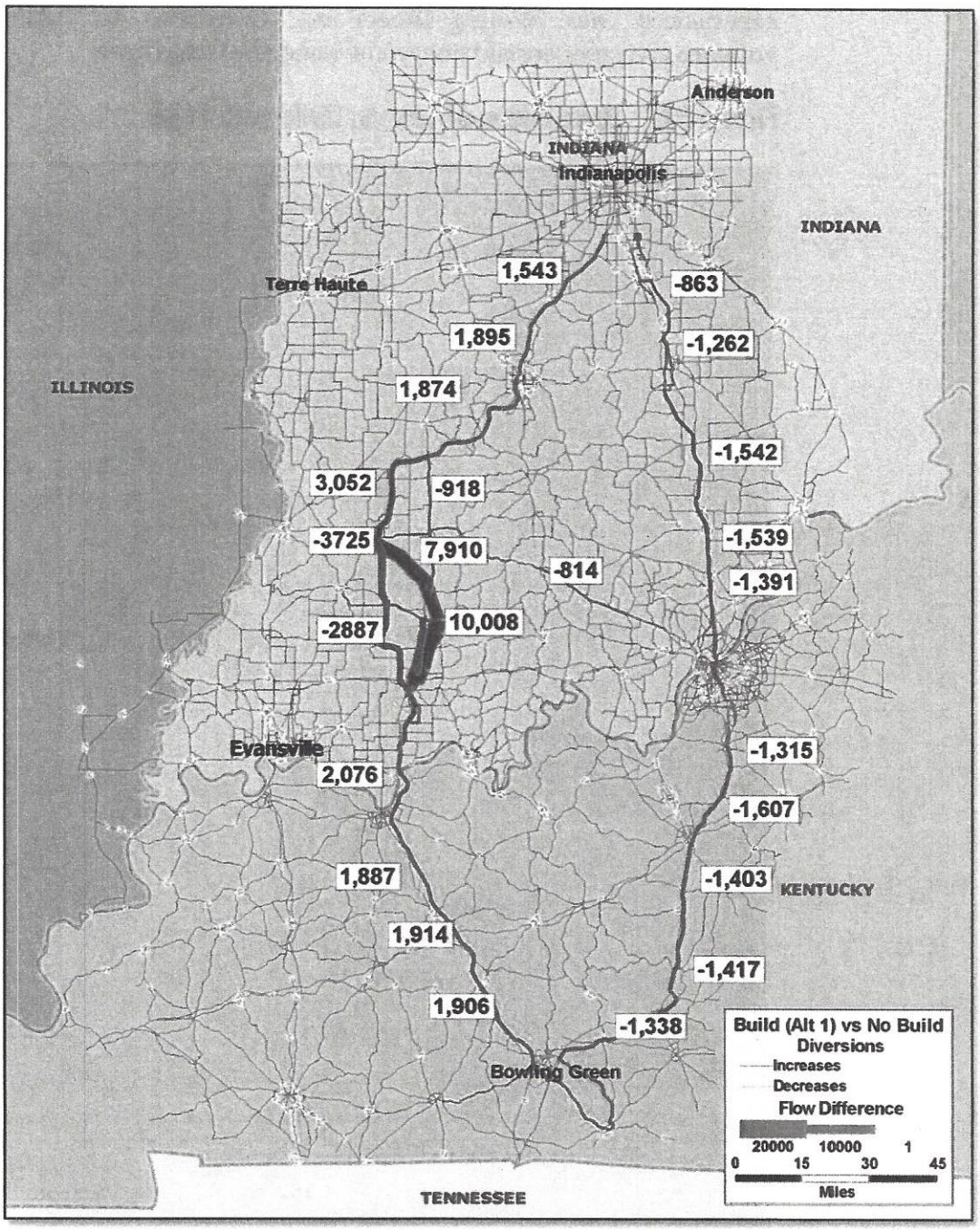
Figure 3.5 Traffic Diversions – I-67 Build Without Tolls vs. No Build

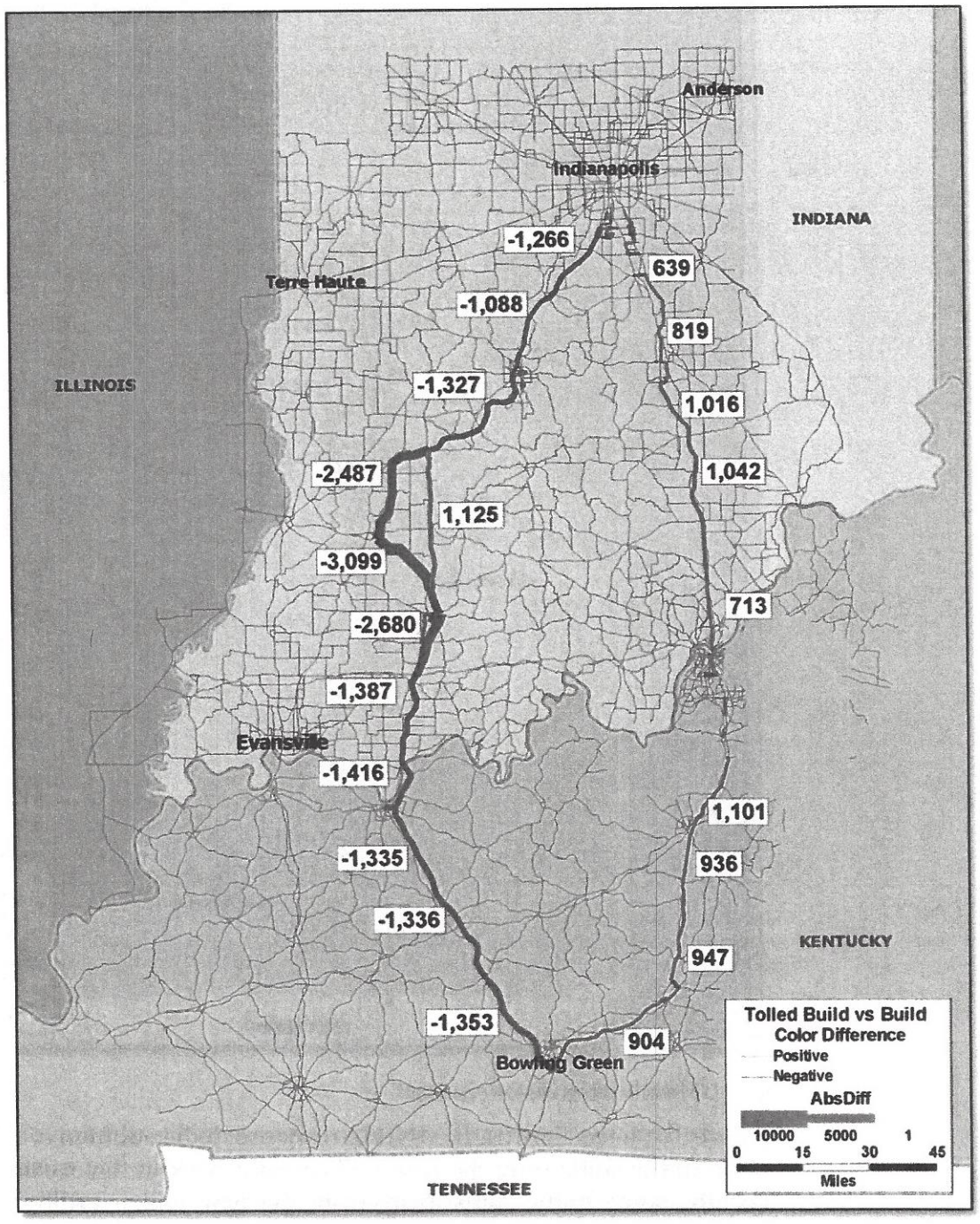


Note: Differences reflect one-way volumes

Figure 3.6 shows how traffic shifts in response to the addition of tolls. Regionally, some traffic shifts from the new I-67 corridor back to the existing I-65 corridor. Locally, some traffic shifts away from the new tolled facility back to parallel arterials such as US-231. Figure 3.7 and Table 3.8 show changes in traffic volumes across different scenarios for selected locations throughout the model

region. Finally, Table 3.9 shows the complete ranges in traffic volumes projected across I-67 in both Indiana and Kentucky. In Kentucky, the highest volumes are experienced near Bowling Green and Owensboro. In Indiana, the highest volumes are experienced between I-64 and the Ohio River.

Figure 3.6 Build without Tolls vs. Build with Tolls



Note: Differences reflect one-way volumes

Figure 3.7 Traffic Flows at Selected Locations

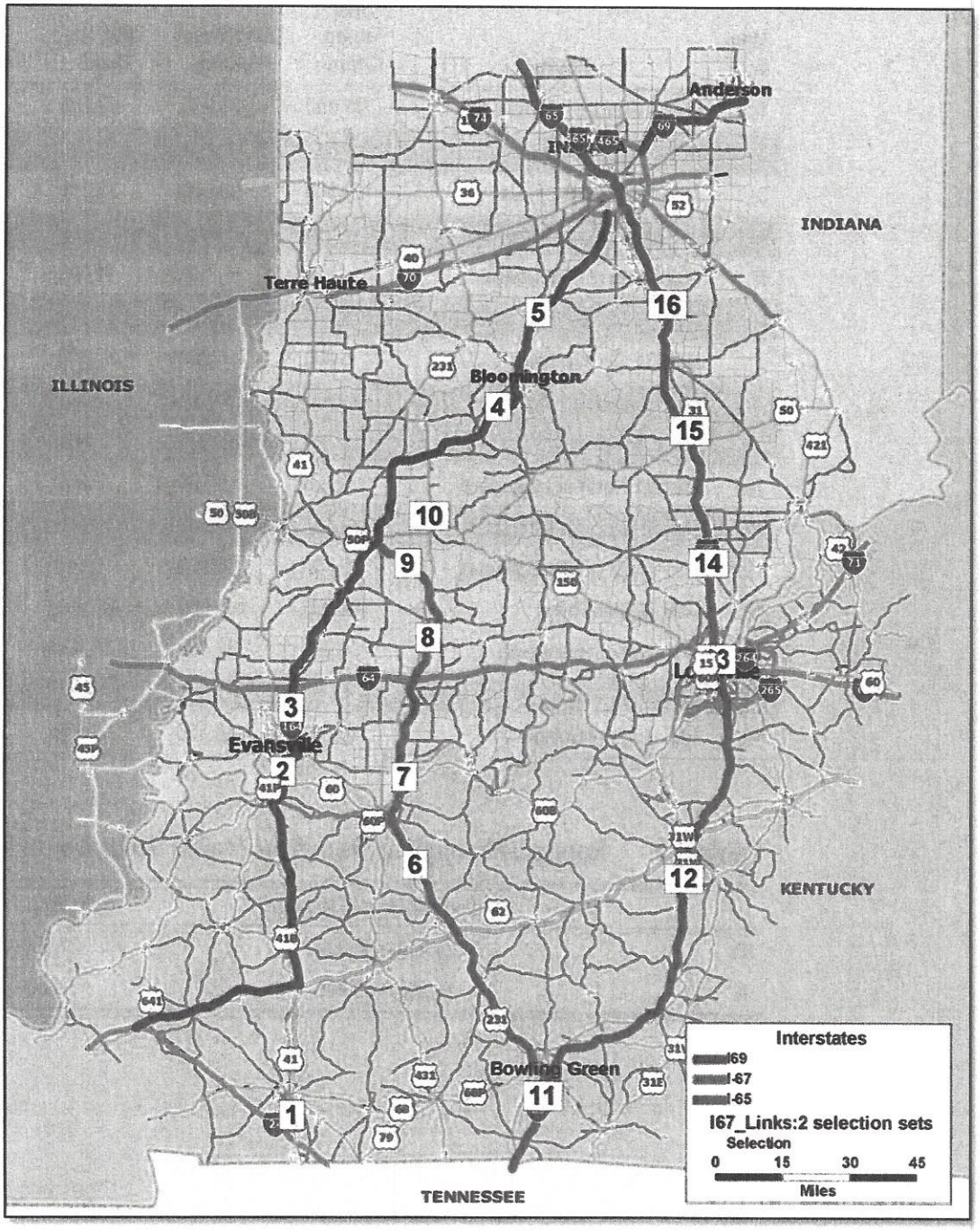


Table 3.8 Traffic Flows at Selected Locations

Map #	Route	2010 Traffic Count	2010 Base Volume	2035 No Build	2035 Build	2035 Build (Tolled)
1	US-41 South of Hopkinsville	21,800	20,000	47,500	47,500	47,500
2	I-69 @ Ohio River	N/A	N/A	13,300	12,900	12,900
3	I-69/I-164 South of I-64	20,300	20,200	25,200	24,800	24,800
4	I-69 South of Bloomington	N/A	N/A	21,700	25,500	22,800
5	I-69 South of Martinsville	N/A	N/A	41,600	44,700	42,500
6	Natcher Pkwy South of US-231	9,800	9,200	20,100	23,900	21,200
7	US-231 @ Ohio River	5,900	6,900	20,100	24,900	22,200
8	I-67 North of SR 64	N/A	N/A	N/A	20,000	14,700
9	I-67 Connector to I-69	N/A	N/A	N/A	15,800	9,600
10	US-231 North of Loogootee	5,400	5,700	7,200	5,300	7,600
11	I-65 South of Bowling Green	41,700	41,200	88,400	88,700	88,700
12	I-65 South of Elizabethtown	35,300	35,900	59,500	56,600	58,500
13	I-65 @ Ohio River	134,000	135,600	105,600	103,800	104,600
14	I-65 North of Henryville	36,600	37,600	44,100	41,100	43,100
15	I-65 North of Seymour	31,900	31,600	44,100	41,100	43,100
16	I-65 North of Edinburgh	45,500	46,200	58,500	56,500	58,000

Table 3.9 Range of Projected Two-Way Traffic Volumes on I-67 (Year 2035)

	Build Without Toll Scenario	Build With Toll Scenario
KY	24,900 – 32,000	21,200 – 28,500
IN	14,200 – 24,900	9,600 – 22,200

4.0 Safety Analysis

4.1 INTRODUCTION

Traffic safety is a key component to consider in the development of a new highway. Roadway safety is typically measured by the number of crashes on a roadway, including crashes that result in fatalities, injuries or only property damage. These categories are also used in economic analysis by assigning average monetary values to the events, and estimating total costs. Significant reductions in the number and severity of crashes improves personal well-being overall, reducing costs to individuals that can result in benefits to different sectors of the economy.

Roadway safety is affected by a wide range of events, including weather, roadway condition, driver education programs and law enforcement activities, to name a few. A number of factors affected by the development of a new roadway can affect roadway safety, including the amount of traffic, roadway design and traffic congestion.

Motor vehicle crashes are the leading cause of death for people aged 5 to 44, and remain a top cause of death in all age groups.[3] Nationally, traffic fatalities and fatality rates declined from 2006 to 2010, and initial estimates from 2011 showed a continuing of this trend[4]. Research by the National Highway Traffic Safety Administration (NHTSA) indicated that declines stemmed from fewer crashes involving young drivers, fewer crashes at night and on weekends, and drops in crashes in rural areas[5]. In addition, the research also indicated that an estimated 2.24 million people were injured nationwide in over 1.54 million injury-only crashes in 2010, approximately the same as the previous year.[6] As shown in Table 4.1 below, of the three-year average number of crashes, less than one percent of all crashes result in fatalities, over one quarter result in injuries, and nearly three quarters result in property damage only (PDO). For large trucks the fatal and

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[3] US Department of Health and Human Services, Center for Disease Control. Web-based Injury Statistics Query and Reporting System. Available at http://www.cdc.gov/injury/wisqars. Accessed March 15, 2012.

[4] National Highway Traffic Safety Administration (2011) *Traffic Safety Facts: Crash Stats Early Estimate of Motor Vehicle Traffic Fatalities for the First Three Quarters of 2011.*

[5] Ibid.

[6] National Highway Traffic Safety Administration (2012) 2010 Motor Vehicle Crashes: Overview.

PDO share of crashes increases while the share of injury crashes drops to approximately 18 percent.

Table 4.1 Average Annual Crashes in the United States by Crash Severity (2007-2009)

	Crashes				Share of all Crashes		
Crash Severity	Fatal	Injury	PDO	Total	Fatal	Injury	PDO
All Vehicles	34,135	1,619,333	4,126,000	5,779,468	0.6%	28.0%	71.4%
Large Trucks	3,648	62,333	282,000	348,000	1.0%	17.9%	81.0%

Source: NHTSA Traffic Safety Facts 2010.

Normalizing the number of total crashes by national vehicle miles traveled yields an overall crash rate for the nation, for all roadway types, which can serve as a general comparison to local crash conditions. Average crash rates per 100 million VMT (by severity) for the period of 2007-2009 are summarized below in Table 4.2.

Table 4.2 Average Crash Rates in the United States by Crash Severity (2007-2009)

	Crash Rate per 100 Million VMT by Severity Type			
Crash Severity	Fatal	Injury	PDO	All Severity Types
All Vehicles	1.1	54.2	138.1	193.5
Large Trucks	1.2	20.7	93.7	115.6

Note: Crash rate calculated using mode-specific VMT.

Source: National Highway Traffic Safety Administration (2011) Traffic Safety Facts 2010, Federal Motor Carrier Safety Administration (2011) Commercial Motor Vehicle Facts.

Table 4.3 shows the total number of crashes by type in Indiana and Kentucky, also for the period of 2007-2009. During this period, there were more average annual crashes in Indiana than Kentucky, although Kentucky had a higher share of crashes resulting in at least one fatality.

Table 4.4 shows the 2007 to 2009 average annual crash rates per 100 million VMT by severity in Indiana and Kentucky.

Table 4.3 Average Annual Crashes in Indiana and Kentucky by Vehicle Type and by Crash Severity (2007-2009)

	Crashes				Share of all Crashes		
Crash Severity	Fatal	Injury	PDO	Total	Fatal	Injury	PDO
All Vehicles							
Indiana	719	35,395	163,924	200,037	0.4%	17.7%	81.9%
Kentucky	762	25,528	98,484	124,773	0.6%	20.5%	78.9%
Heavy Trucks							
Indiana	111	1,168	11,123	12,402	0.9%	9.4%	89.7%
Kentucky	102	1,463	7,055	8,620	1.2%	17.0%	81.8%

Source: Indiana Crash Facts (2010), Kentucky Traffic Collision Facts (2007-2009).

The study area for the I-67 safety analysis included roadways in both Indiana and Kentucky representing the approximate proposed route for I-67 (Figure 4.1). In Indiana, the analysis included US-231 from the Kentucky state line in Spencer County, to US-36 in Putnam County. The study area in Kentucky included the William H. Natcher Parkway from Bowling Green in Warren County, to US-60 near Owensboro in Daviess County. The Natcher Parkway is a four-lane controlled-access highway with a landscaped median dividing the directional traffic. In Indiana US-231 includes both four-lane and two-lane segments.

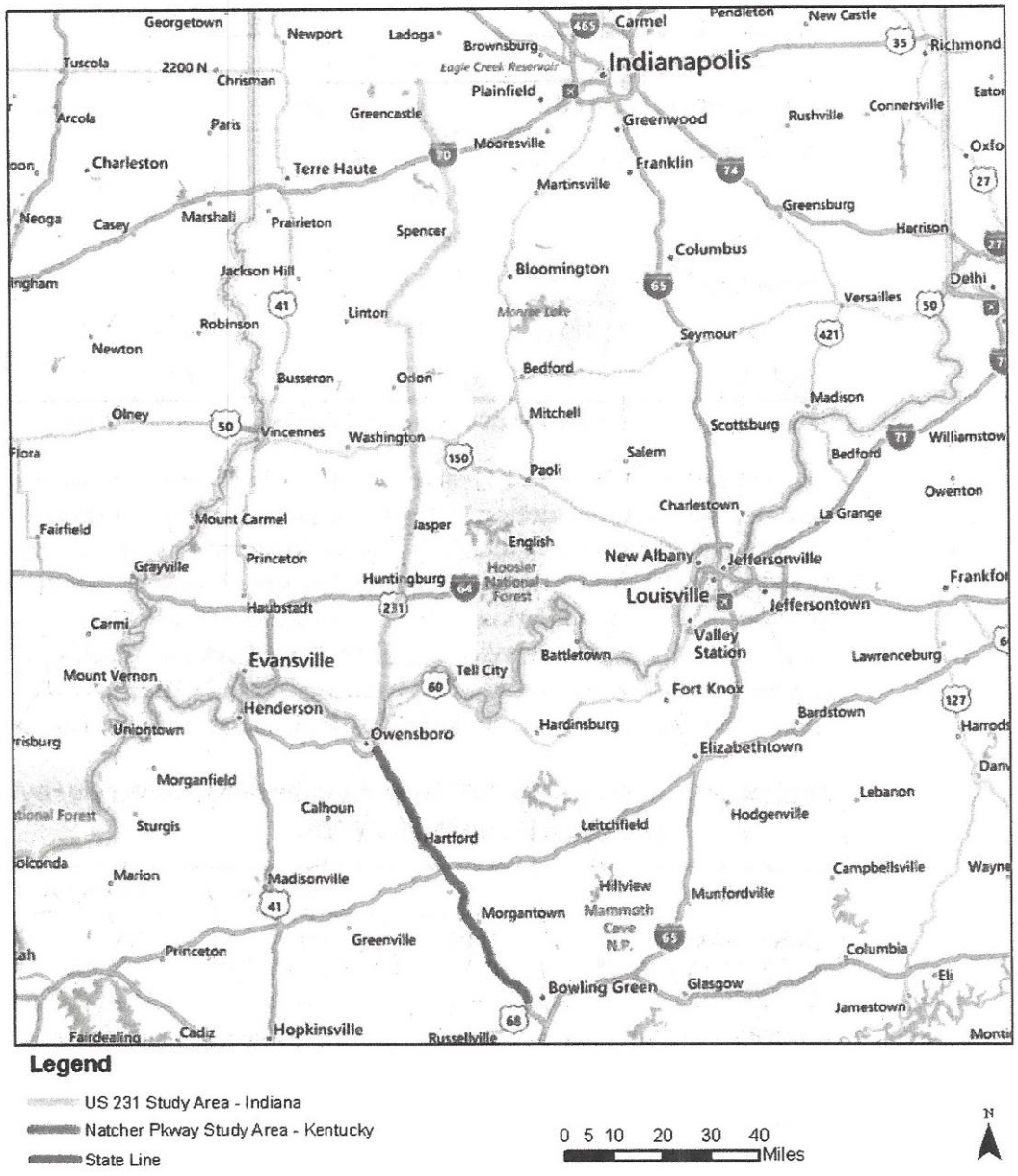
Table 4.4 Average Crash Rates in Indiana and Kentucky by Vehicle Type and by Severity (2007-2009)

	Crash Rate per 100 Million VMT			
Crash Severity	Fatal	Injury	PDO	All Severity Types
All Vehicles				
Indiana	1.0	50.4	233.4	248.8
Kentucky	1.6	53.8	207.6	263.0
Heavy Trucks				
Indiana	1.1	11.5	109.9	122.6
Kentucky	1.9	27.3	131.6	160.8

Note: Kentucky statewide average annual heavy truck VMT was estimated by applying the 2009-2010 average of heavy truck traffic shares of total roadway volumes, available from FHWA. Earlier heavy truck statistics and estimated heavy truck VMT was not available for this report.

Source: Indiana Criminal Justice Institute (2010) Indiana Crash Facts, Indiana DOT, Kentucky State Police (2007-2009) Kentucky Traffic Collision Facts, Kentucky DOT, Federal Highway Administration.

Figure 4.1 I-67 Safety Study Area



Source: ESRI 2010 (Basemap), Cambridge Systematics

4.2 CRASH ANALYSIS

Safety data from Indiana and Kentucky show similar, steady reductions in traffic fatalities over the past five years. Indiana and Kentucky ranked 35th and 36th, highest, respectively, in the number of fatalities in 2010 for all states. The two

states ranked 31st and 7th highest, respectively, in the highest number of fatalities per 100 million VMT.[7]

All data in this section were derived from databases maintained by each State Police Department (Indiana for US-231 and Kentucky for Natcher Parkway). The data below represent the average of years 2009 to 2011. Vehicle miles traveled data was derived from vehicle roadway volume databases and maps maintained by the Departments of Transportation in each state. Average annual daily trips were converted to annual vehicle miles traveled assuming 365 days to each year.

Total crashes on the study area roadways averaged just over 1,000 between 2009 and 2011, with 12 fatal crashes, and approximately 250 crashes resulting in at least one injury. Table 4.5, below, shows the higher number of crashes on US-231 in Indiana, compared to the relatively shorter Natcher Parkway in Kentucky. The study area roadways are similar in the distribution of crashes involving fatalities, injuries, and property damage only (PDO), with just over one percent of crashes resulting in a fatality, approximately one quarter resulting in injury, and three quarters PDO. Approximately ten percent of total crashes in the US-231 study area, and fifteen percent of crashes on the Natcher Parkway involved at least one heavy truck. Crashes resulting in fatalities accounted for approximately six percent and three percent of all truck-related crashes, respectively. The overall share of heavy truck crashes in the study area involving a fatality was nearly five times that for all vehicle types. Injury crashes also account for a greater share of heavy truck crash types; both of these statistics are indicative of the greater crash severity associated with large truck crashes on state highways and arterial roadways.

As shown in Table 4.6 below, normalizing the crash results by vehicle miles traveled (VMT) also shows similar crash rates on each roadway of the study area. Fatal crash rates for all vehicles on the Natcher Parkway and US-231 averaged 1.8 per 100 million VMT. Fatal crashes involving trucks have a higher rate on US-231 in Indiana than on the Natcher Parkway in Kentucky, with the fatal crash rate averaging approximately 9.4 per 100 million (truck) VMT on US-231, and 3.1 per 100 million (truck) VMT on the Natcher Parkway.

[7] National Highway Traffic Safety Administration (2011) *State Motor Vehicle Fatalities, 2010.*

Table 4.5 Average Annual Crashes by Severity (2009-2011)

Facility	Crashes by severity				Share of Total Crashes		
	Fatal	Injury	PDO	Total	Fatal	Injury	PDO
All Vehicles							
US-231	9	205	612	826	1.1%	24.8%	74.0%
Natcher Pkwy	3	50	175	228	1.3%	21.9%	76.8%
All	12	256	788	1,054	1.1%	24.2%	74.6%
Crashes Involving Heavy Truck(s)							
US-231	5	23	56	84	6.0%	27.4%	66.7%
Natcher Pkwy	1	13	22	36	2.8%	36.1%	61.1%
All	6	36	78	120	5.0%	30.0%	65.0%

Source: Kentucky State Police, Indiana State Police.

Compared to national and state level crash data, rates in the study area are higher than - nearly double - national and state level crash rates. The state and national data includes all roadway types, however, including Interstates and other large roadways that typically have lower crash rates than two to four lane arterial roadways analyzed as part of the current study area.

Table 4.6 Average Crash Rates for Study Area Roadways by Severity Type (2009-2011)

Facility	Crash Rate per 100 Million VMT			
	Fatal	Injury	PDO	All Severity Types
All Vehicles				
US-231	2.2	51.0	152.2	205.6
Natcher Pkwy	1.2	19.3	67.6	88.0
All	1.8	38.6	119.0	159.4
Involving Heavy Truck(s)				
US-231	9.4	43.4	105.7	158.6
Natcher Pkwy	3.1	39.8	67.4	110.3
All	7.0	42.1	91.1	140.2

Note: Crash rates involving heavy trucks based on heavy truck VMT based on historical shares of single- and combination unit truck VMT as a share of total VMT for arterial roadways (FHWA). Indiana VMT for 2011 was estimated based on the average annual growth rate of statewide arterial VMT 2008-2010.

Source: Kentucky State Police, Kentucky Department of Transportation, Indiana State Police, Indiana Department of Transportation, FHWA Highway Statistics Series.

Crash data for study area roadways by time period illustrates the incidence of crashes at different levels of roadway activity. Crashes in the AM peak period (7 a.m to 9 a.m.) averaged 97 incidents annually, or just over nine percent of all crashes. The PM peak period (4 p.m. to 6 p.m.) averaged a higher number of crashes, at 152, or 14.4 percent of all crashes. The remaining, or off-peak periods accounted for the remaining 76 percent of all crashes. Crash rates by time period for study area roadways are summarized in Table 4.7. The results reflect the greater amount of travel that occurs in the PM peak period, compared to the AM peak period, and is typically also related to the increased roadway safety risks associated with reduced daylight.

Table 4.7 Average Annual Crashes by Time Period on Study Area Roadways (2006-2010)

Facility	Average Annual Crashes by Time Period			Percent all crashes		
	AM Peak	PM Peak	Off Peak	AM Peak	PM Peak	Off Peak
Natcher Pkwy	19	27	183	8.2%	11.8%	80.0%
US-231	78	125	624	9.5%	15.1%	75.5%
All	97	152	807	9.2%	14.4%	76.4%

Sources: Kentucky State Police, Indiana State Police.

Stakeholders have identified several driving factors related to safety in the corridor, particularly along 2-lane sections of US-231 north of I-64:

- Narrow shoulder widths;
- Slow moving vehicles (farm equipment and Amish buggies), with limited passing zones and often impatient drivers;
- Winding, hilly terrain;
- Limited sight distance at numerous access points; and
- Large numbers of heavy trucks.

4.3 Expected Future Crash Rates

The process to estimate changes in total crashes in the future with the development of I-67 begins with the use of the travel demand model to forecast future travel. The build scenarios lead to greater travel in the model study area, measured as VMT (a table of VMT by scenario and functional classification is shown in Section 3.4). However, the addition of tolls leads to less of an increase in overall travel than the build without toll scenario, as drivers respond to the added out-of-pocket cost with fewer trips.

Table 3.4 in Section 3.4 also illustrates changes in where people drive due to tolls. This is evident on rural and urban Interstates, where VMT is proportionally

lower in the build with toll scenario than without tolls. Travel on urban collectors and rural arterials is greater in the build with toll scenario than in the build without toll scenario, reflecting the shift to smaller roadways without tolls.

The amount of travel by roadway type is an important safety consideration. Crash rates have been shown to vary by facility type and roadway traffic volumes. This safety analysis reflects that research by applying crash rates that are unique to the roadway type (e.g. Interstate, major arterial, etc.) and traffic volume. The crash rates used in this analysis are derived from the Highway Economic Requirements Model (HERS), which is a national highway asset management tool used by state departments of transportation. In general, the rates and severity of crashes are greater on the smaller and more highly traveled roadways. This is due to the design of these roadways; expressways tend to have good lines of sight, wide shoulders, and limited access with all traffic moving in the same direction, while minor arterials have a number of hazards such as turning lanes and shoulder obstructions, that are associated with higher crash rates, on average.

Crashes on the entire network in each future modeling scenario are expected to decrease from the future no-build scenario. Total crashes in build without toll scenario are estimated to be lower by approximately 0.5 percent, and approximately 0.3 percent in build with toll scenario. The severity of crashes is expected to decrease approximately the same order of magnitude in the two alternative scenarios. Table 4.8 presents a comparison of predicted future crashes by severity and future forecasting scenario. Most of these safety improvements are expected to occur in the 8-county study area itself. For example, in the build without toll scenario, both reduced fatalities, about 290 reduced injuries, and about 450 reduced PDO crashes are expected along the corridor, per year, as a result of I-67.

Table 4.8 Forecasted Change in Regional Average Annual Crashes by Severity (Percent Difference from No-Build Scenario)

Future Scenario	Fatal	Injury	PDO
Build without toll	-0.2% (-2)	-0.5% (-320)	-0.5% (-590)
Build with toll	-0.1% (-1)	-0.3% (-175)	-0.3% (-340)

5.0 Economic Impact Analysis

5.1 INTRODUCTION

The analytical framework for the economic analysis approach utilized for the I-67 corridor study outlines the investigation of competitiveness of the study region. Generally, when looking at potential economic opportunities that could arise from a proposed transportation improvement, it is important to understand the existing strengths and weaknesses of the study region. Consequently, three key questions shape the analysis in this section:

- What are the factors helping or hindering the study region in preserving and growing the economic health of current businesses?
- What are the factors helping or hindering the study region in attracting and retaining new businesses?
- Given the region's competitive strengths and weaknesses, how does the I-67 corridor enhance economic opportunities for the study region?

To address these three questions, the analysis first takes a look at the region's current economic profile. The second part of the analysis then focuses on the region's strengths, weaknesses, opportunities, and threats (SWOT) and shift-share analyses, which paint a picture of the region's current status and identify potential economic opportunity paths.

- **Strengths** – These are the current economic competitive advantages of the study region. A strength may be what attracts new employers, encourages investment within the region, or prevents a business from closing its doors. These assets drive much of the current economic success and will need to be capitalized upon for future success.
- **Weaknesses** – These are the current economic competitive disadvantages of the study region. A weakness may discourage new businesses from locating within the region, drive investment towards a competing region, or lead to downsizing of the regional employment base. Weaknesses need to be addressed where possible in order to maintain economic competitiveness.
- **Opportunities** – These include external influences (externalities) which could enhance the region's competitiveness. These factors are outside of the region's control, but nevertheless represent significant opportunities.
- **Threats** – These include external influences that could result in decreases to the competitiveness as well as potential strategic "pitfalls." An example of a threat is the long-term decline of tourism due to severe congestion.

Finally, using travel demand model outputs, economic impacts that are likely to arise from development of the I-67 corridor were estimated.

5.2 THE REGION'S SOCIOECONOMIC PROFILE

This section discusses the socioeconomic profile of the study corridor. This includes historical trends in population, economic structure and employment, education attainment, and housing, as well as projected population and employment. The study corridor of focus in the economic anlaysis comprises eight counties, equally divided between Indiana and Kentucky, along the I-67 corridor: Daviess, Dubois, Spencer, and Martin in Indiana and Daviess, Butler, Ohio, and Warren in Kentucky.

Population

Population in the study corridor increased from 320,687 in 2000 to 351,151 in 2011, representing 10.7 percent growth. This remarkable growth is primarily driven by the 24.5 percent population growth recorded by Warren County, KY over the eleven-year period. Daviess County, IN, Dubois County, IN, and Daviess County, KY follow Warren with 7.2 percent, 6.3 percent, and 6.1 percent growth rates respectively. As shown in Figures 5.1 and 5.2, population growth of the study corridor has mirrored that of Indiana since 2000. Also, the sharp population surge in the corridor between 2009 and 2011 is in response to the remarkable economic performance of the corridor. The recent national economic meltdown in 2008 brought in its wake intra- and inter-state migration in search of economic opportunities. Therefore, the impressive, but potentially temporary economic performance of Indiana and Kentucky led to the recent growth within the study corridor.

Figure 5.1 Study Corridor Annual Population Growth Rate, 2001 – 2011

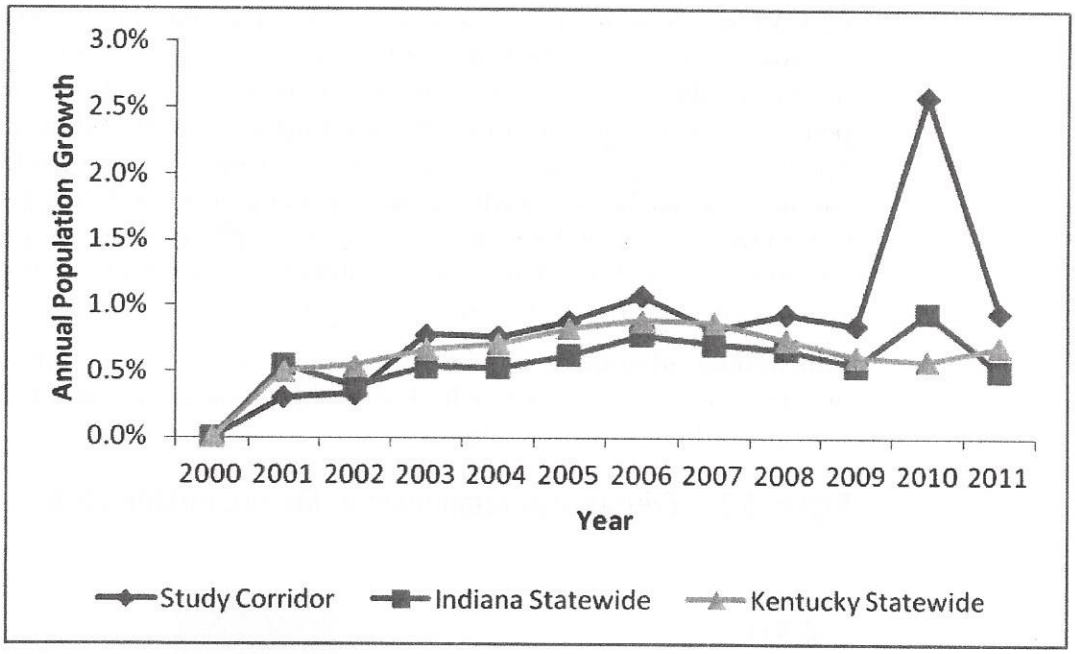
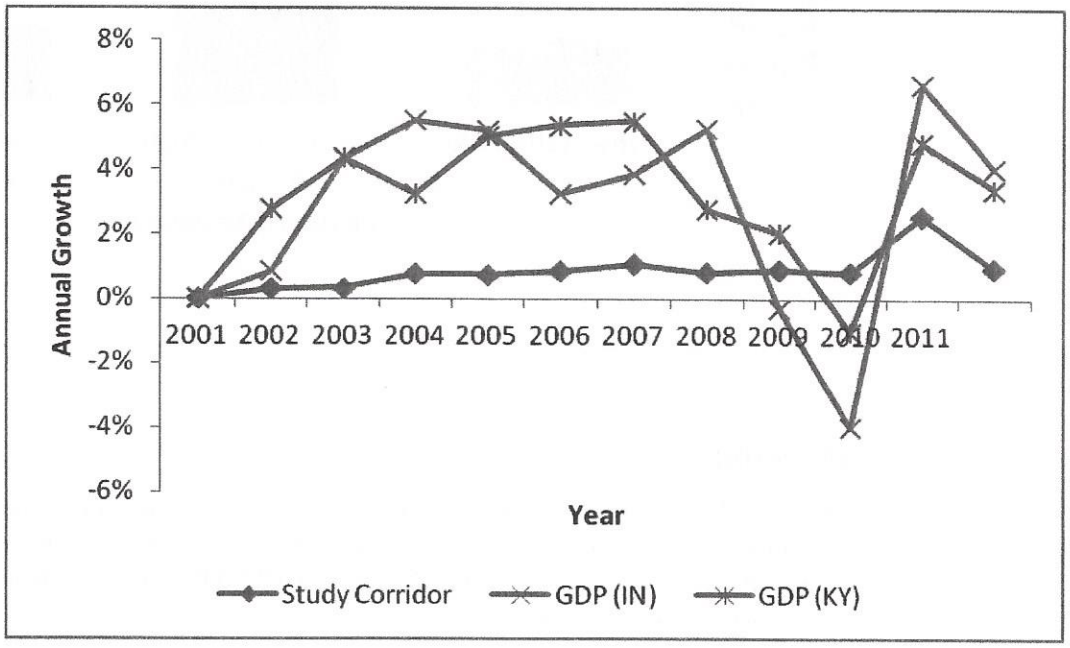


Figure 5.2 Study Corridor Economic Performance of Indiana and Kentucky, 2001 - 2011

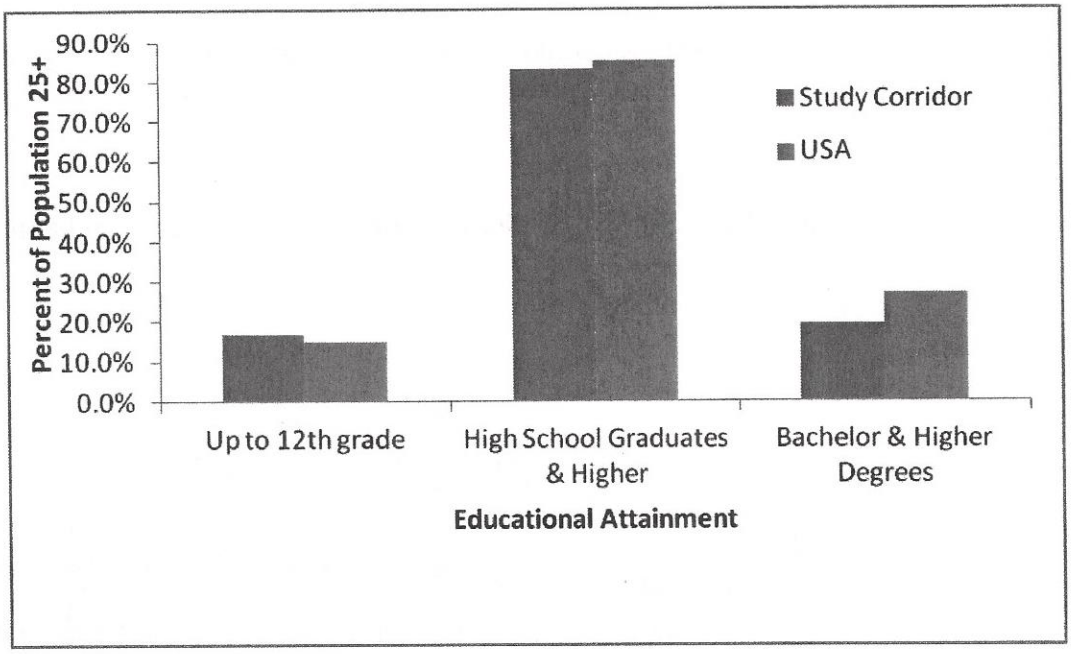


Education

Educational attainment in the study corridor is marginally below the national average. This means that the study corridor has educated population and workforce slightly below the national averages. As shown in Figure 5.3, about 83 percent of the study corridor's population aged 25 years and over have attained a minimum of high school education, two percentage points below the national average. Similarly, the study corridor's population that has gone on to get a minimum of a bachelor's degree is about eight percentage points below the national average; while bachelor and higher degree holders in the study corridor are 19.2 percent, that of the nation is 27 percent.

Educational attainment has been improving since 2000. High-school dropouts declined by 5.3 percent, while high school graduates increased by 4.5 percent and college graduates increased by 2.8.

Figure 5.3 Educational Attainment in Study Corridor, 2010



Housing

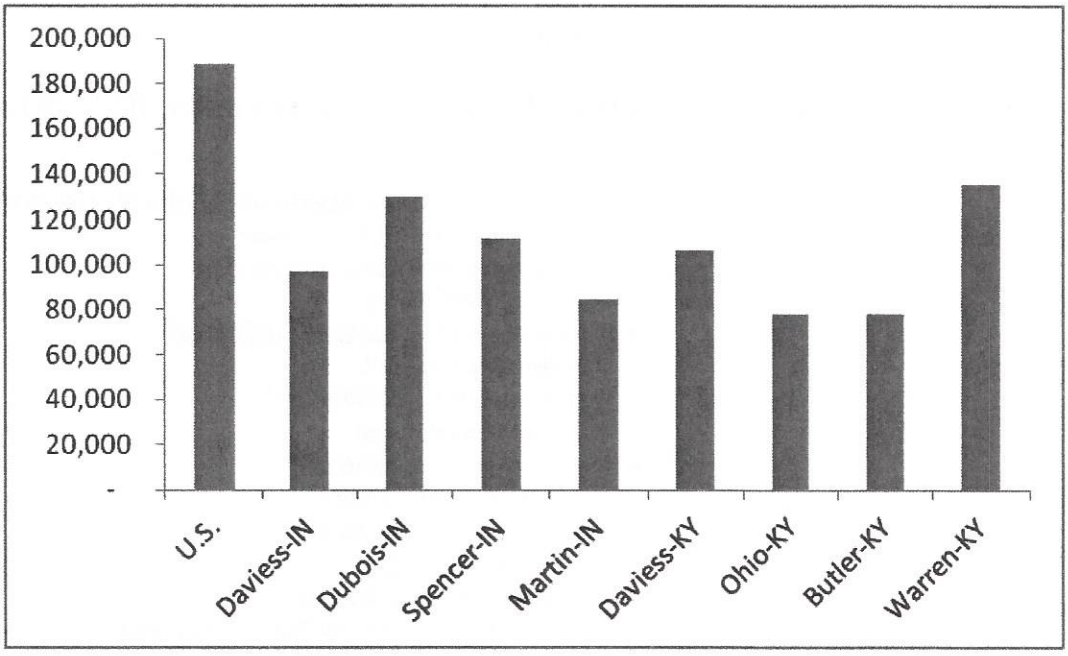
Figure 5.4 indicates that median housing values in the study corridor are below the national average. According to the U.S. Census Bureau, the median housing value in the study corridor in 2010 was $102,500[8], thus representing 34 percent

[8] This represents the weighted mean of median values for the eight counties in the study region reported by the Census Bureau.

growth from 2000. This median value indicates that housing in the corridor is very affordable relative to the national average of $188,400.

In 2010, there were 147,100 housing units in the corridor, up from 122,977 in 2000, representing 19.6 percent growth. Over the same period, vacant housing units in the study corridor increased by 41.7 percent, from 10,162 in 2000 to 14,401 in 2010. The significant growth in vacant housing units by 2010 could be attributed to the massive foreclosures that occurred in the wake of the housing collapse that contributed to the national economic meltdown in 2008.

Figure 5.4 Median Housing Values, 2010



Employment

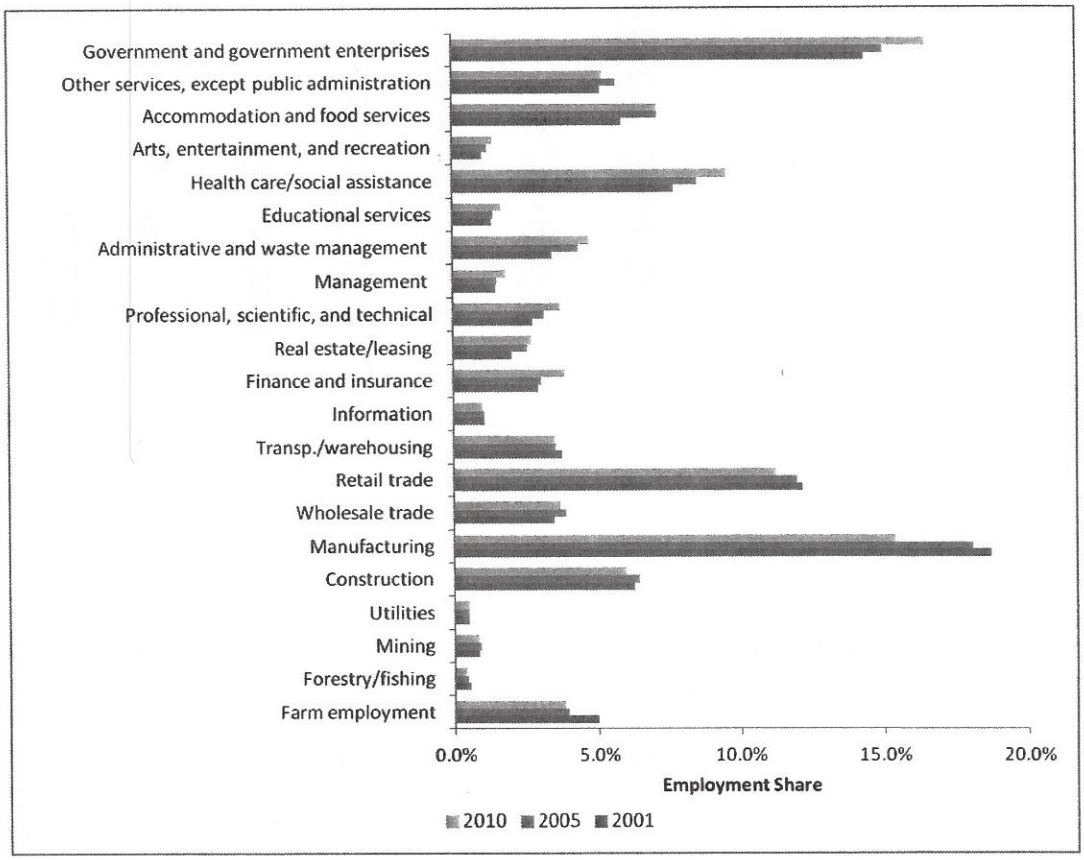
One of the most tangible measures of a region's economic vitality is employment growth. As demand rises for a business's products and services, employees and equipment are added to better satisfy the needs of customers. The jobs produced by these companies provide the incomes people need to sustain themselves and their families and also attract additional workers. The combination of business, visitor, and resident demand then feed transportation growth, both freight and passenger, in the corridor. The ability of the study corridor to accommodate the varying transportation needs of industries, both to transport goods and bring people to work, will be an important factor in future competitiveness and jobs growth.

The study corridor's economy is dominated by the services sector. Total employment reported by the Bureau of Economic Analysis (BEA) was 206,558 in 2010, representing a 4.2 percent increase from 198,173 in 2001. The services sector

contributed about 74 percent of employment, while the goods sector contributed the remaining 26 percent in 2010. From the private sector perspective (no government services), the services sector still dominated the economy in 2010 with 69.4 percent of total private sector employment.

Figure 5.5 shows there has been a historic structural change in the study corridor major industry's contribution to employment between 2001 and 2010. The structural change in the economy is primarily due to the decline in the goods producing sector. While employment shares of the goods producing sector has declined over the period (2001-2010), that of the services sector has increased. By 2010, employment shares of the goods producing sector was 25.7 percent, down from 32 percent in 2001. Over the same period, the services sector employment share rose from 68 percent to 74.3 percent.

Figure 5.5 Economic Structure of Study Corridor, 2001 - 2010



While employment in the manufacturing sector has been *dropping* (similar to almost all other states and regions), manufacturing output in the study corridor has been *rising*.[9] Nationally, manufacturers have invested heavily in automation and sophisticated process technologies, reducing their need for labor while maintaining and increasing output. The drop in manufacturing employment also reflects the internal restructuring of manufacturing firms. To lower costs and maintain competitiveness, and focus on core competencies, manufacturers have been outsourcing functions, such as human resources, payroll, maintenance, engineering, and logistics services. This has shifted employment from manufacturing to other sectors, notably the service sector, which has seen continuing increases in employment in the region.

The drivers of the region's economic growth comprise manufacturing, retail trade, financial and business support, leisure and hospitality, education and healthcare industries, and government services. By 2010, employment contributions of manufacturing and retail had declined by 3.9 percent and 1.4 percent respectively, while those of business support services, education and healthcare, financial, and government services had increased by 2.2 percent, 1.8 percent, 1.4 percent, and 1.4 percent respectively. The top-five industries by employment are shown in Table 5.1.

Table 5.1 Top-Five Industries in Study Corridor by Employment

Industry	Employment	Percent of Total Employment
Government	32,639	16%
Manufacturing	30,446	15%
Wholesale & Retail Trades	29,497	14%
Health & Social Services	18,892	9%
Accommodation & Food Services	14,056	7%
Total	125,530	60%

Source: Bureau of Economic Analysis, Cambridge Systematics Analysis

Transportation Usage

A region, state or nation's goods movement system partly defines its economic base. As a result, freight transportation is often described as a derived demand, because the level of demand (and the modes that are used) is driven by the characteristics of the economy.

[9] According to the Bureau of Economic Analysis (BEA), the value of manufacturing GDP in the Indiana and Kentucky increased by about 29 percent and 10 percent respectively between 2001 and 2010. BEA GDP figures are not available at the county level.

For the purpose of this study, industries that make up the study corridor's economy have been divided into two groups based on their dependence on freight transportation for their basic functioning:

- **Freight Intensive Industries** are industries that rely on transportation to receive raw or input materials and/or manufactured goods from their suppliers or to the consumer markets. This group includes, but is not limited to manufacturing, construction, wholesale and retail trades.
- **Non Freight (Service) Intensive Industries** are not dependent on freight movement, but do rely on shipments of materials such as office products, or other small shipments of goods and supplies. This category includes industries such as government, education, health care, and other professional categories

A list of the industries that are included in both sectors is shown in Table 5.2.

Based on the study corridor's economic structure, freight plays significantly in the regional economy. Freight intensive industries contributed 43.3 percent of total employment in the study corridor, about 13 percent below the contribution of the services sector in 2010. However, from the private sector perspective (no government services), the freight intensive industries dominate in their contribution to total employment. Freight intensive industries contributed 51.5 percent of total private sector employment. The significance of freight in the regional economy is due to the high concentration of manufacturing industries in Indiana and Kentucky. Manufacturing contributes to 15 percent of total employment, while manufacturing contributes 13 percent and 9 percent to Indiana and Kentucky as a whole, respectively. Manufacturing clusters in the region include food processing, transportation equipment, and metals.

Table 5.2 Freight and Non-Freight Intensive Industries in Study Corridor

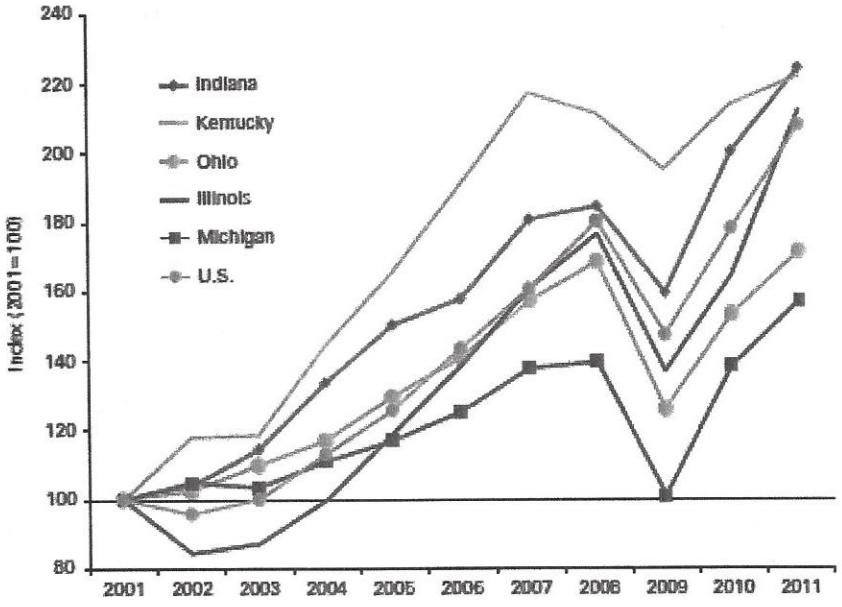
Freight Intensive Industries	Non-Freight (Service) Intensive Industries
Agriculture, forestry, fishing and hunting	Information
Crop and animal production (farms)	*Publishing including software*
Forestry, fishing, and related activities	*Motion picture and sound recording industries*
Mining	*Broadcasting and telecommunications*
Oil and gas extraction	*Information and data processing services*
Mining, except oil and gas	Finance and insurance
Support activities for mining	*Federal Reserve banks, credit intermediation and related services*
Utilities	*Securities, commodity contracts, investments*
Construction	*Insurance carriers and related activities*
Manufacturing: Durable goods	*Funds, trusts, and other financial vehicles*
Wood product manufacturing	Real estate and rental and leasing
Nonmetallic mineral product manufacturing	*Real estate*
Primary metal manufacturing	*Rental and leasing services and lessors of intangible assets*
Fabricated metal product manufacturing	Professional and technical services
Machinery manufacturing	*Legal services*
Computer and electronic product manufacturing	*Computer systems design and related services*
Electrical equipment and appliance manufacturing	*Other professional, scientific and technical services*
Motor vehicle, body, trailer and parts manufacturing	Management of companies and enterprises
Other transportation equipment manufacturing	Administrative and waste services
Furniture and related products manufacturing	*Administrative and support services*
Miscellaneous manufacturing	*Waste management and remediation services*
Manufacturing: Nondurable goods	Educational services
Food product manufacturing	Health care and social assistance
Textile and textile product manufacturing	*Ambulatory health care services*
Apparel manufacturing	*Hospitals and nursing and residential care facilities*
Paper manufacturing	*Social assistance*
Printing and related support activities	Arts, entertainment, and recreation
Petroleum and coal manufacturing	Performing arts, museums, and related activities
Chemical manufacturing	*Amusement, gambling, and recreation*
Plastics and rubber products manufacturing	Accommodation and food services
Wholesale Trade	*Accommodation*
Retail Trade	*Food services and drinking places*
Transportation and warehousing (excludes postal service)	Other services, except government
Air transportation	Government
Rail transportation	*Federal civilian*
Water transportation	*Federal military*
Truck transportation	*State and local*
Transit and ground passenger transportation	
Pipeline transportation	
Other transportation and support activities	
Warehousing and storage	

5.3 THE REGION'S KEY INDUSTRIES AND SUPPLY CHAINS

Key Industries

The Indiana University Kelly School of Business examined Indiana's trade environment and compared it to other Midwest states and to the U.S. from 2001 to 2011 in a report titled "Global Positioning 2012". During the ten year time period, Indiana and Kentucky exports have consistently exceeded the U.S. average growth in exports and have outpaced Midwestern neighbors (Figure 5.6). To realize the full potential for these exporters, a reliable network of rail, road, and rivers must be accessible. Kentucky and Indiana have also outpaced the Illinois, Michigan, and Ohio export index for the Midwestern state groupings. For 2011 Indiana and Kentucky exports were approximately equal. In 2010 Indiana's growth exceeded all others.

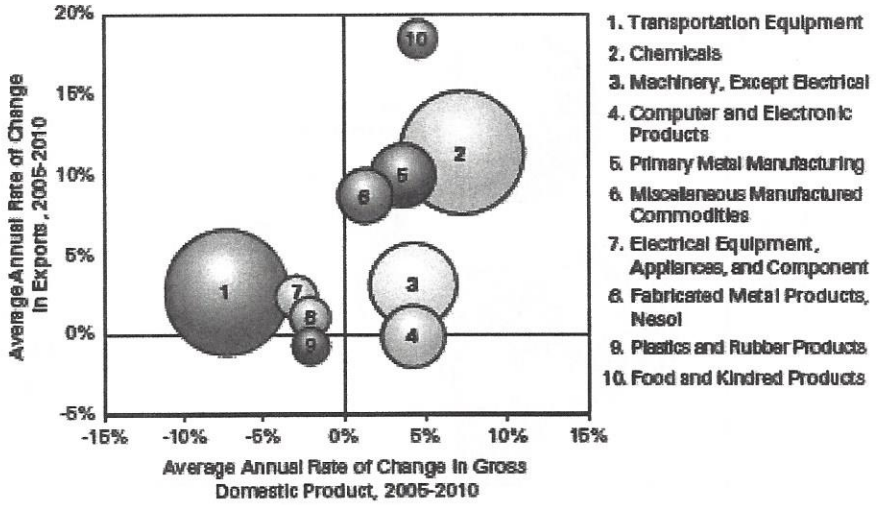
Figure 5.6 Export Index for Select Midwestern States 2001-2011



Source: Indiana University

The top manufacturing sectors in Indiana were also mapped by Indiana University's Kelly School of Business. Figure 5.7 illustrates the top ten industries' relative size and rate of growth. The auto industry (1), although large, shows one of the slower rates of growth; metal manufacturing (5), fabricated metal products (8) and food products (10) were among the fastest growing industries.

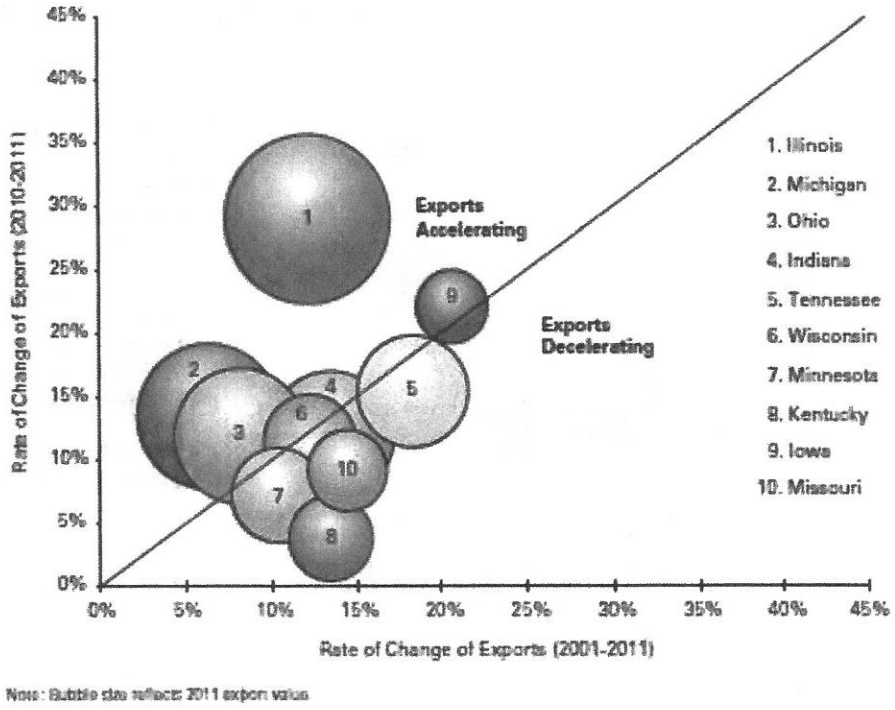
Figure 5.7 Comparing Indiana Growth in Exports and GDP by Industry 2005-2010



Source: Indiana University

Indiana University identified 2011 export activities including the dollar value for the export. In this analysis, the value of Kentucky and Indiana's exports are not keeping pace with neighboring states, which implies a lower percentage of manufactured products relative to regional competitors (Figure 5.8). To help keep Indiana and Kentucky competitive, an efficient transportation system is essential. Agriculture and energy industries rely on high volume bulk transportation modes. The Ohio River and access to this transportation network is essential to global competitiveness. For high value manufacturing such as automotive, furniture and finished food products, transit time and proximity to end users is an important consideration. Given Indiana's proximity to the population center of the U.S. efficient transportation is essential to promote distribution activities.

Figure 5.8 Export Trends in the Midwest 2001-2011



Note: Bubble size reflects 2011 export value

Source: Indiana University

Key Supply Chains

Individuals from five key industrial sectors located on the proposed I-67 corridor were interviewed, in both Kentucky and Indiana, to determine their transportation connection needs to support freight movement in the region. Five supply chains were investigated: agriculture, automotive, energy, furniture, and steel products.

Agriculture

Many companies in the food and beverage industry located in the Owensboro area due to the purity of the water and the fact that unlimited supplies of fresh unfiltered water could be used in the beverage, baking and food processing business. Unilever produces Ragu spaghetti sauce, Sara Lee uses this water in the baking process, Specialty Food Group is a large food producer and Sazerac uses these same water resources as a primary input in the distillation of spirits (Kentucky Bourbon). Each of these industries located in the Owensboro area near the source of one of their primary raw material supply requirements; they have remained in Owensboro due to the population demographics and to be near their consumers. Nevertheless, lack of an Interstate connection is a limiting factor.

Cargill has two facilities near the proposed corridor. The Indianapolis plant moves 25 trucks per day of corn from local suppliers along local roads. Three trucks of parts and maintenance supplies travel inbound from Louisville, KY along I-65, and a few growers' supplies come in from Chicago, IL via I-65. Outbound, 18 trucks per week are sent to West Chicago, 4 trucks per week travel to North Carolina, and 4 trucks per week are destined for Arkansas. The Cargill facility in Evansville, IN brings in corn, soybeans and wheat from local growers. The I-67 corridor would represent the eastern perimeter of their catchment area. Most outbound product moves by rail or barge.

In Kentucky, Owensboro Grain Company was started in 1906 and has grown into one of the premier soybean processors in the country. Owensboro Grain crushes soybeans and produces biofuel and edible oils.

Several truckers based in the Rockport area and focusing on this supply chain estimated benefits they would experience with I-67. One trucker supplies feed and meal to poultry farms, with outbound products consisting of eggs and egg products. This carrier reports that time savings would be his biggest benefit as he makes numerous short haul trips per day. An upgrade to the corridor would allow him to haul more product and increase productivity. Another carrier operating out of Rockport primarily hauls fertilizer and moves 7 to 8 truckloads per weekday and another 2 to 3 truckloads per weekend. This carrier runs loaded northbound and empty southbound. He estimates that he can save up to 10 percent on the cost of fuel with I-67.

Automotive

The Toyota manufacturing facility in Princeton, IN is located on the US-41 corridor and has 18 tier one suppliers. Five suppliers are located along the study area in Jasper, Huntingburg and Santa Claus, IN and have shipments that move westbound to serve the Toyota facility. One supplier is in Plainville, IN, and the remaining suppliers are located along US-41 from Evansville, IN to Vincennes, IN and would have limited volumes moving via the I-67 corridor. Some suppliers provide auto parts to other auto assembly facilities in Lafayette, IN and Greensburg, IN. Finished vehicles move out by rail and by truck. The truck shipments primarily move via US-41.

The General Motors Corvette plant is located in Bowling Green, KY; they report they move 4 trucks per week between Iowa City, IA and Bowling Green, KY, and another 4 trucks per week move between sourcing points in Grand Rapids, MI and Chicago, IL. Inbound trucks return to these origins with empty racks. They estimate that as much as 20 minutes per truck could be saved if the I-67 corridor were developed. Some finished vehicles could move along the corridor to customers in the Upper Midwest.

Jasper Engines and Kimball Manufacturing are suppliers to automobile makers. Jasper Engines built a 10 acre warehouse in Crawford County because they needed Interstate access. This facility may have been built in Jasper if an

Interstate was available. The company has 1,100 employees in Jasper, IN. They operate a private fleet of 30 tractors which move product to customers. They have 8 shuttle movements per day between the plant and the Crawford warehouse. They receive supplies from 15 inbound carriers and do not control the routing on that traffic. Sixty percent of inbound product comes from Michigan and Northern Indiana, 30 percent comes from Tennessee via US-231, and 10 percent comes from the west on I-64. They rely on some rail movements for outbound shipments which depart from Chicago in containers; these loads move via I-65 to rail terminals. Some outbound product moves via small packages by air. Depending on the destination, Louisville and Indianapolis airports are used. Scrap, which is a byproduct of manufacturing, travels on US-231 to the river. Jasper Engines estimates that the Panama Canal will impact some inbound flows in the future and that more freight could move via Evansville and Rockport. It was estimated that up to two additional trailers per day are possible based on changes in traffic patterns caused by the new Panama Canal capabilities.

Energy

There are 91 power generation plants in Indiana; three are located within the region, with one located in each of Pike, Dubois, and Spencer Counties.

The Peabody Energy Company is based in Evansville, IN and has seven mines in Indiana. Five of the seven mines are located along the US-41 corridor. The Viking Mine, located in Daviess County, will be mining 7 million tons of coal, which will move mostly by truck. The Wild Boar mine in Lynnville, IN would move product toward the river via I-64 and then via the I-67 corridor toward the river. Rail movement is available on CSX for the mines located along the US-41 corridor.

Duke Energy has a warehouse facility in Plainfield, IN, which would use the proposed I-67 corridor for some outbound shipments. One truck per day is received form northeast Indiana with fittings, transformers, nuts and bolts. They rely on a distribution center in Clarksville, IN, and receive one partial load per week. Duke Energy is Indiana's largest electric supplier and owns 7,000 megawatts of electric capacity in the state; they are considering developing a new facility. To construct a new facility, more than 1,000 trucks would bring construction materials to the site and there would be hundreds of oversize and overweight loads needed to haul generators and other components. When a similar plant was built, entire portions of US-41 were closed and loads were moved with police escort. Bridges were inspected, braced and many were routed to alternative routes to comply with weight limitations. New energy plants cost between $2.7 and $3 billion to construct. With the region's proximity to coal reserves and rail lines to bring in western coal for mixing, the lack of an improved highway system would be a barrier to expansion for Duke Energy. Additionally, a new private coal gasification project is being considered in Rockport.

The AEP facility is located in Spencer County and receives coal by barge from Metropolis, IL after being delivered by rail from the Powder River Basin and blending Appalachian Coal to reduce boiler slagging. They have recently agreed to spend $1.8 billion on scrubbers to remain compliant with EPA regulations. Scrubbers are scheduled to go in service this decade, after which AEP may switch to local, Illinois Basin coal and use rail and truck delivery primarily. AEP generates over 150,000 tons per year of bottom ash, a by-product of the energy generation process. This is being used in concrete construction projects and moves outbound by barge.

Furniture

The abundant hardwood forests in the I-67 corridor area have been the source of raw materials for many of the nation's furniture manufactures. Due to labor savings and cheap foreign sources of wood from countries with fewer environmental regulations, much of the institutional furniture manufacturing has been off-shored. Some specialty manufacturers have survived and are still located along the corridor. Three primary production points exist along the corridor: Jasper, IN, Huntingburg, IN and Santa Claus, IN.

For one manufacturer, approximately 60 trucks per week from Georgia, Louisiana, North Carolina, and South Carolina bring board for furniture tops; another 60 trucks per week bring cardboard packing from Wisconsin. Hardware components come from Michigan with on another 60 trucks per week. Lights and fixtures are sourced from various locations. Approximately 120 trucks per week deliver products from the Jasper, IN facility and 25 trucks per week make deliveries of products made in Santa Claus, IN. This company has their own private fleet of 41 trucks, of which 17 are engaged in regional support services. Rail containers come to these two facilities from St. Louis, MO and Louisville, KY via I-64. Other containers are routed via Chicago, IL and would benefit from I-67.

Steel

Steel producers in the area are dependent upon barge transportation and the availability of low cost power. The AK Steel facility is located just north of the Rockport area and is served by the NS railroad. Approximately 1.6 million tons of raw materials come in via barge, truck and rail. Approximately 15% of the outbound finished product moves to local auto and appliance manufacturers; the balance moves outbound primarily by rail. This user is located on the most recent US-231 upgrade and has benefited from improved highway access between the river and their plant.

5.4 THE REGION'S MULTI-MODAL PROFILE

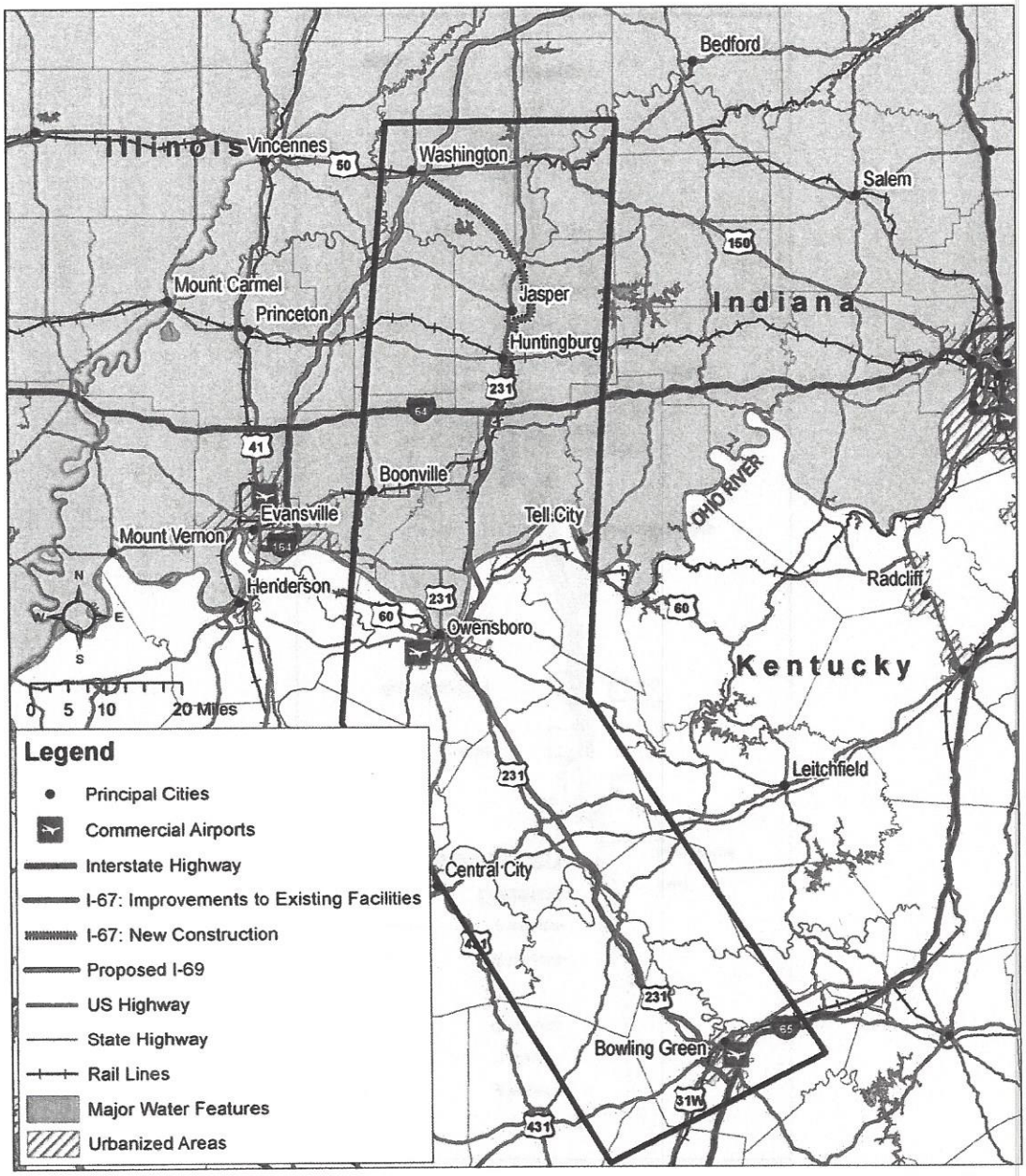
Businesses in the 21st century rely on ready access to international markets to remain competitive in a globalized economy. Surface transportation networks, in addition to air and waterways, work together to provide access to these markets.

This section assesses the region's transportation system, and details how the proposed I-67 would increase efficiency in goods movement and create better connections across modes.

Highways

The area of southern Indiana and western Kentucky through which the proposed I-67 would pass is well situated for intermodal transportation (Figure 5.9). At present, I-64 passes east-west through the region, while the north-south I-69 corridor is forthcoming. Other major roadways in the area include US-231, the Natcher Parkway, and US-50. While most of the major highways have relatively low levels of congestion, US-231—mainly a 2-lane road—has high truck traffic and faces increasing levels of congestion (Figure 5.10).

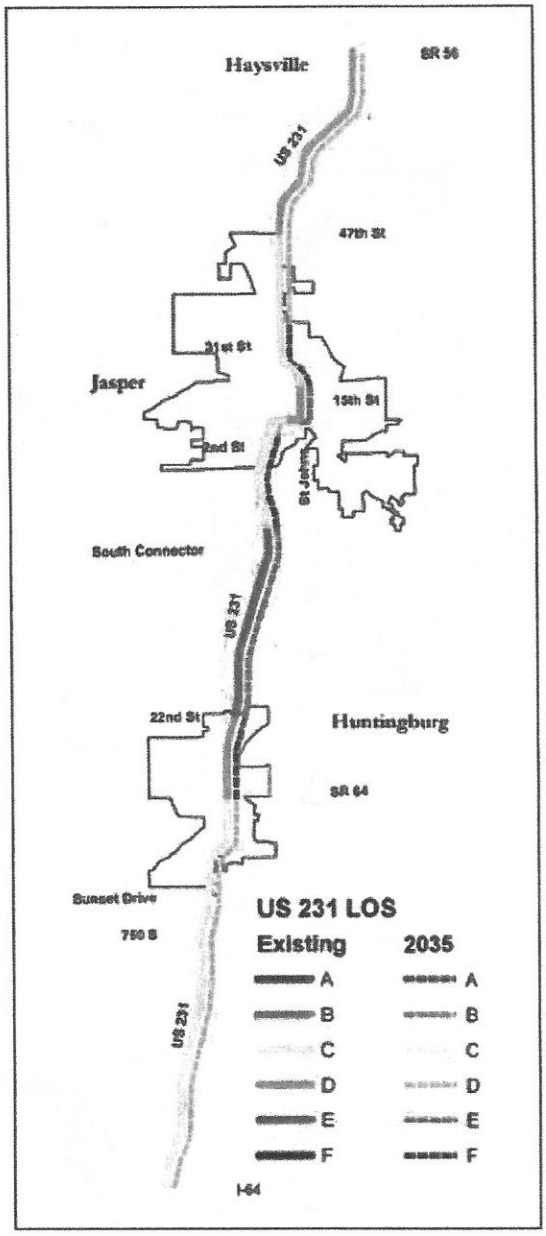
Figure 5.9 I-67 Study Corridor and Regional Transportation Network



Data Source: National Transportation Atlas Databases 2012.

As the main north-south thoroughfare through the study area, US-231 serves as a lifeline for industry in the communities of Jasper and Huntingburg. As one of the few truck routes in the region, safety issues are exacerbated by increasing numbers of semi trucks on the roadway.

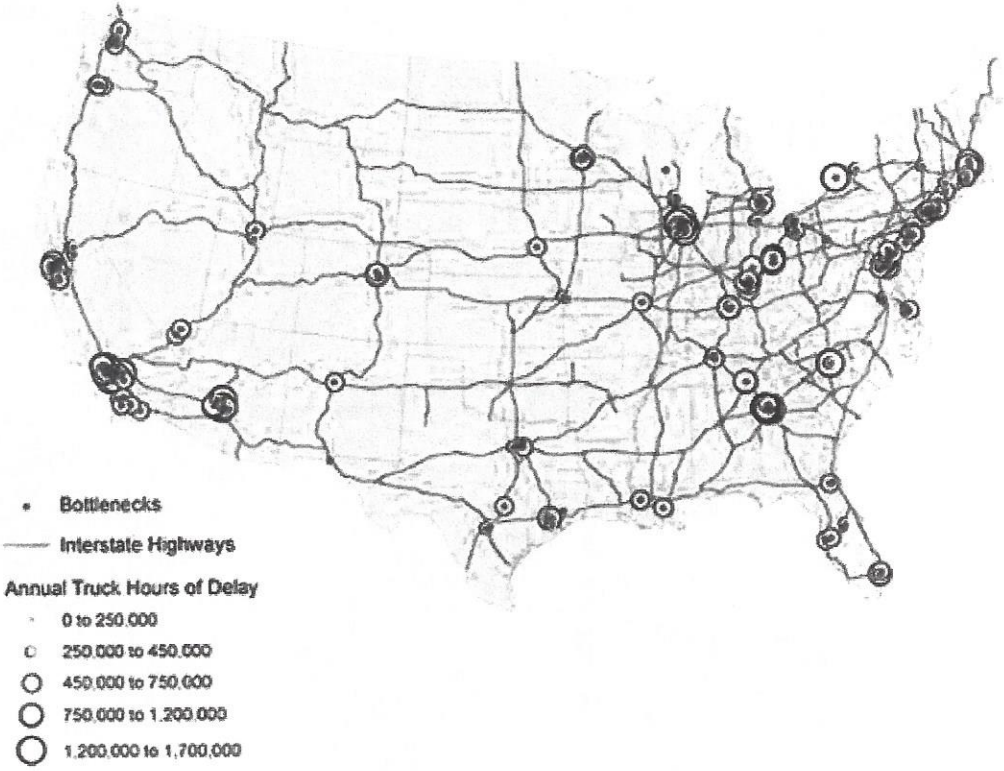
Figure 5.10 Existing and Projected LOS, US-231, Huntingburg-Jasper Indiana



Source: *US 231 Dubois County Indiana Supplemental Draft Environmental Impact Statement.*

Several of the nation's worst truck bottlenecks are in the region, including I-65 through Louisville, increasing the cost of shipping and threatening the continued growth of industry in the area (Figure 5.11). The 55 mph speed limit and narrow roadway design on US-231 do not make it a viable alternative route to I-65 at the moment. These bottleneck delays can be costly for businesses that rely on moving goods quickly between their headquarters and other regions.

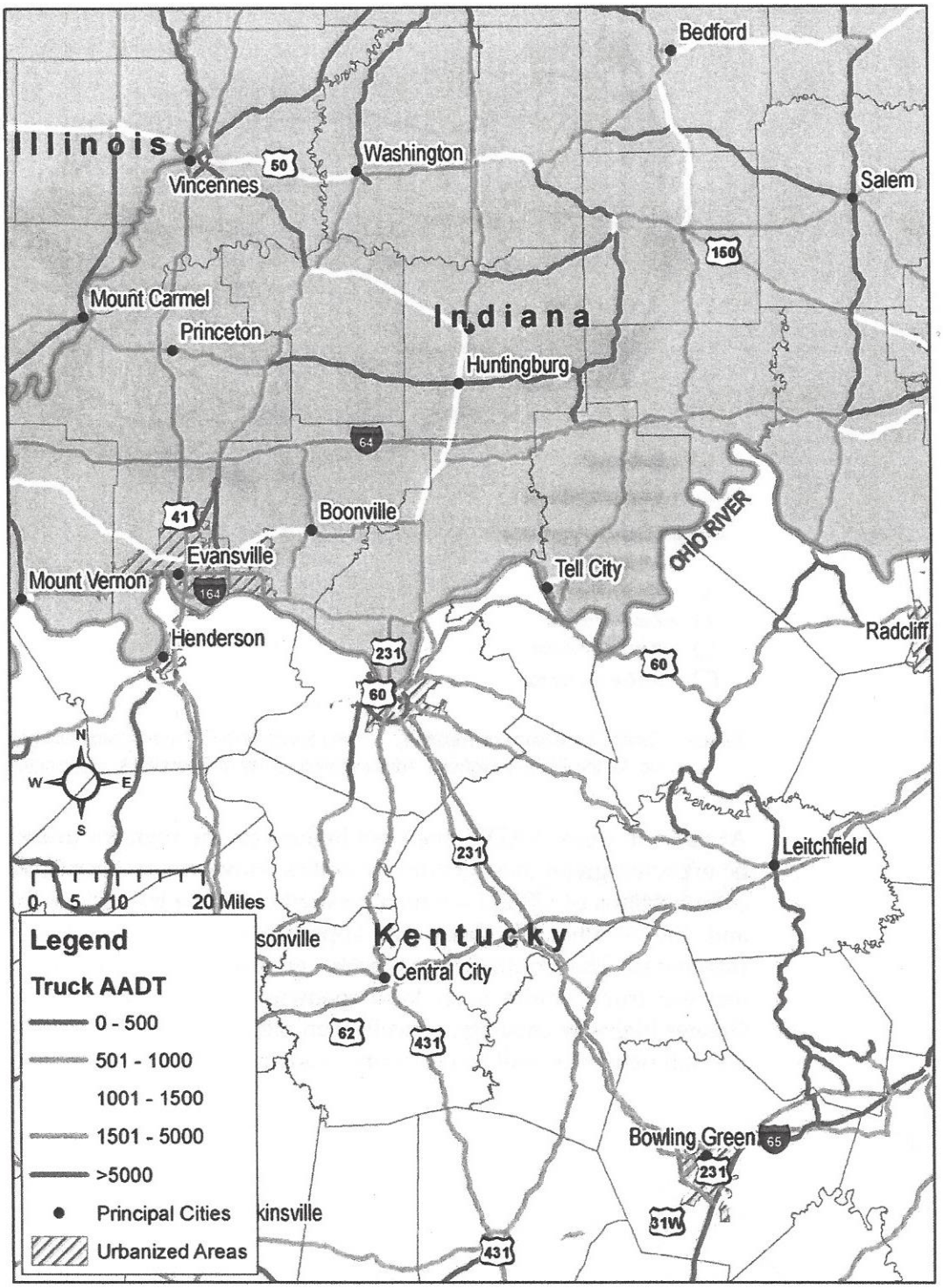
Figure 5.11 Major Freight Bottlenecks on U.S. Highways



Source: *Traffic Congestion and Reliability: Linking Solutions to Problems*, prepared by Cambridge Systematics, Inc. for the Federal Highway Administration, Office of Operations, Washington, D.C., July 2004.

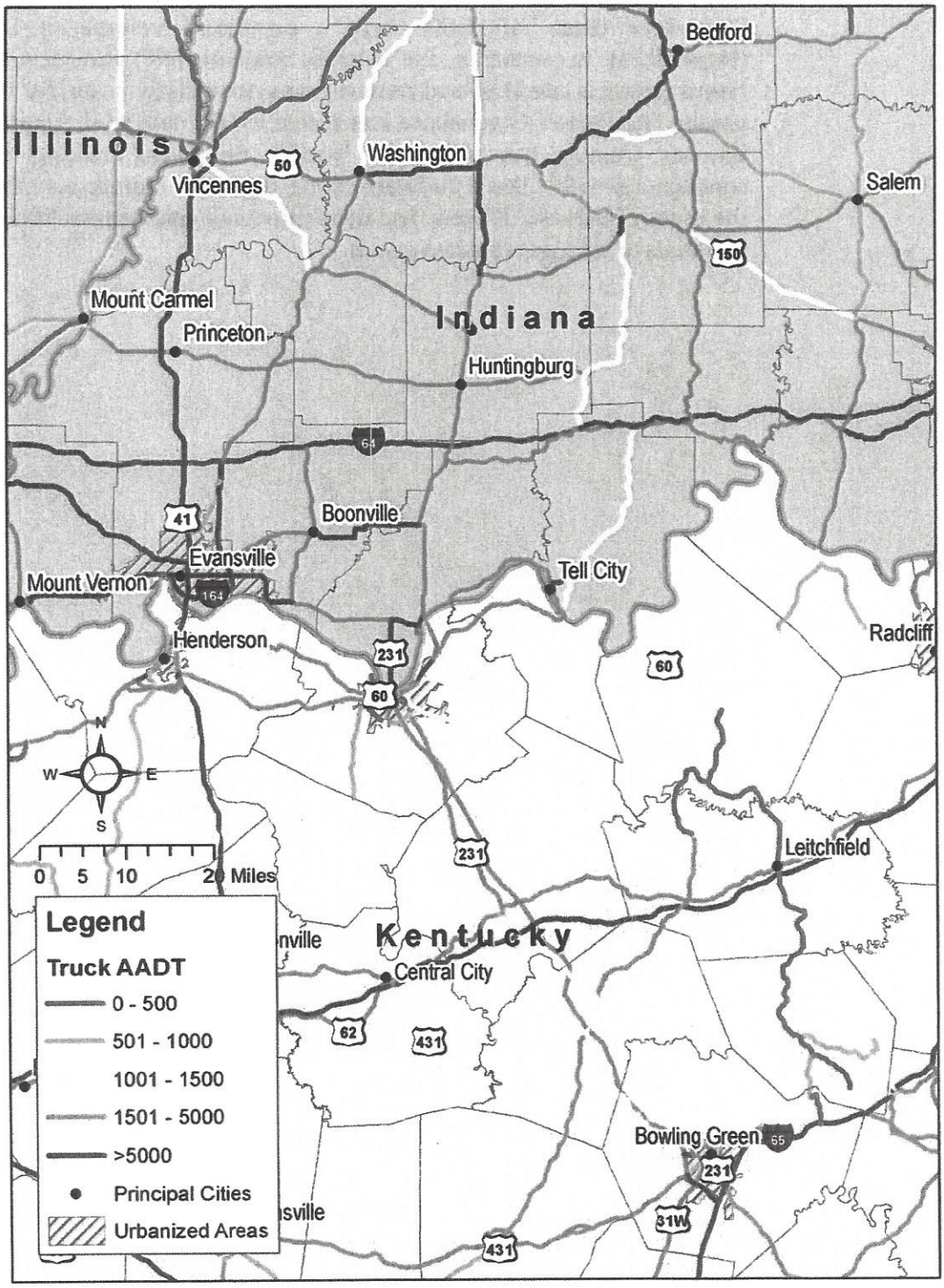
At present, truck AADT levels are highest on the region's Interstates, which is to be expected given their greater capacities. However, as seen below in Figure 5.12, even portions of US-231—which generally has one travel lane in each direction—and the Natcher Parkway are approaching the truck AADT levels of area Interstates. The continued projected growth of local industry is expected to increase truck volumes on local roadways substantially by 2040 (Figure 5.13). Greater highway capacity, as well as an increased reliance on the area's air, water, and rail networks, will be necessary to adequately accommodate this growth.

Figure 5.12 Highway Truck AADT, 2007



Data Source: Freight Analysis Framework, National Transportation Atlas Databases 2012.

Figure 5.13 Projected Highway Truck AADT, 2040



Data Source: Freight Analysis Framework, National Transportation Atlas Databases 2012.

Rail

The study area has access to several major north-south and east-west rail lines. Several of these rail lines carry a significant volume of trains each day (Figure 5.14). In particular, the Norfolk Southern (NS) east-west railway through Huntingburg is cited by local businesses as particularly useful for the movement of goods. The Port of Owensboro has access to CSX and Mid America Terminals in Spencer County has access to Norfolk Southern, creating two intermodal connections with Class 1 railways along the river. Numerous other industries in the region, such as AK Steel, use their direct rail connections to either receive raw materials or ship out finished goods.