66 Corridor

Purpose and Need

Paducah, Kentucky to Interstate 55 in Missouri

Alexander, Union, Pulaski, Johnson, and Massac Counties in Illinois

Ballard and McCracken Counties in Kentucky

Cape Girardeau, Mississippi, and Scott Counties in Missouri

IDOT Region 5 / District 9

April 2014

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APPENDICES

I. STUDY CORRIDOR / STUDY AREA

The 66 Corridor study area covers approximately 2,500 square miles in portions of Alexander, Union, Pulaski, Johnson, and Massac Counties in Illinois, Ballard and McCracken Counties in Kentucky; and Cape Girardeau, Mississippi, and Scott Counties in Missouri. Please see Figure 1 for the Study Area Map. The 66 Corridor Study is being conducted to evaluate the need for a new transportation facility between Paducah, Kentucky and I-55 in Missouri.

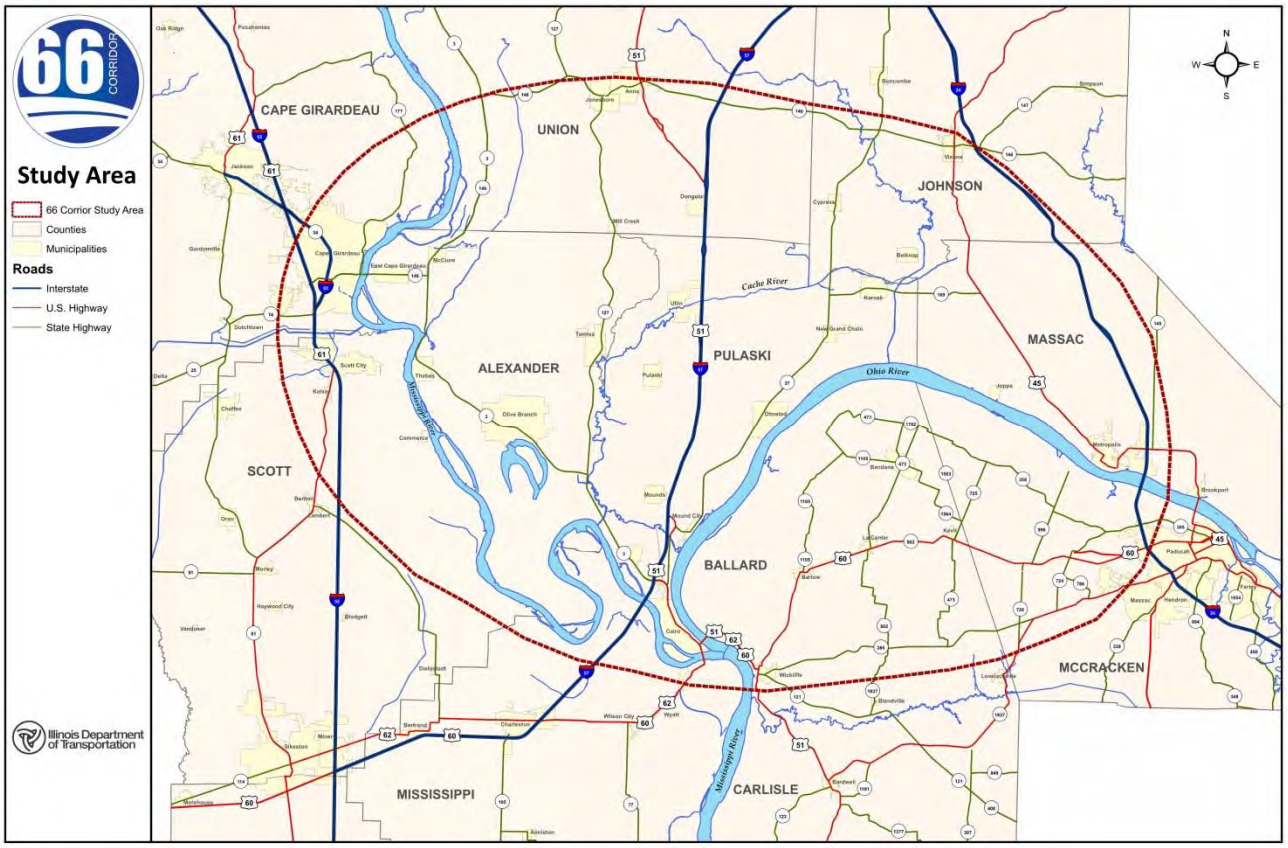

Figure 1: Study Area Map

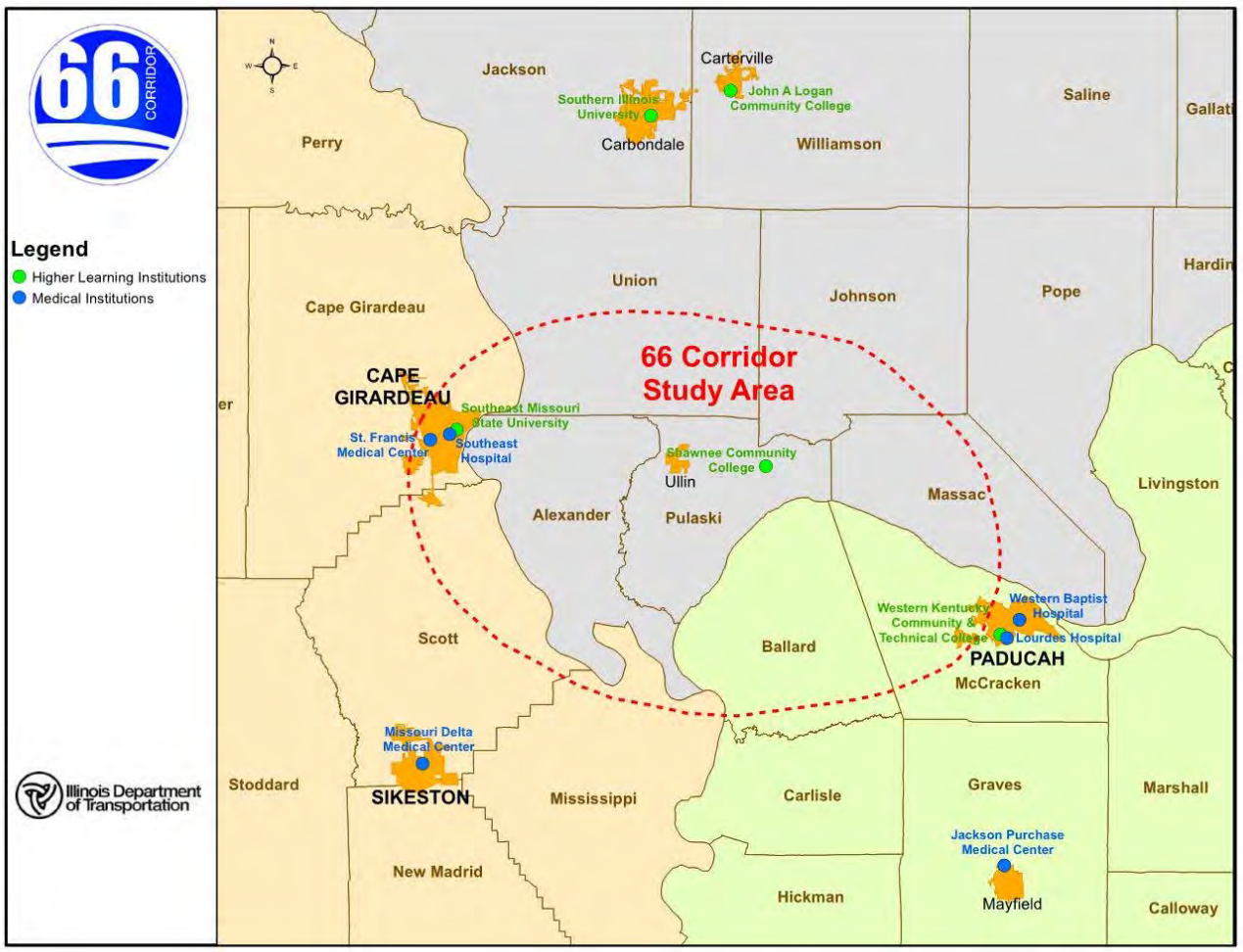

Figure 2: Study Area Attractors

II. PROJECT HISTORY

The 66 Corridor Study grew out of an extensive series of government actions and studies (both federal and state) dating back to 1991. In 1991, the Federal Transportation Bill: "Intermodal Surface Transportation Efficiency Act (ISTEA)" designated a series of high priority corridors. The 66 Corridor Study corresponds to Corridor 3 identified in ISTEA.

The current definition of Corridor 3 is as follows:

> "East-West Transamerica Corridor commencing on the Atlantic Coast in the Hampton Roads area going westward across Virginia to the vicinity of Lynchburg, Virginia, continuing west to serve Roanoke and then to a West Virginia corridor centered around Beckley to Welch as part of the Coalfields Expressway described in section 1069(v), then to Williamson sharing a common corridor with the I-73/74 Corridor (referred to in item 12 of the table contained in subsection (f)), then to a Kentucky Corridor centered on the cities of Pikeville, Jenkins, Hazard, London, Somerset; then generally following the

> Louie B. Nunn Parkway corridor [I-66] from Somerset to Columbia, to I-65; then to Bowling Green, Hopkinsville, Benton, and Paducah, into Illinois, and into Missouri and exiting western Missouri and moving westward across southern Kansas."[1]

In addition, several state transportation policies pertain to the development of the 66 Corridor Study. A *Project History Statement* (Appendix 1) has been prepared for the 66 Corridor Study to document the detailed history of policy development.

The fundamental framework of the Purpose and Need for the 66 Corridor Study are these federal and state actions and studies, and their resulting policies. Each provided essential guidance in terms of the 66 Corridor Study purpose and goals.

The subsequent sections summarize the history of the 66 Corridor Study which includes federal legislation and policies, as well as statewide transportation policies for Illinois, Kentucky and Missouri.

A. Federal Legislation and Policies

The original Congressional Corridor 3 designation, assigned during ISTEA, has been continued and/or amended in 12 subsequent actions, most recently in the Federal Transportation Bill "Moving Ahead for Progress in the 21st Century Act (MAP-21)" in 2012.

The Department of Transportation and Related Agencies Appropriation Act of 2002 amended Section 1105(c) (3) of ISTEA to designate Corridor 3 within Kentucky (between Pikeville and Paducah) as I-66.

In 1994, the *East-West Transamerica Corridor Feasibility Study* commissioned by FHWA found that while the entire national corridor (Corridor 3) did not meet the study's economic feasibility criteria, further analyses could determine that sections are feasible from a state or regional perspective.

Between 1997 and 2005, the Kentucky Transportation Cabinet (KYTC) prepared several regional studies, as envisioned by the 1994 national study. The most recent of these was the *I-66 Corridor Study, Western Kentucky to Missouri (2005)*. This study recommended further investigation of three corridors linking Paducah with I-55 in Missouri. These included two alternatives (Alternatives 8b and 11) crossing the Mississippi River at the same location near

[1] Description quoted from http://www.fhwa.dot.gov/planning/national_highway_system/high_priority_corridors/hpcor.cfm, Nov. 5, 2013.

Wickcliffe, Kentucky and one alternative (Alternative 20) crossing the Mississippi River near Cape Girardeau.

In 2008, the Delta Regional Authority (DRA) published the *Multi-modal Transportation Assets, Needs and Recommendations Report.*[2] This report recommended (page 114) a "Phase I Engineering Study of a proposed I-66 segment between Paducah, Kentucky and Cape Girardeau, Missouri."

The current 66 Corridor Study was funded in 2011 through the DRA's *Delta Region Transportation Development Program*, following up on the recommendation of the DRA's 2008 report cited above.

The most recent milestones in the extensive history of federal legislation and policies leading to this present study were the DRA's 2008 report and the funding of this study through the DRA in 2011. The decisions reached at these milestones provide direction to the development of the Purpose and Need to the 66 Corridor Study.

B. Statewide Transportation Policies

Illinois

In December of 2012, the Illinois Department of Transportation (IDOT) released a new State Transportation Plan (*Plan*) titled *Transforming Transportation for Tomorrow*.[3] Chapter 3 of the *Plan*, "Policies, Goals and Action Plans," provided 11 goals for transportation planning in Illinois. The Summary of Chapter 3 states, "Fundamental policies and goals provide a framework to guide the development of annual and multi-year project programs by the Department as outlined in the State Transportation Plan." These officially-established statewide policies are to guide transportation planning activities within Illinois.

The 11 goals from the *Plan* are listed below (not in priority order):

1. Improve transportation safety
2. Provide a high degree of multi-modal connectivity
3. Provide for efficient freight movement
4. Integrate human capital into planning and programs
5. Preserve and manage the existing transportation system

[2] The DRA was established by Congress in the year 2000 to enhance economic development and improve the quality of life for residents of the Delta Region. The DRA includes 252 counties and parishes in 8 states; all counties in this project's Study Area are part of the DRA. SAFETEA-LU (2005) directed the DRA to conduct this study, and report its findings to Congress. The DRA website (www.dra.gov) states "The 252 counties and parishes served by the Delta Regional Authority make up the most distressed area of the country."

[3] The *Plan* is available at http://www.illinoistransportationplan.org/info_center/reports.aspx. This web location also includes supporting documents.

6. Address congestion through transportation operations
7. Follow a comprehensive transportation planning process
8. Provide stable funding for public transportation
9. Target transportation investments to support economic development
10. Integrate transportation with environmental, social, energy and land use considerations
11. Work with Homeland Security to provide secure transportation infrastructure

Of the 11 goals listed above, the following five pertain to the 66 Corridor Study:

1. Improve transportation safety.
2. Provide a high degree of multi-modal connectivity.
3. Provide for efficient freight movement.
4. Target transportation investments to support economic development.
5. Integrate transportation with environmental, social, energy, and land use considerations.

Missouri

The most recent Missouri Long-Range Transportation Plan (LRTP) was published in February, 2014. It is available at http://www.missouriontheMove.org/vision-for-the-future. This document was based upon a comprehensive community engagement initiative titled "On the Move." Key mechanisms in this process included visits to local venues (fairs, festivals, sporting events, truck stops, etc.), 17 "Listening Sessions" (with nearly 600 participants) across the state, and a virtual forum on MoDOT's "On the Move" website. Over 12,000 comments were received. The issues raised in these comments formed the basis of the new Long Range Plan, including four goals to guide transportation planning throughout Missouri. The Plan documents these four goals beginning on page 44. They are listed here.

1. Take care of the transportation system and services we enjoy today.
2. Keep all travelers safe, no matter the mode of transportation.
3. Give Missourians better transportation choices.
4. Invest in projects that spur economic growth and create jobs.

It also states on page 44, "Each of these four goals is important to Missouri's transportation success, but each is also intimately related to the others. A well-maintained system is safer to travel and means less injuries or fatalities. A safer system means more options for travelers. More options mean a more efficient system that better supports economic growth."

Of these four goals, the following two pertain most directly to the 66 Corridor Study:

1. Keep all travelers safe, no matter the mode of transportation.
2. Invest in projects that spur economic growth and create jobs.

Kentucky

The most recent Kentucky Long-Range Statewide Transportation Plan was published in April, 2007 (http://transportation.ky.gov/Planning/Documents/Statewide%20Plan.pdf). It lists three goals and objectives "to guide Kentucky's transportation system and project selection over the next twenty-five years…" The three goals are:

1. Safety and security
2. System preservation
3. Economic opportunity and mobility

Of the three goals listed above, the following two pertain to the 66 Corridor Study:

1. Safety and security
2. Economic opportunity and mobility

The determination of the relevant goals for the 66 Corridor Study is based upon the *Regional Transportation Needs Analysis (Appendix 2), the Regional Economic Needs Analysis (Appendix 3),* as well as input from government officials, regional economic development experts, business leaders, and other project stakeholders.

III. STAKEHOLDER AND AGENCY INPUT

The following paragraphs describe how stakeholder involvement through IDOT's Context Sensitive Solutions policy is being used to help develop the project Purpose and Need.

The 66 Corridor Study is being developed using IDOT's Context Sensitive Solutions (CSS) policy and the FHWA guidance under SAFETEA-LU legislation. The IDOT policy and FHWA guidance require early coordination with stakeholders to better understand their concerns and needs. By engaging stakeholders to determine what the community values are, the proposed transportation improvements not only solve the transportation needs but also fit into and reflect the project's surroundings – its "context." Stakeholder input has been sought in the development of the purpose and need and will continue to be sought throughout the duration of the 66 Corridor Study.

Using the CSS and SAFETEA-LU guidelines, a Community Advisory Group (CAG) has been formed for the 66 Corridor Study. A CAG is a group of stakeholders, each representing a larger group of stakeholders with specific concerns regarding a transportation project. They assist the Project Study Group (PSG) in defining the community context, assisting in the development of the study's Problem Statement, formulating transportation planning goals

and objectives, evaluating alternative plans, selecting a recommended course of action, and setting priorities of community values. The CAG is an advisory group and is responsible for gathering concerns from their respective groups and sharing those concerns at CAG meetings. In addition, they are responsible for disseminating information back to their respective groups regarding project development.

While working with the CAG on the 66 Corridor project, consensus was achieved on the following problem statement:

> "*There is no efficient east/west corridor between I-24 and I-55 through southern Illinois that adequately and safely connects multi-modal routes while providing access through an economically challenged area in an environmentally sensitive region."*

Input received from stakeholders to date is summarized in the *Regional Transportation Need Analysis* (Appendix 2) and *Regional Economic Needs Analysis* (Appendix 3). The details of this input will be provided in the "Comments and Coordination" chapter of the EIS, with individual meeting summaries and correspondence provided in appropriate appendices.[4] This section summarizes key issues to date. This section will be updated as additional stakeholder and agency comments are received. Key issues identified to date by stakeholders (including government officials, economic development professionals, and business leaders) include:

1. Accessibility Needs

    a. Better access is needed to urban areas.
    b. Connections between Paducah and/or Cape Girardeau/Sikeston should be improved.
    c. Better access is needed to major medical facilities in urban areas.
    d. Better access is needed to employment concentrations in urban areas.
    e. Better access is needed to higher education from the Study Area.
    f. Improved east-west access is needed within the Study Area; existing highways (in particular, I-24, I-55 and I-57) provide good north-south access.

2. Safety Needs

    a. East-west roadways in the Illinois portion of the Study Area are less safe than roadways serving other traffic patterns.

[4] IDOT's Design Manual (Chapter 25) specifies the contents of EIS's. It specifies one of the EIS chapters is entitled "Comments and Coordination." (Manual, Section 25-3.03).

b. Crashes in Southern Illinois disrupt freight deliveries and make shipping times unreliable.
c. Direct roads between Cape Girardeau and I-24 are less safe than indirect roadways, especially for truck travel.

3. Economic Development Needs

a. *There is a need for significantly-improved east-west access in the Study Area.* The majority of those interviewed cited this point. Sub-points to this main theme included:
   - East-west roads in the region offer slow and undependable travel.
   - The lack of adequate east-west roads discourages new business investment and business expansion.
   - The lack of adequate east-west roads imposes added shipping costs to existing businesses.
   - This need for improved east-west access extends to points south of Illinois.
   - Lack of east-west access affects local business throughout Southern Illinois.
   - Improved east-west access will make higher education more available.

b. There is a significant opportunity for improved transportation to support increased tourism.
   - Casinos and parks in the Metropolis/Paducah region would have increased business with better east-west access.
   - There is a significant opportunity to support tourism throughout the region.

c. Better highway access will allow the region to take advantage of increased intermodal opportunities.
   - The Panama Canal expansion will bring much larger barge shipments to the region.
   - There is a general need for improved intermodal connections at river ports in the region.

d. Better access to urban areas would support economic development in multiple ways.
   - Improved access to urban areas will help the region retain its labor force.
   - Urban employers would benefit from access to a larger labor pool.
   - Real estate values increase significantly within about 30 minutes travel of urban areas.

e. The Ohio and Mississippi River Bridges at Cairo are significant constraints to economic activity.
   - These bridges are subject to frequent delays and closures.
   - Alternatives to using these bridges are very undesirable.
   - A new Kentucky to Missouri crossing south of Cairo would alleviate many of the issues associated with the existing crossings at Cairo.

IV. NEEDS ASSESSMENTS

The primary need within the 66 Corridor Study Area is an improved transportation linkage/connectivity between Paducah, Kentucky and I-55 in Missouri.

A. System Linkage/Connectivity – Accessibility Between Paducah and I-55
B. System Linkage/Connectivity – Regional Accessibility to Urban Areas, Medical Care and Higher Education

The details of the analyses regarding the Points A and B are found in the *Regional Transportation Needs Analysis* (Appendix 2).

A. System Linkage/Connectivity – Accessibility Between Paducah and I-55

Accessibility between Paducah, Kentucky and I-55 in Cape Girardeau, Missouri and between Paducah, Kentucky and I-55 in Sikeston, Missouri are two unique situations of regional accessibility. These three urban areas are centers of employment, business, cultural and recreation activities. Due to the context of each of these communities and the proximity between them, there are opportunities for economic interactions among the three urban areas. This was cited several times during interviews with government officials, regional economic development experts, and business leaders. (Section III –Stakeholder and Agency Input). Sikeston and Cape Girardeau already are connected by a freeway (I-55), which provides a high level of accessibility.

Accessibility between Paducah – Cape Girardeau and Paducah – Sikeston is measured as the difference and ratio between the existing travel times (as calculated by the 66 Corridor travel demand model) and an "ideal" travel time. Given the low levels of congestion in the Study Area, free flow travel times (in the absence of congestion) are used to measure existing travel times. The "ideal" travel times are calculated as the straight-line travel time ("as the crow flies") between the two city centers, traveling at either 55 mph or 70 mph.[5] These times are calculated between the Traffic Analysis Zones (TAZs) which are selected to represent the center of each urban area.

B. System Linkage/Connectivity – Regional Accessibility to Urban Areas, Medical Care and Higher Education

The concept of regional accessibility refers to the ease with which residents of a particular region can travel to population and employment centers and other types of attractions (e.g., health care facilities, educational institutions, airports, cultural events, and major retail

[5] These speeds are selected as representing the posted speed limits on a high-classification rural road and a rural freeway/interstate highway, respectively.

shopping). Nearly all stakeholders[6] indicated that increases in regional accessibility are needed within the Study Area. Regional access can be assessed by focusing on a specific type of facility (e.g., major hospitals) or distance to urban areas (which contain all or nearly all of these types of attractions). Both approaches to measuring regional accessibility are used in *the Regional Transportation Needs Assessment (Appendix 2)*.

Table 1 depicts both the number and percentage of Study Area residents with access to each type of resource in the base year (2010) of the analysis. Results are shown for each portion of the Study Area within each state as well as the Study Area as a whole. Figure 2 shows the location of these regional attractors in relation to the Study Area.

Table 1 - Regional Accessibility Measures - Year 2010 No Build

	Population with 30 minute access to urban area*		Population with 30 minute access to full-service medical facility		Population with 30 minute access to college or university	
Part of Study Area	**Number of People**	**% of Population**	**Number of People**	**% of Population**	**Number of People**	**% of Population**
Illinois Counties	15,794	26.2	16,960	28.2	36,390	60.4
Kentucky Counties	66,574	90.2	67,996	92.1	70,190	95.1
Missouri Counties	113,287	87.8	115,630	89.5	81.463	63.0
Total Study Area	**195,655**	**74.3**	**200,586**	**76.2**	**188,043**	**71.4**

* Defined as %'s of population within 30 minutes of urban cores of Cape Girardeau (Model TAZ 476), Sikeston (Model TAZ 212) or Paducah (Model TAZ 1708)

This analysis shows overall relatively high levels of accessibility within the Kentucky and Missouri portions of the Study Area to urban areas and medical facilities. The Kentucky and Missouri portions of the Study Area have high and moderate access (respectively) to higher education. The Illinois portion of the Study Area has moderate access to higher education, and low access to urban areas and medical facilities. In summary, there is a substantial need for improved accessibility within the Illinois portion of the Study Area. The Kentucky portion of the Study Area already enjoys a high level of accessibility, and the Missouri portion of the Study Area enjoys a relatively high to moderate level of accessibility.

[6] See Appendix 3, Regional Economic Needs Analysis, Sections 2.1 through 2.20. Eighteen (18) of the 20 stakeholder interviews summarized here cited the need for increased regional accessibility.

V. SECONDARY NEEDS

The following two secondary needs would be addressed by satisfying the primary need of providing system linkage/connectivity.

A. System Linkage/Connectivity – Regional Safety
B. System Linkage/Connectivity – Economic Development

The details of the analyses regarding Points A and B are found in the *Regional Transportation Needs Analysis* (Appendix 2) and the *Regional Economic Needs Analysis* (Appendix 3).

A. System Linkage/Connectivity – Regional Safety

An analysis of safety at the county level within the Study Area was conducted and is documented in the *Regional Transportation Needs Analysis* (Appendix 2). Improved traffic safety is a secondary need to system linkage – the lack of appropriate system linkages results in increased numbers of crashes described in Appendix 2.

Published IDOT crash data and travel statistics were analyzed to compare the level of crashes in the Study Area with those found in other comparable rural counties within Illinois. This analysis indicated five counties in the Illinois portion of the Study Area have a substantially higher rate of injury and fatal crashes than its statewide peer group. If fatalities and injuries occurred in the Illinois Study Area counties at the same rate as in the peer counties, an average of 361 highway-related injuries and deaths per year would have been anticipated during the analysis period. Actual observed highway-related injuries and deaths were 455 per year (an additional 94), 26% higher than the peer group rate would predict. These additional 94 crashes each year have a user cost of $22 million annually.

Crash statistics in Kentucky are grouped by county into four categories:

1. Total crash rates, all roads
2. Total crash rates, state-maintained roads
3. Injury/fatal crash rates, all roads
4. Fatal crash rates all roads

Ballard County ranks third in total crashes, all roads; total crashes, state-maintained roads and second in injury/fatal crash rates, all roads. McCracken County ranks third in injury/fatal crash rates, all roads.

Based on the analysis, there is a need to improve safety in the Illinois and Kentucky portions of the Study Area. Any analysis of the safety benefits of project alternatives will calculate

safety benefits in all counties in the Study Area, whether they are in Missouri, Kentucky or Illinois.

The system-wide approach to this safety analysis captures the substantial safety benefits of providing a higher-classification facility which has the potential to divert travel from literally hundreds of other links in the highway network. A net effect of improved system linkage can be to reduce the incidence of crashes across a wide geographic area (the Study Area). Further, the Study Area has been found to have substantial safety issues. The technical tools used to analyze the safety benefits of project alternatives will assess the safety-related benefits of improved system linkage throughout the 10-county study area during the alternative analysis portion of the 66 Corridor Study.

B. System Linkage/Connectivity – Economic Development

A *Regional Economic Needs Analysis* was prepared to support the project's Purpose and Need (Appendix 3). It documents statistical analyses of the recent data and long-term trends in six categories of economic need. It also summarizes input from project stakeholders (including government officials, economic development professionals, and business leaders) pertinent to each category of transportation need. The stakeholder input is summarized in Section III –Stakeholder Agency Input. The need for economic development is a secondary need to improved system linkage – the lack of system appropriate transportation linkages is one factor in a depressed level of economic development described in Appendix 3- Regional Economic Needs Analysis.

The key findings of the *Regional Economic Needs Analysis* are summarized below, organized by category.

Population Trends

Population in the Study Area grew by 43% between 1950 and 2010. This is about one-third the rate of growth in Illinois, Kentucky and Missouri, and about one-seventh the national rate of growth. The rural counties in the Study Area (excluding Cape Girardeau County and McCracken County) decreased in population by 13.3% during this time. Three of these rural counties (Mississippi, Pulaski and Alexander) lost between 35% and 60% of their population between 1950 and 2010. These low increases and in many cases decreases in population over a prolonged period of time are an indicator of the substantial lack of economic opportunity in the Study Area.

Net Migration

There was a very small (-0.2%) net migration[7] from the Study Area as a whole between 2000 and 2010. This was more pronounced in the Study Area's rural portions, with net migration of -3.9% of the year 2000 population. This trend was especially pronounced in Alexander and Pulaski counties, where net migration was -14.8% and -15.2%, respectively, of the year 2000 population. In both these counties, more than one person in seven who resided there in the year 2000 left over the next decade. This degree of migration out of the rural Study Area counties is indicative of a substantial lack of economic opportunities.

Employment

Long term employment trends in the Study Area track with long-term statewide trends. However, in the eight rural counties of the Study Area, long-term employment growth is only a fraction of statewide levels; three of the eight rural counties (Alexander, Pulaski and Mississippi) actually have lost employment over the last 40 years. In the most recent decade, the Study Area, especially the rural counties, was hard hit with job losses. The rural counties as a whole lost more than one job in 12 (of those which existed in the Year 2000) by 2010. Four of the rural Study Area counties lost more than 10% of their jobs between 2000 and 2010.

Unemployment

In the Year 2000, unemployment rates in the Study Area generally tracked with national and statewide rates. By 2010, while this continued to be the case for the Study Area as a whole, several rural counties (most notably Pulaski, Alexander and Mississippi) had unemployment rates substantially higher than national or statewide rates.

Per Capita Income

All Study Area counties (especially the rural counties) lag substantially behind national rates of per capita income. In 2010, these rural counties had per capita income between $5,900 and $13,500 below the national average. In both 1970 and 2010, all Illinois and Missouri Study Area counties lagged behind statewide averages for per capita income.

[7] Negative migration is a measure of "outmigration," with more residents leaving a particular area than moving into that same area.

Poverty

In 2010, three of the Study Area counties (Pulaski, Union and Mississippi) had poverty rates at least 50% greater than the national average of 13.8%. A fourth county (Alexander) also had a poverty rate of over 20%.

Summary

As measured by a broad range of demographic and economic data, the Study Area, and in particular its eight rural counties (Massac, Pulaski, Alexander, Union and Johnson counties in Illinois, Ballard county in Kentucky and Mississippi and Scott counties in Missouri), are economically disadvantaged. This is especially evident for three of the counties (Alexander and Pulaski in Illinois, and Mississippi in Missouri).

Improved transportation system linkages can play an important role in supporting economic development by:

1. Providing accessibility of employers to larger labor markets (lowering labor costs).
2. Providing accessibility of retail businesses to more population (customers).
3. Providing accessibility of businesses to more suppliers (lowering input costs).
4. Providing accessibility of businesses to more business customers (increasing revenues).
5. Lowering transportation costs (affecting different types of businesses to varying degrees), thereby allowing businesses to increase profits and/or sales.
6. Increasing consumer disposable incomes (through increased wages and reductions in out-of-pocket transportation costs).
7. Increased capital available to businesses (through increased consumer savings).
8. Increasing access to ports and rail multi-modal centers for shipments such as agricultural commodities, fuel, building materials, etc.

Many project stakeholders identified improved transportation system linkages as necessary to support economic development within the Study Area.

There are also non-highway factors that can either limit or facilitate economic development. These factors can limit the extent to which transportation improvements will lead to economic development within the Study Area.

Key non-highway factors include:

1. Adequacy of existing freight rail service
   a. Rail coverage
   b. Freight rail costs
   c. Short line maintenance
2. Labor force characteristics
   a. Population educational levels

   b. Labor force size
   c. Educational resources
3. Regional cooperation and marketing
4. Utility availability/costs
   a. Power/electrical
   b. Natural Gas
   c. Sewer/water
5. Developable land
   a. Local zoning/regulations
   b. Availability of water/sewer

The alternatives analysis phase of this project will use the TREDIS® tool to quantify the comparative economic benefits of alternatives. TREDIS® is a transportation economics suite - a decision support system for transportation planners that spans economic impact, benefit-cost, fiscal (tax) and public-private financial analysis. This tool accounts for the effects of both highway and non-highway components of economic development. Detailed information is available at www.tredis.com.

VI. 66 CORRIDOR STUDY PURPOSE AND NEED

The purpose of the 66 Corridor Study is to improve system linkage/connectivity between Paducah, Kentucky and I-55 in Missouri to:

1. Increase transportation linkage/accessibility between Paducah, Kentucky and I-55 in Missouri;
2. Increase transportation linkage/regional accessibility to urban areas, medical care and higher education;

Secondly, improving system linkage/connectivity between Paducah, Kentucky and I-55 in Missouri can:

1. Improve regional traffic safety through improved transportation linkage; and
2. Support economic development in the Study Area through improved transportation linkage.

66 Corridor

Appendix 1- Project History Statement

Paducah, Kentucky to Interstate 55 in Missouri

Alexander, Union, Pulaski, Johnson, and Massac Counties in Illinois

Ballard and McCracken Counties in Kentucky

Cape Girardeau, Mississippi, and Scott Counties in Missouri

IDOT Region 5 / District 9

April 2014

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NATIONAL LEGISLATIVE BACKGROUND

Beginning with the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), corridors have been designated in Federal transportation legislation as high priority corridors on the National Highway System (NHS) for inclusion in the NHS as specific routes or general corridors. The ISTEA designated 21 corridors. Subsequent legislation added additional corridors and by the end of 2005, there were over 80 such corridors (including corridors that are subsumed or partly subsumed in other high priority corridors.)[1]

Figure 1 shows these Congressional High Priority Corridors.

The 66 Corridor project corresponds to part of Corridor 3, which was originally identified in ISTEA (P.L. 102-240 Section 1105). This original designation of Congressional High Priority Corridors has been amended 12 times, most recently by Moving Ahead for Progress in the 21st Century Act (MAP–21), (P.L. 112-141, Section 1104).

The current definition of Corridor 3 is as follows:

> "East-West Transamerica Corridor commencing on the Atlantic Coast in the Hampton Roads area going westward across Virginia to the vicinity of Lynchburg, Virginia, continuing west to serve Roanoke and then to a West Virginia corridor centered around Beckley to Welch as part of the Coalfields Expressway described in section 1069(v), then to Williamson sharing a common corridor with the I-73/74 Corridor (referred to in item 12 of the table contained in subsection (f)), then to a Kentucky Corridor centered on the cities of Pikeville, Jenkins, Hazard, London, Somerset; then generally following the Louie B. Nunn Parkway corridor [I-66] from Somerset to Columbia, to I-65; then to Bowling Green, Hopkinsville, Benton, and Paducah, into Illinois, and into Missouri and exiting western Missouri and moving westward across southern Kansas."[2]

The Department of Transportation and Related Agencies Appropriation Act of 2002 amended Section 1105(c)(3) of ISTEA to designate Corridor 3 within Kentucky (between Pikeville and Paducah as I-66.[3] Other portions of Corridor 3 may or may not be constructed as Interstate

[1] Description quoted from http://www.fhwa.dot.gov/planning/national_highway_system/high_priority_corridors/, Nov. 5, 2013.
[2] Description quoted from http://www.fhwa.dot.gov/planning/national_highway_system/high_priority_corridors/hpcor.cfm, Nov. 5, 2013.
[3] This designation of the Kentucky portion of Corridor 3 as I-66 is documented at http://www.fhwa.dot.gov/planning/national_highway_system/high_priority_corridors/hpcfitext.cfm, accessed Nov. 5, 2013.

highways. Figure 2 shows those Congressional High Priority Corridors which have been designated for Interstate status.

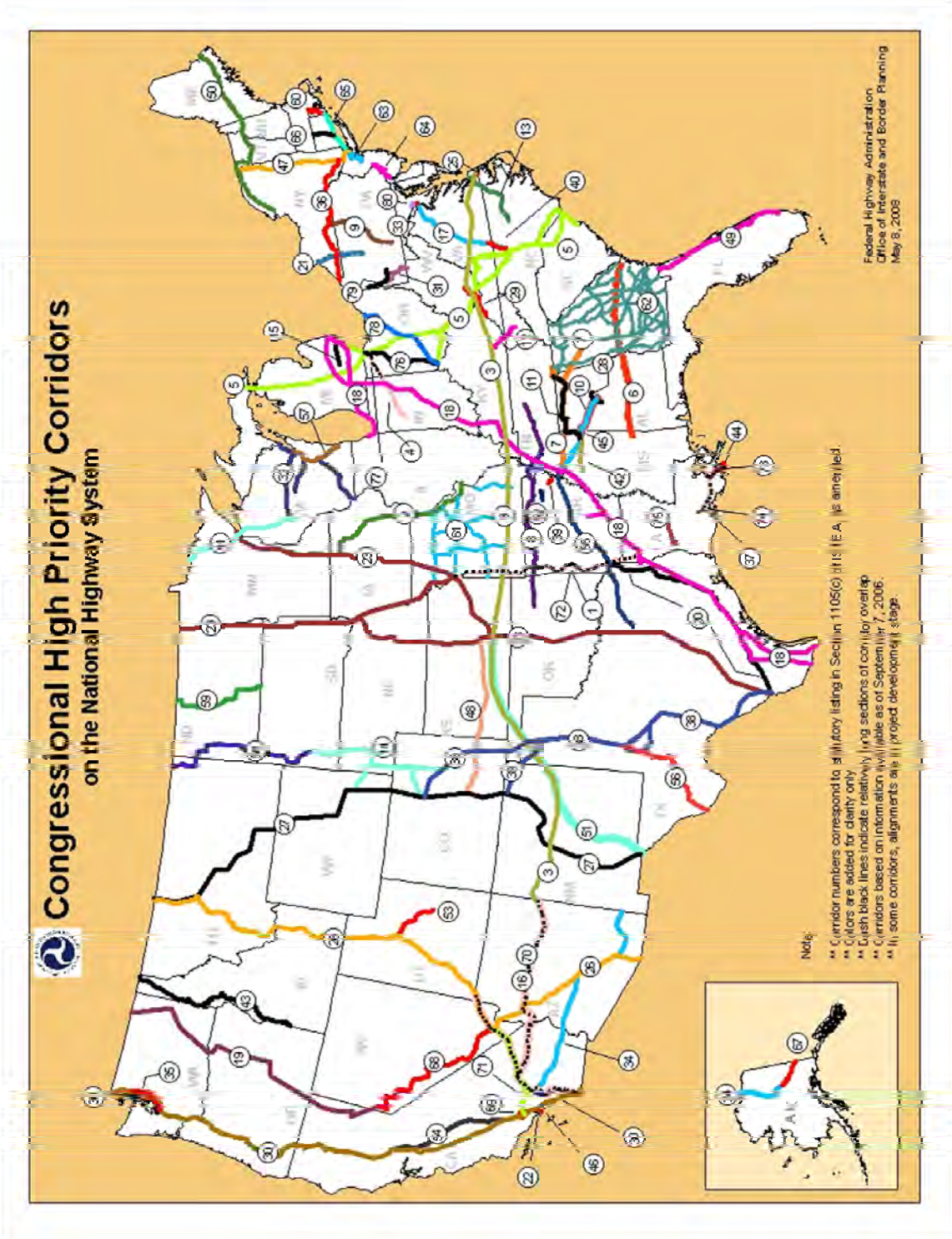

Figure 1 – Congressional High Priority Corridors on the National Highway System
Downloaded from http://www.fhwa.dot.gov/planning/national_highway_system/high_priority_corridors/hiprimap.cfm, Nov. 5, 2013. FHWA web page states: "Some corridors subject to subsequent adjustment where statutory description is general."

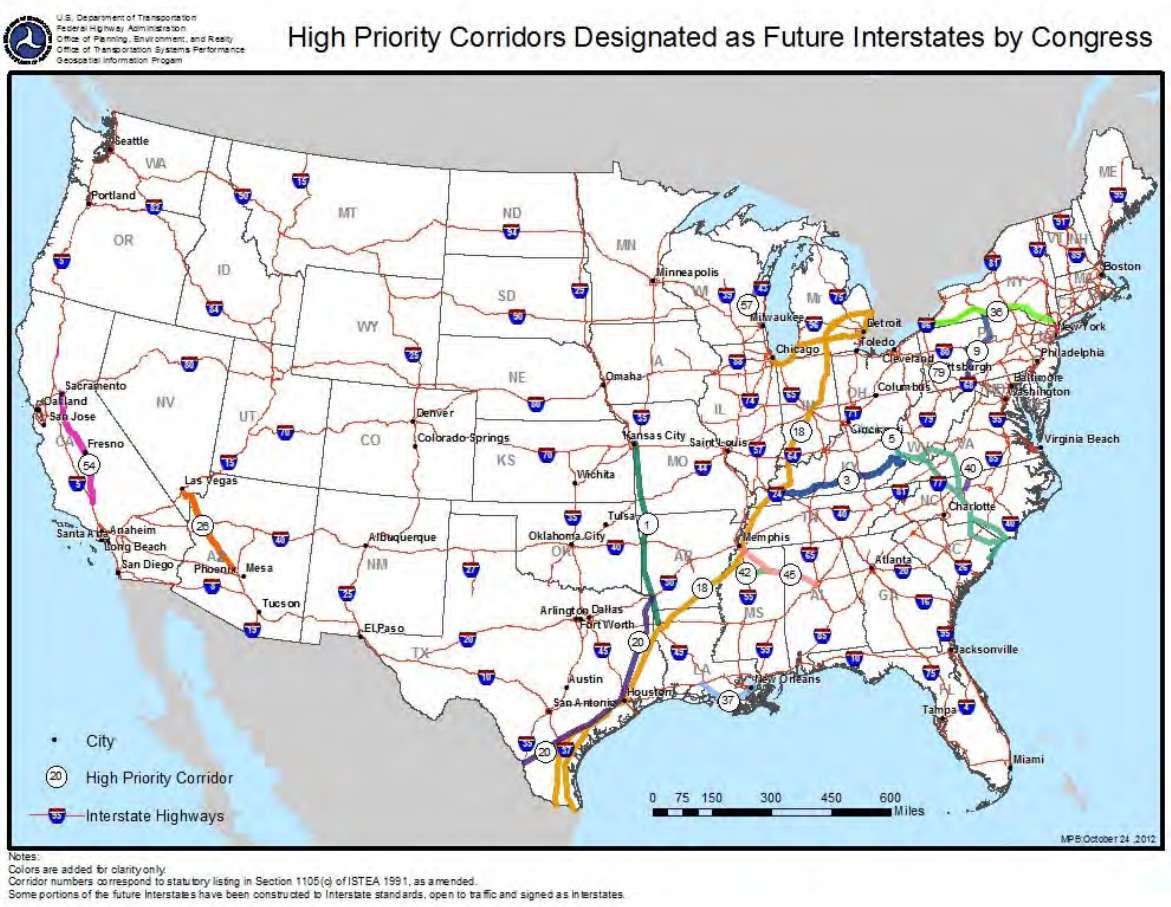

Figure 2 – High Priority Corridors Designated as Future Interstates by Congress[4]

TRANSAMERICA TRANSPORTATION CORRIDOR FEASIBILITY STUDY

As a result of the ISTEA legislation, consultants Wilbur Smith Associates (WSA) and Howard, Needles,Tammen and Bergendoff (HNTB) were selected in 1992 to conduct a national East-West Transamerica Corridor Feasibility Study. In this study, indicators of feasibility for the corridor included:[5]

- Engineering feasibility (constructability and cost);
- Economic feasibility (efficiency, productivity and development);
- Financial feasibility (costs, revenues and funding);
- Implications (environmental, energy, safety and demographic);
- Need (passenger and freight utilization); and
- Institutional feasibility (legal, legislative and public policy).

[4] Downloaded from http://www.fhwa.dot.gov/planning/national_highway_system/high_priority_corridors/hbcfilg.cfm, Nov. 5, 2013.

[5] Following the 1994 national East-West Transamerica Corridor Feasibility Study, which stated that some segments of the corridor were feasible from a state or regional perspective, the Kentucky Transportation Cabinet undertook studies of several such segments of Corridor 3. These studies are documented in this project history as antecedents to the present IDOT study.

A Steering Committee consisting of representatives of eleven states and the Federal Highway Administration (FHWA) provided technical direction to the study while the Missouri Highway and Transportation Department served as administrative agent. This study, titled the "Transamerica Transportation Corridor Feasibility Study," was completed in 1994. While this study concluded that the entire coast-to-coast corridor did not meet the economic feasibility criteria established for the study, it did conclude that further analysis could find some segments of the corridor feasible from a state or regional perspective.

I-66 STUDIES (1997 – 2005)

The Kentucky Transportation Cabinet (KYTC) prepared several related studies to determine the economic feasibility of the Kentucky segments of Corridor 3/I-66. These were released in March through May, 1997.

1. ***Project Cost Estimate: Southern Kentucky Corridor (I-66) Project.*** This report was prepared for the KYTC by the University of Kentucky, March 1997.
2. ***Economic Impact Assessment of a Southern Kentucky Corridor (I-66).*** This report was prepared for the KYTC by the University of Kentucky, April 1997.
3. ***Southern Kentucky Corridor (I-66): Economic Justification and Financial Feasibility***. This report was prepared for the KYTC by the Kentucky Transportation Center, May 1997.

These reports analyzed I-66 in four subsegments, as follows:

1. Kentucky/Missouri State Line to I-24;
2. I-24 to I-65;
3. I-65 to I-75; and
4. I-75 to Kentucky State Line with Virginia or West Virginia.

Figure 3 shows Corridor 3, with its division into these four segments. The studies analyzed each of the four segments by examining the travel demand, socio-economic conditions, cost benefit analysis and a financial feasibility analysis. They found that the construction of a new interstate along the Southern Kentucky corridor would provide positive benefits to the surrounding communities with a cost benefit ratio of more than 4.0 in some areas.

The financial analysis reviewed the existing funding commitments of the KYTC and determined that it would be challenging to construct a new interstate on new right of way. To finance a project of this magnitude, it would be necessary to receive designated funds from the federal government and/or raise additional revenues for the Kentucky Road Fund. The report found that it would be more feasible to construct the Southern Kentucky Corridor in smaller segments connecting major existing highways in separate priorities. The first priority

would be to construct a segment linking I-75 and I-65. The second would improve access between the Daniel Boone Parkway and the eastern State line. The third priority would be a segment from I-24 in Paducah to Wickliffe, with a short segment connecting to I-55 in Missouri. The final priority would be to upgrade existing parkways to interstate standards.

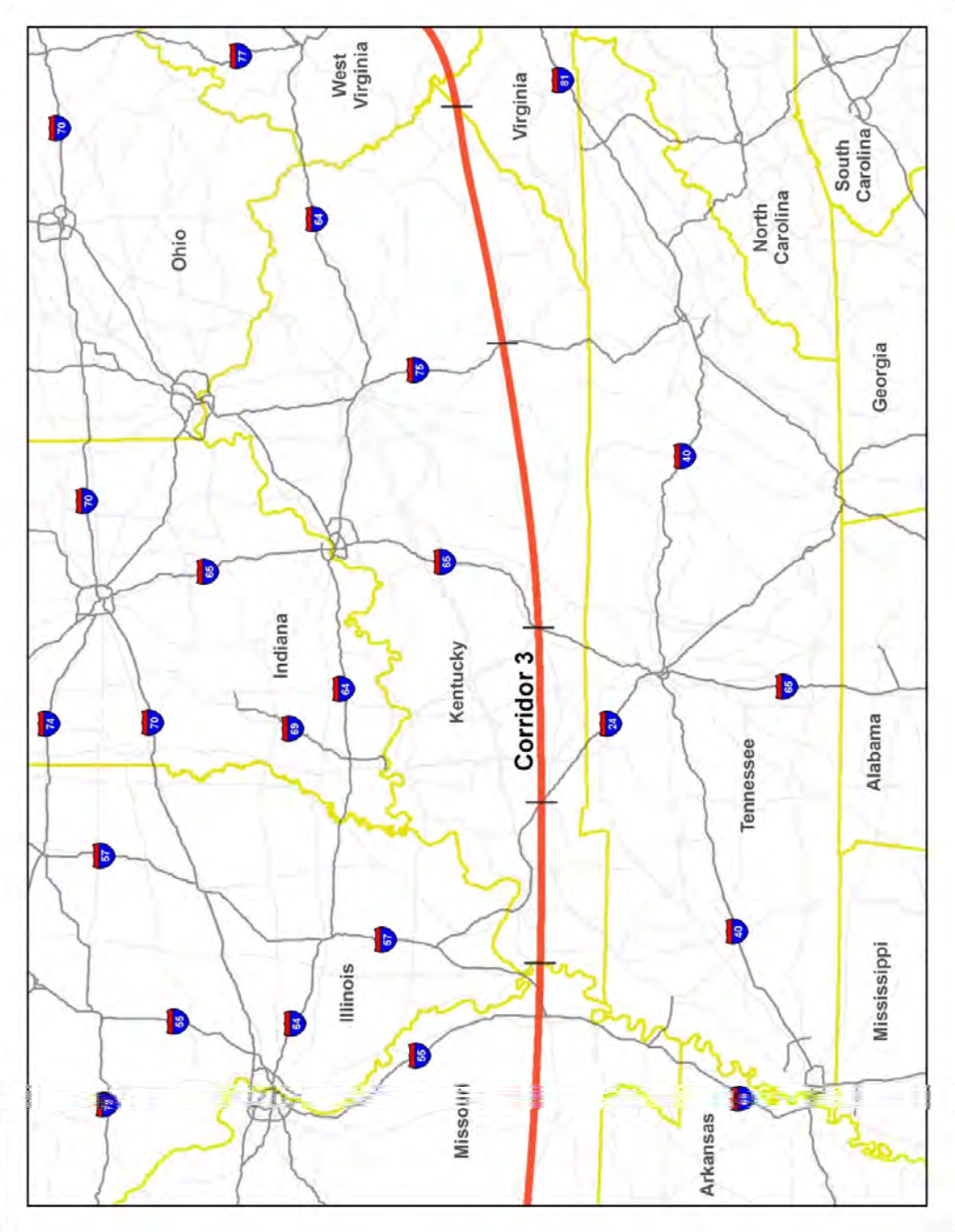

Figure 3 – Corridor 3/I-66 Analysis Segments, As Recommended by 1997 KYTC Feasibility Study

Wilbur Smith Associates prepared the ***I-66 Southern Kentucky Corridor between the Louie B. Nunn (Cumberland) and Daniel Boone Parkways: Pulaski and Laurel Counties***, published in the year 2000. This section of I-66 would provide a connection between the cities of Somerset and London, connecting the Louie B. Nunn Parkway at Somerset with the Daniel Boone Parkway (since renamed the Hal Rogers Parkway) at London. In combination with the Louie B. Nunn Parkway, this section of I-66 between Somerset and London would complete a continuous limited access highway between I-65 near Bowling Green and I-75 near London. This would correspond to the first priority section identified in the 1997 KYTC Economic Feasibility studies. The preferred corridor between Somerset and London was divided into five segments, which were assigned priorities 1 through 5.

Bernardin, Lochmueller and Associates prepared two concurrent studies in 2004, which would complete the westernmost section of the first priority segment identified in the 1997 KYTC Economic Feasibility Studies. They were as follows:

1. ***Planning Study – Southern Kentucky Corridor (I-66) Warren, Edmonson, Barren Counties.*** This study analyzed possible routes between Rocky Hill (on the Nunn Parkway) and Hadley (on the Natcher Parkway). Three corridors were recommended for further consideration; all of these would provide a bypass (which would be part of I-66) around Bowling Green either to the north or the south.
2. ***Planning Study – Bowling Green Outer Beltline.*** This study analyzed an outer beltline for Bowling Green, which has been proposed in planning studies dating back to 1972. Recommended corridors to the north of Bowling Green coincided with two corridors of the concurrent I-66 study. In addition, it recommended a corridor east of Bowling Green which connected I-65 northeast of Bowling Green with an extension of the Natcher Parkway south of Bowling Green. This corridor east of Bowling Green was not considered in the I-66 study.

Parsons-Brinckerhoff prepared the 2005 ***I-66 Corridor Study, Western Kentucky to Missouri***. This studied alternative routes for I-66 between Paducah and I-55 in Missouri. This corresponds to the third priority section identified in the 1997 KYTC Economic Feasibility studies. This study was managed by the KYTC in partnership with the Missouri Department of Transportation (MoDOT). The Illinois Department of Transportation (IDOT) had a minor level of participation near the close of this study.

This study formed a Project Work Group, consisting of state transportation officials in Kentucky and Missouri, as well as state and federal resource agencies. The Project Work

Group coordinated with local officials in Kentucky and Missouri to identify project goals. These goals (listed following the quote below) were described as follows:

> "While the project has developed some specific project issues and some specific project goals, there were close to, but not quite developed to the level of a full EIS-related Purpose and Need statement. Rather, they served as explained above, and are important in the context of setting the stage for future project development and documentation as the project's purpose and need – "little p and little n" (i.e. not the Purpose and Need statement). As such, they were and will be critical to future project development with regard to I-66 in western Kentucky."[6]

1. Identify a viable corridor(s) from I-24 in Western Kentucky to Missouri consistent with national and / or Kentucky legislation, previous national and Kentucky studies, and the goals of the Delta Commission, including improved access and mobility in depressed or impoverished regions
2. Maximize connectivity between Kentucky and Missouri
3. Stimulate the economic development potential in Western Kentucky and Southeastern Missouri
4. Accommodate increasing automobile and truck traffic
5. Improve traveler safety
6. Support completion of I-66 across southern Kentucky, providing system continuity from West Virginia to Missouri.

The study did not recommend a single alternative for to be carried further (e.g., into NEPA studies). It recognized the lack of federally-designated funding for this project, and the inability of KYTC (given available funding) to pursue a build option at that time (page ES 4). It concluded by stating its findings could be used (by KYTC, Missouri Department of Transportation (MoDOT) or Illinois Department of Transportation (IDOT)) to restart the project development activities. It recommended that under those circumstances, three of this study's corridors (8B, 11 and 20) "should be included" in any such study.[7] These corridors are shown on Figure 14 (page ES 6) of the study, which is reproduced as Figure 4 of this document. They are as follows:

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[6] Quoted from Final Report, Section 1.5 (Project Documentation), p. 5.

[7] It has been approximately a decade since this study was published. This current study focuses on southern Illinois, with participation by KYTC and MoDOT. These three alternatives will be considered in the screening/preliminary alternatives stage of this project. It is not assumed that all will be analyzed as alternatives carried forward for detailed study.

Since this 2005 study was completed, KYTC has undertaken other highway improvements to address transportation needs in the east-west corridor west of Paducah. The 2012 KYTC Six Year Highway Plan provides for right-of-way purchase and utility relocation for upgrading US 60 to 4 lanes for approximately 3.7 miles in western McCracken and eastern Ballard counties (http://transportation.ky.gov/Program-Management/Highway%20Plan/2012HighwayPlanProjectListing.pdf).

1. ***Alternative 8b.*** From I-24 west of Paducah, Kentucky, it continues along US 60 Corridor, turning south to a new Mississippi River crossing near Carlisle/Ballard county line. It continues in Missouri west and slightly to the north, connecting with I-57 north of Charleston.
2. ***Alternative 11.*** From I-24 south of Paducah, Kentucky, runs parallel to and 4 – 6 miles south of Alternative 8b on new terrain. It uses existing KY 286 alignment for several miles in eastern Ballard County. It joins Alternative 8b alignment at Ballard/Carlisle county line, and stays on Alternative 8b alignment to I-57.
3. ***Alternative 20.*** It is an "unspecified corridor" connecting I-24 north of Paducah (in Massac County, Illinois), continuing to I-55 with Cape Girardeau, Missouri. It is specified as requiring no new river crossing of Ohio or Mississippi River.

In summary, KYTC, at times in conjunction with MoDOT and IDOT, conducted several studies over the course of 8 years to advance the Corridor 3/I-66 project. By the middle of the previous decade, overall levels of funding available for transportation projects did not permit any of these studies to be advanced beyond the planning or scoping stages. Specifically, none of these efforts advanced to analysis which would address the requirements of the National Environmental Policy Act (NEPA).

The most recent study of I-66 in Western Kentucky anticipated that it could serve as a basis for one of the three state DOTs in the project area (IDOT, KYTC or MoDOT) to advance the project between Paducah, Kentucky and I-55 in Missouri to the NEPA phase.

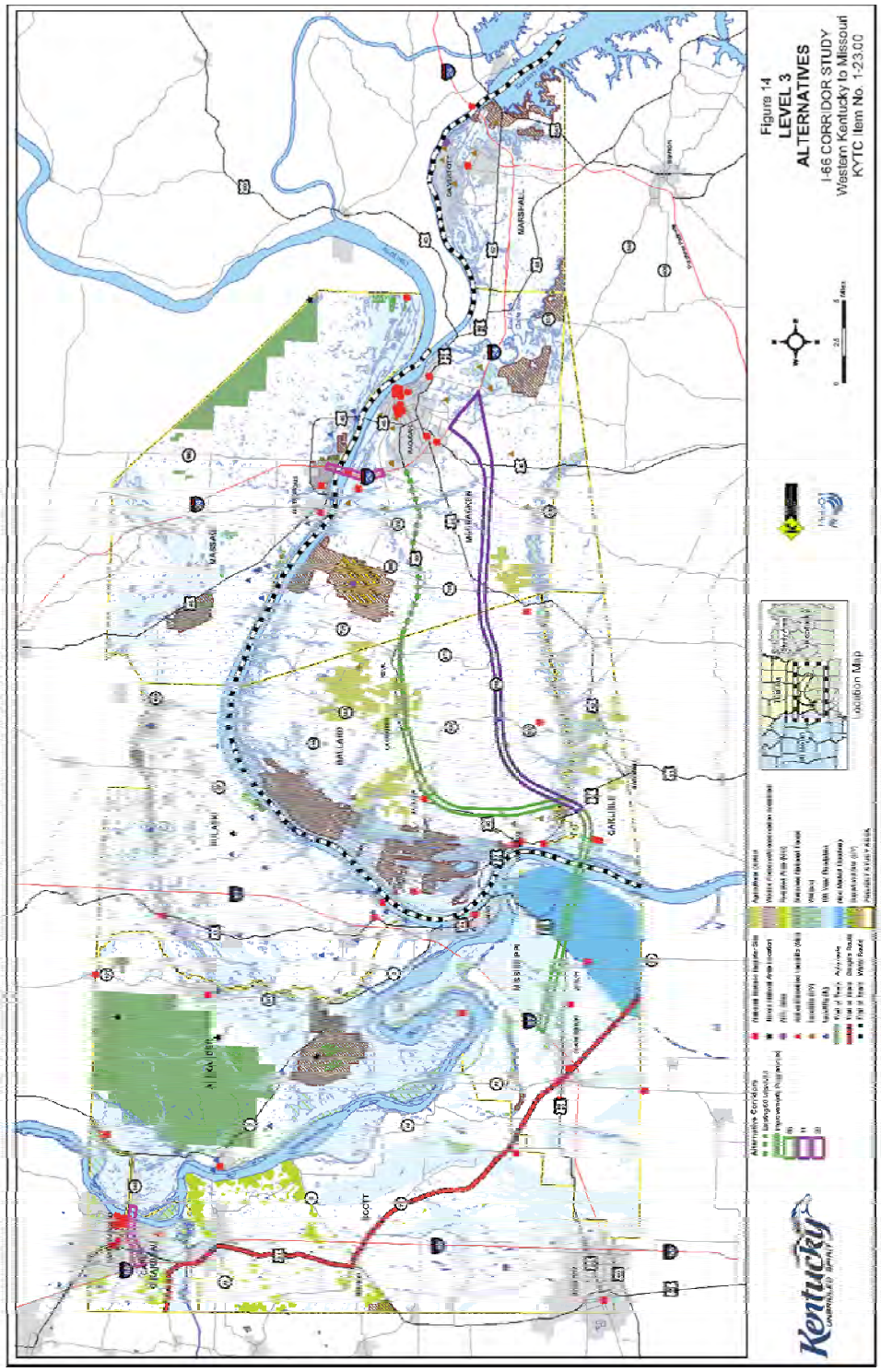


Figure 4 – Recommended Alternatives, *I-66 Corridor Study, Western Kentucky to Missouri (2005)*

DELTA REGIONAL AUTHORITY – MULTIMODAL TRANSPORTATION ASSETS, NEEDS AND RECOMMENDATIONS REPORT (2008)

The Delta Regional Authority (DRA) was established by Congress in the year 2000 to enhance economic development and improve the quality of life for the residents of the Delta Region. The DRA includes 252 counties and parishes in 8 states; all counties in the project area are part of the DRA. The DRA website (www.dra.gov) states, "The 252 counties and parishes served by the Delta Regional Authority make up the most distressed area of the country."

SAFETEA-LU (P.L. 109-59) Section 1923(a) (enacted in 2005) directed the DRA "to conduct a comprehensive study of transportation assets and needs for all modes of transportation (including passenger and freight transportation) in the 8 States comprising the Delta region (Alabama, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee)." It further directed (Section 1923(c)) that the Authority "shall submit to the Secretary and the Committee on Transportation and Infrastructure of the House of Representatives and the Committee on Environment and Public Works of the Senate a final report on the results of the study, together with such recommendations as the DRA considers to be appropriate." This report was submitted in July, 2008.[8] The following recommendation was contained on p. 114 of this report.

> "Phase I Engineering Study for a proposed I-66 segment between Paducah, Kentucky and Cape Girardeau, Missouri. Interstate 66 is a proposed east-west interstate across the U.S. from Washington D.C. to the San Diego-Los Angeles area. The corridor goes through the DRA region near Cairo, Illinois in the Kentucky, Illinois, and Missouri tri-state area. Illinois is proposing an alignment between Paducah, Kentucky and Cape Girardeau Missouri using the existing major river bridges near these two cities. An engineering study is needed to determine if the alignment is feasible and get a construction cost estimate."

66 CORRIDOR TIER 1 EIS

In 2011, funding was approved through the DRA's Delta Region Transportation Development Program[9] (SAFTEA-LU Section 1308) for an environmental study of this section between Paducah and Cape Girardeau. That funding is underwriting this Tier 1 EIS. IDOT's web site

[8] Report is available on DRA web site at http://www.dra.gov/!userfiles/editor/docs/MultimodalReport.pdf.
[9] This program is managed by the Delta Regional Authority.

describes this project as, “Phase I engineering services required for the preparation of an environmental document and supporting engineering reports to determine the most feasible alignment for a transportation improvement from Interstate 24 in the Paducah, Kentucky/Metropolis, Illinois region to Interstate 55 in the Cape Girardeau, Missouri region.”[10]

[10] http://www.dot.il.gov/I66/index.html. Referenced Nov. 6, 2013.

66 Corridor

Appendix 2 - Regional Transportation Needs Analysis

Paducah, Kentucky to Interstate 55 in Missouri

Alexander, Union, Pulaski, Johnson, and Massac Counties in Illinois

Ballard and McCracken Counties in Kentucky

Cape Girardeau, Mississippi, and Scott Counties in Missouri

IDOT Region 5 / District 9

April 2014

TABLE OF CONTENTS

1 INTRODUCTION

This appendix summarizes statistical measures of transportation need within the 66 Corridor Study Area. These include measurements of accessibility, traffic congestion and safety needs. The findings of these statistical analyses are supported by input received from government officials, regional economic development experts, and business leaders. This appendix, with a companion appendix (Regional Economic Needs Analysis) is prepared to support for the 66 Corridor Purpose and Need.

This appendix has four main sections. The first considers existing regional accessibility to urban centers, major hospitals, and higher education. The second analyzes a special case of accessibility, which is the connectivity among the urban centers of Cape Girardeau, Sikeston and Paducah. The third analyzes regional safety needs. The fourth second presents an assessment of regional congestion and the need (if any) for congestion relief which could be addressed by this project.

Unless noted herein, all analyses are conducted for the entirety of a 10 county Study Area which includes portions of Illinois, Kentucky and Missouri. Figure 1 is a map of the 66 Corridor Study Area. The counties in the Study Area include:

- ***Illinois*** – Alexander, Johnson, Massac, Pulaski and Union counties.
- ***Kentucky*** – Ballard and McCracken counties.
- ***Missouri*** – Cape Girardeau, Mississippi and Scott counties.

Overall, this analysis determined the following regarding regional transportation needs:

- There is a need for improved accessibility to urban centers, higher education and major medical facilities within the Illinois portion of the Study Area.
- There is a need for improved connectivity between Paducah and Cape Girardeau and (to a lesser extent) between Paducah and Sikeston.
- There is a need for improved safety (crash reduction) within the Illinois and Kentucky portions of the Study Area. This supporting analysis is provided in a companion memo (dated January 20, 2014) which is provided as an attachment to this document.
- There is ***not*** a need for congestion relief within any portion of the Study Area.

The source for data in all tables (Tables 1 – 7) is the 66 Corridor travel demand model, provided by Bernardin, Lochmueller & Associates.

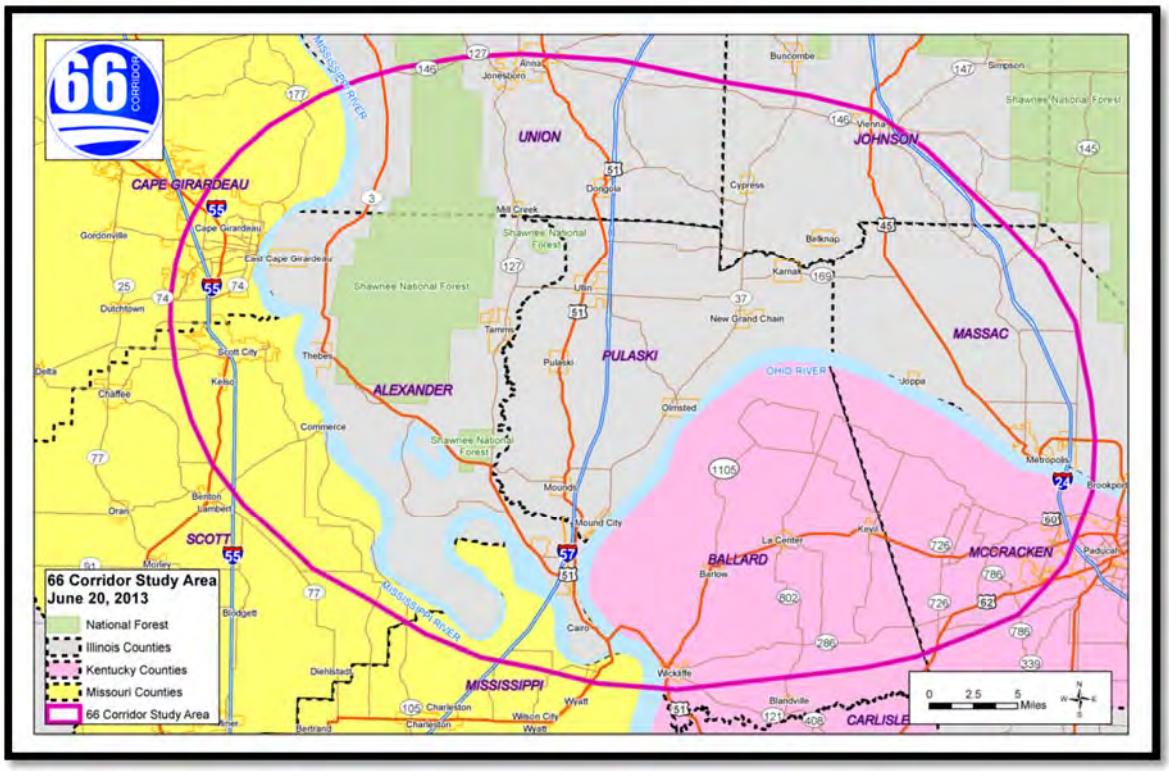


FIGURE 1 – 66 CORRIDOR STUDY AREA

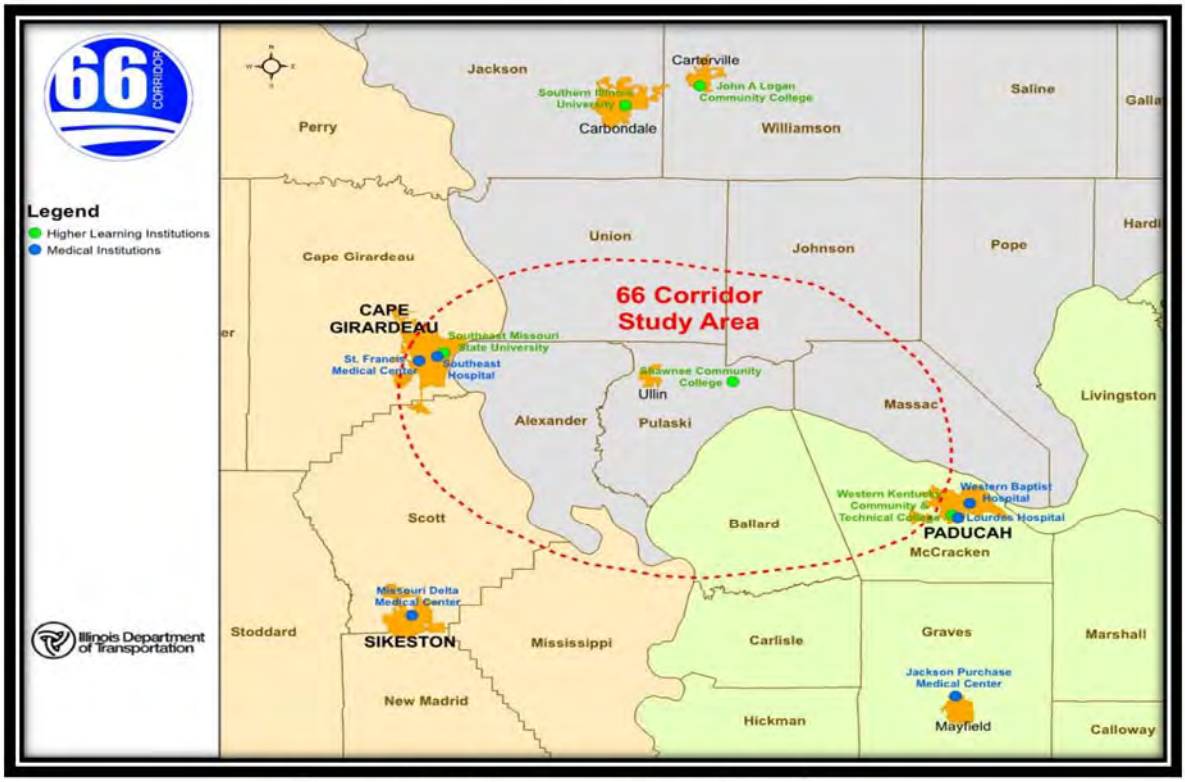


FIGURE 2 – 66 CORRIDOR STUDY AREA ATTRACTORS

2 REGIONAL ACCESSIBILITY ANALYSIS

2.1 Rationale

The concept of personal accessibility refers to the ease with which residents of a particular region can travel to population and employment centers and other types of attractions (e.g., health care facilities, educational institutions, airports, cultural events, and major retail shopping). This access can be assessed by focusing on a specific type of facility (e.g., major hospitals). Alternatively, access can be measured to urban areas (which contain all or nearly all of these types of attractions[1]). Both approaches to measuring regional accessibility are used in this analysis.

2.2 Methodologies

2.2.1 Access to Urban Centers

Accessibility to the region's urban centers is measured as the number and percentage of Study Area residents with access to at least one of the Study Area's two urban centers, as well as Sikeston Missouri, which is near to the Study Area. A specific Traffic Analysis Zone (TAZ) within each city is selected to represent the center of each urban area. In Cape Girardeau, it is a TAZ centered near the intersection of IL 177 (Sprigg St) and IL 34/74 (Shawnee Pkwy). In Sikeston, it is a TAZ centered near the intersection of US 61 (Main St.) and US 62 (Malone Ave.). In Paducah, it is a TAZ centered near the intersection of US 45 and 6th St. Using the 66 Corridor traffic model, the number and percentage of Study Area residents within 30 minutes of at least one of the urban areas is calculated.

As of the 2010 Census, the populations of these three urban areas were:

- Cape Girardeau, 37,941
- Sikeston, 16,318
- Paducah, 25,024

2.2.2 Access to Full-Service Medical Centers

Accessibility to full-service medical centers is measured as the number and percentage of Study Area residents with access to a hospital with the following attributes:

- Has more than 25 inpatient beds.
- Offers range of surgical services.
- Offers obstetric services.

The following hospitals in and near the Study Area were identified as full-service medical centers for purposes of this analysis.

- Southeast Hospital, Cape Girardeau MO
- St. Francis Medical Center, Cape Girardeau MO

[1] For example, while an industrial park or educational institution may be located in a rural area, the other types of attractions (retail shopping, cultural centers or major hospitals) typically are not present in the same locality. It takes the "critical mass" of a sufficiently large population to support a full range of activities within a limited geographic area. Interviews with government officials, regional economic development experts, and business leaders repeatedly have cited the need for improved access to the two urban centers in the Study Area (Cape Girardeau and Paducah), to provide access to these types of attractions to people living throughout the Study Area. Similar comments were received regarding access to Sikeston MO, which although not in the Study Area, is within a short travel distance of portions of the Study Area.

- Missouri Delta Medical Center, Sikeston MO
- Lourdes Hospital, Paducah KY
- Western Baptist Hospital, Paducah KY
- Jackson Purchase Medical Center, Mayfield KY

Using the 66 Corridor traffic model, the number and percentage of Study Area residents within 30 minutes of a full-service medical center is calculated.

2.2.3 Access to Colleges and Universities

Accessibility to colleges and universities is measured as the number and percentage of Study Area residents with access to a college or university with the following attributes:

- Offers multiple degree programs at the Associate and/or Bachelor's Level
- Enrollment of at least 1,000 students (full-time or part-time)

The following colleges and universities in and near the Study area were identified as colleges and universities for purposes of this analysis.

- Southern Illinois University, Carbondale IL
- Shawnee Community College, Ullin IL
- John A. Logan Community College, Carterville IL
- Western Kentucky Community and Technical College, Paducah KY
- Southeast Missouri State University, Cape Girardeau MO

Using the 66 Corridor traffic model, the number and percentage of Study Area residents within 30 minutes of a college or university is calculated.

2.3 Stakeholder, Economic Development and Business Interviews

Team members conducted interviews with a number of public officials, regional economic development experts and business leaders. A number of those interviewed indicated that there was a lack of personal accessibility for residents of the Study Area. Written summaries are prepared for these interviews, and will be included in the NEPA documents for this project. This section documents input from these interviews accessibility needs within the region. Only interviews which provided such information are cited here.

- Illinois residents would benefit from better access to healthcare/trauma centers in Cape Girardeau/Paducah. *Southeast HEALTH 8-12-13, City of Vienna 8-15-13, Mississippi County 9-9-13 City of Paducah 9-25-13, City of Cairo 10-02-13*, *Cape Girardeau Chamber of Commerce 12-11-13*.
- Area residents need better access to medical facilities in Sikeston MO. *Mississippi County 9-9-13.*
- Access to Cape Girardeau and Paducah is a major need in the region. *The Nature Conservancy 9-13-13, Pulaski County 9-19-13, Southernmost Illinois Delta Empowerment Zone 01-08-14.*
- Access from throughout the region to jobs in Paducah and Cape Girardeau is important. *Southeast Missouri Regional Port Authority 9-16-13, Pulaski County 9-19-13.*
- Areas with 30-minute access to either Cape Girardeau or Paducah have significantly higher real estate values. *Pulaski County 9-19-13*.

- There needs to be better access to Paducah from Scott County, Missouri. *Scott County 9-24-13.*
- There needs to be better access to I-55 from Paducah. *City of Paducah 9-25-13*.
- There needs to be better access from the region to medical and educational facilities. *Southernmost Illinois Delta Empowerment Zone 01-08-14*.
- Overall east-west access in the region needs improvement. *Cairo Economic Development 12-11-13*, *Consolidated Grain and Barge 01-08-14*.

2.4 No-Build Accessibility Measures – Base Year

Table 1 shows the accessibilities of Study Area residents to attractions in the base year (2010) of the analysis. It shows both the number and percentage of Study Area residents with access to each type of attraction. It gives results for the portion of the Study Area within each state as well as the Study Area as a whole.

Table 1 - Regional Accessibility Measures - Year 2010 No Build						
	Population with 30 minute access to urban area*		Population with 30 minute access to full-service medical facility		Population with 30 minute access to college or university	
Part of Study Area	Number of People	% of Population	Number of People	% of Population	Number of People	% of Population
Illinois Counties	15,794	26.2	16,960	28.2	36,390	60.4
Kentucky Counties	66,574	90.2	67,996	92.1	70,190	95.1
Missouri Counties	113,287	87.8	115,630	89.5	81,463	63.0
Total Study Area	**195,655**	**74.3**	**200,586**	**76.2**	**188,043**	**71.4**
* Defined as %'s of population within 30 minutes of urban cores of Cape Girardeau (Model TAZ 476), Sikeston (Zone 212) or Paducah (Model TAZ 1708)						

This analysis shows overall relatively high levels of accessibility within the Kentucky and Missouri portions of the Study Area to urban areas and medical facilities. The Kentucky and Missouri portions of the study area have high and moderate access (respectively) to higher education. The Illinois portion of the Study Area has moderate access to higher education, and low access to urban areas and medical facilities.

Overall, there is a significant need for improved accessibility within the Illinois portion of the Study Area. The Kentucky portion of the Study Area already enjoys a high level of accessibility, and the Missouri portion of the Study Area enjoys a relatively high level to moderate level of accessibility.

3 ACCESSIBILITY AMONG CAPE GIRARDEAU, PADUCAH AND SIKESTON

3.1 Rationale

Accessibility between Paducah and Cape Girardeau and between Paducah and Sikeston are two special cases of regional accessibility. These three urban areas (two of which are within the Study Area and the third of which is near to the Missouri portion of the Study Area) are centers of employment, business activities, culture and recreation. There are significant opportunities for economic synergies among the three urban areas. This was cited several times in the interviews with government officials, regional economic development experts, and business leaders, especially with regard to the connection between Paducah and Cape Girardeau. Sikeston and Cape Girardeau already are connected by a freeway (I-55), which provides a high level of accessibility between these two urban areas.

Analysis of improved connections between Paducah and Sikeston/Cape Girardeau supports the recommendations of the April, 2005 *I-66 Corridor Study, Western Kentucky to Missouri*, published in 2005 by the Kentucky Transportation Cabinet (KYTC). This study recommended that any subsequent study of the Transamerica Corridor west of Paducah include alternatives directly connecting Paducah with either Cape Girardeau or Sikeston. The conclusion of this report's Executive Summary (p. ES-6) states, "Independent of this decision[2], KYTC, MoDOT, or IDOT can restart the project development activities in their respective states using this study. In

[2] This statement refers to decisions regarding future project funding. The 2005 Study did not recommend a single alternative for more detailed studies due to the unavailability of funding at that time.

this case, the corridors from this I-66 study that should be included in a next phase of project development are Corridors 8B, 11, and 20. In addition, other corridors may be developed at a future date. (See the full project report and the various technical appendices for more details regarding this study.)" Corridors 8B and 11 both connect with I-57 in Mississippi County, which then continues to Sikeston; Corridor 20 crosses into Illinois and connects to I-55 at Cape Girardeau. Comparing access between both city pairs (Cape Girardeau – Paducah and Sikeston – Paducah) is consistent with the need to consider a full range of reasonable alternatives in this present study.

3.2 Methodology

Accessibility between Paducah – Cape Girardeau and Paducah – Sikeston is measured as the difference and ratio between the existing travel times (as calculated by the 66 Corridor travel model) and an "ideal" travel time. Two measures of "existing" travel time are obtained from the travel model. These are free flow travel times (in the absence of congestion) and congested travel times (taking into account the typical level of congestion over the course of a 24-hour weekday). The "ideal" travel times are calculated as the straight-line travel time ("as the crow flies") between the two city centers, traveling at either 55 mph or 70 mph.[3] These times are calculated between the TAZs representing the city centers of the three cities, as described in Section 1.2.1.

3.3 Stakeholder, Economic Development and Business Interviews

Team members conducted interviews with a number of public officials, regional economic development experts and business leaders. Several of those interviewed indicated that there was a need for a better connection between Cape Girardeau/Sikeston and Paducah. Written summaries are prepared for these interviews, and will be included in the NEPA documents for this project. This section documents input from these interviews accessibility needs within the region. Only interviews which provided such information are cited here.

- A road between Cape Girardeau and Paducah would connect two major river ports. *Cape Girardeau 8/12/13*, *Cape Girardeau Chamber of Commerce 12-11-13.*
- A road between Cape Girardeau and Paducah would connect three existing interstate highways. *Cape Girardeau 8/12/13*.
- There needs to be an adequate connection between Cape Girardeau and Paducah. *Massac County 6/27/13, City of Metropolis 6/27/13, Cape Girardeau County 9-9-13.*
- A Cape Girardeau – Paducah connection would boost regional tourism. *Massac County 6/27/13, City of Metropolis 6/27/13*.
- A Cape Girardeau – Paducah connection would help freight movements. *City of Metropolis 6/27/13, ADM 12-30-13.*
- A better connection is needed between Sikeston MO and Paducah. *Mississippi County 9-9-13.*
- A better connection is needed between Paducah KY and I-55. *VMV Paducahbilt*.

3.4 No-Build Accessibility Measures – Base Year

Tables 2 and 3 compare the ideal and existing travel times between Cape Girardeau/Sikeston and Paducah. Table 2 compares the ideal and existing times, showing the average travel speeds under existing conditions. Table 3 provides ratios of existing to ideal travel times

[3] These speeds are selected as representing the posted speed limits on a high-classification rural road and a rural freeway/interstate highway, respectively.

between the two city pairs. The higher this ratio, the greater the potential is to improve the connectivity between the given city pair. Existing free flow travel times are used, given the low levels of traffic congestion in the Study Area.

Table 2 - Ideal and Existing Travel Times - Cape Girardeau/Sikeston and Paducah				
City Pair	Distance Between City Centers (Miles)	Ideal Travel Times (Minutes) at 55 mph	Ideal Travel Times (Minutes) at 70 mph	Existing Free Flow Travel Times
Cape Girardeau - Paducah	53.5	58	46	84
Sikeston - Paducah	56.0	61	48	76

Table 3 - Ideal and Existing Travel Time Ratios - Cape Girardeau/Sikeston and Paducah			
City Pair	Distance Between City Centers (Miles)	Ratio of Existing and Ideal Travel Times (@ 55 mph)	Ratio of Existing and Ideal Travel Times (@ 70 mph)
Cape Girardeau - Paducah	53.5	1.45	1.83
Sikeston - Paducah	56.0	1.25	1.58

Across the range accessibility measures, existing connections between Sikeston and Paducah are superior to those between Cape Girardeau and Paducah. Roads on the National Highway System already provide a connection between Paducah and Cape Girardeau (US 60 in Kentucky, US 51 in Illinois and I-57 in Illinois/Missouri). By comparison, present connections between Paducah and Cape Girardeau are largely via state and county roads classified as rural collectors.

There is a significant need to improve the existing accessibility between Cape Girardeau and Paducah. There is a moderate need to improve the existing accessibility between Sikeston and Paducah.

4 REGIONAL SAFETY

4.1 Rationale

An analysis of safety at the county level within the Study Area was conducted and is documented in the attached memo, *Michael Grovak to Jason Watters, January 20, 2014*. It describes that for a project of this nature (a major new facility through rural areas with two lane roads, with relatively few rural arterial roads) in a large Study Area (10 counties in 3 states) an analysis of specific deficiencies is not appropriate to identify whether safety is a project need.

This systemwide approach described in the attached memo captures the significant safety benefits of providing a higher-classification facility which diverts travel from literally hundreds of other links in the highway network. The net effect of diverting traffic from lower-classification rural roads to a freeway or expressway is to reduce the incidence of crashes across a wide geographic area. ***While this safety benefit is significant, it cannot be captured by focusing on a limited number of facilities or specific geometric deficiencies. At the same time, it***

often identifies safety benefits which are much more significant than one which focuses on individual deficiencies.

Any analysis of the safety benefits of project alternatives will calculate safety benefits in ***all counties*** in the Study Area, whether they are in Missouri, Kentucky or Illinois. Bernardin, Lochmueller's traffic model post-processing tools calculate safety benefits on a system-wide basis. These tools apply crash rates which are specific to facility type, area type (rural vs. urban) and volume range. Fatal, injury, and property damage-only crashes are computed separately. Forecasted crashes are computed in the no build and build cases for each link in the travel model network. The safety benefit for each alternative is the difference between total crashes systemwide on all links in the highway network.

4.2 Methodology

See the attached appendix.

4.3 Stakeholder, Economic Development and Business Interviews

Team members conducted interviews with a number of public officials, regional economic development experts and business leaders. Several of those interviewed indicated that there was a lack of personal accessibility for residents of the Study Area. Written summaries are prepared for these interviews, and will be included in the NEPA documents for this project. This section documents input from these interviews accessibility needs within the region. Only interviews which provided such information are cited here.

- East-west roadways in the Illinois portion of the Study Area are unsafe. *Southern Five 12-11-13*, *Southernmost Illinois Delta Empowerment Zone 01-08-14*.
- Frequent crashes in Southern Illinois disrupt freight deliveries and make shipping times unreliable *Southernmost Illinois Delta Empowerment Zone 01-08-14*.
- Roads between Cape Girardeau and I-24 are dangerous, especially for trucks. *Cape Girardeau Chamber of Commerce 12-11-13*.

4.4 No Build Safety Needs – Base Year

As is documented in the attached appendix, the two Kentucky counties in the Study Area are rated as "critical" for high crash rates in 3 of a possible 8 categories. In a fourth category (injury and fatal crashes) Ballard County has the second highest crash rate of 20 counties in its peer group statewide. There is a need for improved traffic safety in the Kentucky portion of the Study Area.

The five counties in the Illinois portion of the Study Area have a significantly higher rate of injury and fatal crashes than its statewide peer group. An average of 94 excessive injury and fatal crashes occur annually in these five counties than would be expected if their rates were representative of their peer group. These crashes have a user cost of $22 million annually.

There is a need to improve safety in the Illinois and Kentucky portions of the Study Area.

5 REGIONAL CONGESTION

5.1 Rationale

Traffic congestion reflects the relationship between traffic volume and roadway capacity; if traffic volumes on a road approach its capacity, the level of congestion is relatively high. Conversely, when traffic volumes are significantly below a road's capacity, there is little or no traffic congestion. Levels of congestion are most often measured by the Level of Service (LOS) rating scale. The scale ranges from LOS "A" (free-flowing traffic) to LOS "F" (highly congested conditions). On urban roads, LOS D generally is regarded as the minimally acceptable level of congestion; on rural roads, the minimally acceptable level of congestion is LOS C. Since congestion relief often is a project goal for a highway NEPA study, an assessment was made as to whether congestion relief should be a goal for this project.

5.2 Methodology

Total vehicle miles of travel (VMT), vehicle hours of travel (VHT) and LOS are calculated for each link in the travel model network. Post-processing tools used with the 66 Corridor travel demand model apply the methodologies of the Highway Capacity Manual (HCM) to perform the LOS calculations. The VMT and VHT at each level of service are summed across all links in the travel model network. These calculations are summed separately for rural and urban roads.

5.3 Stakeholder, Economic Development and Business Interviews

No stakeholder identified traffic congestion as a significant issue within the Study Area.

5.4 No Build Congestion – Base Year

Tables 4 through 7 show quantities of VMT and VHT at each LOS in the Base Year travel model assignment. Percentages in some tables may not add to 100% due to rounding.

Table 4 - LOS for Urban VMT - 2010 Base Year

LOS	Study Area Urban VMT by LOS				Percent of Total
	Illinois	Kentucky	Missouri	Total	
A	101,100	722,400	249,600	1,073,100	60%
B	50,200	372,100	172,400	594,700	33%
C	11,100	88,300	15,800	115,200	6%
D	-	2,300	-	2,300	0%
E	-	-	-	-	0%
F	-	4,300	-	4,300	0%
Total	**162,400**	**1,189,400**	**437,800**	**1,789,600**	

Shaded cells show congested conditions.

Table 5 - LOS for Urban VHT - 2010 Base Year					
LOS	Study Area Urban VHT by LOS				Percent of Total
	Illinois	Kentucky	Missouri	Total	
A	2,570	14,730	6,410	23,710	53%
B	1,850	8,650	6,210	16,710	37%
C	410	3,320	600	4,330	10%
D	-	80	-	80	0%
E	-	-	-	-	0%
F	-	280	-	280	1%
Total	**4,830**	**27,060**	**13,220**	**45,110**	
Shaded cells show congested conditions.					

Table 6 - LOS for Rural VMT - 2010 Base Year					
LOS	Study Area Rural VMT by LOS				Percent of Total
	Illinois	Kentucky	Missouri	Total	
A	1,719,000	562,000	1,854,000	4,135,000	75%
B	245,000	340,000	634,000	1,219,000	22%
C	65,000	43,000	10,000	118,000	2%
D	15,000	16,000	1,000	32,000	1%
E	5,000	3,000	-	8,000	0%
F	-	-	-	-	0%
Total	**2,049,000**	**964,000**	**2,499,000**	**5,512,000**	
Shaded cells show congested conditions.					

Table 7 - LOS for Rural VHT - 2010 Base Year					
LOS	Study Area Rural VHT by LOS				Percent of Total
	Illinois	Kentucky	Missouri	Total	
A	31,600	10,900	35,200	77,700	73%
B	4,500	6,200	13,800	24,500	23%
C	1,500	1,100	400	3,000	3%
D	300	400	-	700	1%
E	100	100	-	200	0%
F	-	-	-	-	0%
Total	**38,000**	**18,700**	**49,400**	**106,100**	
Shaded cells show congested conditions.					

These travel model assignment results are consistent with the lack of input by any stakeholder that traffic congestion is an issue in the Study Area. In both rural and urban areas, congested conditions are between 0% and 1% of total travel. Also noteworthy is that 96% - 97% of rural traffic and 90% - 93% of urban traffic operates at LOS A or B. At LOS A or B, traffic operates at or above the posted speed limit, with little or no restriction on vehicle maneuverability. These LOS calculations show that there is no justification for establishing congestion relief as a

Purpose and Need goal. These findings will be confirmed when future year assignments are available from the 66 Corridor travel demand model.

6 SUMMARY

This analysis of regional transportation needs provides the basis for establishing the Purpose and Need goals for Regional Accessibility and Safety. In the category of Regional Accessibility, performance measures will be specified for improving access to urban areas, major medical facilities, higher education, and connectivity between urban areas. In the category of Safety, performance measures will be specified for crash reductions by crash type as well as total crashes.

This analysis also illustrates that congestion relief is not an appropriate goal for this project.

REGIONAL SAFETY ANALYSIS

Overview

Published crash statistics for Missouri, Illinois and Kentucky were analyzed to identify safety needs and critical safety issues within the 66 Corridor Study Area. Data published by the Illinois Department of Transportation (IDOT) and the Kentucky Transportation Cabinet (KyTC) both identified significant safety issues in the Study Area. As discussed below, data published by the Missouri Department of Transportation (MODOT) are not sufficiently comparable to those published by the other two state agencies to enable the same determination for the Missouri portion of the Study Area. In addition the nature of project alternatives in the Study Area would be such that their potential to provide significant safety benefits in Missouri is much less than in the Kentucky and Illinois portions of the Study Area.

Summary

Published KyTC crash data were reviewed which identified significant safety needs within the Kentucky portion of the Study Area. One of the two Kentucky counties in the Study Area (Ballard County) was identified as having high crash rates exceeding KyTC's critical crash thresholds in two of four categories. In a third category (rate of fatal/injury crashes) it has the 2nd highest rate of the 20 counties in its population group. McCracken County (the other Kentucky county in the Study Area) exceeds KyTC's critical crash threshold for fatal/injury crashes within its population group.

Published IDOT crash data and travel statistics were analyzed to compare the level of crashes in the Study Area with those found in other comparable rural counties within Illinois. This analysis determined that overall crash rates are comparable to similar rural counties in Illinois. However, it also determined that the frequency of highway-related injuries and fatalities was significantly higher (26%) than other peer counties in Illinois. This results in over 90 additional injuries or fatalities annually in the study area than would be expected if its rates of highway fatalities and serious injuries were similar to those in peer counties. The added net user cost for these additional injuries and fatalities is approximately $22 million annually.

This analysis focused on the 5 Illinois counties and 2 Kentucky counties in the Study Area because a major east-west travel link would offer a higher classification, safer highway which would significantly affect existing travel patterns there. By comparison, travel patterns in the Missouri portions of the Study Area would be less affected by a build alternative. Identifying improved traffic safety as a need in a significant portion of the Study Area (seven of the 10 counties) provides a suitable basis to establish traffic safety as a purpose and need goal. Also, as described below, county-level crash data published by MODOT is not as robust as those published by other states, and detailed comparison with other states' data cannot be made.

Any analysis of the safety benefits of project alternatives will calculate safety benefits in all counties in the Study Area, whether they are in Missouri, Kentucky or Illinois. Bernardin, Lochmueller's traffic model post-processing tools calculate safety benefits on a system-wide basis. These tools apply crash rates which are specific to facility type, area type (rural vs. urban) and volume range. Fatal, injury, and property damage-only crashes are computed separately. Forecasted crashes are computed in the no build and build cases for each link in

the travel model network. The safety benefit for each alternative is the difference between total crashes systemwide on all links in the highway network.

This systemwide approach captures the significant safety benefits of providing a higher-classification facility which diverts travel from literally hundreds of other links in the highway network. The net effect of diverting traffic from lower-classification rural roads to a freeway or expressway is to reduce the incidence of crashes across a wide geographic area. ***While this safety benefit is significant, it cannot be captured by focusing on a limited number of facilities or specific geometric deficiencies. At the same time, it often identifies safety benefits which are much more significant than one which focuses on individual deficiencies.***

Scope of Safety Analysis

As noted in the Summary, this analysis focuses on safety issues within the Illinois and Kentucky portion of the Study Area. This determination was made based upon the following rationale:

- The significant majority of safety benefit due to changes in trip patterns will occur in the Illinois and Kentucky portions of the Study Area. Within the Missouri portions of the Study Area, alternatives will connect with I-55 and/or I-57 shortly after crossing the Mississippi River. There will be little opportunity for trips to divert from lower classification roads. By comparison, an east-west connection between Paducah and I-55 via Illinois or Kentucky generally will divert traffic from two lane roads within these two states. Noteworthy is that in Illinois much of the traffic will be diverted from state and county roads which are rural collectors.
- Published safety statistics in Illinois and Kentucky provide more detail about the range of crash types on a county level. Following is a summary of the information available on the website of each state DOT.
  - Illinois reports (http://www.dot.state.il.us/trafficsafety/crashreports.html) motor vehicle crashes, as well as motor vehicle fatalities and motor vehicle injuries. As documented below, these data were used in conjunction with other published IDOT data on county-level travel (http://www.dot.state.il.us/adttravelstats.html) to conduct a detailed analysis of the user costs of atypically high rates of injury crashes in the Study Area. Data provided by the two other state DOTs did not permit this level of analysis in those states.
  - KyTC's (http://transportation.ky.gov/highway-safety/documents/ky_crash_analysis_2007-2011.pdf) data provides as assessment of county-wide crash levels, which identifies counties within specific population groupings which have high crash rates above a critical level. The Kentucky counties in the Study Area have crash rates above critical levels in either one (McCracken County) or two (Ballard County) of four measurement categories.
  - Missouri publishes data (http://www.modot.org/safety/trafficaccidentstatistics.htm) which reports only total crashes on the county level; it does not separate these into fatal, injury and property damage-only categories. This is inconsistent with data published in the other two states. In addition, there is relatively little potential for project alternatives to reduce crashes in Missouri. Even prior to identifying preliminary alternatives, it seems clear that within Missouri alternatives will connect to I-55 or I-57 shortly after entering Missouri. This minimizes the potential for alternatives to divert traffic from lower classification roads.

Published KyTC Crash Data

The most recent analysis of crash statistics identified for Kentucky was KyTC's *Analysis of Traffic Crash Data in Kentucky (2007 – 2011).* This report (http://transportation.ky.gov/highway-safety/documents/ky_crash_analysis_2007-2011.pdf) provides total crash rates by county in grouped by population cohorts. These crash rate tables include:

- Total crash rates, all roads (Table 10, p. 33)
- Total crash rates, state-maintained roads (Table 11, p. 34)
- Injury/fatal crash rates, all roads (Table 12, p. 35)
- Fatal crash rates, all roads (Table 13, p. 36).

These tables also identify counties in each table which have critical crash rates. These are identified using a statistical formula to identify crash rates which are significantly higher than the average for that population grouping of counties. The report states (p. 19), "Counties and cities with various types of critical crash rates are given in Tables 10 through 13, 18, and 19[4]. Coordinated efforts involving engineering, enforcement, education, and emergency medical services should be implemented in counties and cities having critical rates to address those problem areas."

This KyTC analysis showed that McCracken County has an injury/fatal crash rate of 72/100 million VMT. This is above the critical level for counties with populations over 50,000[5], and is the third highest of 16 counties in this population group.

The same analysis showed that Ballard County has total crash rates of 205/100 million VMT (for all roads) and 192/100 million VMT (for state-maintained roads). Both of these rates are above the critical level for counties with population under 10,000. Each is the third highest of 20 counties in this population group. In addition, the analysis showed that Ballard County had the second highest crash rate for serious and injury crashes (52/100 million VMT) within its population grouping; however, this crash rate was not classified as a critical crash rate.

In summary, published KyTC crash analyses shows that the two Kentucky counties in the study area have critical crash rates in a total of 3 out of 8 possible categories. Ballard County has the 2nd or 3rd highest crash rates in 3 out of 4 categories, among 20 counties statewide which have populations under 10,000. McCracken County has a critical crash rate for fatal and injury crashes, and has the 2nd highest fatal and injury crash rate among the 16 counties in its population group. This unusually high rate of crashes (which KyTC evaluates as "critical" in 3 out of 8 possible categories) shows that there is a need for improved traffic safety in both counties.

Published IDOT Crash and Travel Statistic Data

Published IDOT crash data do not group crashes or crash rates by county population groups. As is discussed below, (and illustrated by the KyTC analysis published above) counties with different population levels should be considered with like counties for purposes of crash analyses. Accordingly, data were taken from two published IDOT sources. Looking at these data in detail enabled us to identify that the Illinois portion of the Study Area has significantly

[4] Tables 18 and 19 provide crash rates (and identify critical crash rates) for individual cities.
[5] This report used Year 2000 census data for the county population groupings. The 2010 Census found that Ballard and McCracken counties remained in these same population groupings.

high crash rates for fatal and injury crashes. As an added point of comparison, the user cost of this excess crash rate was estimated at $21 million annually.

This detailed analysis also was required because the property damage threshold for reporting crashes changed significantly in 2009. Accordingly, only data from 2009 through 2011 were used in this crash analysis.

Motor vehicle crash data (http://www.dot.state.il.us/trafficsafety/crashreports.html) are published by IDOT's Division of Traffic Safety. Illinois travel statistics (http://www.dot.state.il.us/adttravelstats.html) are published by IDOT's Office of Planning and Programming.

The motor vehicle crash data includes county-level data on total annual crashes, as well as annual injuries and fatalities by county. There have been two significant changes in reporting practices in recent years which determined which years could be included in this crash analysis. These are as follows:

- In 2008 and earlier years, Illinois law required that crash reports be provided to law enforcement if the damage to any one person's property were at least $500. Beginning in 2009, this threshold was raised to $1,500 if all drivers involved are insured. There was a significant decrease in crashes reported in 2009 compared to earlier years. Accordingly, only data from 2009 and subsequent years was used in this analysis.
- Beginning in 2012, published crash reports provided the number of crashes involving injuries or fatalities (separately). In 2011 and earlier years, published crash reports provided the number of injuries and fatalities in motor vehicle accidents. Since a single crash often results in multiple fatalities and/or injuries, the data from 2012 is not comparable to previous years' data.

  Accordingly, this analysis compared crash rates for the years 2009 through 2011. This is the most recent span of time for which crash data were reported on a consistent basis in each year.

  The Illinois Travel Statistics reports provide annual vehicle miles of travel (AVMT) by county, for all counties in Illinois. The AVMT by county for the years 2009 through 2011 was used with reported crashes, fatalities and injuries to calculate county-level rates for each year in the three year period. The calculated rates were:

- Total crashes per 100 million VMT, and
- Injuries and fatalities (total) per 100 million VMT

Injuries and fatalities were grouped for purposes of calculating rates because motor vehicle fatalities are comparatively rare occurrences. For smaller Illinois counties (under 20,000 in population) there are 31 to 33 motor vehicle-related injuries for every motor vehicle-related fatality.

Grouping for Safety Analysis

Illinois has 102 counties which vary greatly in population and demography. Its 10 most populous counties have a total population of 9.4 million (2010 census) and are home to nearly three-quarters of the state's population. By comparison, 45 counties have populations under 20,000. The Study Area counties fall into this population range. Their 2010 populations range from 6,161 (Pulaski County) to 17,808 (Union County).

In comparing the crash rates, rural Illinois counties were divided into two groups (those having fully access-controlled freeways and those without such facilities). This categorization was made in order to determine whether these counties had significantly different crash rates. This hypothesis was tested for the following two reasons:

- In a smaller county, a relatively high percentage of its traffic would be carried on a freeway. A freeway in a rural county will serve longer-distance travel, much or most of which would be from outside of the county.
- Freeway travel, on a per vehicle mile basis, is significantly safer than travel on other, lower-classification roads.[6]

The five counties of the study area (each of which includes I-24 and/or I-57) were excluded from the grouping. The remaining 40 counties with populations under 20,000 were divided into 2 groups, consisting of the 14 which had a freeway and the 26 which did not. For the years 2009 – 2011, the average crash rates for all crashes and for fatalities and injuries per 100 million vehicle miles were calculated. Tables 1 and 2 show the computed averages for these two groups of counties.

[6] For example, Tables A-37 through A-39 of *Microcomputer Evaluation of Highway User Benefits (Texas Transportation Institute (NCHRP 7-12, 10/93)* show injury crash rates of 24.3/100 million vehicle miles and property damage-only crash rates of 39.0 – 40.0/100 million vehicle miles for rural freeways. By comparison, it shows that rural arterials and collectors have injury crash rates of 82.5 to 116.9/100 million vehicle miles and property damage-only crash rates of 89 – 101/100 million vehicle miles.

Table 1 - Counties without Freeways			
County		Rates/100M VMT - 2009 to 2011	
	Population	All Crashes	Fatalities & Injuries
Brown	6,950	344	38
Calhoun	5,084	441	59
Carroll	15,387	224	62
Cass	13,642	237	65
Clay	13,815	185	49
Crawford	19,817	298	51
DeWitt	16,561	159	37
Edgar	18,576	226	66
Edwards	6,721	199	31
Gallatin	5,589	179	59
Greene	13,886	215	64
Hamilton	8,457	210	48
Hancock	19,104	214	47
Hardin	4,320	186	102
Henderson	7,331	173	58
Jasper	9,698	174	48
Mason	14,666	220	56
Menard	12,705	180	42
Mercer	16,434	166	59
Moultrie	14,846	178	58
Pope	4,470	176	65
Putnam	6,006	257	49
Richland	16,233	250	71
Schulyer	7,544	310	60
Stark	5,994	206	66
Wabash	11,947	199	57
Subtotal/Avg.	***295,783***	***215***	***55***

Average rates shown for all counties are calculated as total crashes or total (fatalities + injuries) for all counties divided by total VMT for all counties. These overall averages will differ slightly from averages of individual county rates.

Table 2 - Counties with Freeways			
County	Population	Rates/100M VMT - 2009 to 2011	
		All Crashes	Fatalities & Injuries
Bond	17,633	139	41
Clark	17,008	123	30
Cumberland	11,048	107	29
Douglas	19,980	107	33
Ford	14,081	147	60
Lawrence	16,833	202	67
Marshall	12,640	145	41
Piatt	16,729	93	28
Pike	16,430	255	42
Scott	5,355	160	39
Warren	17,707	187	51
Washington	14,716	105	31
Wayne	16,760	185	42
White	14,665	204	44
Subtotal/Avg.	***211,585***	***149***	***39***
Average rates shown for all counties are calculated as total crashes or total (fatalities + injuries) for all counties divided by total VMT for all counties. These overall averages will differ slightly from averages of individual county rates.			

The Microsoft Excel® Data Analysis suite of tools was used to confirm that the crash rates are statistically different for these two sets of counties. The two sets of data were compared using Excel's two-sample t-test assuming unequal variances. The printouts from these two tests are displayed below as Figures 1 and 2.

Figure 1 – Comparison of Total Crash Rates

t-Test: Two-Sample Assuming Unequal Variances	**Crashes/100 M VMT** Rural Counties	
	No Freeways	*With Freeways*
Mean	223.3150827	154.2213155
Variance	4099.135073	2214.074981
Observations	26	14
Hypothesized Mean Difference	0	
df	34	
t Stat	3.888014008	
P(T<=t) one-tail	0.000222921	
t Critical one-tail	1.690924255	
P(T<=t) two-tail	0.000445842	
t Critical two-tail	2.032244509	

Figure 2 – Comparison of Injury and Fatality Rates

t-Test: Two-Sample Assuming Unequal Variances	Injuries & Fatalities/100 M VMT Rural Counties	
	No Freeways	*With Freeways*
Mean	56.37540496	41.25803109
Variance	185.7609969	135.4815287
Observations	26	14
Hypothesized Mean Difference	0	
df	31	
t Stat	3.685859324	
P(T<=t) one-tail	0.000433651	
t Critical one-tail	1.695518783	
P(T<=t) two-tail	0.000867302	
t Critical two-tail	2.039513446	

In each case, the calculated probabilities (highlighted) establish that the rural counties with freeways and rural counties without freeways have significantly different rates. For total crash rates, the probability of the two groups actually having the same crash rate is 0.000445842. This means that it is 99.955% certain that the average crash rates are different. For injury and fatality rates, the probability of the two groups actually having the same crash rate is 0.000867302. This means that it is 99.913% certain that the average crash rates are different. Accordingly, the observed crash rates for the five Illinois counties in the Study Area were compared with the average rates for rural counties with freeways (shown in Tables 1 and 2) to determine whether the Study Area has unusually high crash rates.

Study Area Comparison

Using the same 3 year analysis period, the crash rates and (injury + fatality) rates were computed for the Study Area. Results are presented in Table 3.

Table 3 - Study Area Counties			
County		**Rates/100M VMT - 2009 to 2011**	
	Population	**All Crashes**	**Fatalities & Injuries**
Alexander	8,238	148	57
Johnson	12,582	106	30
Massac	15,429	173	59
Pulaski	6,161	124	40
Union	17,808	181	61
Total/Avg.	***60,218***	***148***	***49***
Average rates for all counties are calculated as total crashes or total (fatalities + injuries) divided by total VMT for all counties. These overall averages will differ slightly from averages of individual county rates.			

The average rate for total crashes in the Study Area (148 per 100 million vehicle miles) is essentially identical to the peer group of small counties with freeways (149 per 100 million vehicle miles). However, the rate of fatalities and injuries (49 per 100 million vehicle miles) is 26% higher than the average for the peer group (39 per 100 million vehicle miles).

These observed data are consistent with the input received from many public officials, regional economic experts, and business leaders during interviews conducted since the beginning of the study. Multiple individuals cited dangerous and substandard roads in the Illinois portion of the Study Area, in particular for east-west travel. This excessive rate of motor vehicle-related injuries and deaths in the study area supports the input received from these area stakeholders.

During the three year analysis period, there was an average of 455 injuries or fatalities for motor vehicle accidents in the Study Area. The average annual vehicle miles of travel (VMT) in these five counties during the 3-year analysis period were 925.9 million. If the number of injuries and fatalities occurred at the rate of peer counties (39 per 100 million vehicle miles), the annual number of injuries and fatalities per year would have been 361 per year. The additional 94 injuries and fatalities annually are identified as attributable to comparatively unsafe highway conditions in the Study Area.

Costs of Excessive Motor Vehicle Injuries and Fatalities

The methods provided in *User and Non-User Benefit Analysis for Highways, by the American Association of State Highway and Transportation Officials (AASHTO), September 2010* (also known as the AASHTO "Red Book") were applied to estimate the economic costs of these additional motor vehicle injuries and fatalities. These methods are presented in Chapter 5, "User Benefit Analysis Modules."

The Red Book's methodology provides costs/fatal accident and costs/injury accident. These costs are provided in Table 5.17 (p. 5-45). The costs used in this analysis are "Net Perceived User Cost" which is total user cost per crash, net of any insurance reimbursements. These costs are:

- $3,723,700/fatal crash.
- $108,600/injury crash (without any fatalities).

In order to apply its methodology, the IDOT data (which provides total injuries and fatalities) must be converted to number of crashes. Table 5.17 also provides rates of fatalities and injuries per fatal crash and injury-only crash, respectively. These are:

- 1.12 fatalities/fatal crash.
- 1.54 injuries/non-fatal injury crash.

Combining the rates cited in the previous two paragraphs and rounding to the nearest $1,000 provides the following costs/fatality and cost/injury for motor vehicle-related incidents:

- $3,325,000/motor vehicle-related fatality.
- $71,000/motor vehicle-related injury.

The costs in Table 5-17 of the AASHTO Red Book are given in Year 2000 dollars. To convert these to year 2013 dollars, these costs were multiplied by the ratio of the Consumer Price Indices for all Urban Consumers for the years 2000 and 2013 (see

ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt). The annual CPI indices for 2000 and 2013 were 172.2 and 233.0, respectively. Applying the ratio of these two CPIs provide the following costs in Year 2013 dollars:

- $4,499,000/motor vehicle-related fatality.
- $96,000/motor vehicle-related injury.

For the Illinois portion of the Study Area during the three year analysis period, fatalities were 3.1% of the total number of injuries and fatalities for motor vehicle crashes. Applying this ratio of 3.1% to the rates given immediately above provides the following cost:

- $232,000/motor vehicle fatality or injury.[7]

This rate was applied to the annual average of 94 "excess" motor vehicle-related deaths and injuries to estimate the excess safety cost in the Illinois portion of the project area as $22,000,000 annually.

Summary

KyTC's most recent published safety analysis revealed consistently high crash rates in both Kentucky Study Area counties. These counties were rated with "critical" crash rates in 3 of 8 possible categories. In a fourth category (injury and fatality crash rates) Ballard County had the 2nd highest rate in its peer group of 20 counties.

The analysis of crash rates for small Illinois counties (those with populations under 20,000) determined that crash rates are significantly different in small counties which have freeways as compared to those which do not. As expected, counties with freeways have significantly lower crash rates. Crash rates on freeways generally are a fraction of those on roads with no access control, and in less-populated rural counties freeways serve a high proportion of total traffic in the county.

Motor vehicle fatalities and injuries in the five Illinois Study Area counties (each of which has a freeway, I-24 and/or I-57) were compared with 14 peer counties in Illinois (which also had a freeway and populations under 20,000). This analysis determined that over a 3 year period, the Study Area counties had an average of an additional 94[8] motor vehicle-related fatalities and injuries than would be expected if their injury and fatality rates were typical of peer counties. The cost of these excess motor vehicle fatalities and injuries is estimated at $22,000,000 annually.

This significantly higher occurrence of highway-related injuries and fatalities is not attributed to a specific or small number of deficiencies. Rather, (as has been pointed out many times by public officials, regional development experts and business leaders) the highway network in the Illinois portion of the study area is regarded as unsafe, especially for east-west travel.

A major east-west highway (connecting Paducah and I-55) would allow significant travel to be diverted from lower-classification, less safe roads to a newer, high-quality facility. This would reduce the number of crashes and overall crash rates throughout the Kentucky and Illinois portions of Study Area.

[7] Calculated as (0.031*$4,499,000) + (1-0.031)*($96,000).
[8] If fatalities and injuries occurred in the Illinois Study Area counties at the same rate as in the peer counties, an average of 361 highway-related injuries and deaths per year would have been anticipated during the analysis period. Actual observed highway-related injuries and deaths were 455 per year, 26% higher than the peer group rate would predict.

The foregoing supports the inclusion of improving regional highway safety as a purpose and need goal for the 66 Corridor project.

66 Corridor

Appendix 3 - Regional Economic Needs Analysis

Paducah, Kentucky to Interstate 55 in Missouri

Alexander, Union, Pulaski, Johnson, and Massac Counties in Illinois

Ballard and McCracken Counties in Kentucky

Cape Girardeau, Mississippi, and Scott Counties in Missouri

IDOT Region 5 / District 9

April 2014

TABLE OF CONTENTS

1.0 INTRODUCTION

This appendix summarizes statistical measures of wealth, growth, income, and other measurements of economic well-being for the 66 Corridor Study Area. It also summarizes the input received from government officials, regional economic development experts, and business leaders regarding the relationship between the transportation system and regional economic development. This appendix, with a companion appendix (Regional Transportation Needs Analysis) is prepared to provide key information and support for the 66 Corridor Purpose and Need.

This appendix has two main sections. The first section analyzes demographic and economic data for the 66 Corridor Study Area, comparing its conditions with the entire states of Illinois, Kentucky and Missouri, as well as the United States as a whole. These data demonstrate that, by a wide variety of economic measures, the Study Area is economically disadvantaged, and in many respects significantly. This economic disadvantage is most pronounced for the rural portions of the Study Area.

The second section presents a summary of the findings from interviews with public officials, regional economic development experts and key businesses in the Study Area. These interviews covered a broad range of issues related to the 66 Corridor project. They are cited insofar as they provide information on the relationship between the region's transportation system and economic development.

2.0 REGIONAL DEMOGRAPHIC AND ECONOMIC DATA

2.1 Population Trends

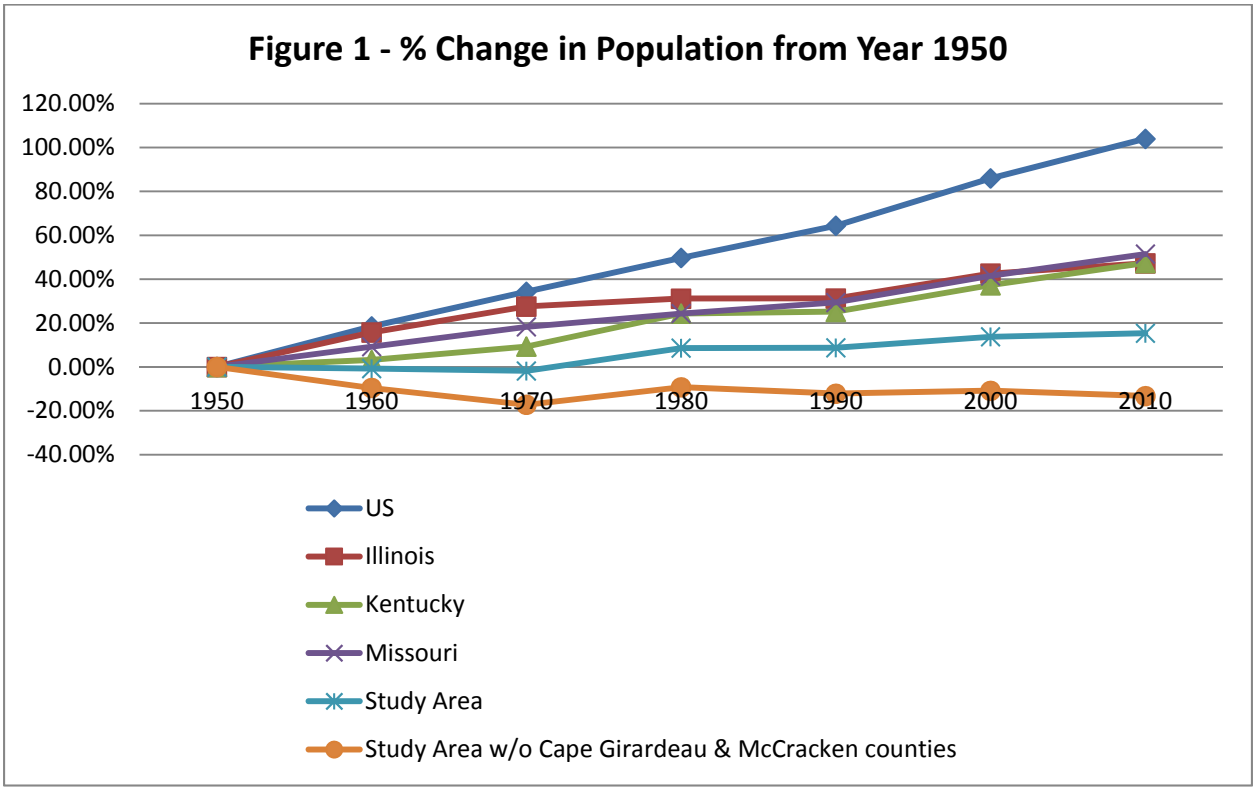
Since 1950, population growth in the Study Area has lagged behind national growth, as well as statewide growth in Illinois, Kentucky and Missouri. In addition, the rural portion of the Study Area (excluding Cape Girardeau County (Cape Girardeau) and McCracken County (Paducah)) has seen an actual population decline of over 13% since 1950.

Table 1 presents population changes since 1950 at 10 year intervals beginning in 1960, and Table 2 presents population in each decennial census since 1950.

	Table 1 - Population from Decennial Census, 1950 to 2010						
	1950	1960	1970	1980	1990	2000	2010
US	151,325,798	179,323,175	203,211,926	226,545,805	248,709,873	281,421,906	308,745,538
Illinois	8,712,176	10,081,158	11,113,976	11,426,518	11,430,602	12,419,293	12,830,632
Alexander County	20,316	16,061	12,015	12,264	10,626	9,590	8,238
Johnson County	8,729	6,928	7,550	9,624	11,347	12,878	12,582
Massac County	13,594	14,341	13,889	14,990	14,752	15,161	15,429
Pulaski County	13,639	10,490	8,741	8,840	7,523	7,348	6,161
Union County	20,500	17,645	16,071	17,765	17,619	18,293	17,808
Kentucky	2,944,806	3,038,156	3,218,706	3,660,777	3,685,296	4,041,769	4,339,367
Ballard County	8,545	8,291	8,276	8,798	7,902	8,286	8,249
McCracken County	49,137	57,306	58,281	61,310	62,879	65,514	65,565
Missouri	3,954,653	4,319,813	4,676,501	4,916,686	5,117,073	5,595,211	5,988,927
Cape Girardeau County	38,397	42,020	49,350	58,837	61,633	68,693	75,674
Mississippi County	22,551	20,695	16,647	15,726	14,442	13,427	14,358
Scott County	32,842	32,748	33,250	39,647	39,376	40,422	39,191
Study Area	228,250	226,525	224,070	247,801	248,099	259,612	263,255
Rural Study Area	140,716	127,199	116,439	127,654	123,587	125,405	122,016

	Table 2 - Percent Population Change Since 1950					
	1960	1970	1980	1990	2000	2010
US	18.5%	34.3%	49.7%	64.4%	86.0%	104.0%
Illinois	15.7%	27.6%	31.2%	31.2%	42.6%	47.3%
Alexander County	-20.9%	-40.9%	-39.6%	-47.7%	-52.8%	-59.5%
Johnson County	-20.6%	-13.5%	10.3%	30.0%	47.5%	44.1%
Massac County	5.5%	2.2%	10.3%	8.5%	11.5%	13.5%
Pulaski County	-23.1%	-35.9%	-35.2%	-44.8%	-46.1%	-54.8%
Union County	-13.9%	-21.6%	-13.3%	-14.1%	-10.8%	-13.1%
Kentucky	3.2%	9.3%	24.3%	25.1%	37.3%	47.4%
Ballard County	-3.0%	-3.1%	3.0%	-7.5%	-3.0%	-3.5%
McCracken County	16.6%	18.6%	24.8%	28.0%	33.3%	33.4%
Missouri	9.2%	18.3%	24.3%	29.4%	41.5%	51.4%
Cape Girardeau County	9.4%	28.5%	53.2%	60.5%	78.9%	97.1%
Mississippi County	-8.2%	-26.2%	-30.3%	-36.0%	-40.5%	-36.3%
Scott County	-0.3%	1.2%	20.7%	19.9%	23.1%	19.3%
Study Area	-0.8%	-1.8%	8.6%	8.7%	13.7%	15.3%
Rural Study Area	-9.6%	-17.3%	-9.3%	-12.2%	-10.9%	-13.3%

Figure 1 shows the percentage change in population at 10 year periods (since 1950) for the United States, the States of Illinois, Kentucky and Missouri, the Study Area, and the rural counties in the Study Area.



Between 1950 and 2010, the population of the United States slightly more than doubled, increasing by 104%. During this same period, the total populations of Illinois, Kentucky and Missouri each increased by slightly less than half the national rate, with growth during this period of between 47.3 and 51.4%. The Study Area had very little increase in population, increasing by only 15.3% during this 60 year period. In the Study Area's rural counties (excluding Cape Girardeau and McCracken counties) there was a 13.3% ***decrease*** in population during this 60-year period.

The low increases in population in the Study Area during this 60 year period, including a significant decrease in population in rural portions of the Study Area, is one indicator of a significant lack of economic opportunity in the Study Area. People are choosing in great numbers not to live in the Study Area, and/or to relocate to other areas, in significant part due to the lack of economic opportunities. The next section on Net Migration examines migration patterns during the most recent ten years between decennial censuses. In addition, Part 2 of this appendix contains summaries of interviews which attest to the effects which lack of opportunity has on population movements.

2.2 Net Migration

Migration for a geographic area measures the difference between the number of people moving into and moving out of an area during a specific period of time. Positive net migration ("inmigration") is an indicator of higher levels of economic opportunities. By contrast, negative

net migration ("outmigration") is an indicator of relatively lower levels of economic opportunities. Total population changes over time reflect the number of births, deaths, and net migration in an area.

Data from the Applied Population Laboratory from the University of Wisconsin at Madison were used to analyze migration patterns within the Study Area between the years 2000 and 2010.[1] These data showed that the Study Area as a whole had a slight outmigration during this period. This outmigration trend was very significant for rural counties in the Study Area. Table 3 summarizes data on net migration during this period. Tables 4 and 5 show net migration as percentages of Year 2000 population. Figures 2 and 3 graphically portray the data in Tables 4 and 5.

Table 3 – Net Migration - 2000 - 2010

	Net Migrants 2000-2010	2010 Population	2000 Population
US	10,776,072	308,745,538	281,421,906
Illinois	-337,216	12,830,632	12,419,293
Alexander County	-1,422	8,238	9,590
Johnson County	-343	12,582	12,878
Massac County	299	15,429	15,161
Pulaski County	-1,116	6,161	7,348
Union County	-228	17,808	18,293
Kentucky	137,940	4,339,367	4,041,769
Ballard County	129	8,249	8,286
McCracken County	-458	65,565	65,514
Missouri	163,447	5,988,927	5,595,211
Cape Girardeau County	4,739	75,674	68,693
Mississippi County	893	14,358	13,427
Scott County	-3,029	39,191	40,422
Study Area	-536	263,255	259,612
Rural Study Area	-4,817	122,016	125,405

[1] See Winkler, Richelle, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis. Age-Specific Net Migration Estimates for US Counties, 1950-2010. Applied Population Laboratory, University of Wisconsin- Madison, 2013. Web. [12/17/2013] http://www.netmigration.wisc.edu.

Table 4 – Net Migration as % of 2000 Population - Overall	
US	3.8%
Illinois	-2.7%
Kentucky	3.4%
Missouri	2.9%
Study Area	-0.2%
Rural Study Area	-3.9%

Table 5 – Net Migration as % of 2000 Population - Study Area Counties	
Alexander, IL	-14.8%
Johnson, IL	-2.7%
Massac, IL	2.0%
Pulaski, IL	-15.2%
Union, IL	-1.2%
Ballard, KY	1.6%
McCracken, KY	-0.7%
Cape Girardeau, MO	6.9%
Mississippi, MO	6.7%
Scott, MO	-7.5%

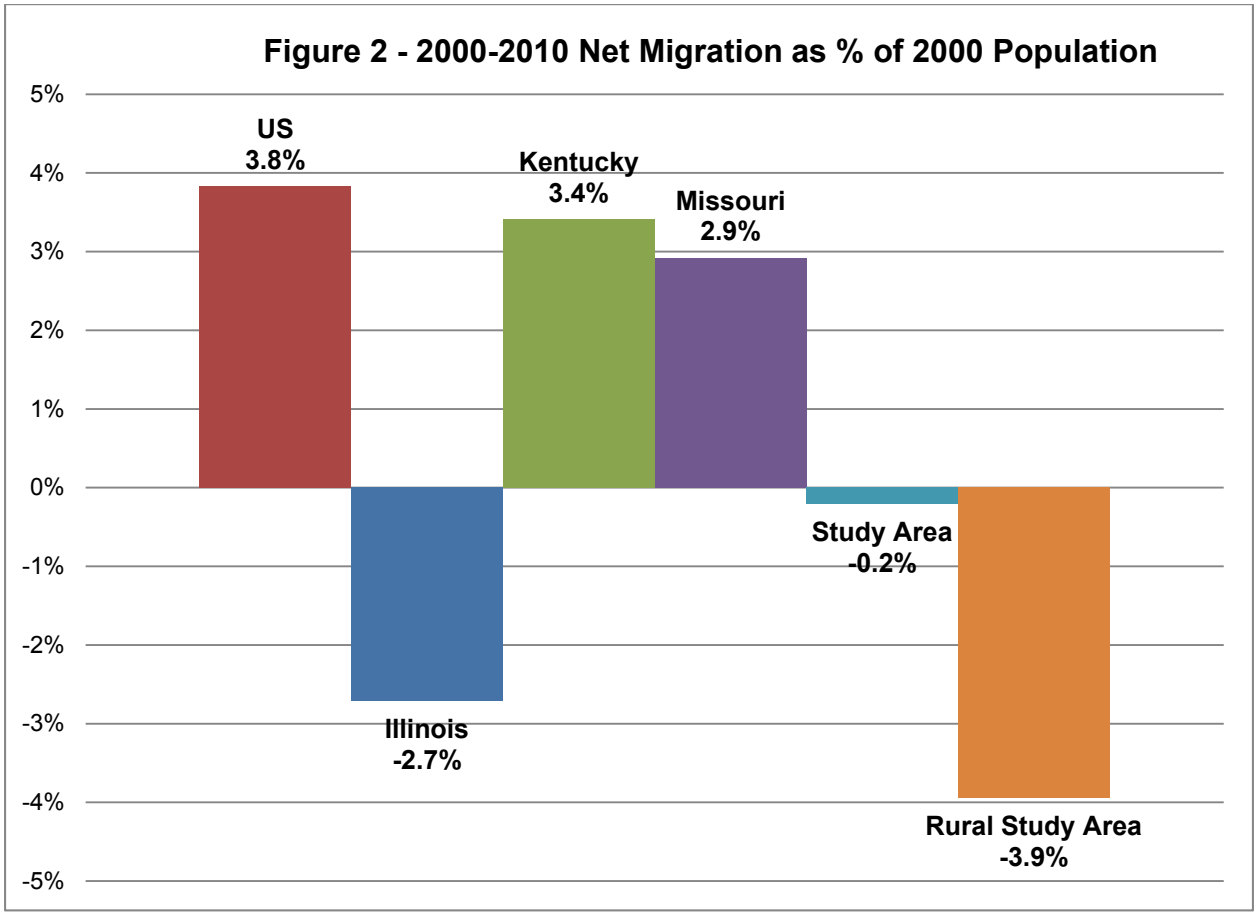
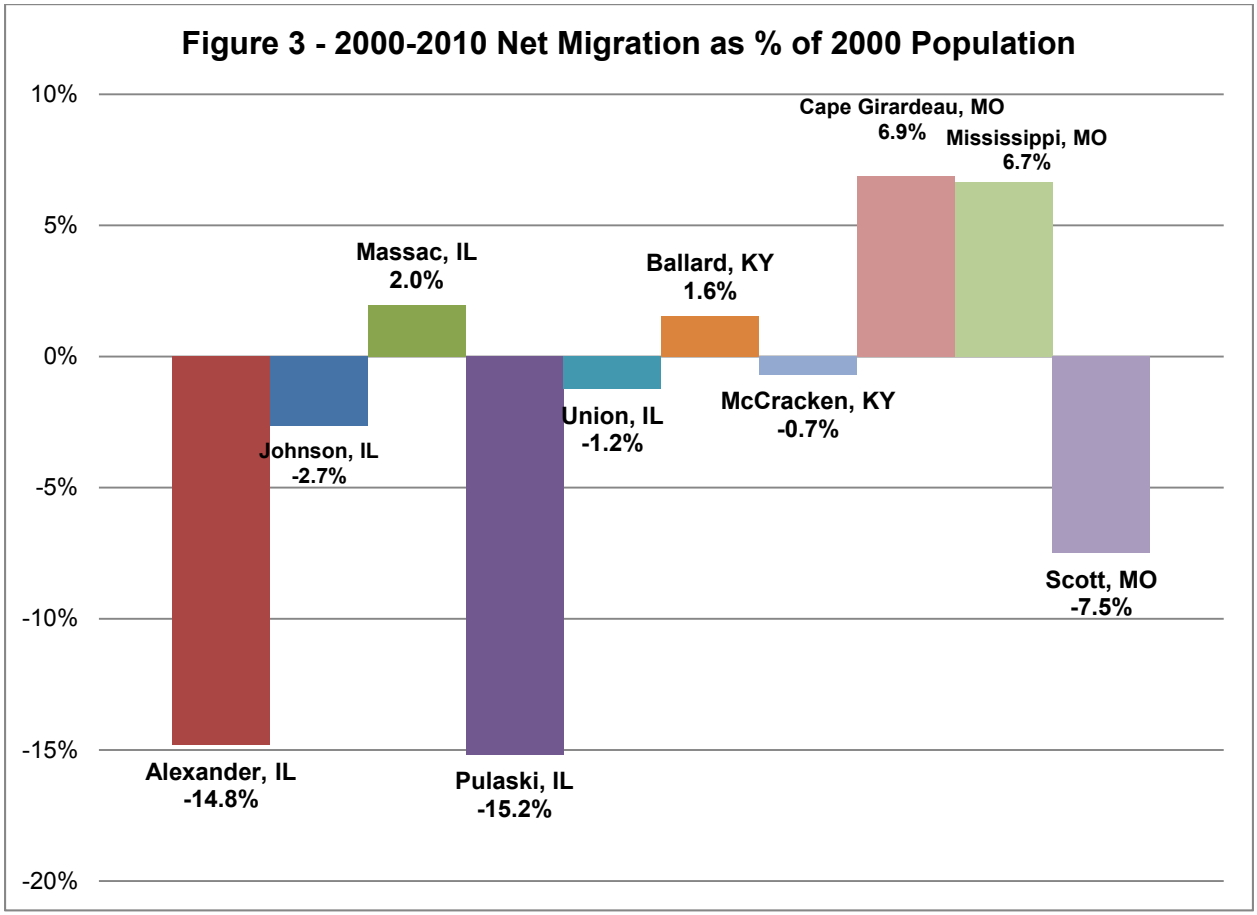


Figure 2 - 2000-2010 Net Migration as % of 2000 Population
5%
4%
3%
2%
1%
0%
-1%
-2%
-3%
-4%
-5%
US
3.8%
Kentucky
3.4%
Missouri
2.9%
Study Area
-0.2%
Illinois
-2.7%
Rural Study Area
-3.9%



These migration patterns show that there has been a study movement of population out of the Study Area, especially its rural counties. Two counties (Alexander and Pulaski) had just under one-sixth of their populations move over a recent ten year period. This significant outmigration of population from the Study Area and its individual counties is indicative of a significant lack of economic opportunities.

2.3 Total Employment

Total employment and trends in employment over time are key measures of economic health. Economically healthy areas will have robust employment growth, and/or growth which exceed national/regional averages. By comparison, economically-depressed areas will have little or no employment growth, and/or growth which lags far behind national and statewide trends.

Tables 6 and 7 show employment changes and percentage employment changes since 1970. These tables show that employment growth in the Study Area has lagged behind national averages over an extended period. Most notably, employment growth in the rural portions of the Study Area has lagged far behind statewide as well as national trends. All data are obtained from Woods and Poole.[2]

Figures 4 through 6 depict both these longer term employment trends, as well as highlight the previous 10 year period (from 2000 to 2010).

[2] "The 2013 Complete Economic and Demographic Data Source (CEDDS)" on CD-ROM, 2013, Woods and Poole Economics, Inc.

Table 6 – Total Employment - At 10 Year Intervals					
	1970	**1980**	**1990**	**2000**	**2010**
US	91,277,624	113,983,267	138,331,007	165,370,892	173,767,337
Illinois	5,143,775	5,675,390	6,390,439	7,354,497	7,276,339
Alexander County	4,798	4,373	3,443	3,290	2,766
Johnson County	2,377	2,851	3,260	4,437	4,345
Massac County	4,875	5,365	4,976	6,958	5,934
Pulaski County	2,992	2,821	2,845	3,202	2,787
Union County	6,850	6,433	7,654	8,236	7,109
Kentucky	1,336,214	1,642,186	1,906,130	2,313,498	2,341,898
Ballard County	3,214	3,876	3,665	4,914	4,431
McCracken County	27,659	35,079	39,272	47,199	46,423
Missouri	2,203,193	2,548,603	2,972,060	3,470,480	3,489,752
Cape Girardeau County	23,223	31,376	42,007	51,493	53,331
Mississippi County	5,956	5,888	5,927	5,730	5,503
Scott County	13,574	17,165	18,831	20,008	18,940
Study Area	95,518	115,227	131,880	155,467	151,569
Rural Study Area	44,636	48,772	50,601	56,775	51,815

Table 7 – % Employment Change Since 1970					
	1970	**1980**	**1990**	**2000**	**2010**
US	0.00%	24.88%	51.55%	81.17%	90.37%
Illinois	0.00%	10.34%	24.24%	42.98%	41.46%
Kentucky	0.00%	22.90%	42.65%	73.14%	75.26%
Missouri	0.00%	15.68%	34.90%	57.52%	58.40%
Study Area	0.00%	20.63%	38.07%	62.76%	58.68%
Rural Study Area	0.00%	9.27%	13.36%	27.20%	16.08%
Alexander County	0.00%	-8.86%	-28.24%	-31.43%	-42.35%
Johnson County	0.00%	19.94%	37.15%	86.66%	82.79%
Massac County	0.00%	10.05%	2.07%	42.73%	21.72%
Pulaski County	0.00%	-5.72%	-4.91%	7.02%	-6.85%
Union County	0.00%	-6.09%	11.74%	20.23%	3.78%
Ballard County	0.00%	20.60%	14.03%	52.89%	37.87%
McCracken County	0.00%	26.83%	41.99%	70.65%	67.84%
Cape Girardeau County	0.00%	35.11%	80.89%	121.73%	129.65%
Mississippi County	0.00%	-1.14%	-0.49%	-3.79%	-7.61%
Scott County	0.00%	26.45%	38.73%	47.40%	39.53%

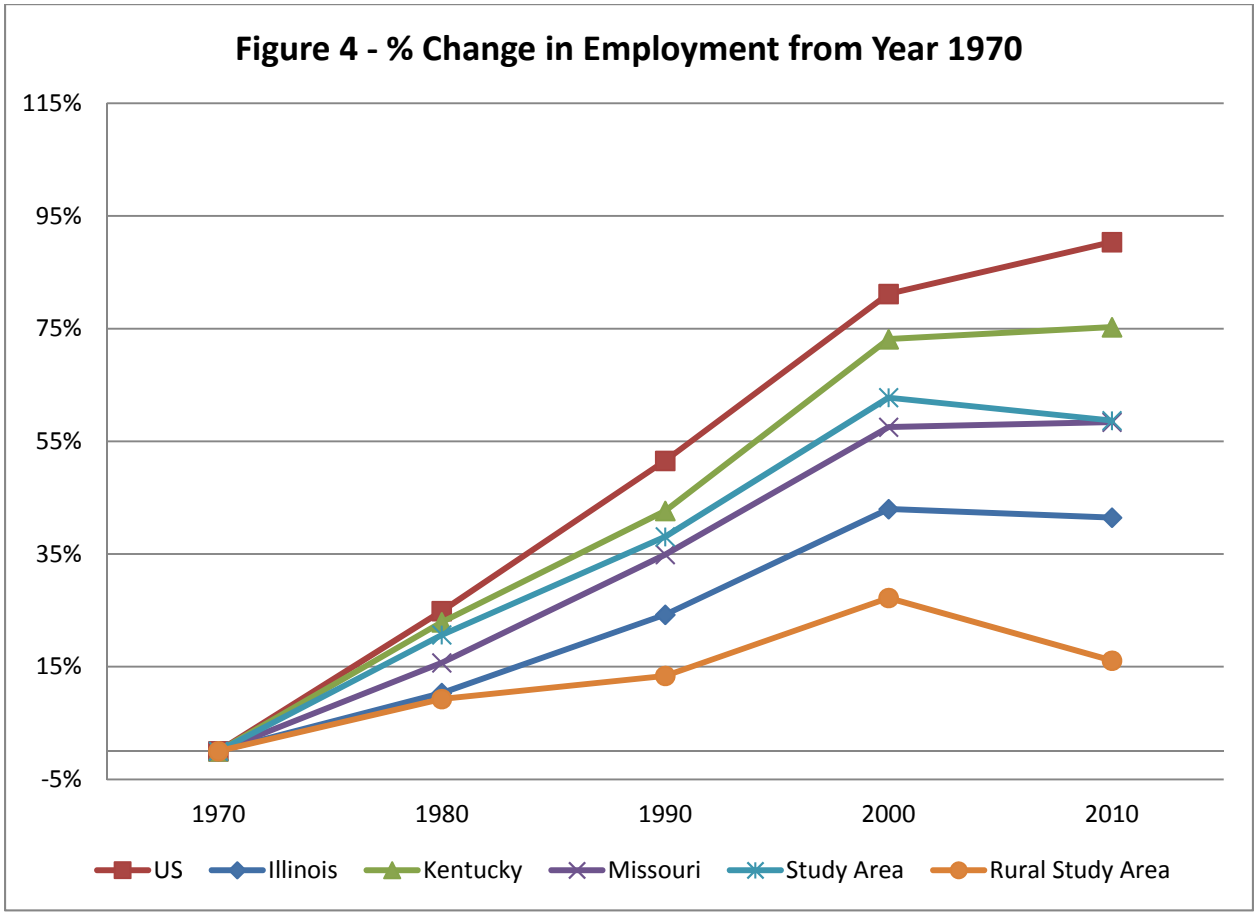


Figure 4 - % Change in Employment from Year 1970
115%
95%
75%
55%
35%
15%
-5%
1970
1980
1990
2000
2010
US
Illinois
Kentucky
Missouri
Study Area
Rural Study Area

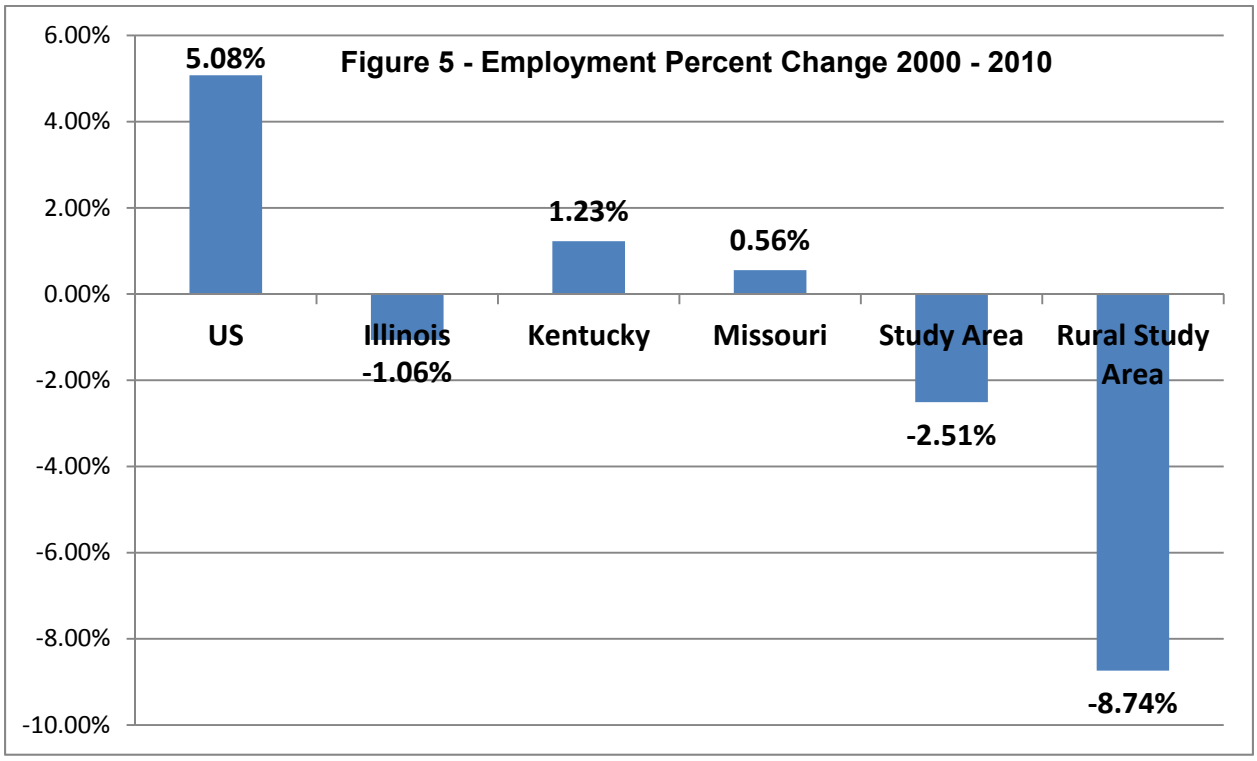
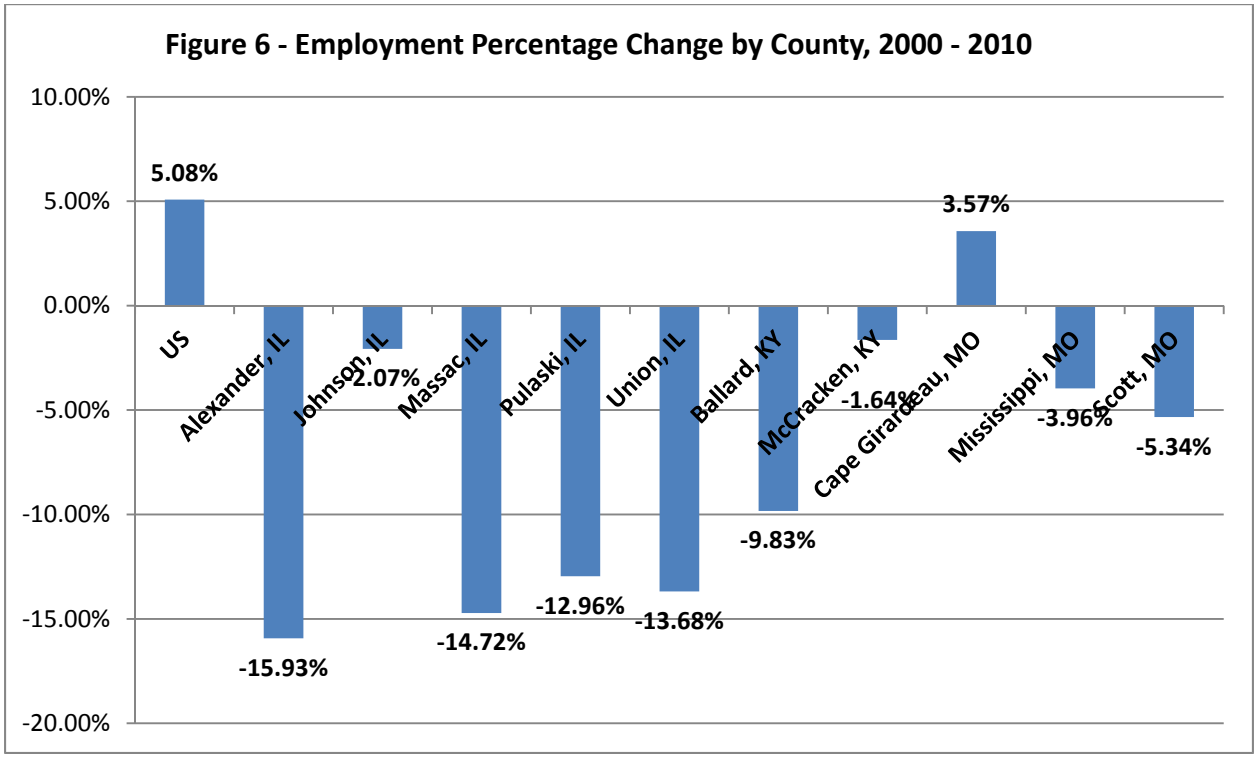


Figure 5 - Employment Percent Change 2000 - 2010
6.00%
4.00%
2.00%
0.00%
-2.00%
-4.00%
-6.00%
-8.00%
-10.00%
5.08%
-1.06%
1.23%
0.56%
-2.51%
-8.74%
US
Illinois
Kentucky
Missouri
Study Area
Rural Study Area



Long-term employment trends in the Study Area track with longer term statewide trends. The 40-year change in the Study Area employment (+58.7%) is within the range of 40-year employment trends in Illinois (+41.5%), Missouri (+58.4%) and Kentucky (+75.3%). However, the 40 year change in employment in the rural portion of the Study Area is only 16.1%; three of its counties (Alexander and Pulaski in Illinois, and Mississippi in Missouri) have a net ***loss*** of jobs over the last 40 years.

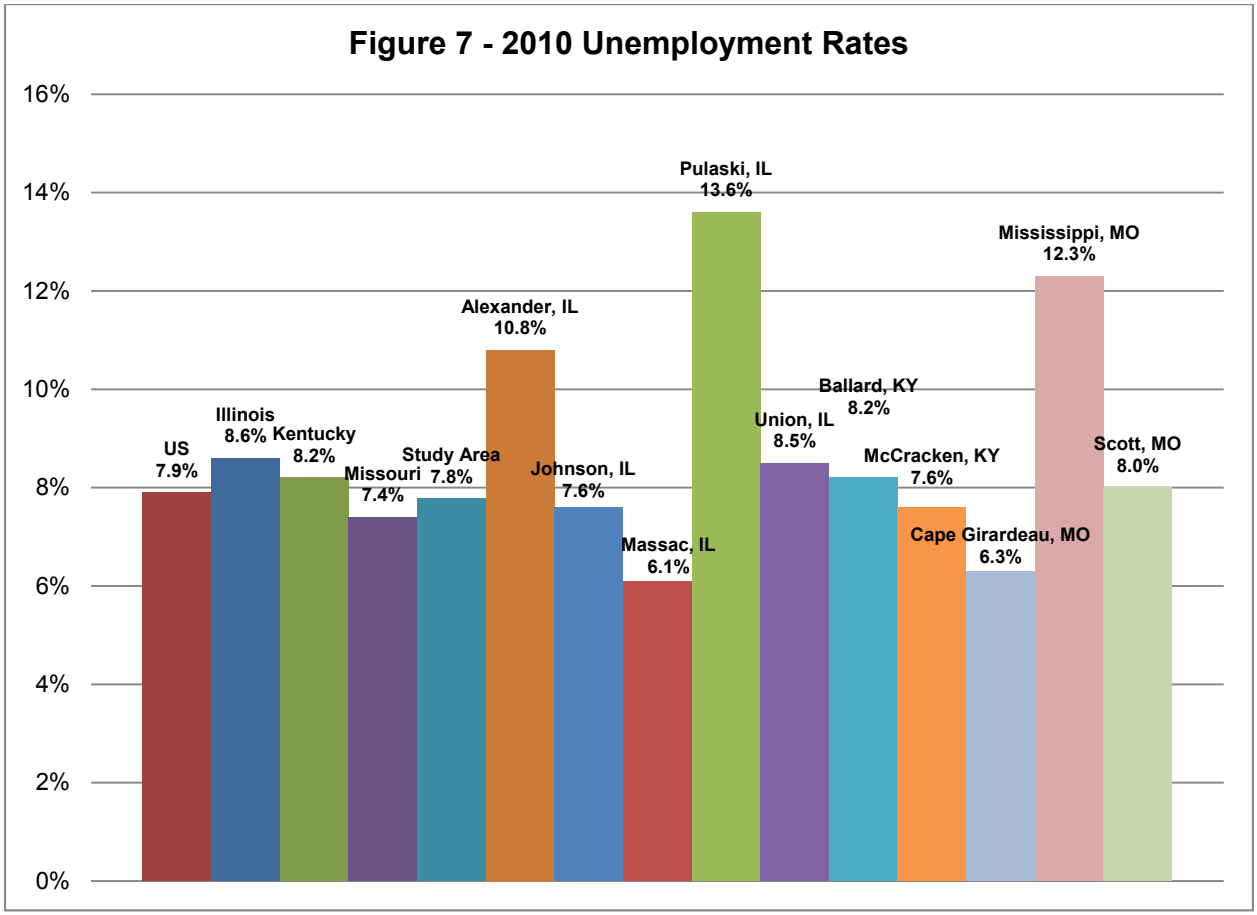
The recent, long-term economic downturn has been notably more severe in the Study Area than elsewhere. The entire Study Area had a net job loss of 2.5% between 2000 and 2010, as compared with small increases in employment nationally as well as in Kentucky and Missouri. The Study Area's job losses also were more pronounced in percentage terms than Illinois' job losses of 1.1% during this period. The rural portion of the Study Area was particularly hard hit, losing 8.8% of its jobs (or more than 1 out of every 12 jobs) during this 10 year period. Four of the Study Area counties lost more than 10% of their jobs; Alexander County had the highest rate of job loss, losing nearly 16% of its employment over this 10 year period.

Long term employment growth trends in the Study Area have mirrored surrounding states, which in turn are significantly less robust than national trends. Within rural portions of the Study Area, these employment trends illustrate a long-term economic contraction.

2.4 Unemployment

Unemployment rates have increased significantly between 2000 and 2010. In the Year 2000, unemployment rates throughout the Study Area were relatively low and generally consistent with national and statewide averages. In 2010, unemployment rates in the Study Area, especially in some rural counties, were significantly higher than national averages. Table 8 shows unemployment rates for 2000 and 2010, and Figure 7 compares county-level unemployment rates in 2010 with state and national averages.

Table 8 – Unemployment Rates		
	2000	**2010**
US	3.7%	7.9%
Illinois	3.9%	8.6%
Alexander County	5.2%	10.8%
Johnson County	3.3%	7.6%
Massac County	3.5%	6.1%
Pulaski County	5.5%	13.6%
Union County	6.2%	8.5%
Kentucky	3.5%	8.2%
Ballard County	2.5%	8.2%
McCracken County	3.6%	7.6%
Missouri	3.4%	7.4%
Cape Girardeau County	3.4%	6.3%
Mississippi County	5.0%	12.3%
Scott County	4.0%	8.0%



The 2010 unemployment rate in the Study Area (7.8%) is reflective of the national unemployment rate (7.9%) and statewide averages in Illinois, Missouri and Kentucky (which range from 7.4% to 8.6%).[3] However, several counties in the Study Area show significantly higher unemployment rates. Unemployment rates in Pulaski County (13.6%), Mississippi County (12.3%) and Alexander County (10.8%) all remained over 10%, well above national and statewide averages. These high rates are particularly noteworthy for both Pulaski and Alexander counties, since both of these counties also experienced net outmigration of approximately 15% between 2000 and 2010 (see Figure 3). In spite of this large loss of population, unemployment remained high for these counties' remaining residents.

2.5 Per Capita Income

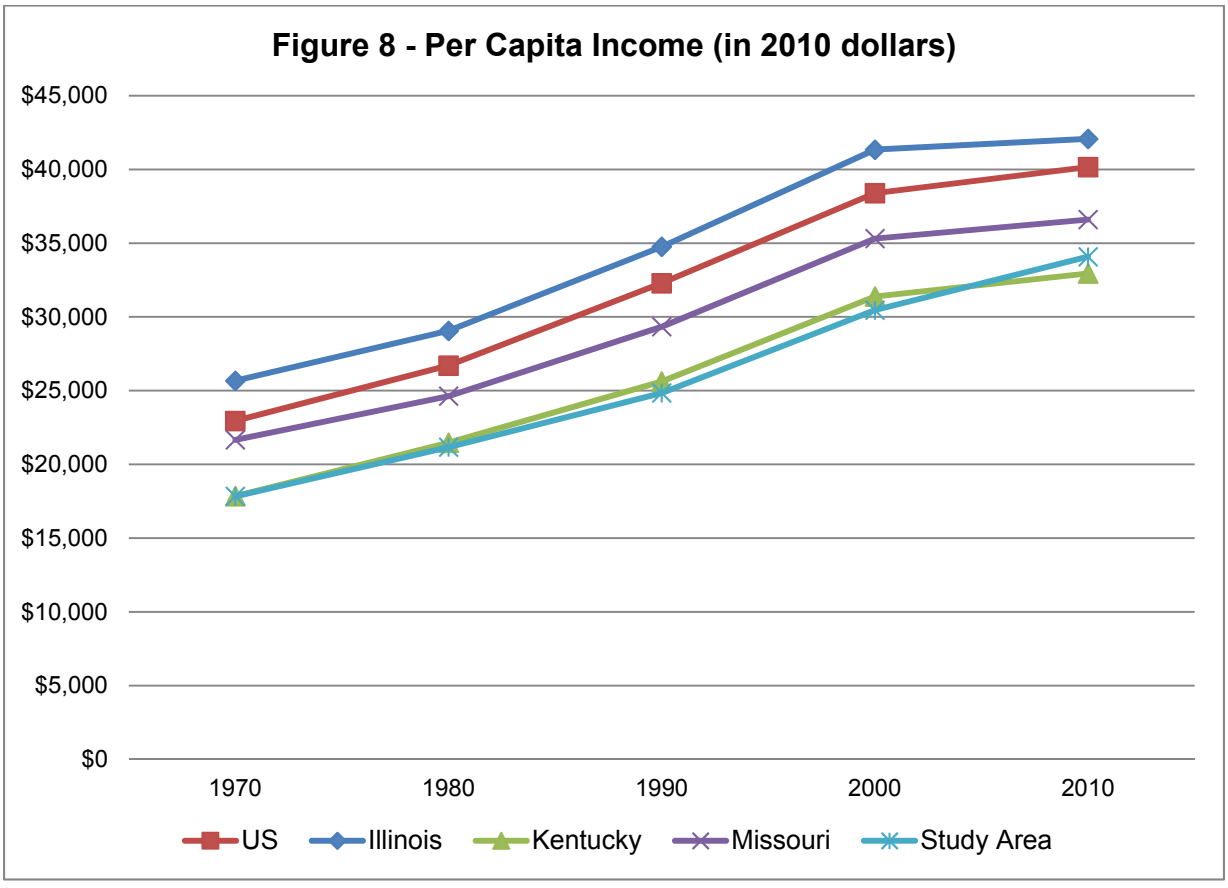
Per capita income is a broad measure of the spending power of the population of a state or region. These data are furnished by the Bureau of Economic Analysis, which is part of the US Department of Commerce. Per capita income is calculated as the ratio of personal income[4] divided by the resident population of an area (specified as the Bureau of the Census' midyear population estimate). Tables 9 and 10 show trends in per capita income over the 40 years between 1970 and 2010. Figure 8 compares national, statewide and Study Area trends over this 40 year period; Figure 9 compares national trends with trends for Study Area rural counties.

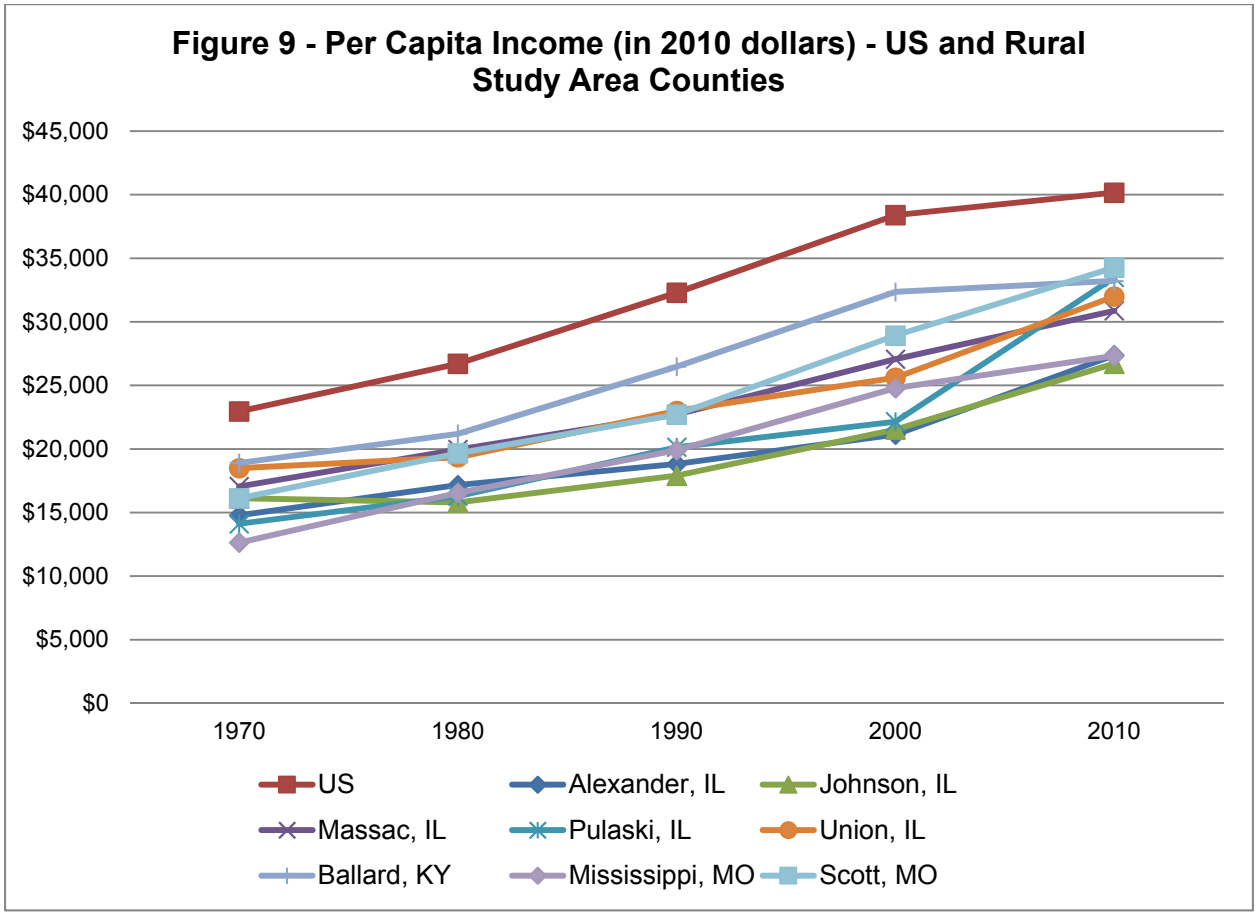
[3] Unemployment data taken from Censes SF3 (QT-P24) for year 2000, and from American Community Survey 5-year estimates (S2301) for year 2010.

[4] Personal income is the income received by all persons from all sources. Personal income is the sum of net earnings by place of residence, property income, and personal current transfer receipts. For more details, see http://bea.gov/newsreleases/regional/lapi/lapi_newsrelease.htm.

Table 9 – Per Capital Income, 1970 - 2010 (In 2010 Dollars)					
	1970	**1980**	**1990**	**2000**	**2010**
US	$22,952	$26,704	$32,290	$38,393	$40,163
Illinois	$25,672	$29,056	$34,761	$41,338	$42,072
Alexander, IL	$14,781	$17,159	$18,823	$21,131	$27,374
Johnson, IL	$16,113	$15,791	$17,900	$21,532	$26,711
Massac, IL	$17,051	$19,958	$22,718	$27,065	$30,871
Pulaski, IL	$14,117	$16,283	$20,136	$22,146	$33,485
Union, IL	$18,490	$19,345	$22,997	$25,610	$31,997
Kentucky	$17,849	$21,470	$25,626	$31,385	$32,947
Ballard, KY	$18,906	$21,192	$26,477	$32,346	$33,217
McCracken, KY	$20,552	$25,635	$29,515	$35,937	$38,134
Missouri	$21,665	$24,627	$29,333	$35,311	$36,605
Cape Girardeau, MO	$19,029	$22,070	$26,317	$32,915	$35,009
Mississippi, MO	$12,634	$16,550	$19,912	$24,788	$27,325
Scott, MO	$16,124	$19,659	$22,708	$28,929	$34,264
Study Area	$17,836	$21,168	$24,844	$30,457	$34,084

Table 10 – Per Capita Income Changes and Differences from National/State Averages						
	% Change, 1970 - 2010	Annual % Change	Difference from State Average		Difference from National Average	
			1970	2010	1970	2010
US	175%	1.41%				
Illinois	164%	1.24%				
Alexander, IL	185%	1.55%	-$10,892	-$14,698	-$8,171	-$12,789
Johnson, IL	166%	1.27%	-$9,560	-$15,361	-$6,840	-$13,452
Massac, IL	181%	1.50%	-$8,621	-$11,201	-$5,901	-$9,292
Pulaski, IL	237%	2.18%	-$11,555	-$8,587	-$8,835	-$6,678
Union, IL	173%	1.38%	-$7,182	-$10,075	-$4,462	-$8,166
Kentucky	185%	1.54%				
Ballard, KY	176%	1.42%	$1,057	$270	-$4,046	-$6,946
McCracken, KY	186%	1.56%	$2,703	$5,187	-$2,400	-$2,029
Missouri	169%	1.32%				
Cape Girardeau, MO	184%	1.54%	-$2,636	-$1,596	-$3,923	-$5,154
Mississippi, MO	216%	1.95%	-$9,031	-$9,280	-$10,318	-$12,838
Scott, MO	213%	1.90%	-$5,541	-$2,341	-$6,828	-$5,899





Key observations about these trends in per capita income include the following:

- Over time, Study Area per capita income tracks closely with Kentucky, while lagging Missouri and Illinois. Illinois per capita income has trended higher than national per capita income.
- All Study Area counties lag significantly behind national trends in per capita income. This is especially true for rural counties. In 2010, rural Study Area counties had per capital income between $5,900 and $13,500 below the national average. See Table 10.
- In both 1970 and 2010, each Study Area county had less than the national per capita income. Also, in both 1970 and 2010, all Study Area counties in Illinois and Missouri had per capita income lower than statewide averages. In most cases, they were significantly below statewide averages.

It is likely that many living costs are lower in the Study Area than elsewhere. This is counterbalanced by a relative lack of accessibility of many parts of the study area to employment, retail shopping, education, and other major activities. Overall, the significantly lower income levels in the Study Area leave its residents at an economic disadvantage.

2.6 Poverty

Percentages of persons living in poverty[5] were obtained from the US Census Bureau.[6] Table 11 presents percentages of persons living below the poverty level in 2000 and 2010. Some portions of the Study Area have poverty rates reflective of state and national rates. However, several of the counties have high poverty rates when compared to state and national averages. Figure 10 presents the Year 2010 poverty rates for each county in the Study Area, along with national and statewide poverty rates.

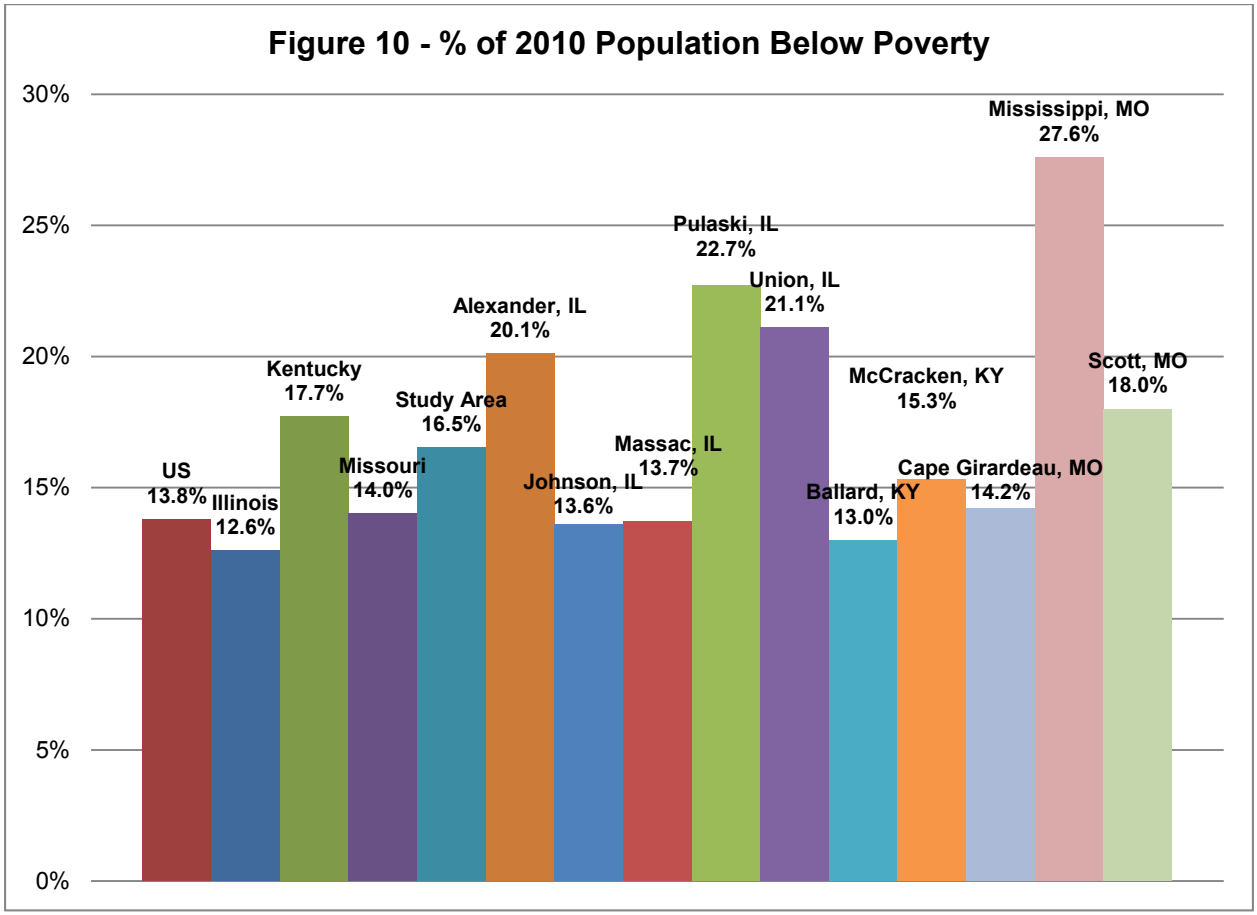
Table 11 - Percent of Population Below Poverty Level

	2000	2010
US	12.4%	13.8%
Illinois	10.7%	12.6%
Alexander County	26.1%	20.1%
Johnson County	11.3%	13.6%
Massac County	13.5%	13.7%
Pulaski County	24.7%	22.7%
Union County	16.5%	21.1%
Kentucky	15.8%	17.7%
Ballard County	13.6%	13.0%
McCracken County	15.1%	15.3%
Missouri	11.7%	14.0%
Cape Girardeau County	11.1%	14.2%
Mississippi County	23.7%	27.6%
Scott County	16.1%	18.0%

Percentages above 20% are highlighted.

[5] "Following the Office of Management and Budget's (OMB) Statistical Policy Directive 14, the Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. The official poverty thresholds do not vary geographically, but they are updated for inflation using Consumer Price Index (CPI-U). The official poverty definition uses money income before taxes and does not include capital gains or noncash benefits (such as public housing, Medicaid, and food stamps)." Taken from http://www.census.gov/hhes/www/poverty/methods/definitions.html.

[6] Poverty data taken from Censes SF3 (QT-P34) for year 2000, and from American Community Survey 5-year estimates (S1701) for year 2010.



Four of the ten Study Area counties have poverty rates which are over 20%. Three of these (Pulaski, Union and Mississippi) have rates at least 50% higher than the national average of 13.8%. These counties with higher poverty rates generally also perform poorly on other measures of economic well-being (population, employment/unemployment, migration and income levels).

2.7 Demographic and Economic Data – Summary Assessment

In summary, the findings of the analysis of demographic and economic data for the Study Area are as follows:

2.7.1 Population Trends – Summary

Population in the Study Area grew by only 15.3% between 1950 and 2010. This is about ***one-third*** the rate of growth in Illinois, Kentucky and Missouri, and about ***one-seventh*** the national rate of growth. The rural counties in the Study Area (the Study Area excluding Cape Girardeau and McCracken counties) ***decreased*** in population by 13.3% during this time. Three of these rural counties (Mississippi, Pulaski and Alexander) ***lost between thirty five and sixty percent*** of their population between 1950 and 2010. These low increases and in many cases ***decreases*** in population over a prolonged period of time are an indicator of the significant lack of economic opportunity in the Study Area.

2.7.2 Net Migration – Summary

There was a very small (-0.2%) net outmigration from the Study Area between 2000 and 2010. This was more pronounced in the Study Area's rural portions, where the net outmigration was -3.9% of the year 2000 population. This trend was especially pronounced in Alexander and Pulaski counties, where net outmigration was -14.8% and -15.2%, respectively, of the year 2000 population. In both these counties, more than one person in seven who resided there in the year 2000 left over the next decade. This significant outmigration from the rural Study Area counties is indicative of a significant lack of economic opportunities.

2.7.3 Employment – Summary

Long term employment trends in the Study Area track with long-term statewide trends. However, in the eight rural counties of the Study Area, long-term employment growth is only a fraction of statewide levels; three of the eight rural counties (Alexander, Pulaski and Mississippi) actually have lost employment over the last 40 years. In the most recent decade the Study Area, especially the rural counties, was hard hit with job losses. The rural counties as a whole lost more than 1 job in 12 (of those which existed in the Year 2000) by 2010. Four of the rural Study Area counties lost more than 10% of their jobs between 2000 and 2010.

2.7.4 Unemployment – Summary

In the Year 2000, unemployment rates in the Study Area generally tracked with national and statewide rates. By 2010, while this continued to be the case for the Study Area as a whole, several rural counties (most notably Pulaski, Alexander and Mississippi) had unemployment significantly higher than national or statewide rates.

2.7.5 Per Capita Income – Summary

All Study Area counties (especially the rural counties) lag significantly behind national rates of per capita income. In 2010, these rural counties had per capita income between $5,900 and $13,500 below the national average. In both 1970 and 2010, all Illinois and Missouri Study Area counties lagged behind statewide averages for per capita income.

2.7.6 Poverty – Summary

In 2010, three of the Study Area counties (Pulaski, Union and Mississippi) had poverty rates at least 50% greater than the national average of 13.8%. A fourth county (Alexander) also had a poverty rate of over 20%.

2.7.7 Demographic and Economic Data – Overall Summary

As measured by a broad range of demographic and economic data, the Study Area, and in particular its eight rural counties, are very economically disadvantaged. This is especially so for three of the counties (Alexander and Pulaski in Illinois, and Mississippi in Missouri).

3.0 STAKEHOLDER, ECONOMIC DEVELOPMENT AND BUSINESS INTERVIEWS

Team members conducted interviews with a number of public officials, regional economic development experts and business leaders. These interviews identified that transportation inadequacies and lack of accessibility in the region is significantly limiting its potential for

economic growth. Written summaries are prepared for these interviews, and will be included in the NEPA documents for this project. This section documents key information from these interviews regarding the relationship between the region's transportation system and economic development. Only interviews which provided such information are cited here.

3.1 June 27, 2013 – Massac County

- Lack of access from the west and from Missouri to Massac County hinders business at the casino in Massac County, as well as use of Fort Massac State Park.

3.2 June 27, 2013 – City of Metropolis

- Lack of good access to Missouri/Cape Girardeau restricts trucking operations.
- A better connection to Cape Girardeau would increase use of the local casino and encourage visitors to travel to Fort Massac State Park.

3.3 August 12, 2013 – City of Cape Girardeau

- **Businesses in the area, such as Proctor and Gamble, have done studies which show that inefficient east-west travel increases business costs.**
- The Panama Canal expansion will lead to increased barge shipments into the region, creating further demand for regional freight shipments.

3.4 August 12, 2103 – Southeast HEALTH

- Better access from the east (into Illinois and Kentucky) would reduce overall costs of health care services.

3.5 August 15, 2013 – City of Vienna

- A corridor through southern Illinois must provide a high level of local access in order to maximize commerce, access to local businesses, and tourism.

3.6 September 9, 2013 – Mississippi County

- Many farmers have headquarters in Missouri as well as significant operations in Kentucky, but have no reliable way to travel between their operations.
- A new connection between Kentucky and Missouri will help economic development in both states.

3.7 September 13, 2013 – The Nature Conservancy

- There is a significant need for better intermodal connections at river ports throughout the study area.

3.8 September 19, 2013 – Pulaski Co. (Government, Business, Educational Representatives)

- A high-quality east-west route in the area would encourage businesses to locate here.

- Freight shipments, especially those using large trucks, need better roads to operate safely and economically.
- Real estate values are significantly higher within 30 minutes of Cape Girardeau and Paducah. A new corridor will increase this 30 minute footprint, and bring increasing property tax revenues to local governments.
- A new transportation facility will greatly benefit regional tourism.

3.9 September 19, 2013 – Southernmost Illinois Tourism Bureau

- A new east-west road, especially one which offers a high level of local access, will help to develop regional tourism.

3.10 September 25, 2013 – VMV Paducahbilt

- Shipments from Paducah to points west are inefficient. There are frequent delays for truck shipments. An improved way to distribute goods west and south would help business.

3.11 October 2, 2013 – City of Cairo

- Any improvement which bypasses the City of Cairo would be detrimental to its economy.

3.12 October 14, 2013 – West Kentucky Community and Technical College

- President of college also is former chair of Paducah Chamber of Commerce. Notes that additional east-west transportation facility in Study Area will encourage economic development.

3.13 December 11, 2013 – Cairo Economic Development Committee

- Improved east-west transportation access would aid in Cairo's economic redevelopment plans.
- A good transportation system would enhance the labor pool in Cairo by providing better access to jobs in the region.

3.14 December 11, 2013 – Cape Girardeau Chamber of Commerce

- Travel east of Cape Girardeau is provided by lower quality and (in some respect) dangerous roads, especially for truck travel.
- The United States is increasingly a truck shipment-based economy; the lack of good east-west connections leaves the region at an economic disadvantage.
- A high quality connection between Cape Girardeau and Paducah will have economic benefits for the entire region. Another economic development benefit such a connection could provide would be improved access to Shawnee Community College, which is a major source of job training.

3.15 December 11, 2013 – Southern Five Regional Planning District

- Improved east-west access in the region is needed.

- The lack of good east-west roadways is a significant impediment to attracting business to the region.
- Better access to Shawnee Community College would encourage development by making it easier for the labor force to upgrade its skills.
- East-west roads in the region are unsafe for use by large trucks.
- Southern Five's regional development plans depend upon a good roadway system to enhance both the residential and industrial base.

3.16 December 30, 2013 – Southern Illinois Electrical Cooperative

- Access to urban areas encourages development. Increasing such access would encourage development in additional geographic areas.
- Better transportation access will support the tourism and winery industries in the region.

3.17 January 3, 2014 – American Commercial Lines

- US 51 bridge from Kentucky to Illinois is a significant constraint on deliveries; there is no comparable issue with US 60 bridge from Illinois to Missouri.

3.18 January 8, 2014 – ADM

- The US 51/60/62 bridge from Kentucky to Illinois is a major (and inadequate) link in the region's economic network. The structural integrity of this bridge is a major issue.
- A new east-west route connecting Paducah and Cape Girardeau would be of value to goods movements (i.e. reduce the shipping rates)
- Businesses would benefit from access to a larger labor pool if a major east-west connection were built.

3.19 January 8, 2014 – Consolidated Grain and Barge

- CGB serves as a waterfront grain elevator, and has customers come from up to 60 miles away. It would benefit from better access within the region. Its customer base extends into Missouri and Kentucky.
- Better east-west highway access in the region is needed.

3.20 January 8, 2014 – Southernmost Illinois Delta Empowerment Zone

- The bridges over the Ohio and Mississippi at Cairo are inadequate and hinder the region's economy. When alternative routes must be used (which is often – due to maintenance or crashes) shipments must take very lengthy and expensive detours.
- East-west access in the region is poor.
- These two issues (the Cairo bridges and east-west access) are particularly important to larger businesses. It impacts the costs and efficiency of their operations, which are more dependent upon truck shipments than smaller businesses.
- These transportation issues make delivery times in the region unreliable. The need to use unsafe roads (which are subject to being closed down due to crashes) is a problem throughout the region.

- The Grapevine Trail was cited as unsuitable for heavy truck traffic, while acknowledging that it is heavily used by larger vehicles.
- All of these factors are important considerations when deciding to locate or expand business within the region.
- A disproportionate amount of county funds are used to maintain county roadways to maintain roads with heavy truck use. If there were a suitable state-jurisdictional east-west roadway, it would free up a lot of local funds for other uses.
- Lack of access to Paducah and Cape Girardeau discourages those in the labor force from living in many parts of the Study Area. Many, especially younger workers, are leaving the region to move to areas with better access to jobs.
- An expressway (offering a higher level of local access to the new facility) is the type of facility needed in the region. A freeway would "add to our problems" in the region by bypassing most areas and providing no improvement in local access. An expressway also would support expanded tourism.

3.21 Interviews – Summary of Input

Several consistent themes were presented in a number of these interviews. Coming as they do from a variety of public officials, regional development experts, and business representatives, they provide a firm basis to assert that improved transportation access within the region would support and increase economic development within the region. In summary, the major themes include:

- ***There is a need for significantly-improved east-west access in the Study Area.*** The majority of those interviewed cited this point. Subpoints to this main theme included:
    - *East-west roads in the region are unsafe.* There is a significant amount of heavy truck traffic using east-west roads which are not designed for this type of vehicle. There are frequent crashes.
    - *East-west roads in the region offer slow and undependable travel.* Frequent incidents (crashes) make east-west travel times unreliable. In adverse weather, travel is substantially delayed on substandard roads.
    - *The lack of adequate east-west roads discourages new business investment and business expansion.* This is especially true for larger businesses, which heavily depend upon truck shipments.
    - *The lack of adequate east-west roads imposes added shipping costs to existing businesses.* This was especially cited by business representatives in the Cape Girardeau region, as well as those located in Paducah.
    - *This need for improved east-west access extends to points south of Illinois.* Several noted that the portions of the Study Area in Kentucky and Missouri would be better served by a new east-west connection somewhere south of Cairo, across the Mississippi River.
    - *Lack of east-west access affects local business throughout Southern Illinois.* For these businesses, both access to customers and shipping costs are negatively impacted by the poor quality of east-west roads.

- *Improved east-west access will make higher education more available.* Three institutions cited as offering significant opportunities for people to upgrade their skills included Southeast Missouri State University in Cape Girardeau, Shawnee Community College in Ullin, and West Kentucky Community and Technical College in Paducah. Each could serve more residents if east-west access were improved.

- ***There is a significant opportunity for improved transportation to support increased tourism.***
  - *Casinos and parks in the Metropolis/Paducah region would have increased business with better east-west access.*
  - *There is a significant opportunity to support tourism throughout the region.* There are many high-quality natural areas which would benefit from increased tourism. There also is a growing winery industry.

- ***Better highway access will allow the region to take advantage of increased intermodal opportunities.***
  - *The Panama Canal expansion will bring much larger barge shipments to the region.* The region is ideally suited (at the confluence of the Ohio and Mississippi Rivers) to be an even more significant intermodal center. It is important that the highway system serving river ports provide high-quality access in all directions.
  - *There is a general need for improved intermodal connections at river ports in the region.*

- ***Better access to urban areas would support economic development in multiple ways.***
  - *Improved access to urban areas will help the region to retain its labor force.* More jobs, and higher-paying jobs, are available in urban areas (Paducah and Cape Girardeau). Improving access to these urban areas will lead to increases in the region's labor force, especially higher-skilled workers and younger workers.
  - *Urban employers would benefit from access to a larger labor pool.*
  - *Real estate values increase significantly within about 30 minutes travel of urban areas.* Increasing the area with 30 minute access to urban areas will significantly increase property values and local tax revenues.

- ***The Ohio and Mississippi River Bridges at Cairo are significant constraints to economic activity.***
  - *These bridges are subject to frequent delays and closures.* Maintenance activities prevent the use of these bridges by large trucks. This is especially true of the US 51 bridge between Illinois and Kentucky. Crashes are frequent; when they occur, truck traffic also is restricted.
  - *Alternatives to using these bridges are very undesirable.* Alternatives require 60 – 80 miles of additional travel. Often, shippers "take a chance" to wait out delays, hoping they will clear quickly. This is because alternative routes are long and expensive.

- *A new Kentucky to Missouri crossing south of Cairo would alleviate many of the issues associated with the existing crossings at Cairo.*

4.0 REGIONAL ECONOMIC NEEDS ANALYSIS – SUMMARY

Part 1 of this technical memo examines a wide range of demographic and economic data for the 66 Corridor Study Area. It shows that the Study Area, in particular its eight rural counties, is very economically disadvantaged as assessed by a broad range of measures. This is especially so for three of the rural counties (Alexander and Pulaski in Illinois, and Mississippi in Missouri).

Part 2 of this technical memo summarizes the findings of a number of interviews with local public officials, economic development experts, and representatives of leading businesses. These interviews identified five key ways in which transportation improvements could provide significant support to economic development in the Study Area. These five key ways include:

- ***Significantly improving east-west accessibility in the Study Area.*** This was the most often-cited point. Improved accessibility would lower business costs, assist in attracting new business, support business expansion, improve highway safety, and attract a larger and more skilled labor pool.
- ***Supporting increased tourism in the region.*** There are significant opportunities to support increased tourism to the many high-quality natural areas in the region. Increased access (especially east-west access) is key to supporting increases in tourism.
- ***Supporting increased intermodal transportation.*** The confluence of the Ohio and Mississippi Rivers provides a very significant transportation advantage to the region. With the pending Panama Canal expansion, landside support for intermodal transportation (including improved access in the region) is even more critical.
- ***Supporting improved access to urban areas.*** Businesses will benefit from access to a larger labor pool. Rural areas can retain a larger and better-trained workforce if there is better access to urban areas. Improved access will also increase real estate values and provide more financial support to local governments.
- ***Improving access across the Ohio and Mississippi Rivers at Cairo.*** The age and state of repair of these bridges imposes significant costs on businesses, especially those which depend on truck shipments. When these bridges cannot be used due to maintenance or incidents, shippers must use alternative routes which are 60 to 80 miles longer.

There is a major need to improve the economic circumstances of the Study Area, especially its rural counties. The economic status of their residents lags far behind those in other areas in the nation, as well as elsewhere in Illinois, Kentucky and Missouri. Input from a large number of public officials, regional economic development experts, and businesses has identified that improving specific substandard features of the region's transportation system would offer significant support to regional economic development.

In December, 2012 the Illinois Department of Transportation published the *Illinois State Transportation Plan 2012 – Transforming Transportation for Tomorrow*. Chapter 3 of the *Plan*,

Polices, Goals and Action Plan, states (p. 35) “Fundamental policies and goals provide a framework to guide the development of annual and multi-year programs by the Department as outlined in the State Transportation Plan.” One of the 11 fundamental policies which the *Plan* identifies is “Target Transportation Investments to Support Economic Development” (pp. 52 – 53).

Given the need for economic development in the Study Area, the ability of transportation improvements in the region to support such development, and IDOT’s fundamental policies, it is appropriate to evaluate the ability of alternatives to support economic development. At the same time, the transportation system is not the sole determinant of the level of economic development in the region. Other factors (e.g., the size and composition of the labor force, availability and cost of utilities and public infrastructure, regulatory policies to support business development, and regional business promotion and marketing) also determine the level of economic development. Accordingly, it is recommended that support of regional economic development be a purpose and need goal used to evaluate project alternatives. At the same time, it is recommended that it not be a core or primary goal. This is because while a transportation system which provides a high level of access is necessary to support economic development, development depends upon other factors as well.

66 Corridor

Appendix 4 - Project Goals & Performance Measures

Paducah, Kentucky to Interstate 55 in Missouri

Alexander, Union, Pulaski, Johnson, and Massac Counties in Illinois

Ballard and McCracken Counties in Kentucky

Cape Girardeau, Mississippi, and Scott Counties in Missouri

IDOT Region 5 / District 9

April 2014

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PROJECT GOALS AND PERFORMANCE MEASURES

Based upon the foregoing technical analyses and stakeholder input, the following project goals and performance measures are proposed. Unless otherwise noted, all performance measures will be calculated by comparing future year (2040) no build and build assignments from the 66 Corridor travel demand model.

A. Category – System Linkage/Regional Accessibility

Goal – Improve connectivity of Paducah, KY and I-55 in Missouri

Performance measures:

1. Free flow travel time savings between Paducah and Cape Girardeau. This is the savings in travel time which a vehicle would have if it made a trip in the absence of any traffic congestion.
2. Free flow travel time savings between Paducah and Sikeston. This is the savings in travel time which a vehicle would have if it made a trip in the absence of any traffic congestion.

Each performance measure will be calculated separately for each alternative.

Goal – Improve access to urban areas

Performance measures:

1. Increase in Study Area population with 30 minute access to an urban area (Paducah, Cape Girardeau, or Sikeston).
2. Percentage increase in percentage Study Area population with 30 minute access to an urban area (Paducah, Cape Girardeau, or Sikeston).

Performance measure will be calculated separately for each alternative. Each performance measure will be calculated for the Study Area as a whole, as well as (separately) for the Illinois, Missouri and Kentucky portions of the Study Area.

Goal – Improve access to full-service medical center

Performance measures:

1. Increase in Study Area population with 30 minute access to a full-service medical center.
2. Percentage increase in Study Area population with 30 minute access to a full-service medical center.

Performance measures will be calculated separately for each alternative. Each performance measure will be calculated for the Study Area as a whole, as well as (separately) for the Illinois, Missouri and Kentucky portions of the Study Area.

Goal – Improve access to higher education

Performance measures:

1. Increase in Study Area population with 30 minute access to a college or university.
2. Percentage increase in Study Area population with 30 minute access to a college or university. .

These performance measures will be calculated separately for each alternative. Each performance measure will be calculated for the Study Area as a whole, as well as (separately) for the Illinois, Missouri and Kentucky portions of the Study Area.

B. Category – System Linkage/Regional Safety

Goal – Reduce total crashes in Study Area

Performance measures:

1. Reduction in annual total crashes in the Study Area.
2. Reduction in annual serious crashes (resulting in injuries and/or fatalities) in the Study Area.

Performance measures will be calculated separately for each alternative. Each performance measure will be calculated for the Study Area as a whole, as well as (separately) for the Illinois, Missouri and Kentucky portions of the Study Area.

C. Category – System Linkage/Regional Economic Development

Goal – Support Economic Development

Performance measures:

1. Increase in Study Area population. This will be calculated for the forecast year 2040. Using the TREDIS ® model, the increase in Study Area population from the no-build case will be calculated, assuming that the alternative is constructed in a specified intermediate year.
2. Increase in Study Area employment. This will be calculated for the forecast year 2040. Using the TREDIS ® model, the increase in Study Area employment from the no-build case will be calculated, assuming that the alternative is constructed in a specified intermediate year.
3. Change in unemployment rate. This will be calculated for the forecast year 2040. Using the TREDIS ® model, the change in the Study Area unemployment rate from

the no-build case will be calculated, assuming that the alternative is constructed in a specified intermediate year.

4. Increase in personal income. This will be calculated for the forecast year 2040. Using the TREDIS ® model, the change in the Study Area personal income from the no-build case will be calculated, assuming that the alternative is constructed in a specified intermediate year.
5. Change in poverty rate. This will be calculated for the forecast year 2040. Using the TREDIS ® model, the change in the Study Area poverty rate from the no-build case will be calculated, assuming that the alternative is constructed in a specified intermediate year.

Performance measures will be calculated separately for each alternative. Each performance measure will be calculated for the Study Area as a whole, as well as (separately) for the Illinois, Missouri and Kentucky portions of the Study Area.

For purposes of comparing economic development benefits, it is proposed that alternatives be specified as completed and open to traffic in the year 2025.