# CHAPTER 3 – PROPOSED CORRIDORS

A series of alternative corridors were identified to address the purposes defined for this project. This chapter describes the issues considered in identifying alternative potential routings through the study area, and also describes proposed alternative corridors developed for further consideration as part of this study. The proposed alternatives include upgrading KY 80 to accommodate an interstate facility, and the development of new corridor options. The alternatives serve as 2,000-foot wide corridors, within which future design efforts could locate multiple alignments for consideration.

## A. KEY CORRIDOR DEVELOPMENT ISSUES

A broad range of issues must be considered in identifying potential study corridors for the future development of I-66. The following sections describe some of the geometric issues, access control factors, I-75 interchange location options, major areas of avoidance and road user considerations involved in this effort.

### 1. Geometric Criteria

The geometric criteria for the proposed I-66 route is proposed as a four-lane, interstate-type highway. The corridor alternatives and cost estimates are based on interstate-type design standards and a design speed of 70 miles per hour. Horizontal curvature is limited to a 1,910-foot minimum radius and grades should fall within a range of plus or minus 4 percent.

Currently, there are no existing highways within the study area that meet the geometric criteria established for the corridor. The existing KY 80 facility between Somerset and London has right-of-way for an ultimate construction of 4 lanes with a 60-foot median. Four-lane sections are currently in place from the Somerset Bypass to approximately 1000 feet east of KY 461 in Pulaski County. In Laurel County, the four-lane section extends from about four (4) miles east of the Rockcastle River to Exit 41 on I-75. The remainder of existing KY 80 is a two-lane facility, approximately 15.5 miles in length. The major issues which limit the use of the existing KY 80 roadway are the horizontal and vertical curves that do not meet interstate criteria along portions of the route. Specifically, horizontal curves near Shopville and Squib would require a larger radius to meet design standards for 70 mph. Also, existing vertical curves approaching and departing the Rockcastle River have 6 percent grades, which exceed the design standard of 4 percent.

### 2. Access Control and Interchanges

Access for the highway is proposed to be fully-controlled and provided only at designated interchange locations. Interchange locations will be determined using several factors, including traffic volumes within the network, existing or potential area development, spacing limitations and public needs. The desired minimum spacing for interchanges is one (1) mile in urban areas and three (3) miles in rural areas.

Partial access control or access by permit is in place along most existing highway facilities within the study area, including KY 80. The only highways that currently provide for full access control are I-75, the Louie B. Nunn (Cumberland) Parkway, and portions of the Daniel Boone Parkway. Because existing routes do not have full control of access, reconstruction efforts to provide full access control would lead to the elimination of most existing access points. New access would only be provided at interchanges, requiring a considerable amount of frontage road construction or the relocation of many residents and businesses that are adjacent to existing routes, such as KY 80.

Access controls also impact the development of alternatives within new highway corridors. Alternative corridors are selected to insure that interchanges at major crossroads can be adequately spaced, or additional costs may be incurred to offset the interchanges to meet the desired spacing requirements or to construct service roads between major crossroad facilities.

### 3. Interchange Locations with Interstate 75

A critical issue with respect to the identification and consideration of alternative corridors involves the identification of potential interchange locations with I-75. A detailed discussion concerning interchange location constraints is provided in Chapter 6 of this document. Because I-75 is also an interstate highway, it too must meet the spacing requirements for interstate facilities. There are four (4) existing interchanges on I-75 in Laurel County (Exits 29, 38, 41 and 49). All of these interchanges are diamond-type configurations. Given the minimum spacing requirements for interstate facilities and other controls, an analysis of the entire 23-mile section of I-75 within Laurel County identified two sections within which alternative I-66 corridors could be optimally located. These areas are shown in **Exhibit 3.1** and are located between Milepoint (MP) 30 and MP 36 as well as between MP 42 and MP 43. Areas north of MP 43 conflict with Wood Creek Lake and areas between MP 36 and MP 42 conflict with urban buildup and spacing restrictions.

The section between MP 30-36 affords a stretch of I-75 that is relatively free of existing highway and railroad conflicts. However, there could be concerns with the landfill near Lily and the new weigh stations near MP 35. The section between MP 42 and 43 also provides an opportunity for an interchange location; however, the close proximity of I-75, US 25 and the CSX railroad within this area create difficult construction issues associated with bridging these facilities and providing access to both I-75 and US 25.

It is possible to consider the use of existing interchanges; however, these interchanges would require a significant degree of reconstruction to convert them from their current diamond configurations to a configuration with directional ramps between I-66 and I-75. Additionally, the existing local access provided by those interchanges would be completely eliminated as the new interchange would only afford access between I-75 and I-66. Based upon these considerations, the use of an existing interchange that could provide for an interchange between I-66 and I-75 would be difficult.

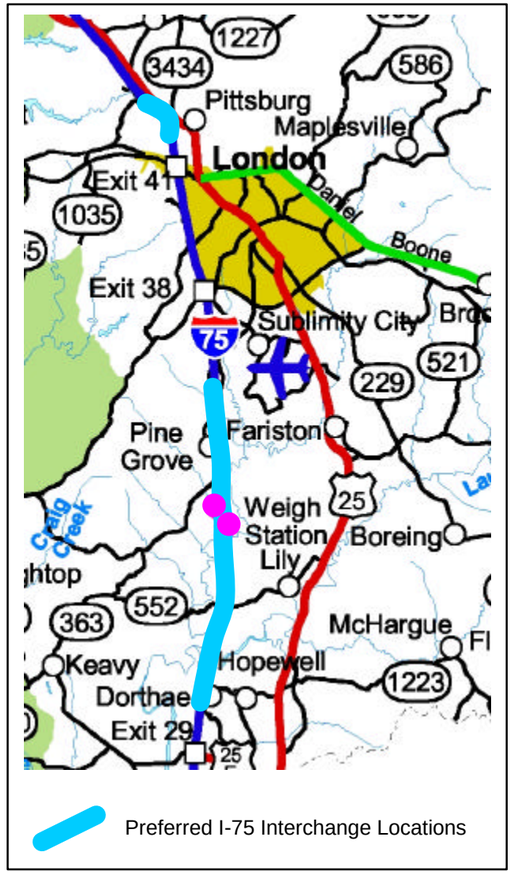



**Exhibit 3.1 Potential Interchange Sites**

Shown in **Exhibit 3.2** are aerial photographs of Exits 38 and 41 along I-75. These exits respectively, represent connection points to KY 192 and KY 80. These interchanges also provide local access to the significant amount of development in the area as well as to the surrounding community. Reconstruction of these interchanges would be very costly and would potentially result in significant local business and community disruption. Further discussion concerning these interchange issues will be provided throughout the report.

### 4. Major Areas of Avoidance

Within the study area, there are a number of areas that should be avoided with the construction of a new highway corridor. Subsequent chapters of this report will consider many of these areas in much greater detail. At this initial level, and as part of the process of identifying alternative corridors, several major areas of avoidance were considered. These areas represent large features around which most alternatives should generally be routed due to environmental concerns, construction costs, or significant social impacts. Illustrated in **Exhibit 3.3** are some of these major areas of avoidance within the study area.

Significant population centers, such as London and Somerset, represent locations through which the construction of a new highway corridor could prove to be prohibitive from a number of standpoints. Corridor alternates going through large populated areas are costly and generate adverse social and environmental impacts. Beyond these two major population centers, there are numerous small communities within the study area that should also be considered for avoidance at a corridor level.

Lakes and rivers exist throughout the study area and clearly, corridor alternates have been considered that would cross or come into close proximity to many of these features. However, many of the large lakes and river areas represent locations across which highway construction could be prohibitive from an environmental and construction standpoint. Lake Cumberland exists to the southwest of Somerset; Laurel River Lake is located to the southwest of London; and Wood Creek Lake is located to the northwest of London. All of these lakes are large water bodies and are home to a number of wildlife, recreational attractions, homes and businesses. The Rockcastle River bisects the study area and would be crossed by any of the proposed corridor alternates. The portion of the Rockcastle River within most of the study area is a state-designated Wild River, with certain restrictions imposed on new river crossings within this area. Crossings of the Rockcastle River would be preferable north or south of the designated Wild River area or at existing bridge crossings such as KY 80.

Other major areas of avoidance include parks, forests and wildlife management areas. Two major state parks exist within the study area. These include General Burnside State Park in Pulaski County, southeast of Somerset, and Levi Jackson Wilderness Road State Park in Laurel County southeast of London. The Daniel Boone National Forest extends through the study area and would be crossed by all corridor alternates. Sensitive and undisturbed areas of the forest should be avoided wherever possible; therefore, it would be more desirable for alternative corridors to be developed in proximity to existing highway corridors or through areas of the forest that have been previously impacted by logging or mining activities.

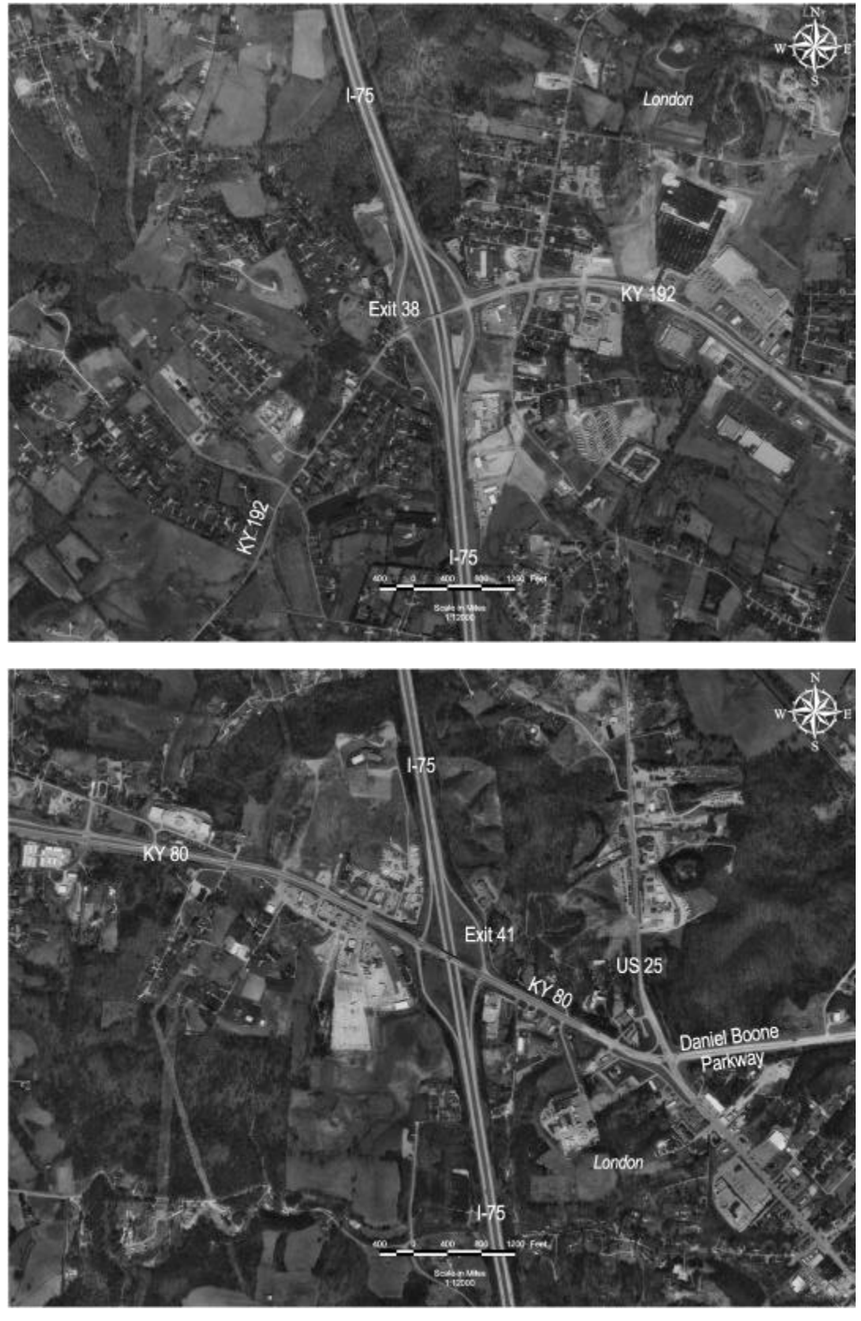



**Exhibit 3.2 Existing Exits 38 and 41**

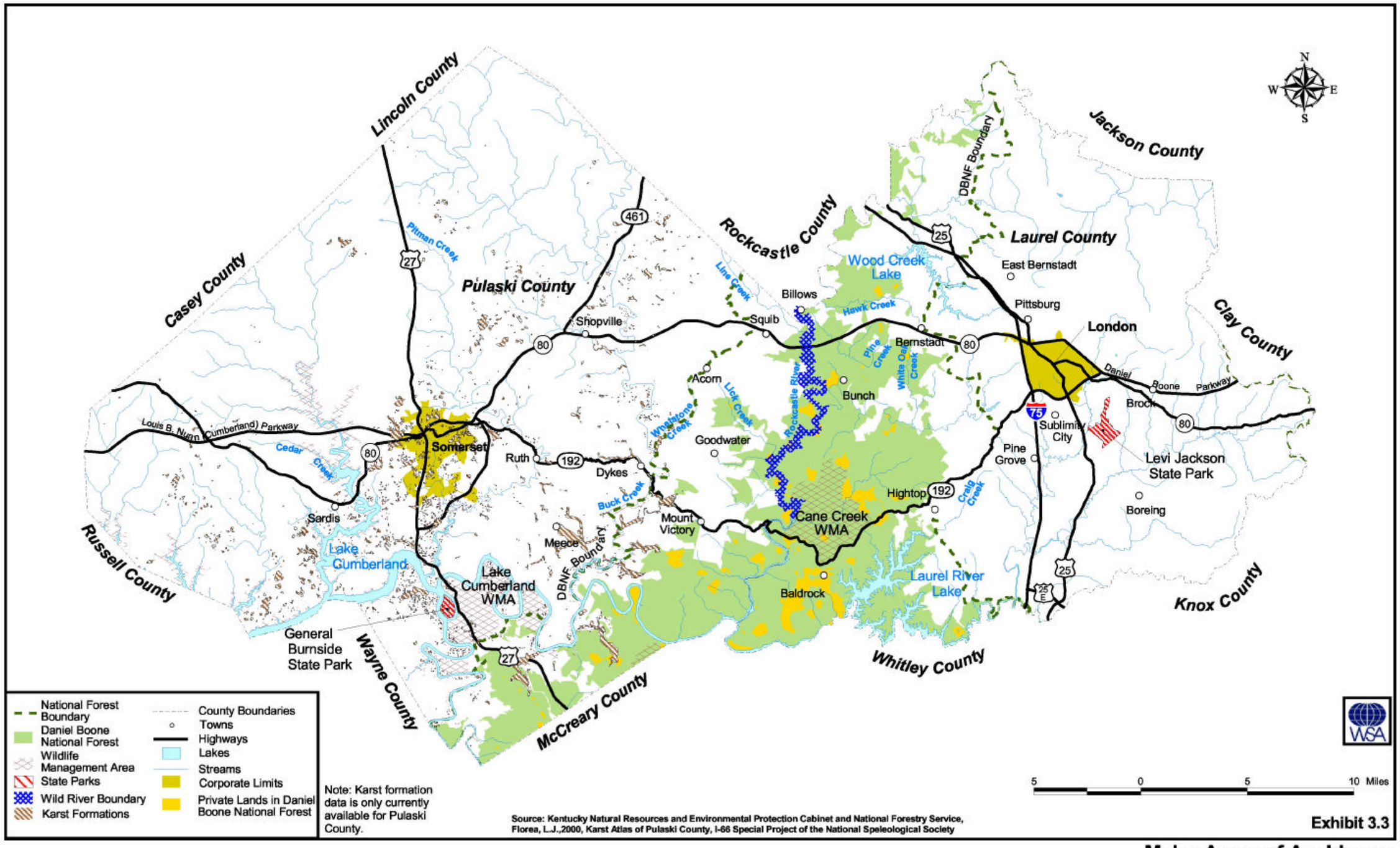



Exhibit 3.3

**Major Areas of Avoidance**

Limestone formations within the region also represent important areas of avoidance, particularly within Pulaski County and the Somerset area. Valley bottoms within this area underlain by St. Louis, St. Genevieve or Kidder limestone formations are karstic and contain significant sinkhole and cave features that should be avoided in order to minimize environmental and construction difficulties. Structural impacts associated with crossing these features should be avoided through route alignments and mitigation measures. Drainage issues need to also be addressed, as karst and cave features and the associated biological communities within them are sensitive to changes in water flow and the introduction of groundwater contaminants. Addressing these issues will be an important part of forthcoming NEPA investigations of design alternatives.

**5. Travel Benefits**

The study objectives for the I-66 corridor include offering improved travel benefits for motorists. These benefits will come in the form of improved safety, decreased travel time, and lower vehicle operating costs. Many of these improvements are a function of the geometric design requirements established for the facility. As a divided facility that provides a constant travel speed, access controls and other features, I-66 is anticipated to offer safety, timesaving and operational benefits. To better achieve these benefits, the routes selected for corridor development should, to the greatest degree possible, offer a direct route for motorists traveling through the corridor. As such, alternative corridors that could provide the most direct routing through the study area would help to achieve these objectives.

An additional consideration relative to travel benefits concerns traffic service. By carrying a greater volume of traffic, travel benefits can be realized by a greater number of motorists. The largest number of motorists are likely to be attracted by routes that provide good connections between key destination points, such as major crossroads; accessibility to population centers like Somerset, London and Corbin; and service to business, commercial and recreational complexes in the area.

## B. PROPOSED CORRIDOR OPTIONS

Based upon the goals of this study and the key corridor development issues previously described, a series of alternates for proposed corridors were identified for consideration. General descriptions of these options include upgrading existing KY 80 and developing new corridors for highway development through the study area. Again, a corridor is considered to be a path of study at least 2,000 feet wide. A discussion of these options is provided in the following sections.

**1. Upgrade KY 80**

The existing KY 80 corridor is made up of two- and four-lane sections, with four-lane right-of-way along the entire corridor.

The study alternate for an improved KY 80 corridor begins in Pulaski County at a new interchange with the Louie B. Nunn (Cumberland) Parkway, approximately 7000 feet east of Fishing Creek (or about three (3) miles west of US 27). The corridor proceeds to a new interchange with US 27 (which is being realigned west of the existing route) north of Somerset, then southeasterly to another new interchange with KY 80, near Sugar Hill. The corridor would then follow the existing 4-lane section of KY 80 to KY 461, where a new interchange would also be needed. From KY 461, the existing alignment of KY 80 can be followed to the Daniel Boone Parkway at KY 192 in Laurel County. However, horizontal and vertical alignment changes would be needed at several locations along the existing route to meet interstate criteria. Additionally, an independent centerline may be required near the Rockcastle River in order to complete construction and maintain traffic. The length of this option is approximately 38.4 miles.

There are several issues that must be addressed in any evaluation of reconstructing the existing KY 80 corridor to comply with interstate standards. These particular issues are discussed below, as follows:

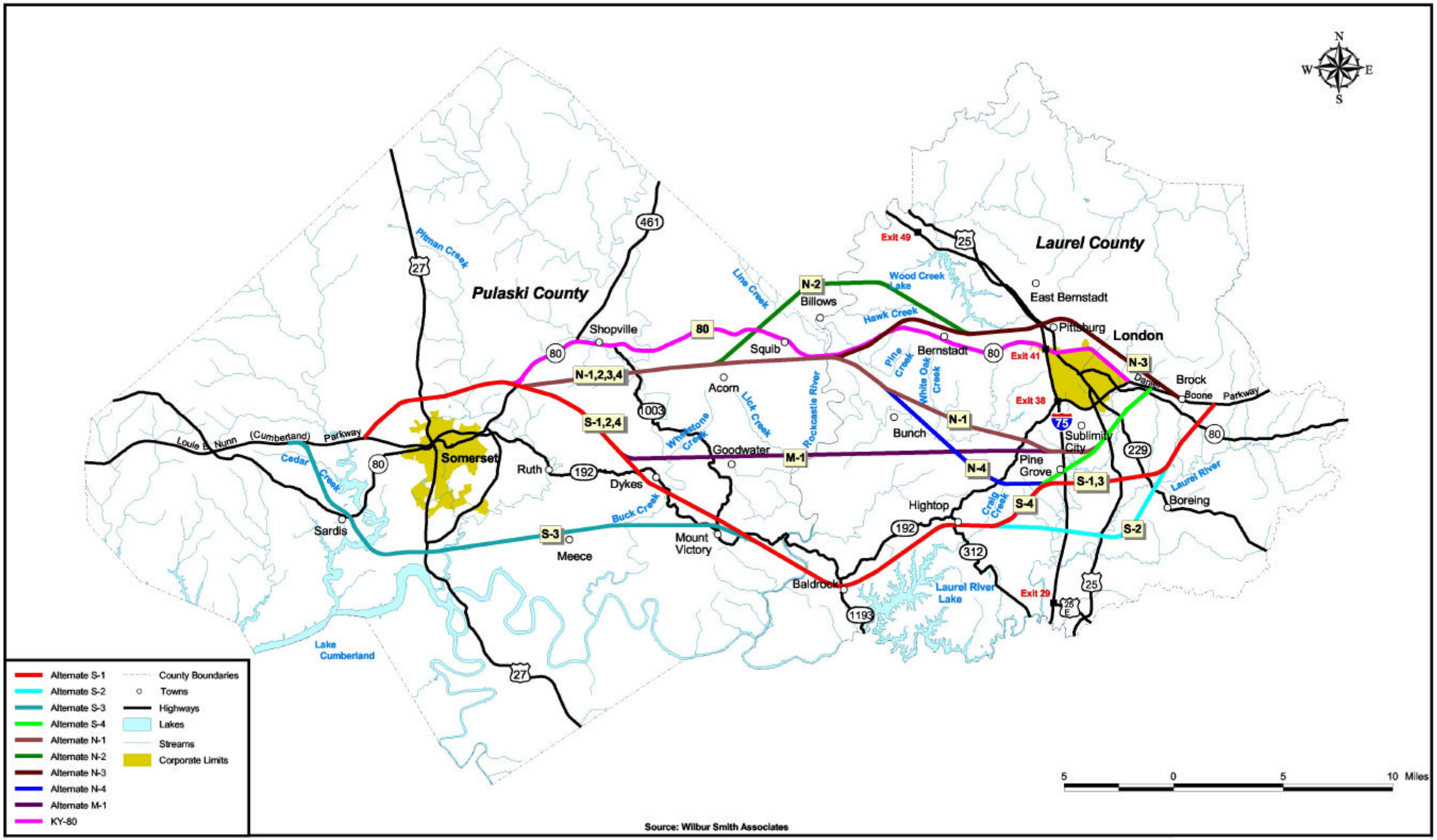
- Access is currently provided only at designated locations. Minimum spacing requirements for partial control of access are 1200 feet in rural areas and 600 feet in urban areas. In Pulaski County there are approximately 55 separate entrances and approximately 51 entrances in Laurel County. Additionally, according to county PVA mapping, there could be about 540 parcels of land in Pulaski County and 1260 parcels in Laurel County that may be affected (within a 500-foot corridor) by using full control of access associated with an interstate-type system.
- During construction, the maintenance of traffic would be very difficult along the existing alignment of KY 80 wherever horizontal or vertical curvature changes are required.
- Interchange locations will be needed at key crossroads to maximize their placement and maintain safety and capacity of the existing network.
- Overpass or underpass structures will also be necessary when crossing routes that do not meet interchange criteria. Some of the existing routes will be cut off from interstate access.
- Without the use of frontage roads along the entire KY 80 corridor, right-of-way acquisition will be extremely expensive in order to maintain fully controlled access. Conversely, the use of frontage roads would require a wider typical highway cross-section (increased right-of-way limits), more road maintenance, additional construction and increased potential for more interchanges.

**2. Corridor Alternates**

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 3.4**. A specific description of each corridor follows.

For analysis purposes, all of the new route corridors are assumed to be 2,000 feet in width. Subsequent design and environmental studies will consider alignment options within a corridor based upon the results of this corridor-level evaluation.

All of the proposed corridor alternates begin with a new interchange at the Louie B. Nunn (Cumberland) Parkway, west of Somerset. The north, middle and south alternates S-1, S-2 and S-4 are routed north of Somerset and share common segments with KY 80, east of Somerset. The S-3 corridor begins west of Somerset and proceeds to the south side of Somerset until it becomes common with S-1, near Mt. Victory. The north alternates tend to parallel KY 80; the middle alternate is a direct link from Somerset to London; and the south alternates closely follow the existing KY 192 highway corridor.




**Study Corridors**

N-1 and M-1 cross I-75 south of London near the London-Corbin Airport and end at the Daniel Boone Parkway, approximately 1.5 miles east of KY 192. The N-2 and N-3 corridors cross I-75 and US 25 approximately one mile north of Exit 41, north of London. S-1 and S-3, along with N-4, cross I-75 approximately one mile north of the existing weigh stations and continue northeasterly to the Daniel Boone Parkway ending at KY 488, approximately 1.5 miles east of the London Toll Plaza. The S-2 corridor crosses I-75 south of the existing weigh stations and ends at the Daniel Boone Parkway near KY 488. S-4 crosses I-75 near Pine Grove and becomes common with both the north and middle alternates near the London-Corbin Airport.

The following are general descriptions of each corridor alternative:

- *North Alternate Corridor No. 1 (N-1)*

  The N-1 alternate is approximately 39.0 miles in length. It begins at the Louie B. Nunn (Cumberland) Parkway and ends at the Daniel Boone Parkway east of KY 192. N-1 is common with all the corridors except S-3 until intersecting with KY 80. Moving eastward, this corridor crosses the Rockcastle River at the existing KY 80 location and then crosses KY 192, I-75, US 25, KY 229 and KY 80.

- *North Alternate Corridor No. 2 (N-2)*

  About 41.5 miles in length, N-2 is common with N-1 to a point near the community of Acorn. The corridor proceeds in a northeasterly direction, crossing both old and new KY 80, I-75 north of Pittsburg, and KY 1225. N-2 ends at the Daniel Boone Parkway east of KY 192. Note that about three miles of this corridor is in Rockcastle County. This corridor provides access around the north side of London and avoids directly crossing within the state-designated Wild River boundary of the Rockcastle River.

- *North Alternate Corridor No. 3 (N-3)*

  The N-3 alternate is approximately 40.0 miles in length. It begins at the Louie B. Nunn (Cumberland) Parkway and ends at the Daniel Boone Parkway east of KY 192. The N-3 alternate is common with N-1 to a point just east of the Rockcastle River where it parallels the existing KY 80 route and then turns east near Bernstadt. N-3 also crosses the I-75 and US 25 corridors.

- *North Alternate Corridor No. 4 (N-4)*

  Approximately 43.2 miles in length, the N-4 corridor is common with N-1 and N-3 to the east side of the Rockcastle River. At this point, the corridor then continues southeast toward Pine Grove, crossing KY 192, I-75, US 25, KY 229 and KY 80 before ending at the Daniel Boone Parkway east of Brock.

- *Middle Alternate Corridor No. 1 (M-1)*

  The M-1 alternate is about 39.1 miles in length. It begins at the Louie B. Nunn (Cumberland) Parkway, following the north alternates to the first intersection with KY 80. At this point, the corridor continues south and east across the study area, passing north of the communities of Dykes, Goodwater and Pine Grove. M-1 crosses the KY 1003, KY 192, I-75, US 25, KY 229 and KY 80 corridors before meeting the Daniel Boone Parkway west of Brock.

- *South Alternate Corridor No. 1 (S-1)*

  About 45.6 miles in length, the S-1 alternate begins at the Louie B. Nunn (Cumberland) Parkway, and is common with the north alternates to the first intersection with KY 80. The corridor then proceeds southeast and crosses the KY 192 corridor several times. S-1 also crosses KY 1193 near Baldrock, KY 312 near Hightop, and KY 192 just south of Pine Grove. After crossing I-75, US 25, KY 229 and KY 80, S-1 ends at the Daniel Boone Parkway near KY 488, about 1.5 miles east of the London Toll Plaza.

- *South Alternate Corridor No. 2 (S-2)*

  The S-2 corridor is approximately 46.5 miles in length and is common with S-1 to Cane Branch in Laurel County. S-2 then crosses I-75 south of the existing weigh stations. The alternate then proceeds east, crossing the Little Laurel River and I-75, between the Laurel Ridge Landfill, near Lily. S-2 continues easterly over the CSX railroad, Laurel River and US 25, and then proceeds northerly, from Robinson Creek, to just west of Boreing. This alternate becomes common with S-1 again at Lesbas.

- *South Alternate Alignment No. 3 (S-3)*

  The S-3 alternate is about 48.9 miles in length. It begins farther west on the Louie B. Nunn (Cumberland) Parkway than the other corridors, approximately 2.5 miles west of Fishing Creek. S-3 proceeds southeast around Somerset, crossing KY 80 and US 27 and then joins the S-1 corridor just north of Mount Victory.

- *South Alternate Alignment No. 4 (S-4)*

  About 42.9 miles in length, the S-4 corridor is common with S-1 to a point approximately 5000 feet west of Pine Grove, near I-75. The corridor turns northeast to become common with the N-1 and M-1 corridors, terminating at the Daniel Boone Parkway, about 1.5 miles east of the KY 192 intersection.

The study alternates identified for evaluation in this report are intended to represent approximate locations of 2,000-foot corridors. Further discussion and analysis of these corridors is included in the remaining chapters of this report.