upon the aforementioned and more specific evaluation criteria for future project development activities for the I-66 corridor project between Somerset and London. This study is intended to develop recommendations at a corridor level, based on existing topography (i.e., contours, streams, subdivisions, cemeteries, highway crossings, etc.), environmental features, traffic needs, socioeconomics, estimated costs, and engineering judgment.

The identified goal of this project is to provide an interstate transportation corridor extending from the Louie B. Nunn (Cumberland) Parkway, west of Somerset, to the Daniel Boone Parkway, east of London. The proposed facility from Somerset to London is expected to:

- Improve accessibility and traffic flow to the cities of Somerset, Corbin and London;
- Maximize connectivity to other major roads in the region;
- Improve accessibility to tourism and recreational facilities in the immediate vicinity of the corridor and the region;



- Improve highway access to enhance economic development potential for counties throughout southeast Kentucky;
- Improve access and mobility in depressed or impoverished regions;
- Accommodate increasing traffic and truck volumes by diverting traffic to an interstate facility;
- Improve travel safety by providing a safer travel route; and
- Fulfill enacted TEA-21 legislation.

Additionally, this study is intended to be used for the evaluation of projects with respect to their merit for inclusion in future Cabinet programs. The conclusions of this study are representative of the most accurate analysis possible based on current available information and the time allotted for evaluation. Later additional studies may reveal other needs or solutions, which are not readily apparent at this time.

**Study Area Conditions**

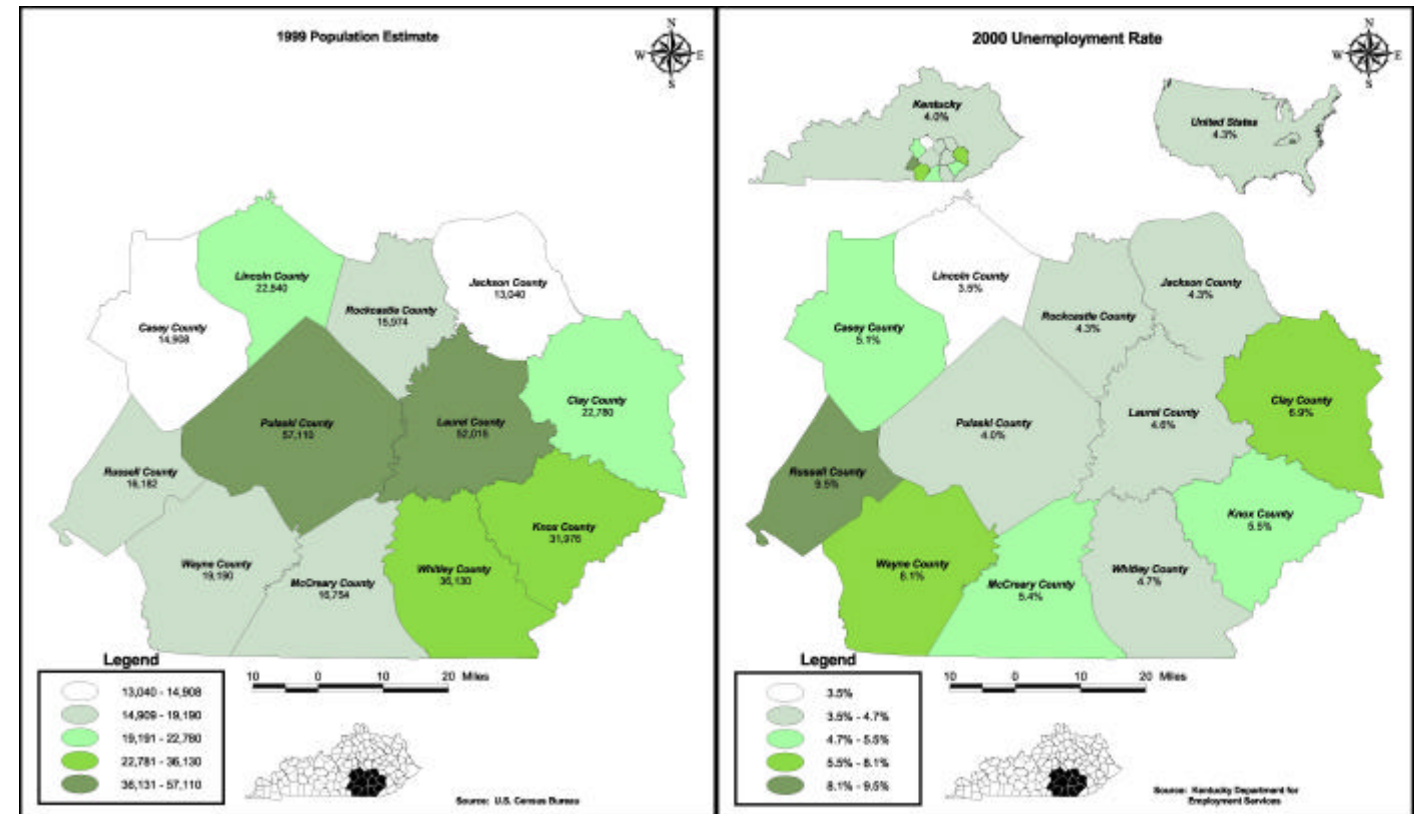
While providing an initial priority segment for the Southern Kentucky I-66 Corridor, the implementation of the Somerset to London segment will allow for a linkage between the Louie B. Nunn (Cumberland) and Daniel Boone Parkways. The development of this facility is intended to support the economic vitality of a broad region of southern Kentucky and Appalachia. It will benefit the region through improved travel safety, increased accessibility, enhanced mobility and reduced congestion. These benefits will also result in social, economic and land use impacts within the region.

In comparison to surrounding counties within the south-central Kentucky region, Pulaski and Laurel counties, through which this section of the corridor passes, are population and employment centers for the region. These counties lead the region in terms of both total population and population growth, as shown in **Exhibit S.3**. Pulaski and Laurel counties also have lower unemployment rates, as shown in **Exhibit S.4**, and higher per capita income levels than most of the surrounding counties.

According to the 1997 Economic Feasibility Study of I-66 prepared by the Kentucky Transportation Center, many economic advantages are anticipated to come from the implementation of I-66. Area businesses are expected to have an increase in trade due to the construction of the highway. Economic impacts will come from reduced travel costs and improved accessibility, which will in turn improve the competitive position of the region and foster economic development. The retail trade and manufacturing businesses could have better interstate connections while the service industry (i.e., motels, gas stations, convenience marts, etc.) could see an increase in locations for potential business development near the I-66 interchanges.

Although the impacts of a new interstate facility could be very beneficial to the economy by stimulating job growth and increasing each county’s tax base, communities will have to plan for additional infrastructure and community services to serve the potential increases in businesses, future population growth and community needs. Because of projected population increases, potential areas of concern include noise and air quality issues, roadway congestion, and the need for additional infrastructure improvements to serve these demands. These are some of the items that will require additional coordinated and comprehensive planning with appropriate local and state agencies as the I-66 project continues through the development process.

**Exhibit S.3 (Population) and S.4 (Unemployment)**



In addition, the impacts of developing the proposed highway corridor could potentially alter land use patterns by increasing the amount of land used for new development. In turn, these developments could create an increase in the need for more infrastructure (i.e., water, sewer, schools, housing, etc.). Existing and potential land use effects should be considered in selecting a recommended corridor and in the future development of highway alignment options. While this consideration is being afforded at the earliest practical stages of highway planning, such considerations should continue through design, right-of-way acquisition and construction. Highway development options to minimize land use impacts consist of visual aesthetics, land use buffers, transition zones, and other important environmental considerations. Aesthetics and viewsheds are especially important near existing tourism and recreational areas, such as the Daniel Boone National Forest and other scenic natural areas.

**Traffic and Operational Conditions**

Implementation of the I-66 corridor is anticipated to provide travel benefits to the region that will improve safety, reduce future congestion, and offer more efficient travel service. Under future conditions without implementation of I-66, traffic volumes in the design year of 2030 on existing roadways are estimated to range from 2,200 vpd along KY 192 near the Pulaski/Laurel County line to about 86,000 vpd along the US 27 corridor near KY 80 in Pulaski County. Other high-volume routes in the design year include KY 80 near I-75 (53,400 vpd), KY 192 near I-75 (65,000 vpd), I-75 near KY 192 (73,600 vpd), and US 25 near KY 192 (57,300). Future highway improvements are planned along many of these routes, including major widening of I-75 and US

27, relocation of KY 30, and new routes between the Louie B. Nunn (Cumberland) Parkway and KY 80 and between US 27 and the Louie B. Nunn (Cumberland) Parkway.

Level of Service (LOS) is a qualitative measure used to describe traffic conditions. A number of routes in the study area are expected to fall below acceptable LOS levels by the design year of 2030. With committed highway improvements, but excluding construction of I-66, major sections of a number of routes will be operating at LOS F, including US 25 and US 27. LOS F conditions are also expected along sections of KY 80, KY 192 and KY 229 near the urban areas of London and Somerset.

Accident data for selected routes (US 25, US 27, KY 80, KY 192, and KY 461) in the study area were analyzed for a 36-month period from January 1, 1995 to December 31, 1997. It was determined that high-accident locations account for about 48 percent of the total mileage of US 25 in the project area; 37 percent of US 27; 28 percent of KY 80; and 59 percent of KY 192. It is expected that future traffic volume increases on these routes will add more vehicles (and vehicle-miles) and create the potential for additional high-accident locations.

The TEA-21 legislation emphasizes the consideration of all transportation modes and intermodal connections in the planning, building and operation of transportation systems. There are two main railroad lines located within the project study area. In Pulaski County, the *Norfolk-Southern Corporation* rail line lies between Somerset and US 27 and in Laurel County, the *CSX* line lies east of London, between US 25 and the Daniel Boone Parkway. In addition to the railroad facilities that service the study area, airports and trucking facilities are also included in this region of the state. One general aviation (public) airport is located in each of the two study area counties. The Somerset-Pulaski County – J.T. Wilson Field Airport is located in Pulaski County and the London-Corbin Airport, Magee Field, is located south of London in Laurel County. Other facilities in the study area include 21 trucking companies that provide goods to the Pulaski County region and 22 trucking companies that deliver to Laurel County.

### General Environmental Considerations

This study will serve as background for the forthcoming National Environmental Policy Act of 1969 (NEPA) process. Through the pre-NEPA planning process, a number of primary environmental issues have been identified. These include natural areas, sensitive plant and animal species, karst geology, historic sites, archaeological sites and other important areas. Vital to the determination of these issues was the consideration of input from a variety of environmental resource agencies, key stakeholder groups and the general public. These groups provided input to the determination of an “environmental footprint” for the project area, resulting in a better understanding of potential environmental consequences.

The study counties are home to many natural, scenic and sensitive areas, such as the Daniel Boone National Forest, the Wild River portion of the Rockcastle River, Cane Creek Wildlife Management Area, Levi Jackson Wilderness Road State Park, and the Sheltopee Trace National Recreation Trail. These areas are not only known for their scenic beauty, but also for the diversity of species they harbor. Threatened and endangered species in the study area include the Red Cockaded Woodpecker, Indiana Bat, Pearly Mussel, Cumberland Bean, Ashy Darter, Oyster Mussel, White Snakeroot and Wood Lily, among others. Natural wetland areas and blue-line streams are found throughout the study area, with particular concentrations near Wood Creek Lake, Laurel River Lake and Lake Cumberland. The study area is also known for its unique

geologic structure, including an extensive cave system throughout the western portion of the study area.

### Other Considerations

In addition to the traffic and environmental issues discussed above, several other considerations were given in the initial identification of a preferred set of corridor alternatives. Access points and opportunities to serve existing highway facilities and to ensure the adequate spacing of interchanges along I-75 were one area of consideration. Additionally, the location of crossings of the Rockcastle River and limiting the number of corridors that introduced new crossings within the designated Wild River section was important. Certain engineering challenges, such as avoiding steep grades and reducing cut and fill sections, are factors that would influence future costs for project development. A final and critical consideration was outside input from the U.S. Forest Service, other agencies and the public on corridor alternatives. Throughout the course of this study, many individuals and groups expressed preferences and recommendations on corridor alternatives. All of these factors were collectively considered and used to identify a series of proposed corridor alternatives to be further evaluated.

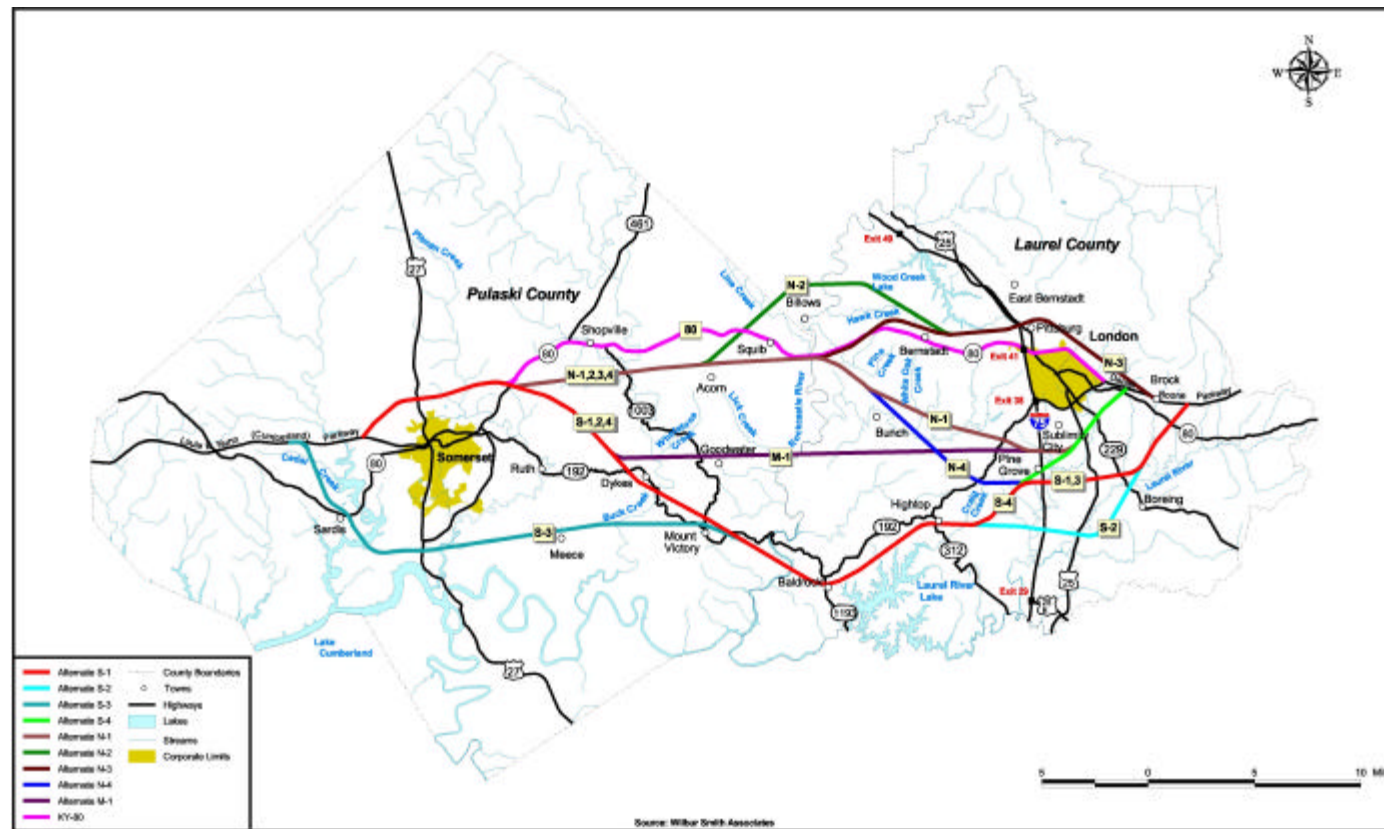
### Proposed Corridors

In order to provide a basis for preparing recommendations for I-66 within the designated study area, a series of alternates were identified that would serve to address the purposes defined for this project. There is a broad range of issues that are considered in identifying potential study corridors for the future development of I-66. These issues include geometry, access control factors, I-75 interchange location options, major areas of avoidance and road user benefits.

Subsequently, a series of improvement alternates were considered that would offer improved transportation service for the region and address the requirements set forth in the federal legislation. Improvements to upgrade existing KY 80 to interstate standards were identified as one alternate. The existing KY 80 corridor is made up of two- and four-lane sections, with four-lane right-of-way along the entire corridor.

Based upon the consideration of the corridor development issues previously discussed, nine (9) corridor alternates, in addition to KY 80, were developed for additional study. These study corridors utilize north, middle and south sectors of the study area. There are four (4) variations each of both south and north corridors and one (1) middle corridor. The corridors traverse through portions of three Kentucky counties, Pulaski, Rockcastle and Laurel. The location of each proposed new route corridor, along with the proposed KY 80 corridor, is shown on **Exhibit S.5**.





**Exhibit S.5 Proposed Corridor Alternates**

### Analysis of Alternates

The technical analysis of the corridor alternates considered three basic categories of criteria for evaluation. The basic categories included: traffic and socioeconomic analyses, environmental issues, and engineering and construction cost analyses. A tabular summary of the analysis results related to these areas of analysis is provided at the end of this discussion.

#### Traffic and Socioeconomic Issues

This category of criteria considered both travel benefits and the relative social, economic and land use impacts associated with the various corridor alternates. Travel benefits accounted for projected traffic volumes, time and distance savings, total travel service, accident savings, and transportation system connectivity. From a travel benefit standpoint, the analyses indicated that the north and KY 80 alternates generally offered a greater degree of travel benefits. These alternates tended to carry a larger amount of traffic, save more time and reduce more accidents. Estimated average daily traffic volumes and other related travel benefits for the various alternates, indicate that KY 80, N-1, N-3 and N-4 are expected to accommodate more vehicles and offer greater travel benefits than the other corridors. Additionally, from a transportation system standpoint, alternates N-1 and N-4 were shown to be preferable due to the increased degree of service connections provided by passing between the communities of London and Corbin.

Social and economic benefits account for the ability of corridor alternates to minimize the expected displacement of homes and business; to serve recreational facilities, industries and

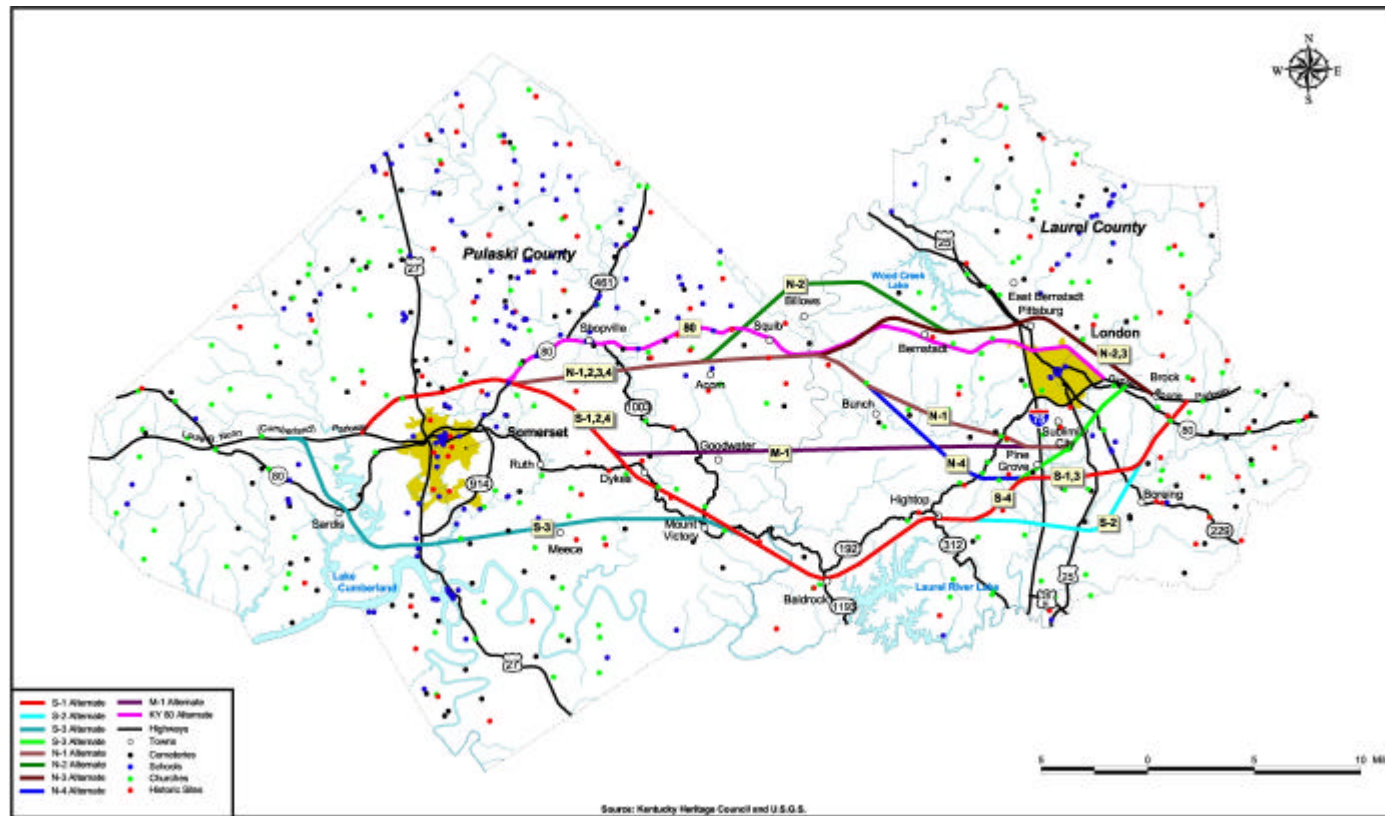
businesses; and to minimize adverse impacts to disadvantaged population groups of low income and minority citizens. Within this category, the alternates had mixed results. Because of its impacts to a developed corridor, the KY 80 alternate is expected to affect more existing homes and businesses through displacements. Relative to recreational serviceability, the south alternates were generally better than other alternates, while the KY 80 and M-1 alternates provided better industrial service. From an environmental justice standpoint, the N-1 and N-4 alternates offered the greatest likelihood of avoiding disproportionate impacts to minority and low income populations.

#### Environmental Issues

An environmental overview of each corridor alternate was completed using Geographic Information System (GIS) databases and other technical resources available in-house and through various agency and private resources. The overview is intended to provide known and potential environmental issues that can be reasonably identified to allow a conservative analysis of corridors. An illustration of cemeteries, churches, schools and historic sites identified within the study area and mapped using GIS is provided in **Exhibit S.6**.

The analyses identify “potential” issues within buffer zones of either 500 or 2,000 feet in width, along each of the defined corridors. Environmental issues considered for this study included cultural and historic features, native species, natural areas and other numerous issues. In the analysis of environmental issues, input and concerns identified by various environmental resource agencies of the state and federal government, public citizens and a range of stakeholder groups were given particular consideration. Some of the issues most often cited as being critical concerns relative to this corridor included:

- Daniel Boone National Forest – All of the corridor alternates would cross Daniel Boone National Forest property. The south alternates would have particular impacts on pristine areas of the forest that are located along the Kentucky Highway 192 corridor in southern Pulaski and Laurel counties. The middle alternate passes through a large area of the forest that has not been directly impacted by development. The KY 80 corridor and the north alternates pass through the forest; however, the KY 80 corridor is already a major highway corridor and many segments of the north alternates utilize portions of the forest that have been previously affected by mining and timber activities.
- Karst Geology with Sinkholes and Underground Caves – Much of the geology within Pulaski County is characterized by karstic features with sinkholes and caves that are environmentally sensitive and that present structural concerns for roadway construction. Changes in drainage patterns and potential for polluted runoff are particular concerns related to highway development. Databases provided by the Kentucky Geologic Survey (KGS), the National Speleological Society and public citizens were used to aid in the evaluation of impacts to karst, caves and sinkhole areas.



**Exhibit S.6 Cemeteries, Churches, Schools and Historic Sites**

- Lakes, Rivers and Stream Crossings – Lake Cumberland, Laurel River Lake and Wood Creek Lake could all be affected by various alternates located near to these features. Many individuals, along with representatives with the Daniel Boone National Forest, expressed particular concern with potential increases in recreational traffic at these facilities. Much of the Rockcastle River within the study area is a state designated Wild River resource. Streams throughout the region are home to sensitive plant and animal species.
- Plant and Animal Species – A wide range of sensitive species of plants and animals exist within the region, with many known locations of threatened or potentially threatened and endangered species existing within proximity to the study corridors. The south and middle alternates were shown to have a higher degree of potential impacts to these species.

Environmental implications can be anticipated with highway development within any of the alternate corridors. More detailed assessments will be required on future alignment alternates. A summary of findings related to environmental issues and the proposed corridor alternates are as follows:

**KY 80 Alternate:** Because it seeks to reconstruct and widen an existing highway corridor, the KY 80 alternate is expected to have the least impacts to natural areas than any of the other options. Typical for a developed corridor, the KY 80 alternate is expected to have greater impacts to cultural sites, archeological sites and developed land uses.

**North Alternates:** The north alternates are expected to provide lesser impacts to natural areas, threatened/endangered species and historic structures than any alternates that require the development of new highway corridors. All of the north alternates either avoid the Wild River area of the Rockcastle River or cross at the existing KY 80 bridge. The N-2 and N-3 alternates present concerns due to their close proximity to Wood Creek Lake. As for cultural sites, mixed impacts are seen with the north alternates, with generally higher than average impacts to potential archeological sites.

**Middle Alternate:** This corridor provides the least anticipated impact to cultural and social land uses but may have some of the highest impacts to forested and sensitive areas among all of the corridor alternates. In particular, this corridor would pass through the largest portion of the Daniel Boone National Forest and would create a new crossing of the Rockcastle Wild River area. This issue alone might make the middle alternate environmentally prohibitive.

**South Alternates:** The south alternates are anticipated to create lesser impacts to archaeological sites and historic structures but may have some of the highest impacts to natural areas, threatened/endangered species and area lakes. All of the alternates pass in close proximity to Laurel River Lake and the S-3 alternate also creates a new crossing of Lake Cumberland. These alternates fall in close proximity to the Cane Creek Wildlife Management Area and pass through some sensitive and pristine areas of the Daniel Boone National Forest.

#### *Engineering and Construction Issues*

The initial step in the evaluation of engineering and cost impacts was to develop preliminary layouts of a generalized interstate highway constructed within each alternate corridor based upon assumed typical sections. Standard geometric criteria for the proposed improvements include:

- 70 mph design speed;
- Moderate horizontal and vertical curvature;
- Access available at interchanges only;
- Four lanes, twelve-foot wide each; and
- Approximately 125 to 500-foot wide right-of-way depending on terrain and area.

Engineering and construction issues, along with overall costs for each alternate were evaluated based upon these standard criteria, using basic unit cost estimates formulated by the Kentucky Transportation Center as part of the 1997 Economic Feasibility Study of the I-66 corridor. Cost components for design, right-of-way, utilities, bridges, interchanges and construction were calculated based upon the cost factors outlined in the report. Cost estimates were calculated based on the previously noted geometric criteria.

The KY 80 alternate is estimated to have the most expensive overall costs and per-mile costs of all the alternates. While a number of sections along KY 80 could be efficiently widened and reconstructed, other sections would prove very difficult. Two options were included for the KY 80 alternate. One option included frontage roads. The other option excluded frontage roads but required higher relocation costs. Although varying significantly within individual cost categories, the total project costs for the two KY 80 options are very close, with the option utilizing frontage roads being slightly higher than the option without frontage roads.



For corridor alternates, the north alternates generally provide lower overall and per-mile costs; however, alternates N-2 and N-3, which pass north of London, entail high interchange costs because of the I-66/I-75 interchange north of London. It would be located near the community of Pittsburg where I-75, the CSX railroad, and US 25 all fall in close proximity, requiring additional elevated bridge structures to cross this location. The middle alternate offered the least expensive overall costs. This alternate provided the shortest and most direct routing and had a limited number of interchanges, due to the lack of crossroads between Somerset and London. The south alternates generally provide higher overall costs due to the length of their construction. However, these alternates provide the least expensive per-mile cost with the exception of S-3, which requires additional bridge construction at Lake Cumberland and additional right-of-way costs in the vicinity of Somerset.

*Analysis Data Summary*

A summary of data compiled for the alternative corridors is provided in **Table S.1**. This summary offers a comparison of many of the traffic and socioeconomic, environmental, and engineering/construction issues discussed in the preceding sections. Relative advantages and disadvantages of alternatives can be illustrated with this summary; however, it should be emphasized that this summary is a purely quantitative analysis. The final recommendation for a preferred corridor considers these quantitative results, but also accounts for many qualitative factors, including public input, in drawing conclusions.

**Public and Agency Input**

Throughout the course of the I-66 Corridor Planning Study, local citizens, public officials and representatives from government resource agencies were given the opportunity to provide input on the proposed corridors and issues of relevance to the study. A general consensus of findings is included in the following sections. This includes questionnaires, public comments and reviews by the general public, public interest groups and local, state and federal agencies, including the Cumberland Valley Area Development District, the Lake Cumberland Area Development District, U. S. Forest Service, Federal Highway Administration (FHWA) and KYTC officials.

*Public Participation*

An initial set of public meetings was held for this study on June 15, 1999 in Somerset and on June 17, 1999 in London. Attendees were allowed to ask questions and express their opinions through public comments or written questionnaires. Generally, those in favor of the project cited economic improvements, travel benefits and safety enhancements for the region. However, many citizens were opposed to a recommended corridor proposed along a south alignment. Most of the opposition focused on potential damage to the environment in relation to the Daniel Boone National Forest, the area's rivers and streams, and endangered species.

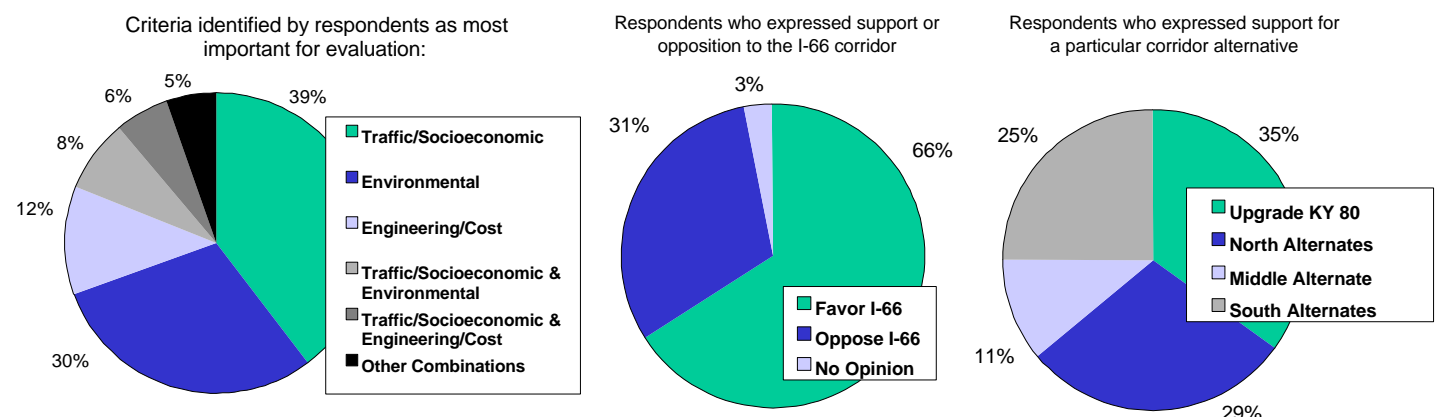
Because of general concern for the recommended alternate corridor presented in the initial meetings, the alternatives considered for I-66 were expanded to ten corridors. Included in these corridor alternates was an option for using KY 80. Data and analysis results were assembled on each of the corridor alternatives that described traffic benefits and socioeconomic factors, potential environmental impacts, and issues related to engineering and construction costs. A second set of public meetings was held for this study on March 21, 2000 in Somerset and March 23, 2000 in London. Registered attendance at these meetings included 335 individuals in

Somerset and 200 individuals in London. The purpose of these meetings was to present the data on the alternative corridors and to allow attendees to comment on the corridor alternatives and analysis results.

Legal advertisements were run in local newspapers, flyers were posted at locations around the communities, and notices were shown on television cable access channels. Cabinet officials also spoke with reporters from newspaper, radio and television prior to the meetings. Information packets, maps and public input questionnaires were made available prior to the public meeting at the Area Development District office in London, the Highway District Office in Somerset, and on the Cabinet's Internet web site. Following the meetings, questionnaires were posted on the Cabinet's web site along with the presentation slides used at the public meetings. Citizens who could not attend the public meetings were also able to mail or e-mail questionnaire responses directly to the KYTC for inclusion into the meeting results.

Many of the same questions and concerns, both in favor and opposed to the corridors, were expressed at the second series of public meetings. The questionnaires distributed at the meetings posed three basic questions, with summaries provided in **Exhibit S.7**. The first question asked which corridor evaluation issues were most important to the respondents. Traffic and socioeconomic issues were cited by approximately 39 percent of the responses, environmental issues by 30 percent and engineering and costs issues by twelve percent. Lesser percentages of respondents identified combinations of the issues cited above. The second question asked if the respondent was in favor of the construction of the I-66 corridor. Of the respondents, approximately two-thirds were in favor of the construction of I-66 and these generally cited economic growth, improved access and congestion relief as reasons for their support. Those who were generally opposed to the corridor expressed feelings that the route was not justified or may cause negative environmental impacts. The third question asked for the respondents' preferred route(s) and approximately 35 percent of these respondents identified KY 80 as the most preferable corridor, 29 percent preferred the north corridor alternates, 25 percent preferred the south corridor alternates, and eleven percent preferred the middle alternate.

**Exhibit S.7 Questionnaire Responses (resulting from input following March 2000 meetings)**



**Table S.1 Analysis Data Summary**

Alternate	* Key Traffic/Socioeconomic Features *									
	Projected Traffic Volumes	Time Savings	Distance Savings	Daily VMT Served	Daily VHT Saved	Accident Re- ductions	Displace- ments <sup>1</sup>	Rec- reational Facilities	Industrial Service- ability	Environ- mental Justice
	VPD	M:S	Miles	VMT	VHT	Number	Number	Miles	Miles	Percent
KY 80	20,300	11:00	3.7	936,000	3720	482	480	36.0	5.2	23
N-1	20,400	11:26	4.1	930,000	3890	479	300	33.1	5.6	30
N-2	14,600	10:48	3.4	674,000	2560	348	240	36.3	5.7	13
N-3	18,500	12:04	4.8	834,000	3730	430	270	36.1	5.7	15
N-4	19,900	10:26	3.1	932,000	3470	480	330	31.8	5.7	29
M-1	15,500	11:20	4.0	707,000	2920	365	140	32.5	5.4	23
S-1	15,800	8:18	0.7	774,000	2180	399	300	27.7	5.9	15
S-2	15,500	7:27	-0.2	775,000	1920	399	280	27.7	6.2	14
S-3	15,000	8:24	0.8	736,000	2110	379	380	27.3	6.6	17
S-4	16,600	7:49	0.2	820,000	2160	423	310	27.9	5.4	16

<sup>1</sup> Indicates the number of primary structures contained within a 500-foot corridor.

Alternate	* Key Cost Features *							
	Length <sup>1</sup>	Cost Items					Total Cost	
		Miles	Construction (million \$)	Bridges <sup>2</sup> (million \$)	Inter- changes <sup>3</sup> (million \$)	Design (million \$)	Right-of-Way and Utilities (million \$)	Project (million \$)
KY 80-1 <sup>4</sup>	38.4	308.1	103.0	121.4	116.8	519.1	1,168.4	30.5
KY 80-2 <sup>5</sup>	38.4	564.0	103.0	121.4	117.6	269.7	1,175.7	30.7
N-1	39.0	387.5	88.4	121.4	88.7	200.9	886.9	22.7
N-2	41.5	412.2	84.0	136.4	94.3	215.9	942.8	22.7
N-3	40.1	398.5	84.0	136.4	92.2	210.7	921.8	23.0
N-4	43.2	429.7	86.2	121.4	95.0	217.1	949.4	22.0
M-1	39.1	388.4	88.4	108.2	86.8	196.2	868.0	22.2
S-1	45.6	443.9	99.4	114.8	97.6	220.7	976.4	21.4
S-2	46.5	461.9	92.8	114.8	99.6	227.3	996.4	21.4
S-3	48.9	486.3	148.5	121.4	111.0	242.5	1,109.7	22.7
S-4	42.9	426.2	95.0	114.8	94.4	213.6	944.0	22.0

<sup>1</sup> Miles

<sup>2</sup> Includes Overpasses and Railroad Structures

<sup>3</sup> Includes One Rest Area per Alternate

<sup>4</sup> Includes Purchase of 1798 Parcels @ \$155,000 Each & No Frontage Roads

<sup>5</sup> Includes Approximately 52.2 Miles of Frontage Roads

Alternate	* Key Environmental Features within a 2,000-foot Corridor (unless noted as 500-foot) *														
	Archaeology Sites	Cemeteries	Churches	Historic Structures	Schools	DBNF Property <sup>1</sup>	Threatened & Endangered Species	Potential Threatened & Endangered Species	Known Cave Routes <sup>1</sup>	Cliff Lines <sup>1</sup>	Stream Crossings	Wetland Sites	Wild River Crossing	Oil & Gas Wells <sup>2</sup>	Hazardous Sites (EPA & USTs) <sup>3</sup>
	Each	Each	Each	Each	Each	Acres	Each	Each	Feet	Feet	Each	Acres		Each	Each
KY 80	30	9	4	7	5	190	9	1	1,440	7,500	43	50	Yes	28	17
N-1	21	8	13	1	6	310	2	2	0	11,800	41	101	Yes	20	5
N-2	16	4	7	1	0	180	0	0	0	10,200	52	87	No	19	0
N-3	22	4	8	1	3	180	2	1	0	8,800	48	93	Yes	20	0
N-4	26	6	9	1	4	390	2	1	0	9,000	53	90	Yes	23	0
M-1	9	5	3	1	0	500	16	16	810	25,000	51	70	Yes	24	4
S-1	6	7	8	1	4	390	14	23	1,740	25,200	63	110	No	19	0
S-2	6	6	11	1	5	390	16	23	1,740	25,200	58	110	No	20	0
S-3	10	9	7	1	2	380	7	22	2,900	28,200	69	220	No	3	0
S-4	6	9	10	1	4	390	14	23	1,740	25,200	57	90	No	19	4

<sup>1</sup> Within a 500' corridor.

<sup>2</sup> Includes abandoned sites.

<sup>3</sup> Environmental Protection Agency (EPA) and Underground Storage Tank (UST) sites.

## Resource Agency Input

Numerous resource agencies were included in the public involvement process including representatives from the following agencies:

- U.S. Forest Service, Daniel Boone National Forest (DBNF)
- Kentucky Department of Fish and Wildlife (KDFWR)
- U.S. Fish and Wildlife Service (USFW)
- Federal Highway Administration (FHWA)
- Kentucky Workforce Development Cabinet (KWDC)
- Kentucky Cabinet for Economic Development (KCED)
- Kentucky Heritage Council (KHC)
- Kentucky Tourism Development Cabinet (KTDC)
- Local Emergency Management Services (EMS)
- West Virginia Division of Highways, Planning Division (WVDOH)
- Kentucky Transportation Cabinet (KYTC)

Attendees at two resource agency meetings held in conjunction with the study were provided with information detailing the evaluation process, corridors considered, project challenges and areas of study focus. During the meetings, questions were raised regarding the relationship of the current study to subsequent NEPA documentation. Further questions were raised and comments offered about several specific environmental areas including wetlands, threatened and endangered species, historic structures and area lakes. Attendees identified a need and opportunities to share data among project sponsors and resource agencies.

In regard to the Laurel River Lake area, it was noted that negative impacts may result from the interstate's close proximity to the lake. According to user surveys collected by the U.S. Forest Service, the lake is already over-used and providing better access to the lake would only worsen the problem. Further items addressed include a potential interchange location with I-75, Native American input, and KY 80 cost estimating. It was noted that this study is an early planning document that would require several further studies.

## Evaluation Conclusions

Evaluation of the study corridors identified a number of advantages and disadvantages for each of the alternates, listed in **Table S.2**. In short, the evaluation results indicated the following:

- KY 80 Alternate
  - Generally good in most traffic and socioeconomic areas
  - Slightly below average in environmental categories
  - More expensive project costs
  - Many access control and right-of-way issues
  - Geometric, design and operational issues
- North Alternates
  - Generally good in most traffic and socioeconomic, environmental and cost categories

- Alternates passing between London and Corbin offer better traffic service
- Middle Alternate
  - Modest traffic service
  - May require additional highway service infrastructure
  - Impacts to undisturbed natural areas
  - Potentially prohibitive impacts to the Wild River portion of the Rockcastle River
  - Least expensive costs
- South Alternates
  - Generally below average in traffic and environmental categories
  - Particular concerns relative to impacts to the Daniel Boone National Forest
  - Greater impacts to threatened and endangered species
  - Potential negative impacts to Laurel River Lake
  - Average overall costs

## Recommended Alternate

On April 26, 2000, an Interdisciplinary Team (IDT) meeting was held with representatives from throughout the Transportation Cabinet. Included in the meeting were representatives from the Office of the Secretary, Office of the State Highway Engineer, Districts 8 and 11, Program Management, Design, Bridges, Construction, Environmental, Materials/ Geotechnical, Operations and Right-of-Way/Utilities. Also included in the meeting were representatives from the Lake Cumberland and Cumberland Valley Area Development Districts and the Federal Highway Administration. The meeting included a review of the background of the study and prior project activities, a review of project goals, a presentation of alternative corridors, discussion of advantages and disadvantages within each alternative corridor, the analysis methodology, a summary of public input and the development of study recommendations.

Based upon all of the concerns expressed, meeting participants were able to proceed through the corridor alternatives and arrive at a consensus recommendation for the project. Consensus was reached among meeting attendees on the recommendation of a corridor alternative that would be largely representative of the N-4 alternate. It was suggested, however, that the study recommendations permit future consideration of the following issues relative to potential alignment options:

- North of Somerset, consider opportunities to adjust the corridor northward to better avoid new subdivisions in the area;
- From Somerset to east of the Rockcastle River, the recommended corridor should include portions of the KY 80 corridor to the maximum extent possible;
- West of I-75, the corridor should seek to reduce the number of crossings of Sinking Creek in order to minimize potential impacts to threatened and endangered species habitats; and
- More detailed studies will be required in the design phase to finalized the location of the I-66/I-75 interchange. The interchange is expected to be located in a section that is at least one to one and a half miles north of the southbound weigh stations.

**Exhibit S.8** provides a map showing the recommended corridor for I-66.



**Table S.2 Evaluation Matrix**

Alternate	Advantages	Disadvantages
KY 80	Provides above average traffic service	Most expensive project costs
	Improves system connectivity	Difficult I-75 interchange issues at Pittsburg
	Minimal impacts to DB National Forest	Extensive maintenance of traffic
	Avoids cliff lines, streams and wetland sites	May require frontage roads or major ROW acquisition
	Improves an existing corridor	Major impacts to cultural and sensitive land uses
		Crosses the Wild River area
		Poor recreational access
		Requires the most number of displacements
N-1	Provides best traffic service	I-75 crossing could impact airport
	Avoids areas of disadvantaged populations	Poor accessibility between KY 80 and I-75
	Offers service to London and Corbin	I-75 interchange may affect more homes and businesses
	Avoids many natural and environmentally sensitive areas	May impact more churches, schools and cemeteries
	Provides good service to industrial areas	Provides below average system connectivity
	Has lower than average project costs	Impacts the Wild River Area
	Can potentially use strip-mined lands	
	DB Parkway tie closer to London	
N-2	No impact to Wild River boundary	Constructibility difficult in areas of rugged terrain
	Avoids most natural and environmentally sensitive areas	Provides below average traffic service
	Avoids the most threatened and endangered species	Most likely to impact disadvantaged populations
	Offers good industrial and system serviceability	Does not access lake and recreational areas
	Avoids many cultural land uses	May potentially impact Wood Creek Lake
	Has lower than average costs	
N-3	Avoids many natural and environmentally sensitive areas	Presents construction challenges at I-75
	Impacts the least amount of DBNF	Carries less traffic around London
	Avoids known cave routes	Potentially disturbs more disadvantaged populations
	Provides best travel time and distance savings	
	Provides below average costs	
N-4	Carries higher than average traffic volumes	Impacts the Wild River area
	Offers high accident reduction	Potentially impacts more cultural land use areas
	Offers service to both London and Corbin	Provides below average system connectivity
	Avoids pristine areas of the DBNF	Construction challenges in rough terrain and basins
	Avoids many natural and environmentally sensitive areas	
	May offer best I-75 interchange location	
	Likely impacts fewer areas of disadvantaged populations	
Extends the corridor further east than other alignments		

Alternate	Advantages	Disadvantages
M-1	Provides shortest distance	Provides below average traffic service
	Provides the lowest overall project cost	Provides poor system connectivity
	Causes the least number of displacements	May cause significant impact to DBNF
	Requires low maintenance of traffic during construction	Likely impacts many threatened and endangered species
	Provides above average industrial serviceability	Direct impact to the Wild River area
	Causes minimal impact to cultural land uses	
	Avoids many wetland sites and cave routes	
S-1	Improves an existing corridor	Provides below average traffic service
	Provides average system and industrial connectivity	Likely to impact disadvantaged populations
	Avoids known archaeological and historic sites	Significant impacts to the DBNF
	Avoids the Wild River area	Many environmental impacts overall
	Provides low per-mile project costs	Likely to affect many threatened/endangered species
	Provides access to communities south of London	
S-2	Crosses I-75 in less-populated area	Impacts existing weight stations
	Potential tie to US 25E possible	Provides below average traffic service
	Provides average system and industrial connectivity	Likely to impact disadvantaged populations
	Avoids known archaeological and historic sites	Significant impacts to the DBNF
	Avoids the Wild River area	Many environmental impacts overall
	Provides low per-mile project costs	Likely to affect many threatened/endangered species
S-3	Provides access south of Somerset	Large bridge structures required
	Provides average system and industrial connectivity	Interchange at US 27 not feasible
	Avoids known archaeological and historic sites	Significant impact to cave systems
	Avoids the Wild River area	Provides below average traffic service
	Provides low per-mile project costs	Likely to impact disadvantaged populations
	Provides access to communities south of London	Significant impacts to the DBNF
		Many environmental impacts overall
		Likely to affect many threatened/endangered species
S-4	DB Parkway tie closer to London	I-75 crossing could impact airport
	Provides average system and industrial connectivity	Provides below average traffic service
	Avoids known archaeological and historic sites	Likely to impact disadvantaged populations
	Avoids the Wild River area	Significant impacts to the DBNF
	Provides low per-mile project costs	Many environmental impacts overall
	Provides access to communities south of London	Likely to affect many threatened/endangered species

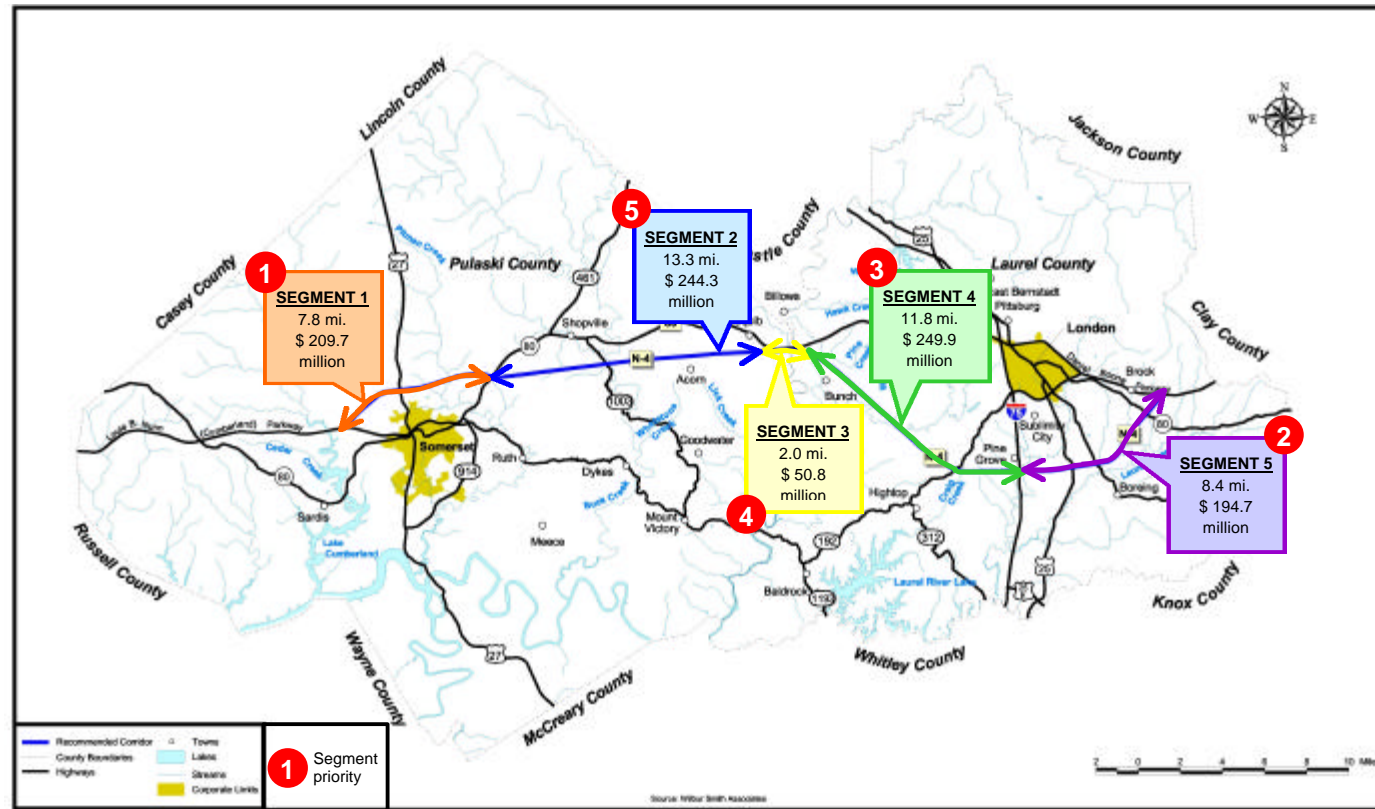


Exhibit S.8 Recommended Corridor for I-66

**Recommended Costs, Priority Segments and Implementation**

For the consideration of cost estimates and priority segments for the proposed I-66 corridor, the recommended alternate was divided into five basic sections. These segments are shown in Exhibit S.8. The section endpoints were chosen to represent logical termini for segments during the planning, funding, design and construction processes. It is important to note that the segment names do not represent the recommended phasing order for the corridor – they are only intended for identification purposes.

Using the unit costs identified for this project’s geometric criteria, total project costs were estimated for the recommended corridor. Cost components calculated for each segment of the route include design, right-of-way, utilities, bridges, interchanges, rest areas and construction activities. As shown in **Table S.3**, total estimated costs for the recommended corridor are approximately \$949 million.

In order to continue existing Somerset Bypass efforts and provide a complete bypass facility, Segment 1 is recommended to be the first priority for the I-66 project. Segment 5, the London Bypass, is situated in an area with on-going development activities. In order to acquire contiguous right-of-way for the design and construction of this portion of the route, Segment 5 is recommended to be the second priority. This section will also become more critical as traffic and safety concerns continue to increase along existing facilities on the north side of London.

**Table S.3 Recommended Corridor Cost Estimates**

Segment	Length (miles)	Cost Items (million \$) <sup>1</sup>					Total Cost (million \$) <sup>1</sup>	
		Construction	Bridges <sup>2</sup>	Interchanges <sup>3</sup>	Design	Right-of-Way and Utilities	Project	Per Mile
1	7.7	77.2	25.5	39.6	21.0	46.4	209.7	
2	13.3	131.8	18.0	13.2	24.4	56.9	244.3	
3	2.0	19.9	11.9	4.0	5.1	9.9	50.8	
4	11.8	117.5	8.8	38.2	25.0	60.4	249.9	
5	8.4	83.3	22.0	26.4	19.5	43.5	194.7	
Total	43.2	429.7	86.2	121.4	95.0	217.1	<b>949.4</b>	<b>22.0</b>

<sup>1</sup> Items have been rounded.

<sup>2</sup> Includes overpasses and railroad structures.

<sup>3</sup> Includes one rest area per alternate.

For the remaining segments, it is important to consider that the facility will not be continuous without the completion of Segment 4, from the Rockcastle River’s eastern approach to I-75. Also, traffic model projections indicate that volumes between Somerset and the Rockcastle River will be largely dependent upon the routing of the corridor between the River and London. Until Segment 4 is completed, the amount of new traffic drawn to the corridor is expected to be limited. Therefore, it is recommended that Segment 4 be the third priority, followed by Segment 3 and Segment 2, respectively. In this way, linkages will be created to maximize the use of this facility.

Using these identified segments, recommended priorities are as follows:

- Priority 1: Somerset Northern Bypass, Louie B. Nunn (Cumberland) Parkway to KY 80 (Segment 1)
- Priority 2: London Bypass, I-75 to the Daniel Boone Parkway (Segment 5)
- Priority 3: Eastern approach to the Rockcastle River Bridge to I-75 (Segment 4)
- Priority 4: Rockcastle River Bridge and approaches (Segment 3)
- Priority 5: KY 80 to the western approaches of the Rockcastle River Bridge (Segment 2)

Costs for the I-66 project are expected to be expensive and special funding sources will be required through the federal government. Approximately \$25 million in dedicated funding has been contributed to the project. It is possible that Federal funds for interstate improvements could also be set aside and used for I-66. A predetermined, yearly funding structure could possibly be made part of a budget plan and amortized over time to achieve the necessary funding for all of the priority segments.