

JOINT TRANSPORTATION RESEARCH PROGRAM

INDIANA DEPARTMENT OF TRANSPORTATION
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Cost and Benefit Analysis of Installing Fiber Optics on INDOT Projects



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16. Abstract <p>The Indiana Department of Transportation (INDOT) is tasked with the stewardship of billions of dollars' worth of public invested highway infrastructure. Not only does INDOT continually seek design and operational policies that foster cost effective project delivery and procurement, they also seek opportunities for revenue generation.</p> <p>Due to population growth and the increased demand for online connectivity and global information transmission, the fiber-optic cable industry has experienced rapid growth over the past few years. Information and communication technology (ICT) companies have long sought to achieve higher economic productivity by installing fiber-optic cables in the right of way (ROW) of access-controlled highways.</p> <p>Based on these developments, an experiment was conducted to measure the economic impact in Indiana. To determine this impact, a database was developed by compartmentalizing the analysis into (1) GDP per county per industry type, (2) the natural growth of GDP as a factor, and (3) the extent of contribution of broadband in the growth of GDP. A general formula was developed to incorporate the adjusted median income on both the industry and county levels, along with a broadband contribution factor. This formula was employed to determine policies that can produce optimum economic outcome by leveraging the Pareto method.</p>			
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EXECUTIVE SUMMARY

Introduction

The Indiana Department of Transportation (INDOT), tasked with the stewardship of billions of dollars worth of public-invested highway infrastructure, continually seeks not only design and operational policies that foster cost-effective project delivery and procurement but also opportunities for revenue generation. The issue of revenue generation is important in the current era where revenue per vehicle and overall revenues continue to fall because the state's revenue is dominated by the gas tax, which is in turn heavily influenced by fuel consumption.

One opportunity for generating revenue is to lease the right-of-way (ROW). With the growing population and increased demand for online connectivity and global information transmission, the fiber-optic cable industry has experienced rapid growth over the past few years. Information and Communication Technology (ICT) companies have long sought to achieve higher economic productivity by installing fiber optic cables in the ROW of access controlled highways. These utilities may be carried in a conduit constructed by ICT companies or constructed by INDOT and leased to the ICT companies. If such an initiative were to be realized, INDOT may stand to collect administrative and monitoring fees and will be entitled to receive fair market value for the permitted use of the agency's ROW. The use of INDOT's facilities to generate revenue should be part of the vision of the current Indiana administration.

Findings

The right-of-way can be used for conduit infrastructure constructed by the state of Indiana which can then be leased to ICT companies. The benefit to the state government would be future revenues and the opportunity to increase economic development and productivity. The project therefore had two phases. Phase 1 focused on the overview of access-controlled highway systems,

identification of potential points where ICT companies may seek permits, the governor's rural broadband initiatives, and the current practices in other states. Phase 2 focused on building a county-level database in order to develop a relationship between potential economic condition and broadband development, and examining the potential county-specific benefit of leasing conduits laid along the Indiana state highways. Based on the research results, it was concluded that a relationship exists between the economic condition (usually measured by increase in GDP) and broadband provision.

Based on this conclusion, an experiment was conducted to measure the economic impact on the state. To determine this impact, a database was developed, compartmentalizing the analysis into GDP per county per industry type, the natural growth of GDP as a factor, and the extent of contribution of broadband in the growth of GDP. A general formula was developed to incorporate the adjusted median income on an industry and county level along with a broadband contribution factor. This formula was used to evaluate policies that can yield positive economic outcomes.

The Pareto method was used to determine the county or city that would have a major economic impact on the state. Pareto analysis also helped determine which industry would have a major impact on the state's economy. Thus, 80% of the projected revenue can be generated by emphasizing the resources on the development of 20% of the highly impactful infrastructure. Finally, it can determine which highways should be targeted for conduit leasing initiatives.

Implementation

This project led to the development of a general formula which helps measure the total economic impact of the broadband initiative. The general formula considers parameters that include GDP per county per industry type, natural growth based on employment opportunities, and broadband contribution factor. In addition to targeting the highways for conduit leasing initiative, the data estimated from this formula can be further scrutinized for further research inquiry.

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1. INTRODUCTION

This final report details the activities accomplished in the bid to assess the potential benefits of leasing public right-of-way at highways owned by the state of Indiana. The right-of-way can be used for conduit infrastructure constructed by the state of Indiana which can then be leased to Information and Communication Technology (ICT) companies. The anticipated future benefits to the state government are expected to include the leasing revenues and the chance to increase economic development and productivity. The project is divided into two phases:

Phase 1—Overview of the access-controlled highway system; Identification of potential locations where the ICT companies may seek permits; review of the governor’s rural broadband initiatives; and the practice in multiple states.

Phase 2—Building the database of the relationship between the potential economic condition and the broadband development, and examining the potential benefit of leasing conduits along the state’s highway right-of-way at county-level.

This report describes Phase 2 efforts—a review of the relevant literature, building the study database; building the highway inventory database; and analyzing the potential benefits and the insights.

2. ACTIVITIES

The project timeline spreads over one year of activities. All the activities, defined as Phase 2, are described in Table 2.1.

TABLE 2.1
Phase 2 Project List of Activities

Task	Activities
Task 1	Identifying relevant literature on fiber optics benefit analysis
Task 2	Building database of economic potential condition in Indiana state
Task 3	Building database of highway interconnections in Indiana state
Task 4	Examining potential benefits
Task 5	Drawing conclusions and insights

3. STUDY LITERATURE

3.1 Research Papers

The project hypothesis is that internet and high-speed broadband connection can enhance the socio-economic conditions in certain geographical areas and, to certain extent, influence the business model of certain industries.

To support the hypothesis and understand the economic impact of the broadband and internet development in certain areas, research was carried out. Information relevant to the project was obtained from multiple reputable sources.

The findings of the literature review showed that many researchers have identified a correlation between economic conditions (usually measured by increase in GDP) and broadband development. These findings are:

1. The research paper titled *Measuring Broadband's Economic Impact* by Lehr and Osorio (MIT), and Sirbu (Carnegie Mellon University), October 2014, found a significant economic impact on employment and wages (and overall GDP) (approximately 90% and above) at Residential and Small Establishment Internet users on 51 states based on zipcode, during the years 2000 to 2002 (Lehr et al., 2005).
2. The research paper titled *The Economic Impact of Rural Broadband* by Hanns Kuttner, April 2016, from the Hudson Institute of Foundation of Rural Services, found that the rural telecommunication initiatives had increased local GDP as much as \$17.2 billion in direct impact on economy and another \$6.9 billion, accumulated in total of \$24.1 billion in 2015. It also provided an additional 69,000 new job openings (Kuttner, 2016).
3. The research paper titled *The Impact of Broadband on Economy* by International Telecommunication Union (ITU), April 2012, found that the effects of the Broadband Stimulus Bill created 31,950 new jobs per year in USA with average growth of broadband penetration 7.5% during 2008 to 2012. The paper also provided a diagram on the broadband economic impact (Katz, 2012b) (see Figure 3.1).
4. The research paper titled *The Impact of Broadband and Related Information and Communications Technologies on the American Economy* by Kevin Hassett (Director of

American Enterprise Institute) and Robert Shapiro (Chairman at Sonecon), March 2016, found that broadband impact contribution to U.S. GDP mostly affected on manufacturing (2.91%), retail trade (2.59%), and healthcare (2.44%). In addition, the indirect employment impact created 2.7 million jobs (Hassett & Shapiro, 2016).

5. The research paper titled *Job Creation from Rural Broadband Companies* by Robert Gallardo and Indraneel Kumar (Purdue Center for Regional Development) found that rural broadband initiatives would give 1,282 new jobs with the output of \$363 million in Indiana. They used the economic model by JobsEQ Saas Chmura Economics and Analytics (Gallardo & Kumar, 2019).

Based on the findings above, it was concluded that the broadband development impacts job creation—the number of newly created jobs surpassed the number of jobs lost due to this initiative. The initiative also had a positive impact on average salaries to some extent, depending on the particular industry type.

In addition, the discussion on GDP growth has been limited to consumption only. According to the “open economy” concept, the GDP’s components are Consumption (C), Investment (I), Government Spending (G), and Net Export (NX). However, because the Consumption is directly impacted by broadband initiative through increased income of the employees, it was decided to use that component to measure economic conditions, using quantitative metrics.

Later in this report, the contribution factors from the Hassett and Shapiro study (2016) are used to determine the level of impact of broadband development on multiple industries.

3.2 Preliminary Statistics of Economic Conditions and Broadband Availability in Indiana

In the current study, it was hypothesized that internet provision would eventually translate into economic development. The preliminary data consisted of Indiana’s GDP and current distribution broadband availability.

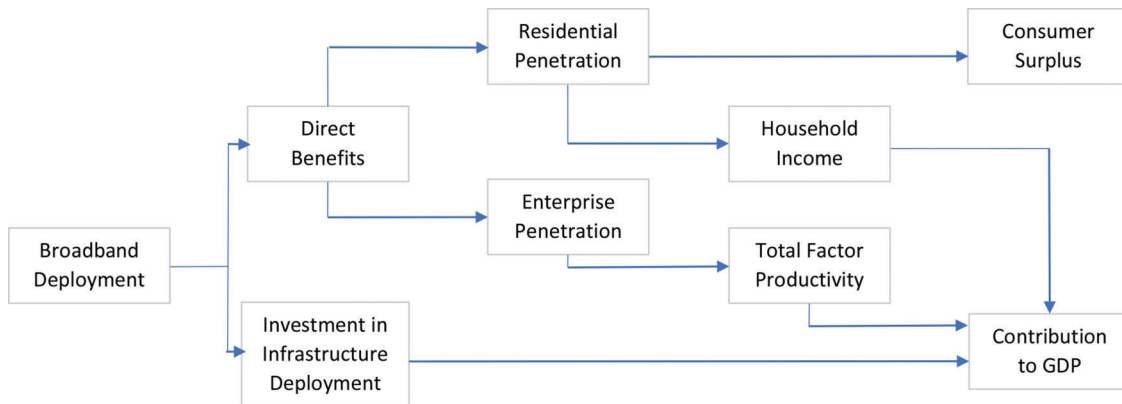


Figure 3.1 The effect of broadband on GDP growth (Katz, 2012a).

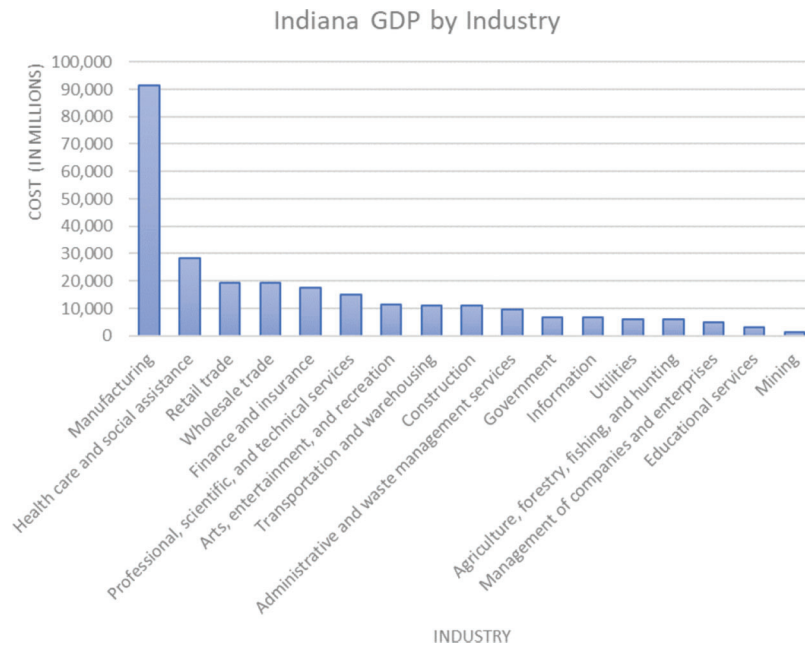


Figure 3.2 Indiana GDP by industry (STATS Indiana, n.d.a).

3.2.1 Economic Statistics

3.2.1.1 Indiana’s GDP. Since 2016, Indiana has held a steady position in terms of its GDP rank (STATS Indiana, n.d.a). The state’s GDP ranks 18th of all states in the U.S. The adjusted amount (tied to base year of 2012) is \$329 billion (of which \$300 billion is attributed to the private sector). Based on its industry composition or North American Industry Classification (NAICS) 2017, the distribution of Indiana’s GDP can be presented as shown in Figure 3.2 and Table 3.1.

It may be noted that there is a difference between adjusted GDP (\$300 billion) and GDP by industry (\$269 billion) due to exemption of other GDP components such as Investment (I) and Net Export (NX).

Table 3.2 presents the historical GDP ranking of Indiana from 2014 to 2018 (using 2012 as the base year).

3.2.1.2 Employment. From macroeconomic theory, the total expenditure of a population is equal to the population total income. The source of income data is published information on the wages of employees in any specific geographic area. In reference to that notion, and also in consistency with the findings of previous research papers in this study, the economic impact was estimated on the basis of changes in employment. The current characteristics of Indiana’s employment status were examined based on data from U.S. Bureau of Economic Analysis (BEA) (STATS Indiana, n.d.c). Table 3.3 presents the state’s median salary per industry.

In subsequent sections of this report, data on average salary are used to measure the salary level per industry per county in Indiana based on their respective ratio to the state’s median salary.

Regarding unemployment, Indiana has a relatively high employment rate (approximately 97%) (STATS Indiana, n.d.c). In this study, therefore, the increase in income was used as a measurement of economic changes.

3.2.1.3 Income per capita. The income per capita is the average of all industry types in Indiana. The median income (MI) (\$) data from the American Communication Survey (STATS Indiana, n.d.c) in 2018 is presented in Table 3.3. The median income (\$) data of Indiana households from 2012 to 2018 is presented in Figure 3.3 and Table 3.4. In a subsequent section of this report, this median income (\$55,746) is used as a reference to determine the ratio between the statewide salary per industry vis-à-vis that at the county level.

3.2.2 Broadband Statistics

In terms of broadband initiatives, the state of Indiana is ranked 16th based on the ownership and 38th based on percentage compared to other states in the U.S. (BroadbandNow, 2020).

This section explains the current status of broadband statistics in Indiana. The goal is to identify the prospective impacts of internet capacity increases on economic development. Irrespective of the change in economic impact due to increased internet capability, the effort to lease the conduit for broadband use to ICT companies could be more beneficial from a general perspective: to bridge the current gap of broadband distribution and future requirements. Table 3.5 presents information on the composition of internet users based on income (STATS Indiana, n.d.a).

TABLE 3.1
Indiana's GDP by Industry (STATS Indiana, n.d.a)

Industry	Expenditure (million \$)	Percentage (%)
Manufacturing	91,351	33.97
Health care and social assistance	28,488	10.59
Retail trade	19,510	7.25
Wholesale trade	19,200	7.14
Finance and insurance	17,392	6.47
Professional, scientific, and technical services	15,046	5.59
Arts, entertainment, and recreation	11,283	4.20
Transportation and warehousing	11,136	4.14
Construction	10,961	4.08
Administrative and waste management services	9,466	3.52
Government	6,877	2.56
Information	6,802	2.53
Utilities	6,030	2.24
Agriculture, forestry, fishing, and hunting	5,850	2.18
Management of companies and enterprises	4,892	1.82
Educational services	3,243	1.21
Mining	1,404	0.52
<i>Total (in million \$)</i>	<i>268,931</i>	<i>100.00</i>

Note: The information in this table contains 2018 data. The source where the data was obtained is updated annually and will no longer reflect the information presented here.

TABLE 3.2
Historical Growth of Indiana's GDP (STATS Indiana, n.d.a)

Years	Adjusted GDP (million \$)	Rank	Index (year 2012 = 100)
2018	329,299	18	110.669
2017	322,746	18	108.467
2016	316,636	18	106.413
2015	311,601	17	104.721
2014	313,741	16	105.44

Note: The information in this table contains 2018 data. The source where the data was obtained is updated annually and will no longer reflect the information presented here.

The review of the literature suggests that the minimum internet speed varies across different industries. For the purpose of optimality, if INDOT is not able to increase the internet speed for all industries, industries that contribute at least 80% of total GDP growth could be focused on. By knowing the differences in internet speed between the current and required state, concern and effort for the most effective and efficient industry can be increased.

Table 3.6 explains minimum internet requirements of each industry (Armstrong & Dilley, 2020; FCC, 2014; Sparklelight Business, n.d.). The geographical distribution of broadband coverage (IN.gov, n.d.a) was also determined based on type of technology, and internet service provider company in Indiana and limited by each county's boundary (see Figure 3.4).

3.2.3 Other Qualitative Supporting Arguments

From the data, information was collected to analyze the hypothesis regarding relationship between increased broadband capability and GDP.

1. Business Process Enhancement
 - a. *River Bend Farm*. Hog producers in River Bends Farm (see Figure 3.5) in Roann, Indiana use an automatic alarm system for eight major farms and satellite farms, using broadband network (Indiana Farm Bureau, 2017). The automatic system not only covers alarm systems but also the beginning and end day processes, current temperature, and fogging. The system is connected to the farmers' smartphones to facilitate real-time analysis. The hog farm sites are located far from residences due to sanitary reasons. The farmers currently use a mobile broadband network to run the facilities.
 - b. *Recreational Vehicle (RV), Elkhart County*. Since 2013 (not long after the financial crisis), Elkhart County experienced a growth in the recreational vehicle industry output and employment rates (see Figure 3.6) (Hesselbart, 2016). Preliminary analysis showed that there is an improvement of industry efficiency due to digital adoption and online assisted supply chain. The data indicates that Elkhart County now has 34,000 employees with an output of \$1.8 billion and is projected to have a 14% increase of employment in manufacturing sector over the next 3 years.
2. Socio Impact—Education.
 - a. *Computer and ISP costs*. Libraries-reported data on computer and ISP costs for FY 2011 on the survey show that these costs comprise the largest portion of libraries' equipment, materials, and computing costs. Computer costs (estimated annual, state-wide total: \$2,975,013) are 46.5% of the average total resource costs for all libraries, and ISP costs (estimated annual, state-wide total: \$2,819,839) are 44.9% of the estimated total resource costs for all libraries (Pelczar et al., 2019). Together these costs account for over 90% of the total annual resource costs for all libraries in Indiana (\$6,348,358). Thus, broadband initiatives could reduce these costs.

TABLE 3.3
Indiana's Median Salary per Industry (STATS Indiana, n.d.c)

Industry	Median Salary (\$, state level)
Mining	55,486
Utilities	136,395
Construction	64,968
Manufacturing	80,981
Wholesale trade	83,867
Retail trade	32,624
Transportation and warehousing	50,454
Information	67,606
Finance and insurance	66,460
Real estate and rental and leasing	61,750
Professional, technical services	71,474
Management of companies, enterprises	110,613
Administrative and waste services	37,071
Educational services	35,533
Health care, social assistance	62,819
Arts, entertainment, and recreation	26,614
Accommodation and food services	22,733
Other services, except public administration	37,486
Government and government enterprises	58,910

Note: The information in this table contains 2018 data. The source where the data was obtained is updated annually and will no longer reflect the information presented here.

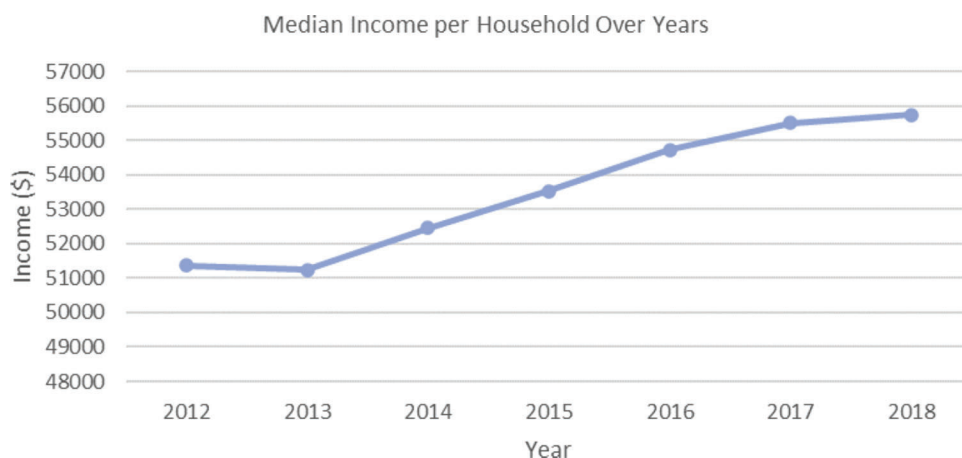


Figure 3.3 Graphic representation of Indiana's median income per household (STATS Indiana, n.d.b).

TABLE 3.4
Indiana State's Median Income per Household (STATS Indiana, n.d.b)

Year	Median Income per Household (\$)	Rank
2018	55,746	35
2017	55,504	35
2016	54,733	36
2015	53,536	36
2014	52,448	34
2013	51,232	35
2012	51,375	33

Note: The information in this table contains 2018 data. The source where the data was obtained is updated annually and will no longer reflect the information presented here.

3. Socio Impact—Commuting Behavior

- a. *Commute time.* According to the U.S. Census Bureau, in 2018, the average commute time nation-

wide is 26.6 minutes (a 0.6 minute increase over that of 2017). This translates to \$2,600 per year. Commuting represents approximately 6% of the incomes of the working poor. According to Hallman (n.d.), commuters in Indiana spend 23.4 minutes on average while solo driving one way. Considering an average work day of 8 hours, commuters on average spend approximately 4.5% of their time on solo commute one-way and approximately 9% of their time on solo commute two-way. Thus, members of the working poor who drive solo instead of carpooling, experience 8%–9% of their incomes spent on commuting. A Gallup poll surveyed more than 170,000 workers from 2009 through 2010 on their health, measuring their relative health on a scale of 1 to 100. The survey found that adults who commute 10 minutes or less to work had an average health score of 69.2. Those who commuted more than 90 minutes one way to work had an average health score of just 63.9 (a 7.6%

TABLE 3.5
Internet Access by Income (STATS Indiana, n.d.a)

Internet Access by Income	With Internet	Percentage of Subtotal (%)	Percentage of Grand Total (%)	Without Internet	Percentage of Subtotal (%)	Percentage of Grand Total (%)
Less than \$10,000	94,804	4.39	3.65	64,587	14.69	2.48
\$10,000–\$19,999	149,724	6.93	5.76	90,282	20.53	3.47
\$20,000–\$34,999	289,354	13.40	11.13	106,401	24.20	4.09
\$35,000–\$49,999	301,050	13.94	11.58	65,165	14.82	2.51
\$50,000 and \$74,999	440,798	20.41	16.96	60,857	13.84	2.34
Over \$75,000	883,742	40.92	34.00	52,405	11.92	2.02
Subtotal Users	2,159,472	100.00	83.08	439,697	100.00	16.92
<i>Grand Total Users</i>						<i>2,599,169</i>

Note: The information in this table contains 2018 data. The source where the data was obtained is updated annually and will no longer reflect the information presented here.

TABLE 3.6
Internet Speed Requirement per Industry

Industry	Upload Speed (MBps)	Download Speed (MBps)
Manufacturing	500	1,000
Healthcare	25	150
Retail trade	25	150
Accommodation and food service	250	500
Finance and insurance	75	250
Transportation and warehouses	250	250
Construction	25	150
Wholesale trade	75	250
Educational service	250	500
Information	500	1,000
Agribusiness	25	150

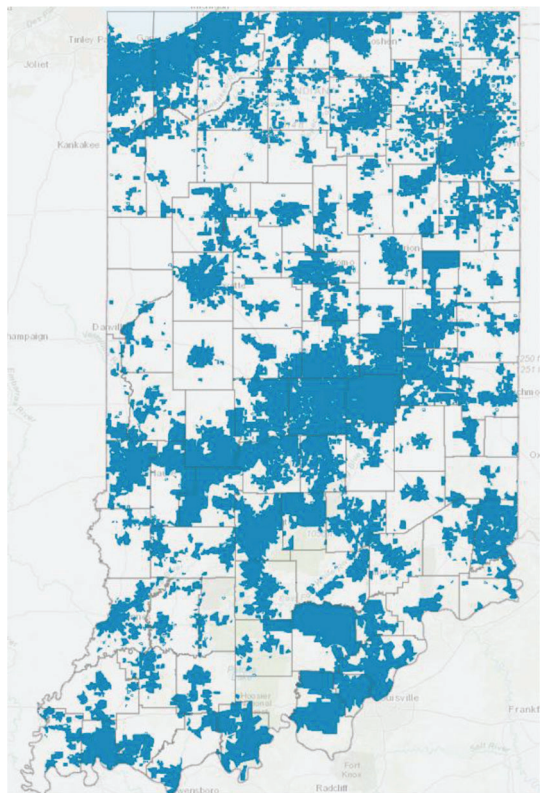


Figure 3.4 Broadband coverage in Indiana (IN.gov, n.d.b).

decrease). According to centers for Medicare and Medicaid services, health spending accounted for 17.9% of GDP (CMS.gov, n.d.).

4. Socio Impact—Telemedicine
 - a. *Cost savings for patients.* Differences in patients’ cost savings from telemedicine were assessed by gender, age, ethnicity, education, occupation, annual household income, health insurance status, and household and community size. The study population consisted of 40 self-selected telemedicine patients in rural Arkansas. The results suggest that without telemedicine, 94% of patients would travel over 70 miles for medical care; 84% would miss one day of work; and 74% would spend \$75–\$150 for additional family expenses. With telemedicine, 92% of patients saved \$32 in fuel costs; 84% saved \$100 in wages; and 74% saved \$75–\$150 in family expenses (URAC Staff, 2017).
5. Socio Impact—Agribusiness
 - a. *Precision agriculture.* Precision agriculture is also known as “Precision Ag” or “Precision Farming.” Precision Ag helps make farming functions more accurate and provides farmers with greater control in their routine tasks. A key component of this farm management approach is the use of information technology and communication technology including GPS, control systems, sensors, robotics, drones, autonomous farm vehicles, variable rate technology, GPS-based soil sampling, automated hardware, telematics, and software. Examples of agro-based companies that practice precision agriculture include Beck’s Hybrids,



Figure 3.5 River Bend Farm (Indiana Farm Bureau, 2017).



Figure 3.6 RV capital industry in Elkhart County (Raice, 2019).

Corteva, Elanco, and Solinftec. These companies are transforming the Corn Belt to a new Tech Belt that is offering data and research-driven solutions aimed at closing the global food gap.

- i. Beck's Hybrids
 1. The Harger Farms facility is used to dry seed corn and to condition and distribute soybean.
 2. The Foundation Seed Facility in Sharpsville is used for research seed lots, parent seed conditioning, and storage.
 3. The Beck's Waveland facility is used for storage and distribution for Beck's customers.
- ii. Solinftec (Horton, 2018)
 1. The Brazilian Ag tech company Solinftec has announced it will invest \$50.6 million to move its U.S. headquarters to Indiana.
 2. Farmers are adding new sensors to their fields and their equipment each season, and this generates an ever-increasing amount of data.
 3. Solinftec seeks to ensure to aggregate that information and use it to further automate farming processes.

4. FIBER OPTIC CONDUIT COSTS

4.1 Introduction

Fiber-optic communication transmits data by sending infrared light pulses through an optical fiber (Davis,

2007). The light forms an electromagnetic carrier wave which, through modulation, carries the information (FOA, 2016). As an information communication material, fiber is replacing traditional copper due to its virtually unlimited capacity to carry the bandwidth required for the needs of the current society regarding mobile, internet, commercial, residential, security and cloud data. Also, fiber is considered superior to electric cable where it is required to have high bandwidth or resilience from electromagnetic interference. Fiber communication has been found to be effective in transmitting data in all forms: video, voice, and telemetry through local area networks, computer networks, or over long distances (Idachaba et al., 2014).

With advances in information and telecommunications technology, it is now possible for large amounts of data to be transmitted via optical fiber over longer distances than before (Noshada & Rostami, 2012) and in most countries, fiber optic systems are considered critical for key telecommunication infrastructure for broadband networks (Idachaba et al., 2014). A requirement in current-day applications is that there should be wide bandwidth signal transmission with minimal delay. Current generations of optical fibers offer unprecedented transmission bandwidth with almost zero latency. Fiber optics is generally the chosen medium when it is sought to transmit data at high rates, particularly in the current era

that is characterized by rapidly increasing commercial demand for internet services and higher telecommunication capacities. The growing population and increasing demand for online connectivity and global information transmission continue to fuel rapid growth in the fiber-optic cable industry, and this growth is expected to continue or even accelerate in the foreseeable future.

A fiber-optic cable is similar to an electric cable but contains one or multiple optical fibers. An individual optical fiber has a cladding and a core. The core material may be glass (for long-range (single-mode) and short/medium-range (multi-mode) telecommunications) or plastic (for short-range and consumer applications). The cladding is usually coated with plastic layers and protects the fiber from physical damage and has no transmission function. A protective tube designed to withstand the environment of the installation site, contains the fiber, individually or as a group. Most cables in use today have a variety of protective coverings including sheathings and armor, (see Figure 4.1) and are buried directly in trenches or installed in a conduit. In a multi-fiber cable, it is common practice to distinguish between individual fibers using color-coded jackets (Davis, 2007).

ICT companies have long sought to achieve higher economic productivity by installing fiber optic cables in the ROW of access-controlled highways. This represents an opportunity for INDOT to not only raise revenue but also to foster economic development and productivity. The fiber may be carried in a conduit constructed by INDOT and leased to the ICT companies. If such an initiative were to be realized, INDOT may stand to collect substantial administrative and monitoring fees and will be entitled to receive fair market value for the permitted use of the agency's ROW. The use of INDOT's facilities to generate revenue has long been part of a vision of the current Indiana administration. Companies including T-Mobile, Verizon, Sprint, and AT&T seek to serve the growing demand for data by establishing the infrastructure. In response, agencies increasingly lease the public right-of-way to generate revenue.

In order to generate guidance towards making informed decisions on this initiative, INDOT commissioned this research study with the main objective to evaluate the costs and benefits of allowing conduit space allowance at controlled-access state highways in Indiana. The second objective is to assess a fair market value for fiber-optic cable permits on the state's controlled-access highway ROW. This research report yields information that will hopefully foster a clear and consistent policy in this regard. This section presents the cost of conduit construction, based on the observed costs for similar infrastructure in INDOT projects in 2017. This is intended to support the research by providing data on the costs of conduit construction. This document also provides the cost of projects that are typically associated with the provision of fiber optic conduits.



Figure 4.1 Illustration of pipe-encased cable containing optic fibers (HiClipArt, 2020).

4.2 Conduit Design Features

The conduit is typically buried underground even though a few cases exist where it is carried on overhead lines. The burial depth is typically 3ft.–4 ft., deep enough to reduce the chances of accidental excavation during future construction activities. In areas where extreme cold prevails at certain times of the year, the cables are buried at greater depths to avoid the zone of frost penetration. The installation process involves digging a trench, providing an engineering bedding, laying the conduit pipe (often with pre-installed duct liner and a pulling tape to facilitate the actual cable pulling process). At busy or sensitive areas such as crossing streets or sidewalks, directional boring can also be used instead of trenching to avoid digging up the surface. A conductive marker tape is laid above the conduit and backfilled. This assists in future cable location and serves as a caveat to anyone digging in the vicinity of the cable. The profile of the complete conduit systems (Figure 4.2) has the bedding layer (on which the conduit pipe rests) and the pipe itself surrounded by padding. The padding may be concrete. This is followed by backfill, a marker tape, and backfill. The typical dimensions of each layer, as recommended in the practice, are provided in Figure 4.2.

For road crossings, directional drilling is often recommended because it causes minimum disruption to traffic. In several states, the minimum depth that any service may be placed under a road is 31.5 inches. For stream and river crossings, horizontal directional drilling (HDD) has become a popular river crossing option (FOA, 2018c). The duct is sealed at both ends to prevent ingress of dirt or water. For bridge crossings, existing ducts or service culverts within bridges, are often used as a crossing feature. Otherwise, new ducts are provided along the bridge span, using concrete anchors and mounting brackets (see Figures 4.2 and 4.3). Where the conduit traverses the bridge abutments and enters the ground, the approach and departure ends are encased in concrete, to prevent ingress of dirt, water, or rodents.

The fiber is typically protected from water contamination often by surrounding it with water-absorbing powder or water-repellent jelly. The cable containing



(a) Conduit system profile

(b) Trenching for the conduit

(c) Installed pipe with partial backfill

Figure 4.2 Conduit design profile and installation photos (FOA, 2018a, b, d).



Figure 4.3 Conduit crossing a bridge (GF Urecon, n.d.).

the fiber is typically armored to protect it from environmental hazards including accidental damage by construction equipment or gnawing animals. Where the cable is installed on the bed of a water body, it is put in a protective casing at locations near the shore; this helps to protect them from accidental damage from boat anchoring or fishing operations.

4.3 Conduit Costs

Conduit costs is an essential data item in the analysis of the costs and benefits of conduit system provision to serve the ICT industry’s conduit infrastructure needs. In Tables 4.1 and 4.2 below, costs of conduit construction in Indiana and elsewhere are presented. The

costs of project types for which conduit provision is often carried out are also presented (FOA, 2018c).

1. Cost estimates from the Intelligent Transportation Systems of FHWA’s Joint Program Office.
 - a. Table 4.2 presents the conduit construction costs at other states (FHWA, 2017).
2. Cost estimates from the Rural Interstate Corridor Communications Study
 - a. In the white paper on the preliminary backbone alignment, the FHWA presented an example cost estimate for construction and installation of a standard (48-SMFO) fiber optic cable along two interstate corridors. This includes two 2-inch HDPE conduits installed using trenching and boring, with one conduit bearing a fiber optic cable. This also includes the costs of regeneration stations and handholes. Regeneration stations provide field shelter for signal regeneration equipment and serve as a point of demarcation for connection to other networks. Handholes act as stations for cable pulling and as junction points where branch cables are connected to the trunk cable; they also serve as points for conduit transition. According to the FHWA document, these cost ranges were established using input data from diverse construction environments and multiple sources including public and private sector entities that were involved in the provision of fiber optic conduit systems at various locations in the U.S. (Noshada & Rostami, 2012). Table 4.3 presents the estimated construction costs for 48-SMFO cable “backbone.” The FHWA report stated that the cost values indicated are rough values only, and locally developed cost estimates should be used whenever possible when estimating the cost of a specific project (Idachaba et al., 2014). Table 4.4 presents the project types eligible for conduit construction or replacement.

TABLE 4.1
Costs of Conduit Construction (2018 INDOT Projects) (INDOT, 2018)

Material Type	Diameter	Project Size (linear ft.)	Low (\$)	Weighted Average (\$)	High (\$)	Year
Steel, Galvanized	2 inches	37,847	10.00	21.00	62.00	2018
PVC	2.5 inches	3,169	7.75	7.75	7.75	2018
PVC	6 inches	5,232	14.00	14.00	14.00	2018
PVC	2.5 inches	81,805	0.80	4.81	100.75	2018
PVC	2 inches	10,525	7.25	15.24	22.00	2018
PVC	3 inches	990	9.00	29.76	33.00	2018
PVC	2 inches	9,726	2.23	6.89	23.10	2018
PVC, Schedule 80	2 inches	13,219	8.00	16.03	61.00	2018
HDPE, Schedule 40	2 inches	7,318	4.00	6.55	16.80	2018
HDPE, Schedule 80	2 inches	21,692	7.00	10.07	40.00	2018
Rigid fiberglass	2 inches	177	59.32	59.32	59.32	2018
PVC, Schedule 80	2.5 inches	3,169	7.75	7.75	7.75	2018
PVC, Schedule 40	1 inch	750	9.18	9.18	9.18	2018
Rigid PVC	1.5 inches	260	8.00	8.00	8.00	2018
Steel, Galvanized	0.75 inches	1,670	4.00	13.86	17.34	2018
PVC	4 inches	13,424	7.40	17.57	43.80	2018
Steel, Galvanized	0.75 inches	467	23.00	23.00	23.00	2018
Steel, Galvanized	3 inches	808	12.00	19.21	27.00	2018
Steel, Galvanized	1.5 inches	35	17.00	23.61	26.25	2018
Steel, Galvanized	1 inch	900	18.87	18.87	18.87	2018
Conduit, Flexible	2 inches	295	1.00	11.86	14.28	2018
Conduit, Flexible	0.75 inches	105	0.50	1.93	2.00	2018

Note:

The values in this table include all costs (labor, materials, equipment use) and includes excavation, formwork, concrete, and pipes.

Recommended value for use in numerical example for demonstration purposes, is \$14 per linear ft.

Does not include manhole costs. Manholes are required for intermittent inspection and repair of the cables and fibers. Provided typically at 100 ft. intervals, manhole cost typically ranges from \$3,299 to \$5,000 with a weighted average of \$4,738.31.

Costs do not include junctions such as T, Y, and elbows (see Appendix A). Estimator may add 5% cost to cover for these study devices.

TABLE 4.2
Conduit Construction Costs—Evidence from Other States (FHWA, 2017)

Conduit Details	Location	Nature of Cost Estimate	Costs	Year of Reporting
Fiber optic cable installation	Charlotte, North Carolina, U.S.	As built	Construction: \$10.23/ft.	2006 dollars
Complete costs of installing armor-protected fiber optic cable	Lynnwood, Washington, U.S.	As built	Construction: \$4.36/ft. Operations and maintenance: \$0.57/ft.	2004 dollars
Fiber optic cable, furnish & install, overhead, 2–12 fibers	Florida, U.S.	Estimate	Construction: \$2.48/ft.	2013 dollars
Fiber optic cable conduit (2–1/2" HDPE/SDR 11) in trench	Orlando, Florida, U.S.	From bid tabs	Construction: \$2.00–7.50/ft.	2010 dollars
Fiber optic cable installation in-ground installation. Approximately 5.7 miles	Raleigh, North Carolina, U.S.	As built	Construction: \$10.61/ft.	2003 dollars
Fiber optic cable installation	Washington, U.S.	As built	Construction: \$1.89/ft. Operations and maintenance: \$0.19/ft.	2006 dollars
Fiber optic cable installation	Colorado, U.S.	As built	Construction: \$1.89/ft.	2005 dollars
Fiber optic cable installation	Tukwila, Washington, U.S.	Estimate	Construction: \$6.76/ft. Operations and maintenance: \$0.034/ft.	2006 dollars
Fiber optic cable installation	Oxford, Mississippi, U.S.	As built	Construction: \$14.40/ft.	2005 dollars
Fiber optic cable installation	Florida, U.S.	As built	Construction: \$20/ft.	2003 dollars
Fiber optic cable installation	Blewett/Stevens Pass, Washington, U.S.	As built	Construction: \$12.12/ft.	2001 dollars
Fiber optic cable installation	Hattiesburg, Mississippi, U.S.	As built	Construction: \$10/ft. Operations and maintenance: \$0.19/ft.	2004 dollars

Note: Installation costs include construction of conduit.

TABLE 4.3
FHWA's Construction Cost Estimates for Conduit Construction and Installing Fiber Optic Cable of Standard Specification (FHWA, 2017)

Service/Product	Price-Low	Price-High	Unit	Assumptions
Fiber plowing	1.25	1.75	Lin. ft.	Assume standard installation method will be plowing. Route mileage for the corridor is from the FHWA Route Log
Directional boring–rural	6.00	7.00	Lin. ft.	Assume rural bores average 150' each
Directional boring–urban	8.00	10.00	Lin. ft.	Assume 10% of total bores as urban bores, average 200' each
Directional boring–rock	42.50	271.00	Lin. ft.	Assume 5% of total bores as rock bores, average 150' each
Conduit (2" HDPE)	0.75	0.80	Lin. ft.	Per foot cost. Assuming installation of two conduits.
Bridge attachments	100	175	Lin. ft.	Includes 6" steel conduit and labor to attach
Handhole	575	700	Each	48" × 30" × 36", higher cost value would apply for load rated
Handhole installation	600	800	Each	Low-high range for installation cost
SMFO cable–48 count ¹	0.61	0.80	Lin. ft.	Assuming one fiber cable installed in one conduit
Fiber installation	3.25	5.00	Lin. ft.	Includes splices, pulling, splice enclosures, terminal panels
Regeneration building	0.28M	0.3M	Each	Assumes one building average every 50 miles and one on either end of corridor in state. Includes pad, power, A/C, racks, conduit
Design	7.5%	10.0%	²	Pre-construction design of route and equipment
Traffic control	3.0	7.0	L.S.	For lane and shoulder closures
Mobilization	3.0	9.0	L.S.	Contractor costs to provide equipment and services
Construction engineering	7.5	10.0	L.S.	Inspection, oversight, field engineering
Administration	5.0	7.0	L.S.	Construction administration services
Contingency	8.0	20.0	L.S.	To cover unknowns and peripheral costs
Estimated cost for future value	12.5	30.0	L.S.	Future value, 5 to 10 years out, if average inflation is 4 per year

Note: All cost values are 2007 dollars.

Specification here refers to the commonly used 48-SMFO (that is, AFL 48 Strand Single mode Outdoor Fiber Optic Cable).

L.S.=lump sum.

¹In estimating the conduit construction cost only, the cost of the fiber can be excluded.

²Percent of construction cost lump sum (L.S.).

TABLE 4.4
Costs of INDOT Project Types that are Eligible for Conduit Construction or Replacement (Qiao et al., 2018).

Project Types Eligible for Conduit Construction or Replacement	Average Unit Cost	Standard Deviation of Cost
New bridge	\$279/sq. ft.	\$191.95/sq. ft.
Bridge replacement	\$429/sq. ft.	\$240.50/sq. ft.
Superstructure replacement	\$207/sq. ft.	\$81.95/sq. ft.
Deck replacement	\$136/sq. ft.	\$47.41/sq. ft.
Bridge widening	\$151/sq. ft.	\$70.10/sq. ft.
New road construction	\$5,445,926/lane-mile	\$1,973,463/lane-mile
Added travel lanes	\$8,364,996/lane-mile	\$7,234,558/lane-mile
Road rehabilitation (3R/4R)	\$1,100,037/lane-mile	\$753,423/lane-mile
Pavement replacement	\$512,590/lane-mile	\$542,699/lane-mile
Intersection improvement	\$1,228,278/lane-mile	\$1,140,889/lane-mile
Interchange work	\$11,473,858/lane-mile	\$9,409,293/lane-mile

Note: Costs are expressed in 2015 dollars.

The above costs do not account for economies of scale which can be very pronounced in road construction projects (Qiao et al., 2018; Xiong et al., 2017).

5. HIGHWAY INVENTORIES IN INDIANA

The Indiana Department of Transportation (INDOT) is responsible for the establishment and classification of a state highway network which includes interstate highways, U.S. highways, and state roads. There is no rule preventing the same numbering between state roads, U.S. routes, and Interstate highways, although traditionally, INDOT has avoided state road numbers which are the same as those as U.S. routes within the state. Indiana has 12,000 miles (19,000 km) of state highways (Wikipedia, 2020c).

Most Indiana counties use a numbering system for designating county roads based on a grid. The system is similar to latitude and longitude on the globe where the latitude-longitude referencing system features numbering that is based on the Equator and Greenwich Prime Meridian positions (Anderson, n.d.). The scope of this study is limited to interstate highways, auxiliary interstate highways, and U.S. routes. The standard highway marker can be seen in Figure 5.1. A snapshot of the database table prepared for highways operated by each county is presented in Figure 5.3.

5.1 Interstate Highways

Interstate highways, with exception of toll roads, are owned and maintained by INDOT. Table 5.1 presents the current inventory size of interstate highways in Indiana. Figure 5.2 provides a visual map of Indiana highways.

5.2 Auxiliary Interstate Highway

An auxiliary interstate highway is a part or extension of an Interstate Highway and is maintained by INDOT.



Figure 5.1 Standard highway markers (Wikipedia, 2020c).

TABLE 5.1
Indiana State's Highway Infrastructure

Number	Length (mi)	Length (km)	Formed
I-64	123.33	198.48	1956
I-65	261.27	420.47	1956
I-69	294	473.15	1956
I-70	156.6	252.02	1956
I-74	171.54	276.07	1960
I-80	151.56	243.91	1956
I-90	156.28	251.51	1956
I-94	46.13	74.24	1956



Figure 5.2 Highway maps in Indiana (Geology.com, n.d.).

TABLE 5.2
Indiana State's Auxiliary Interstate Highway Infrastructure

Number	Length (mi)	Length (km)	Formed
I-164	21.39	34.42	1968
I-165	—	—	1978
I-265	6.73	10.83	1977
I-275	3.16	5.09	1962
I-294	10	16	1965
I-465	52.79	84.96	1959
I-469	30.83	49.62	1989
I-865	4.72	7.6	2002

Table 5.2 presents the current inventory of Auxiliary Interstate Highway infrastructure in Indiana (Wikipedia, 2020a).

5.3 U.S. Routes

The U.S. highways in Indiana are those sections of U.S. numbered highways owned and maintained by the INDOT (Wikipedia, 2020a). Table 5.3 presents the current inventory of U.S. route infrastructure in Indiana. Based on this information, three major database are developed to link the connection between the highway and the county where the highway is located (IN.gov, n.d.b). Complete data are provided in the appendices.

TABLE 5.3
Indiana State's U.S. Route Infrastructure

Number	Length (mi)	Length (km)	Formed
US 6	149.49	240.581	1931
US 12	46.258	74.445	1926
US 20	155.734	250.63	1926
US 24	166.846	268.513	1926
US 27	117.765	189.524	1926
US 30	156.217	251.407	1926
US 31	266.02	428.12	1926
US 33	106.217	170.94	1937
US 35	206.716	332.677	1934
US 36	138.99	223.68	1926
US 40	159.321	256.402	1926
US 41	279.817	450.322	1926
US 50	171.38	275.81	1926
US 52	202	325	1926
US 112S	—	—	1933
US 131	0.643	1.035	1961
US 136	74.93	120.588	1952
US 150	177.17	285.13	—
US 152	—	—	1934
US 224	39.377	63.371	1934
US 231	284.277	457.499	1954
US 421	255.065	410.487	1951

County	64	65	69	70	74	80	94	90	164	165	265	275	294	465	469	865	US 6	US 12	US 20	US 24	
Adams																					
Allen			1												1						1
Bartholomew		1								1											
Benton																					
Blackford																					
Boone		1			1					1				1		1					
Brown																					
Carroll																					
Cass																					1
Clark		1								1	1										
Clay				1																	
Clinton		1								1											
Crawford	1																				
Daviess			1																		
Dearborn					1							1									
Decatur					1																
De Kalb			1															1			
Delaware			1																		
Dubois	1																				
Elkhart						1	1											1		1	
Fayette																					
Floyd	1										1										

Figure 5.3 Screenshot of the database table highway operated by each county.

6. ECONOMIC POTENTIAL OF BROADBAND DEVELOPMENT IN INDIANA

In the beginning of this report, it was hypothesized that there is a relevant relationship between the state GDP (as a measure of economic conditions) and the provision of broadband infrastructure. Using that idea, a structured database was developed to show the GDP per county per industry type, the natural growth of GDP as a factor, and the level of contribution of broadband in the growth of GDP.

At the end of this section, the general formula that can be applied in any situation regarding economic impact of broadband initiative is introduced.

6.1 GDP per County per Industry Type

In this database, GDP produced by each county in Indiana (total of 92 counties) is discovered, and then organized into 11 industries. Out of the 11 industries, we chose 10 industries. The reason for choosing these 10 industries is because they are known to be highly impacted by broadband innovation and also, they contribute to the higher salaries. The GDP level is influenced by factors such as the following:

1. *The size of labor.* The size of labor varies across the counties in Indiana. The size of labor also represents the size of industry in any specific county (<https://datausa.io/>). On average, manufacturing, health care, and retail trade

hire more employees than any other industries. The size of each industry per county is calculated as the product of labor size and the average salary. Table 6.1 presents the types of industry considered in the calculation.

2. *Median income per industry on state level.* Among the 11 industries described in Table 6.1, the median wages per industry on a state level were also determined (STATS Indiana, n.d.c). Some findings are not relevant to the size of the industry because in some type of industries such as manufacturing, finance, construction, and information, the average salaries are much higher than state average salary. From the available data, the state median salary, regardless of the industry type, is \$55,600 (STATS Indiana, n.d.c). Table 6.2 presents the salary per industry at the state level.
3. *Median income per industry on the county level.* There is no relevant and definite information about median wages per industry at the county level. Therefore, the problem was approached using a new method by involving the wages ratio R, as follows:

$$R = \frac{\text{Median Income per County}}{\text{Median Income State Level}}$$

The denominator (Indiana's median income level) is \$55,600 and is a constant, and the R value is different for each county. Thus, county standard salary is adjusted as follows:

$$\begin{aligned} & \text{Adjusted Median Income per Industry per County} \\ & = R * \text{Median Income per Industry State Level} \end{aligned}$$

TABLE 6.1
The Type of Industry for Database

#	Type of Industry
1	Manufacturing
2	Health care
3	Retail trade
4	Accommodation and food service
5	Finance and insurance
6	Transportation and warehouse
7	Construction
8	Wholesale trade
9	Educational service
10	Information
11	Agribusiness

The complete values of R for each county are provided in the appendices of this report.

4. *Total income as the result multiplication of average wages.* Finally, to determine the GDP per industry per county, the above formulas are used as inputs (see Figure 6.1). In total, this involves 2.45 million employees of 10 major industries who contribute \$136 billion to Indiana's GDP. The partial snapshot of database is shown in Figure 5.3.

6.2 Natural Growth Based on Employment

The GDP per industry per county mentioned on the last section are the current GDP values. Due to the changing nature of GDP, a new database was created to measure the natural growth of GDP regardless of the influential factors. This natural growth calculation is based on the increase of employment and job opening in each county.

Furthermore, the increase factor in each county in the state of Indiana are also divided into 11 Economic Growth Regions (EGR) (Hoosiers by the Numbers, n.d.) (see Figure 6.2 and Table 6.3).

TABLE 6.2
The Amount of Salary per Industry on a State Level

#	Type of Industry	Standard Salary (\$ per year)
1	Manufacturing	80,981
2	Health care	62,819
3	Retail trade	32,624
4	Accommodation and food service	66,460
5	Finance and insurance	22,733
6	Transportation and warehouse	50,454
7	Construction	64,968
8	Wholesale trade	83,867
9	Educational service	48,770
10	Information	75,100
11	Agribusiness	38,542

Note: The information in this table contains 2018 data. The source where the data was obtained is updated annually and will no longer reflect the information presented here.

#	List of County	Population		Manufacturing			Health Care			Retail Trade			Accommodation & Food Service			Finance & Insurance		
		2018	2017	Labor	Dollar (k)	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg
1	Adams	35,636	35,422	4,454	313,268	70.33	1,704	92,970	54.56	1,484	42,049	28.33	745	14,709	19.74	417	24,070	
2	Allen	375,351	372,210	31,066	2,374,765	76.44	20,659	1,225,046	59.30	20,659	636,207	30.80	2,658	57,038	21.46	8,624	541,030	
3	Bartholomew	82,753	82,429	13,738	1,147,237	83.50	4,977	321,995	64.77	4,157	139,672	33.64	2,876	67,416	23.44	1,069	73,258	
4	Benton	8,653	8,617	816	58,024	71.63	293	16,282	55.57	418	12,092	28.86	128	2,574	20.11	155	9,112	
5	Blackford	11,930	12,027	1,678	99,102	59.17	700	32,127	45.90	488	11,656	23.84	238	3,970	16.61	85	4,127	
6	Boone	66,999	65,786	4,808	528,689	110.10	4,678	399,271	85.41	3,250	144,150	44.35	1,527	47,194	29.91	1,360	122,884	
7	Brown	15,234	15,007	1,277	110,280	86.36	941	63,105	66.99	842	29,293	34.79	558	13,406	24.24	153	10,844	
8	Carroll	20,127	19,994	2,608	213,023	81.84	1,076	67,927	63.48	868	28,419	32.97	508	11,602	22.97	167	11,216	
9	Cass	37,955	37,905	5,138	340,865	66.35	2,678	137,691	51.47	1,749	46,754	26.73	860	16,019	18.63	541	29,461	
10	Clark	117,360	116,672	8,908	685,261	76.95	8,276	493,668	59.69	7,107	220,138	31.00	4,398	95,006	21.60	3,070	193,882	
11	Clay	26,170	26,155	2,538	188,022	74.17	1,678	96,142	57.54	1,358	40,577	29.88	768	16,011	20.82	391	23,800	
12	Clinton	32,250	32,207	4,498	337,982	75.24	1,874	109,378	58.37	1,408	42,527	30.31	804	16,982	21.12	249	15,376	
13	Crawford	10,558	10,536	1,078	62,501	58.36	628	28,203	45.27	448	10,532	23.51	278	4,440	16.38	71	3,400	
14	Daviess	33,147	33,074	2,957	208,258	70.43	1,427	77,634	54.63	1,488	42,105	28.37	898	17,695	19.77	308	17,802	
15	Dearborn	49,564	49,568	3,968	363,276	91.62	3,376	239,514	71.07	2,648	97,480	36.91	1,530	39,351	25.72	991	74,515	
16	Decatur	26,794	26,652	4,238	322,643	76.13	1,388	81,971	59.06	1,288	39,319	30.67	868	18,508	21.37	351	21,930	
17	De Kalb	43,226	42,822	7,084	530,066	74.83	2,302	133,618	58.04	2,428	73,190	30.14	1,190	24,996	21.01	559	34,327	
18	Delaware	114,772	115,389	6,330	379,921	60.02	8,704	405,058	46.56	6,444	155,811	24.18	4,968	83,586	16.85	1,774	87,382	
19	Dubois	42,565	42,491	7,248	604,553	83.47	2,738	177,085	64.75	2,008	67,386	33.63	828	19,424	23.43	682	46,717	
20	Elkhart	205,560	202,924	34,544	2,638,642	76.39	9,316	552,056	59.26	9,888	304,150	30.78	6,688	143,443	21.44	1,896	118,867	

Figure 6.1 Total GDP per industry per county level.

For each EGR, there is natural growth factor that strongly relates to the increase or decrease in job openings of each industry. Consistent with the macro-economy theory, the difference in current employment and future employment is used to come up with growth factor number that is eventually used to calculate the size growth per industry in each region.

The growth factor formula is:

$$N(i)(k) = \frac{\text{Current Number of Jobs per Industry } (i) \text{ in EGR } (k)}{\text{Future Number of Jobs per Industry } (i) \text{ in EGR } (k)}$$

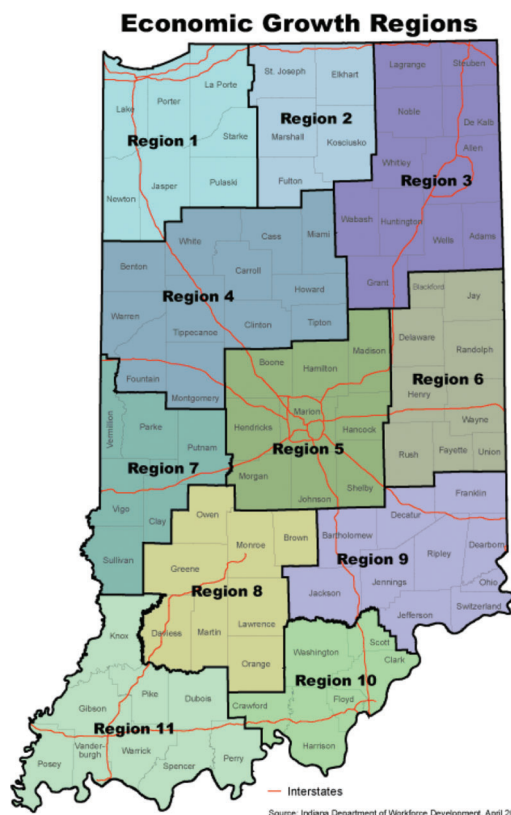


Figure 6.2 Indiana’s EGR on maps (Indiana Department of Workforce Development, 2016).

TABLE 6.3 List of County Based on Economic Growth Region (EGR)

EGR	County
1	Jasper, Lake, LaPorte, Newton, Porter, Pulaski, and Starke
2	Elkhart, Fulton, Kosciusko, Marshall, and St. Joseph
3	Adams, Allen, DeKalb, Grant, Huntington, LaGrange, Noble, Steuben, Wabash, Wells, and Whitley
4	Benton, Carroll, Cass, Clinton, Fountain, Howard, Miami, Montgomery, Tippecanoe, Tipton, Warren, and White
5	Boone, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, and Shelby
6	Blackford, Delaware, Fayette, Henry, Jay, Randolph, Rush, Union, and Wayne
7	Clay, Parke, Putnam, Sullivan, Vermillion, and Vigo
8	Brown, Daviess, Greene, Lawrence, Martin, Monroe, Orange, and Owen
9	Bartholomew, Dearborn, Decatur, Franklin, Jackson, Jefferson, Jennings, Ohio, Ripley, and Switzerland
10	Clark, Crawford, Floyd, Harrison, Scott, and Washington
11	Dubois, Gibson, Knox, Perry, Pike, Posey, Spencer, Vanderburgh, and Warrick

The complete values of N (natural growth factor) per industry per EGR are stated in the appendices of this report.

6.3 Broadband Contribution Factor

As mentioned in point four of section 3.1, Hassett and Shapiro (2016) discovered how far the broadband development can be expected to cause the economic impact in each industrial sector in the United States. Assuming the derived formula is same for each state, the same factor is used to develop the broadband contribution factor (B) for purposes of the current report. Subsequently, this contribution factor (B) is used to measure the size of broadband improvement initiative in the economic growth for each industry per county in Indiana. Table 6.4 presents the information on the contribution factor for each industry type.

6.4 General Formula of Economic Impact

In this section, the final formula is developed to synthesize all the information from section 1 to 3. The goal is to determine the anticipated economic impact of broadband investment. This investment involves the installation of conduits along the state highways, to facilitate the development of internet services in each county.

The last formula (provided below) indicates the expected economic impact of the broadband investment per county and per industry. The total impact for all the counties gives the overall impact for the state, assuming no overlaps or interdependencies (see Figure 6.3).

$$E = \sum \{Adj. MI Industry(i) County(k) * [1 + N(i)(k)] * B(i)\}$$

- E = total economic impact
 - Adj. MI Industry (i) County (k) = adjusted median income per industry per county
 - N (i) (k) = natural growth per industry per county
 - B (i) = broadband contribution factor per industry
- This formula is used subsequently to offer some insight on how to make a decisive judgement that can

TABLE 6.4
Broadband Contribution Factor (B) for Each Industry

#	Type of Industry	Broadband Contribution Factor (B) (%)
1	Manufacturing	3.66
2	Health care	2.10
3	Retail trade	2.23
4	Accommodation and food service	1.61
5	Finance and insurance	2.82
6	Transportation and warehouse	1.19
7	Construction	1.52
8	Wholesale trade	2.23
9	Educational service	2.55
10	Information	16.78
11	Agribusiness	0.42

#	List of County	Manufacturing				Health Care				Retail Trade				Accommodation & Food Service			
		County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact
1	Adams	313,268	114.07%	3.66%	13,078	92,970	151.55%	2.10%	2,959	42,049	138.94%	2.23%	1,303	14,709	182.04%	1.61%	431
2	Allen	2,374,765	114.07%	3.66%	99,142	1,225,046	151.55%	2.10%	38,988	636,207	138.94%	2.23%	19,711	57,038	182.04%	1.61%	1,672
3	Bartholomew	1,147,237	113.90%	3.66%	47,823	321,995	74.30%	2.10%	5,024	139,672	143.41%	2.23%	4,467	67,416	180.70%	1.61%	1,961
4	Benton	58,024	115.59%	3.66%	2,455	16,282	165.21%	2.10%	565	12,092	140.03%	2.23%	378	2,574	180.96%	1.61%	75
5	Blackford	99,102	109.65%	3.66%	3,977	32,127	137.36%	2.10%	927	11,656	138.67%	2.23%	360	3,970	176.87%	1.61%	113
6	Boone	528,689	116.75%	3.66%	22,591	399,271	73.60%	2.10%	6,171	144,150	141.81%	2.23%	4,559	47,194	193.54%	1.61%	1,471
7	Brown	110,280	112.60%	3.66%	4,545	63,105	75.37%	2.10%	999	29,293	144.31%	2.23%	943	13,406	191.60%	1.61%	414
8	Carroll	213,023	115.59%	3.66%	9,012	67,927	165.21%	2.10%	2,357	28,419	140.03%	2.23%	887	11,602	180.96%	1.61%	338
9	Cass	340,865	115.59%	3.66%	14,421	137,691	165.21%	2.10%	4,777	46,754	140.03%	2.23%	1,460	16,019	180.96%	1.61%	467
10	Clark	685,261	112.25%	3.66%	28,154	493,668	80.58%	2.10%	8,354	220,138	143.21%	2.23%	7,030	95,006	186.41%	1.61%	2,851
11	Clay	188,022	113.80%	3.66%	7,831	96,142	70.64%	2.10%	1,426	40,577	143.47%	2.23%	1,298	16,011	174.75%	1.61%	450
12	Clinton	337,982	115.59%	3.66%	14,299	109,378	165.21%	2.10%	3,795	42,527	140.03%	2.23%	1,328	16,982	180.96%	1.61%	495
13	Crawford	62,501	112.25%	3.66%	2,568	28,203	80.58%	2.10%	477	10,532	143.21%	2.23%	336	4,440	186.41%	1.61%	133
14	Daviess	208,258	112.60%	3.66%	8,583	77,634	75.37%	2.10%	1,229	42,105	144.31%	2.23%	1,355	17,695	191.60%	1.61%	546
15	Dearborn	363,276	113.90%	3.66%	15,143	239,514	74.30%	2.10%	3,737	97,480	143.41%	2.23%	3,117	39,351	180.70%	1.61%	1,145
16	Decatur	322,643	113.90%	3.66%	13,450	81,971	74.30%	2.10%	1,279	39,319	143.41%	2.23%	1,257	18,508	180.70%	1.61%	538
17	De Kalb	530,066	114.07%	3.66%	22,129	133,618	151.55%	2.10%	4,253	73,190	138.94%	2.23%	2,268	24,996	182.04%	1.61%	733
18	Delaware	379,921	109.65%	3.66%	15,247	405,058	137.36%	2.10%	11,684	155,811	138.67%	2.23%	4,818	83,586	176.87%	1.61%	2,380
19	Dubois	604,553	113.88%	3.66%	25,198	177,085	71.55%	2.10%	2,661	67,386	139.03%	2.23%	2,089	19,424	181.00%	1.61%	566
20	Elkhart	2,638,642	118.59%	3.66%	114,523	552,056	71.98%	2.10%	8,345	304,150	139.54%	2.23%	9,464	143,443	185.96%	1.61%	4,295
21	Fayette	152,594	109.65%	3.66%	6,124	91,520	137.36%	2.10%	2,640	26,235	138.67%	2.23%	811	8,293	176.87%	1.61%	236

Figure 6.3 Partial snapshot of total economic impact.

produce optimum economic outcome leveraging the Pareto method. The complete values of E are cited in the appendices of this report.

7. USE CASE EXAMPLES AND POTENTIAL ECONOMIC BENEFITS

As discussed before, there are five sets of databases that can be use to make a decision. However, the information provided by these databases is too broad, given there are many combinations for 92 counties and 10 industries. To optimize the analysis, the results should be narrowed, and this can be done by using the Pareto method.

The Pareto method (also known as the 80/20 method, the law of the vital few, or the principle of factor sparsity) states that, for many events, roughly 80% of the effect comes from 20% of the causes (Wikipedia, 2020b). Hence, the data is grouped to identify 80% economic impact based on 20% events in county and industry.

7.1 Pareto Analysis by County

After calculating all values of total economic impact (E), the results were combined with the Highway Inventory database. The goal is to determine the county that will contribute to 80% of economic impact due to broadband investment. The broadband investment is in the form of highway ROW-installed conduit leases for internet services. Therefore, it is important to determine which highways will contribute to 80% of such economic impact.

Based on the final calculations, using the formula of E (total economic impact), the sums of E for all 92 counties is \$4.5 billion. The Pareto method (80%) of that number is approximately \$3.6 billion. It means that if the conduit infrastructures located in every county contributing to Pareto method, the specific action will bring \$3.6 billion of economic impact in Indiana's GDP increase. Table 7.1 presents information on the counties and highways in each county that were identified using the Pareto method.

TABLE 7.1
List of Counties and Highways According to the Pareto Method

#	County	Total Economic Impact (\$)	Highway Operated
1	Marion	466,779.66	65, 69, 70, 74, 165, 465, US 31, US 40, US 52, US 136, US 421
2	Hamilton	388,804.80	69, 465, US 31, US 421
3	Lake	305,422.02	65, 80, 94, 90, 165, 294, US 6, US 12, US 20, US 30, US 41, US 231
4	Allen	259,585.51	69, 469, US 24, US 27, US 30, US 33
5	St. Joseph	183,019.64	80, 94, US 6, US 20, US 31, US 112S
6	Elkhart	167,967.48	80, 94, US 6, US 20, US 33, US 131
7	Hendricks	138,024.32	65, 70, 74, 165, US 136
8	Porter	133,319.80	80, 94, 90, US 6, US 12, US 20, US 30, US 231
9	Tippecanoe	123,388.11	65, 165, US 52, US 231
10	Johnson	120,333.44	65, 165
11	Vanderburgh	104,220.48	64, 69, 164, US 41
12	Kosciusko	78,896.18	US 30
13	Clark	73,525.96	65, 165, 265, US 31
14	Bartholomew	71,896.31	65, 165, US 31
15	Monroe	71,401.02	69
16	Boone	65,681.23	65, 74, 165, 465, 865, US 136, US 421
17	Hancock	63,786.23	70
18	Madison	59,644.77	69
19	Howard	57,169.51	US 31, US 35
20	La Porte	56,914.54	80, 94, 90, US 6, US 12, US 20, US 30, US 35, US 421
21	Floyd	55,805.27	64, 265, US 150
22	Warrick	51,923.70	64, 69, 164
23	Delaware	50,705.63	69, US 35
24	Morgan	47,454.25	69, 70
25	Vigo	45,588.80	70, US 41, US 150
26	Noble	42,706.10	US 6, US 33
27	Dubois	39,965.71	64, US 231
28	Lagrange	38,343.85	80, 94
29	De Kalb	38,189.79	69, US 6
30	Dearborn	35,368.35	74, 275, US 50
31	Shelby	34,828.60	65, 74, 165, US 421
32	Wayne	34,719.62	70, US 27, US 112S
33	Grant	34,459.39	69, US 35
34	Marshall	34,501.15	US 6, US 30, US 31
35	Montgomery	32,752.15	74, US 136, US 231
<i>Total</i>		<i>3,607,093.37</i>	

The results from the table suggests that there are 35 counties that will yield benefits of \$3.6 billion if the broadband investments are undertaken. The top three of that list, which are Marion County, Hamilton County, and Lake County, have relatively larger inventory compared to other counties in Indiana.

7.2 Pareto Analysis by Industry

Next, it is important to find which industry type will contribute most to the economic impact, if the broadband investments are undertaken. The total economic impact based on industry is similar to the results of by county which stated a \$4.5 billion in total impact and \$3.6 billion as 80%.

After careful implementation of Pareto method, the following industry types in Table 7.2 were identified as the major influencers (80%) of the total economic impact.

Of the ten industries that were chosen to show increase in GDP caused by broadband initiative,

TABLE 7.2
Pareto Analysis of Economic Impact per Industry

#	Industry Name	Total Economic Impact (\$)
1	Manufacturing	1,931,616
2	Health care	549,350
3	Information	509,833
4	Retail trade	346,270
5	Educational service	253,906
<i>Total</i>		<i>3,590,975</i>

exactly five of them—manufacturing, health care, information, retail trade, and educational service—contribute to 80% of total economic impact (the above total number in the table is rounded to \$3.6 billion). This implies that if the broadband development initiative is implemented, the top 35 counties and the top five industries that will contribute to at least \$3.6 billion increase in economic impact can be easily identified.

TABLE 7.3
Total Economic Impact on City Level

#	City Name	Total Economic Impact (\$ in thousands)
1	Indianapolis	423,975
2	Fort Wayne	185,090
3	Carmel	110,144
4	Fishers	109,970
5	Noblesville	74,364
6	South Bend	68,849
7	Evansville	67,933
8	Westfield	48,915
9	Hammond	47,789
10	Gary	47,465
11	Lafayette	46,127
12	Greenwood	45,274
13	Elkhart	42,790
14	Columbus	41,306
15	Bloomington	41,300
16	Kokomo	40,166
17	Mishawaka	33,749
18	West Lafayette	30,876
19	Muncie	30,276
20	Jeffersonville	29,716
21	Portage	28,934
22	Goshen	27,427
23	Valparaiso	26,515
24	New Albany	26,262
25	Terre Haute	25,792
26	Anderson	25,356
27	Lawrence	23,981
28	Franklin	19,447
29	Crown Point	18,952
30	Greenfield	18,851
31	Richmond	18,616
32	Hobart	17,679
33	East Chicago	17,610
34	Michigan City	16,100
<i>Total</i>		<i>1,877,598</i>

The use case example derived from the two approaches more likely related to a scenario. For example, if INDOT decides to lease the conduit belonging to Hamilton County for broadband purposes, INDOT should choose the highways 69, 465, US 31, and US 421. Furthermore, the type of industries that run on those highways should be related to manufacturing, healthcare, information, retail trade, and educational service.

7.3 Pareto Analysis by City

Using a similar approach, cities that can accommodate broadband development initiative were identified. However, with this approach, similar results in terms of economic impact are not obtained. Based on the findings, the estimated economic impact of broadband initiative by leasing the conduits would be approximately \$2.4 billion from 120 cities in Indiana.

According to Pareto analysis, there are 35 cities that will contribute as much as \$1.8 billion (80% of total

economic impact) to the initiative. The list of the top cities is provided in Table 7.3.

8. CONCLUSION

There are four conclusions that can be drawn based on the research findings.

1. Several studies have shown that the economic impact of broadband infrastructure is significant and can be measured by determining the increase in one of the GDP components—the employee income per industry. Some studies also examine the level of the contribution of broadband in GDP increase as a part of natural growth factor.
2. The conduit facilities along INDOT’s state highways can be classified by the highway class. It is recommended that INDOT uses any of the following highway types: interstates, auxiliary interstates, and U.S. routes.
3. To measure the total economic impact caused by broadband initiative, a general formula was developed. The general formula involves GDP per county per industry type, natural growth based on employment opportunities, and broadband contribution factor. The formula is the foundation of this research and it produces important database that can further be explored in further research.
4. The Pareto method was used to determine which counties or cities would have major contributions to the economic impact. The same method also applied in choosing which industry type would have major economic impacts. Then the previous information was used to identify which highways should be included in the conduit construction initiative.

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APPENDICES

Appendix A. Interstate Highway Database

Appendix B. Auxiliary Interstate Highway Database

Appendix C. U.S. Route Highway Database

Appendix D. GDP per Industry per County

Appendix E. Natural Growth Database

Appendix F. Broadband Contribution Factor and Total Economic Impact Database

Appendix G. Total Ranking of Economic Impact by County

Appendix H. Total Ranking of Economic Impact by Industry

Appendix I. Total Ranking of Economic Impact by City

APPENDICES

All databases are provided in the appropriate Microsoft Excel file alongside with this report. The structure of the database is consists of the following elements.

APPENDIX A. INTERSTATE HIGHWAY DATABASE

County	64	65	69	70	74	80	94	90	Result
Adams									
Allen			1						69
Bartholomew		1							65
Benton									
Blackford									
Boone		1			1				65, 74
Brown									
Carroll									
Cass									
Clark		1							65
Clay				1					70
Clinton		1							65
Crawford	1								64
Daviess			1						69
Dearborn					1				74
Decatur					1				74
De Kalb			1						69
Delaware			1						69
Dubois	1								64
Elkhart						1	1		80, 94
Fayette									
Floyd	1								64

Fountain					1				74
Franklin					1				74
Fulton									
Gibson	1		1						64, 69
Grant			1						69
Greene			1						69
Hamilton			1						69
Hancock					1				70
Harrison	1								64
Hendricks		1		1	1				65, 70, 74
Henry					1				70
Howard									
Huntington			1						69
Jackson		1							65
Jasper		1							65
Jay									
Jefferson									
Jennings									
Johnson		1							65
Knox									
Kosciusko									
La Porte						1	1	1	80, 94, 90
Lagrange						1	1		80, 94
Lake		1				1	1	1	65, 80, 94, 90
Lawrence									
Madison			1						69
Marion		1	1	1	1				65, 69, 70, 74
Marshall									

Martin									
Miami									
Monroe			1						69
Montgomery					1				74
Morgan			1	1					69, 70
Newton		1							65
Noble									
Ohio	1		1						64, 69
Orange									
Owen									
Parke									
Perry	1								64
Pike			1						69
Porter						1	1	1	80, 94, 90
Posey	1								64
Pulaski									
Putnam				1					70
Randolph									
Ripley					1				74
Rush									
St. Joseph						1	1		80, 94
Scott		1							65
Shelby		1			1				65, 74
Spencer	1								64
Starke									
Steuben			1			1	1		69, 80, 94
Sullivan									
Switzerland									
Tippecanoe		1							65
Tipton									

Union									
Vanderburgh	1		1						64, 69
Vermillion					1				74
Vigo				1					70
Wabash									
Warren									
Warrick	1		1						64, 69
Washington									
Wayne				1					70
Wells			1						69
White		1							65
Whitley									

APPENDIX B. AUXILIARY INTERSTATE HIGHWAY DATABASE

County	164	165	265	275	294	465	469	865	Result
Adams									
Allen							1		469
Bartholomew		1							165
Benton									
Blackford									
Boone		1				1		1	165, 465, 865
Brown									
Carroll									
Cass									
Clark		1	1						165, 265
Clay									
Clinton		1							165
Crawford									
Daviess									
Dearborn				1					275
Decatur									
De Kalb									
Delaware									
Dubois									
Elkhart									
Fayette									
Floyd			1						265
Fountain									
Franklin									
Fulton									
Gibson	1								164

Grant									
Greene									
Hamilton					1				465
Hancock									
Harrison									
Hendricks		1							165
Henry									
Howard									
Huntington									
Jackson									
Jasper		1							165
Jay									
Jefferson									
Jennings									
Johnson		1							165
Knox									
Kosciusko									
La Porte									
Lagrange									
Lake		1			1				165, 294
Lawrence									
Madison									
Marion		1			1				165, 465
Marshall									
Martin									
Miami									
Monroe									
Montgomery									
Morgan									
Newton		1							165

Noble									
Ohio									
Orange									
Owen									
Parke									
Perry									
Pike									
Porter									
Posey									
Pulaski									
Putnam									
Randolph									
Ripley									
Rush									
St. Joseph									
Scott		1							165
Shelby		1							165
Spencer									
Starke									
Steuben									
Sullivan									
Switzerland									
Tippecanoe		1							165
Tipton		1							165
Union									
Vanderburgh	1								164
Vermillion									
Vigo									
Wabash									
Warren									

Warrick	1								164
Washington									
Wayne									
Wells									
White		1							165
Whitley									

APPENDIX C. U.S. ROUTE HIGHWAY DATABASE

Part 1

County	US 6	US 12	US 20	US 24	US 27	US 30	US 31	US 33	US 35	US 36	US 40	US 41	US 50	US 52	US 112S	US 131	US 136	US 150	US 224	US 231	US 421	Result	
Adams					1			1															US 27, US 33
Allen				1	1	1		1															US 24, US 27, US 30, US 33
Bartholomew							1																US 31
Benton												1											US 41
Blackford																							
Boone																		1				1	US 136, US 421
Brown																							
Carroll																						1	US 421
Cass				1					1						1								US 24, US 35, US 112S
Clark							1																US 31
Clay																							
Clinton																						1	US 421
Crawford																							
Daviess													1					1		1			US 50, US 150, US 231
Dearborn													1										US 50
Decatur																			1			1	US 224, US 421
De Kalb	1																						US 6
Delaware									1														US 35
Dubois																						1	US 231
Elkhart	1		1					1								1							US 6, US 20, US 33, US 131
Fayette																							
Floyd																			1				US 150
Fountain												1						1					US 41, US 136

Part 2

County	US 6	US 12	US 20	US 24	US 27	US 30	US 31	US 33	US 35	US 36	US 40	US 41	US 50	US 52	US 112S	US 131	US 136	US 150	US 224	US 231	US 421	Result	
Franklin																							
Fulton							1																US 31
Gibson												1											US 41
Grant									1														US 35
Greene																					1		US 231
Hamilton							1															1	US 31, US 421
Hancock																							
Harrison																							
Hendricks																	1						US 136
Henry																							
Howard							1		1														US 31, US 35
Huntington				1																1			US 24, US 224
Jackson							1						1										US 31, US 50
Jasper				1																	1		US 24, US 231
Jay					1																		US 27
Jefferson																						1	US 421
Jennings													1										US 50
Johnson																							
Knox												1	1										US 41, US 50
Kosciusko							1																US 30
La Porte	1	1	1			1			1													1	US 6, US 12, US 20, US 30, US 35, US 421
Lagrange																							
Lake	1	1	1			1						1									1		US 6, US 12, US 20, US 30, US 41, US 231

Part 3

County	US 6	US 12	US 20	US 24	US 27	US 30	US 31	US 33	US 35	US 36	US 40	US 41	US 50	US 52	US 112S	US 131	US 136	US 150	US 224	US 231	US 421	Result	
Lawrence													1										US 50
Madison																							
Marion							1				1			1			1					1	US 31, US 40, US 52, US 136, US 421
Marshall	1					1	1																US 6, US 30, US 31
Martin													1								1		US 50, US 231
Miami				1			1																US 24, US 31
Monroe																							
Montgomery																	1				1		US 136, US 231
Morgan																							
Newton				1								1											US 24, US 41
Noble	1							1															US 6, US 33
Ohio																							
Orange																							
Owen																					1		US 231
Parke												1											US 41
Perry																							
Pike										1													US 36
Porter	1	1	1			1															1		US 6, US 12, US 20, US 30, US 231
Posey																							
Pulaski									1													1	US 35, US 421
Putnam																					1		US 231
Randolph					1																		US 27
Ripley													1									1	US 50, US 421

Part 4

County	US 6	US 12	US 20	US 24	US 27	US 30	US 31	US 33	US 35	US 36	US 40	US 41	US 50	US 52	US 112S	US 131	US 136	US 150	US 224	US 231	US 421	Result	
Rush																					1	US 421	
St. Joseph	1		1				1								1								US 6, US 20, US 31, US 112S
Scott							1																US 31
Shelby																					1		US 421
Spencer																					1		US 231
Starke						1			1													1	US 30, US 35, US 421
Steuben			1																				US 20
Sullivan												1											US 41
Switzerland																							
Tippecanoe														1							1		US 52, US 231
Tipton							1																US 31
Union					1																		US 27
Vanderburgh												1											US 41
Vermillion										1							1						US 36, US 136
Vigo												1						1					US 41, US 150
Wabash			1																				US 20
Warren												1									1		US 41, US 136
Warrick																							
Washington																							
Wayne					1										1								US 27, US 112S
Wells																				1			US 224
White				1																	1	1	US 24, US 231, US 421
Whitley				1		1		1															US 24, US 30, US 33

APPENDIX D. GDP PER INDUSTRY PER COUNTY

Part 1A

#	List of Counties	Economic Potential in \$K													
		Population		Manufacturing			Health Care			Retail Trade			Accommodation & Food Service		
		2018	2017	Labor	Dollar (k)	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages
1	Adams	35,636	35,422	4,454	313,268	70.33	1,704	92,970	54.56	1,484	42,049	28.33	745	14,709	19.74
2	Allen	375,351	372,210	31,066	2,374,765	76.44	20,659	1,225,046	59.30	20,659	636,207	30.80	2,658	57,038	21.46
3	Bartholomew	82,753	82,429	13,739	1,147,237	83.50	4,971	321,995	64.77	4,152	139,672	33.64	2,876	67,416	23.44
4	Benton	8,653	8,617	810	58,024	71.63	293	16,282	55.57	419	12,092	28.86	128	2,574	20.11
5	Blackford	11,930	12,027	1,675	99,102	59.17	700	32,127	45.90	489	11,656	23.84	239	3,970	16.61
6	Boone	66,999	65,786	4,802	528,689	110.10	4,675	399,271	85.41	3,250	144,150	44.35	1,527	47,194	30.91
7	Brown	15,234	15,007	1,277	110,280	86.36	942	63,105	66.99	842	29,293	34.79	553	13,406	24.24
8	Carroll	20,127	19,994	2,603	213,023	81.84	1,070	67,927	63.48	862	28,419	32.97	505	11,602	22.97
9	Cass	37,955	37,905	5,137	340,865	66.35	2,675	137,691	51.47	1,749	46,754	26.73	860	16,019	18.63
10	Clark	117,360	116,672	8,905	685,261	76.95	8,270	493,668	59.69	7,101	220,138	31.00	4,398	95,006	21.60
11	Clay	26,170	26,155	2,535	188,022	74.17	1,671	96,142	57.54	1,358	40,577	29.88	769	16,011	20.82
12	Clinton	32,250	32,207	4,492	337,982	75.24	1,874	109,378	58.37	1,403	42,527	30.31	804	16,982	21.12
13	Crawford	10,558	10,536	1,071	62,501	58.36	623	28,203	45.27	448	10,532	23.51	271	4,440	16.38
14	Daviess	33,147	33,074	2,957	208,258	70.43	1,421	77,634	54.63	1,484	42,105	28.37	895	17,695	19.77
15	Dearborn	49,564	49,568	3,965	363,276	91.62	3,370	239,514	71.07	2,641	97,480	36.91	1,530	39,351	25.72
16	Decatur	26,794	26,652	4,238	322,643	76.13	1,388	81,971	59.06	1,282	39,319	30.67	866	18,508	21.37
17	De Kalb	43,226	42,822	7,084	530,066	74.83	2,302	133,618	58.04	2,428	73,190	30.14	1,190	24,996	21.01
18	Delaware	114,772	115,389	6,330	379,921	60.02	8,700	405,058	46.56	6,444	155,811	24.18	4,961	83,586	16.85
19	Dubois	42,565	42,491	7,243	604,553	83.47	2,735	177,085	64.75	2,004	67,386	33.63	829	19,424	23.43
20	Elkhart	205,560	202,924	34,541	2,638,642	76.39	9,316	552,056	59.26	9,883	304,150	30.78	6,689	143,443	21.44
21	Fayette	23,047	23,153	2,526	152,594	60.41	1,953	91,520	46.86	1,078	26,235	24.34	489	8,293	16.96
22	Floyd	77,781	76,481	6,107	528,805	86.59	6,277	421,626	67.17	4,615	160,988	34.88	2,204	53,574	24.31
23	Fountain	16,351	16,410	2,349	159,669	67.97	751	39,599	52.73	715	19,579	27.38	297	5,667	19.08

Part 1B

#	List of Counties	Economic Potential in \$K								
		Finance & Insurance			Transportation & Warehouse			Construction		
		Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages
1	Adams	417	24,070	57.72	430	18,843	43.82	1,317	74,313	56.43
2	Allen	8,624	541,030	62.74	9,615	457,928	47.63	10,166	623,450	61.33
3	Bartholomew	1,069	73,258	68.53	880	45,782	52.02	2,066	138,403	66.99
4	Benton	155	9,112	58.79	248	11,068	44.63	299	17,183	57.47
5	Blackford	85	4,127	48.56	187	6,893	36.86	178	8,449	47.47
6	Boone	1,360	122,884	90.36	1,636	112,221	68.59	2,347	207,304	88.33
7	Brown	153	10,844	70.87	235	12,644	53.80	725	50,229	69.28
8	Carroll	167	11,216	67.16	437	22,282	50.99	792	51,999	65.66
9	Cass	541	29,461	54.46	588	24,309	41.34	1,139	60,634	53.23
10	Clark	3,070	193,882	63.15	3,643	174,660	47.94	2,885	178,108	61.74
11	Clay	391	23,800	60.87	473	21,858	46.21	671	39,927	59.50
12	Clinton	249	15,376	61.75	622	29,158	46.88	1,009	60,906	60.36
13	Crawford	71	3,400	47.89	225	8,181	36.36	275	12,875	46.82
14	Daviess	308	17,802	57.80	826	36,245	43.88	1,632	92,212	56.50
15	Dearborn	991	74,515	75.19	1,514	86,424	57.08	2,066	151,859	73.50
16	Decatur	351	21,930	62.48	260	12,332	47.43	720	43,975	61.08
17	De Kalb	559	34,327	61.41	907	42,284	46.62	1,187	71,256	60.03
18	Delaware	1,774	87,382	49.26	1,603	59,943	37.39	3,026	145,705	48.15
19	Dubois	682	46,717	68.50	674	35,050	52.00	1,136	76,070	66.96
20	Elkhart	1,896	118,867	62.69	3,518	167,438	47.59	3,872	237,300	61.29
21	Fayette	227	11,254	49.58	403	15,168	37.64	502	24,329	48.46
22	Floyd	2,291	162,806	71.06	2,134	115,126	53.95	2,272	157,831	69.47
23	Fountain	351	19,580	55.78	303	12,832	42.35	494	26,939	54.53

Part 1C

#	List of Counties	Economic Potential in \$K								
		Wholesale Trade			Educational Service			Information		
		Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages
1	Adams	322	23,455	72.84	840	35,581	42.36	317	20,677	65.23
2	Allen	6,380	505,084	79.17	13,552	623,890	46.04	3,781	268,039	70.89
3	Bartholomew	616	53,270	86.48	2,706	136,080	50.29	196	15,178	77.44
4	Benton	173	12,834	74.19	528	22,779	43.14	74	4,916	66.43
5	Blackford	154	9,436	61.27	424	15,108	35.63	66	3,621	54.87
6	Boone	1,228	140,018	114.02	2,721	180,417	66.31	839	85,664	102.10
7	Brown	165	14,757	89.44	559	29,073	52.01	67	5,366	80.09
8	Carroll	197	16,697	84.75	879	43,322	49.29	72	5,464	75.89
9	Cass	321	22,059	68.72	1,186	47,394	39.96	158	9,723	61.54
10	Clark	1,296	103,284	79.69	3,786	127,835	33.77	877	62,586	71.36
11	Clay	221	16,976	76.81	1,251	40,713	32.54	104	7,154	68.78
12	Clinton	469	36,546	77.92	994	32,816	33.01	272	18,979	69.78
13	Crawford	28	1,692	60.44	250	6,402	25.61	79	4,275	54.12
14	Daviess	249	18,162	72.94	902	27,874	30.90	145	9,471	65.31
15	Dearborn	551	52,282	94.89	1,813	72,885	40.20	205	17,418	84.97
16	Decatur	308	24,284	78.84	840	28,060	33.40	317	22,381	70.60
17	De Kalb	412	31,927	77.49	1,344	44,127	32.83	417	28,936	69.39
18	Delaware	1,113	69,182	62.16	7,885	207,654	26.34	411	22,876	55.66
19	Dubois	737	63,708	86.44	1,506	55,156	36.62	240	18,577	77.41
20	Elkhart	2,270	179,589	79.11	7,076	237,182	33.52	948	67,160	70.84
21	Fayette	237	14,827	62.56	488	12,935	26.51	111	6,218	56.02
22	Floyd	805	72,189	89.68	2,942	111,779	37.99	494	39,669	80.30
23	Fountain	204	14,361	70.40	503	15,002	29.83	66	4,160	63.04

Part 2A

#	List of County	Economic Potential in \$K													
		Population		Manufacturing			Health Care			Retail Trade			Accommodation & Food Service		
		2018	2017	Labor	Dollar (k)	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages
24	Franklin	22,736	22,739	2,660	215,363	80.96	1,619	101,682	62.81	1,250	40,771	32.62	383	8,705	22.73
25	Fulton	20,092	20,010	2,876	197,329	68.61	1,005	53,491	53.22	1,073	29,659	27.64	379	7,300	19.26
26	Gibson	33,452	33,596	4,420	329,282	74.50	1,922	111,073	57.79	1,572	47,179	30.01	1,073	22,440	20.91
27	Grant	65,936	66,282	4,914	300,932	61.24	4,885	232,063	47.51	3,539	87,311	24.67	2,162	37,167	17.19
28	Greene	32,006	32,180	1,912	138,260	72.31	1,747	97,997	56.09	1,508	43,930	29.13	948	19,244	20.30
29	Hamilton	330,086	323,082	19,468	2,654,142	136.33	22,656	2,396,039	105.76	16,444	903,159	54.92	9,871	377,779	38.27
30	Hancock	76,351	74,940	5,016	518,512	103.37	5,376	431,091	80.19	4,222	175,822	41.64	1,979	57,428	29.02
31	Harrison	40,350	39,851	3,579	280,954	78.50	2,758	167,948	60.89	2,110	66,728	31.62	967	21,309	22.04
32	Hendricks	167,009	163,758	10,505	1,135,982	108.14	11,845	993,616	83.88	9,205	401,008	43.56	4,749	144,162	30.36
33	Henry	48,271	48,247	4,260	286,227	67.19	3,142	163,763	52.12	2,169	58,710	27.07	1,334	25,161	18.86
34	Howard	82,366	82,311	9,489	662,811	69.85	5,020	272,008	54.18	3,749	105,497	28.14	3,454	67,728	19.61
35	Huntington	36,240	36,239	4,965	362,030	72.92	2,411	136,374	56.56	1,652	48,528	29.38	1,141	23,355	20.47
36	Jackson	44,111	43,987	6,244	446,350	71.48	2,336	129,537	55.45	2,568	73,954	28.80	1,071	21,492	20.07
37	Jasper	33,370	33,459	2,795	230,307	82.40	1,901	121,511	63.92	1,989	66,026	33.20	902	20,864	23.13
38	Jay	20,764	20,907	3,213	200,657	62.45	1,176	56,972	48.45	797	20,052	25.16	440	7,714	17.53
39	Jefferson	32,208	32,047	4,556	336,580	73.88	1,899	108,827	57.31	1,623	48,303	29.76	907	18,810	20.74
40	Jennings	27,611	27,638	3,405	239,844	70.44	1,684	92,016	54.64	1,660	47,106	28.38	929	18,370	19.77
41	Johnson	156,225	153,922	11,914	1,132,643	95.07	10,350	763,279	73.75	7,973	305,359	38.30	4,758	126,979	26.69
42	Knox	36,895	37,094	2,770	180,894	65.30	3,022	153,090	50.66	1,895	49,855	26.31	1,802	33,035	18.33
43	Kosciusko	79,344	79,010	14,968	1,246,787	83.30	3,834	247,736	64.62	3,365	112,919	33.56	1,889	44,171	23.38
44	La Porte	110,007	109,911	10,371	754,071	72.71	6,611	372,878	56.40	5,348	156,652	29.29	3,403	69,459	20.41
45	Lagrange	39,330	39,222	8,309	705,982	84.97	1,101	72,567	65.91	1,417	48,503	34.23	831	19,821	23.85
46	Lake	484,411	484,766	35,673	2,856,674	80.08	33,954	2,109,210	62.12	22,789	735,191	32.26	16,655	374,403	22.48

Part 2B

#	List of County	Economic Potential in \$K								
		Finance & Insurance			Transportation & Warehouse			Construction		
		Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages
24	Franklin	244	16,213	66.45	483	24,364	50.44	866	56,250	64.95
25	Fulton	304	17,118	56.31	391	16,714	42.75	627	34,513	55.05
26	Gibson	429	26,229	61.14	703	32,630	46.41	853	50,981	59.77
27	Grant	648	32,568	50.26	1,371	52,310	38.15	1,081	53,110	49.13
28	Greene	522	30,978	59.35	733	33,024	45.05	1,118	64,859	58.01
29	Hamilton	13,744	1,537,776	111.89	3,285	279,030	84.94	7,194	786,846	109.38
30	Hancock	1,864	158,134	84.84	1,406	90,552	64.40	2,998	248,628	82.93
31	Harrison	901	58,046	64.42	956	46,757	48.91	1,491	93,900	62.98
32	Hendricks	3,332	295,704	88.75	6,017	405,385	67.37	4,493	389,788	86.75
33	Henry	749	41,301	55.14	788	32,987	41.86	1,176	63,391	53.90
34	Howard	1,173	67,243	57.33	1,097	47,741	43.52	1,810	101,430	56.04
35	Huntington	463	27,707	59.84	774	35,162	45.43	1,019	59,610	58.50
36	Jackson	463	27,163	58.67	682	30,375	44.54	1,049	60,160	57.35
37	Jasper	330	22,316	67.62	837	42,970	51.34	1,624	107,356	66.11
38	Jay	140	7,175	51.25	243	9,455	38.91	731	36,625	50.10
39	Jefferson	286	17,340	60.63	451	20,758	46.03	786	46,585	59.27
40	Jennings	210	12,140	57.81	621	27,253	43.89	1,087	61,427	56.51
41	Johnson	3,136	244,674	78.02	3,650	216,192	59.23	4,736	361,213	76.27
42	Knox	437	23,421	53.59	811	32,997	40.69	789	41,337	52.39
43	Kosciusko	1,252	85,587	68.36	1,009	52,364	51.90	1,877	125,432	66.83
44	La Porte	1,316	78,528	59.67	1,970	89,242	45.30	2,813	164,088	58.33
45	Lagrange	231	16,108	69.73	360	19,057	52.94	879	59,917	68.16
46	Lake	5,705	374,933	65.72	14,201	708,520	49.89	14,172	910,476	64.24

Part 2C

#	List of County	Economic Potential in \$K								
		Wholesale Trade			Educational Service			Information		
		Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages
24	Franklin	211	17,692	83.85	716	25,436	35.53	103	7,734	75.08
25	Fulton	385	27,357	71.06	595	17,913	30.11	97	6,172	63.63
26	Gibson	442	34,102	77.15	1,166	38,115	32.69	207	14,301	69.09
27	Grant	531	33,677	63.42	4,598	123,552	26.87	530	30,100	56.79
28	Greene	174	13,031	74.89	1,195	37,916	31.73	202	13,546	67.06
29	Hamilton	6,200	875,392	141.19	16,795	1,004,689	59.82	4,349	549,856	126.43
30	Hancock	1,395	149,343	107.06	3,342	151,585	45.36	581	55,697	95.86
31	Harrison	471	38,291	81.30	1,290	44,434	34.44	231	16,817	72.80
32	Hendricks	2,587	289,721	111.99	7,014	332,805	47.45	1,135	113,823	100.28
33	Henry	471	32,774	69.58	1,640	48,350	29.48	320	19,939	62.31
34	Howard	664	48,034	72.34	2,721	83,396	30.65	668	43,272	64.78
35	Huntington	431	32,547	75.51	1,741	55,702	31.99	357	24,141	67.62
36	Jackson	596	44,123	74.03	1,196	37,514	31.37	124	8,220	66.29
37	Jasper	317	27,052	85.34	1,239	44,797	36.16	275	21,014	76.42
38	Jay	109	7,050	64.68	551	15,099	27.40	89	5,155	57.92
39	Jefferson	198	15,149	76.51	1,149	37,245	32.42	101	6,920	68.51
40	Jennings	251	18,310	72.95	822	25,406	30.91	136	8,884	65.32
41	Johnson	2,202	216,801	98.46	6,178	257,710	41.71	1,211	106,767	88.16
42	Knox	435	29,420	67.63	1,348	38,626	28.65	263	15,928	60.56
43	Kosciusko	650	56,072	86.27	2,776	101,460	36.55	576	44,495	77.25
44	La Porte	734	55,271	75.30	414	13,208	31.90	164	11,058	67.43
45	Lagrange	239	21,031	87.99	802	29,900	37.28	110	8,668	78.80
46	Lake	4,783	396,670	82.93	18,497	649,937	35.14	3,363	249,750	74.26

Part 3A

#	List of County	Economic Potential in \$K													
		Population		Manufacturing			Health Care			Retail Trade			Accommodation & Food Service		
		2018	2017	Labor	Dollar (k)	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages
47	Lawrence	45,668	45,625	3,740	272,282	72.80	3,309	186,876	56.47	2,694	79,013	29.33	1,135	23,196	20.44
48	Madison	129,461	129,460	8,089	535,260	66.17	9,361	480,508	51.33	6,482	172,796	26.66	4,484	83,293	18.58
49	Marion	954,670	948,952	47,418	3,269,765	68.96	67,698	3,621,238	53.49	53,078	1,474,490	27.78	37,037	716,940	19.36
50	Marshall	46,248	46,460	6,776	511,905	75.55	2,346	137,484	58.60	2,143	65,222	30.43	1,341	28,439	21.21
51	Martin	10,217	10,186	817	58,750	71.91	609	33,971	55.78	532	15,412	28.97	300	6,056	20.19
52	Miami	35,567	35,827	3,741	254,271	67.97	2,006	105,766	52.73	1,597	43,729	27.38	1,115	21,274	19.08
53	Monroe	146,917	146,720	6,539	435,142	66.55	8,938	461,390	51.62	7,573	203,021	26.81	7,609	142,142	18.68
54	Montgomery	38,346	38,397	5,381	415,969	77.30	1,696	101,703	59.97	2,028	63,157	31.14	1,080	23,437	21.70
55	Morgan	70,116	69,810	4,870	427,836	87.85	4,129	281,385	68.15	4,061	143,726	35.39	2,194	54,108	24.66
56	Newton	14,011	14,041	1,444	109,771	76.02	575	33,908	58.97	799	24,469	30.62	399	8,515	21.34
57	Noble	47,532	47,384	8,760	668,476	76.31	2,301	136,209	59.20	1,754	53,922	30.74	1,277	27,356	21.42
58	Ohio	5,844	5,845	609	51,765	85.00	358	23,605	65.94	250	8,561	34.24	193	4,605	23.86
59	Orange	19,489	19,404	2,052	127,926	62.34	896	43,331	48.36	717	18,008	25.12	1,341	23,468	17.50
60	Owen	20,845	20,793	2,126	149,608	70.37	1,294	70,637	54.59	887	25,146	28.35	465	9,186	19.75
61	Parke	16,927	16,903	1,556	101,175	65.02	630	31,777	50.44	694	18,179	26.19	467	8,524	18.25
62	Perry	19,102	18,988	2,711	196,200	72.37	918	51,537	56.14	653	19,039	29.16	641	13,023	20.32
63	Pike	12,410	12,332	1,309	95,701	73.11	693	39,302	56.71	549	16,170	29.45	273	5,603	20.52
64	Porter	169,594	168,544	13,676	1,314,235	96.10	11,628	866,816	74.55	8,165	316,100	38.71	5,804	156,572	26.98
65	Posey	25,540	25,566	2,752	244,472	88.83	1,763	121,490	68.91	1,088	38,937	35.79	607	15,137	24.94
66	Pulaski	12,469	12,518	1,590	110,310	69.38	768	41,332	53.82	444	12,409	27.95	231	4,499	19.48
67	Putnam	37,779	37,543	2,916	234,845	80.54	1,774	110,830	62.47	2,194	71,184	32.45	1,335	30,182	22.61
68	Randolph	24,851	24,954	2,937	192,433	65.52	1,550	78,780	50.83	1,142	30,144	26.40	550	10,116	18.39
69	Ripley	28,523	28,485	3,222	251,995	78.21	1,728	104,838	60.67	1,436	45,245	31.51	914	20,067	21.96

Part 3B

#	List of County	Economic Potential in \$K								
		Finance & Insurance			Transportation & Warehouse			Construction		
		Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages
47	Lawrence	812	48,516	59.75	746	33,838	45.36	1,156	67,518	58.41
48	Madison	2,108	114,477	54.31	2,388	98,450	41.23	3,239	171,948	53.09
49	Marion	18,546	1,049,544	56.59	35,031	1,505,006	42.96	27,192	1,504,287	55.32
50	Marshall	607	37,634	62.00	838	39,443	47.07	1,104	66,912	60.61
51	Martin	48	2,833	59.02	318	14,247	44.80	235	13,557	57.69
52	Miami	322	17,961	55.78	1,014	42,940	42.35	904	49,294	54.53
53	Monroe	1,587	86,671	54.61	1,366	56,635	41.46	2,846	151,940	53.39
54	Montgomery	348	22,078	63.44	603	29,042	48.16	1,379	85,522	62.02
55	Morgan	1,354	97,621	72.10	2,596	142,091	54.73	3,139	221,236	70.48
56	Newton	233	14,536	62.39	494	23,397	47.36	528	32,201	60.99
57	Noble	662	41,459	62.63	772	36,704	47.54	1,337	81,852	61.22
58	Ohio	104	7,255	69.76	175	9,268	52.96	179	12,206	68.19
59	Orange	160	8,186	51.16	293	11,381	38.84	911	45,564	50.01
60	Owen	198	11,435	57.75	494	21,659	43.84	1,110	62,666	56.46
61	Parke	145	7,738	53.36	255	10,330	40.51	443	23,109	52.16
62	Perry	184	10,929	59.39	124	5,591	45.09	596	34,604	58.06
63	Pike	73	4,380	60.00	321	14,622	45.55	482	28,271	58.65
64	Porter	2,490	196,377	78.87	3,398	203,446	59.87	5,469	421,637	77.10
65	Posey	393	28,652	72.91	728	40,293	55.35	891	63,500	71.27
66	Pulaski	155	8,825	56.94	257	11,109	43.22	368	20,482	55.66
67	Putnam	247	16,326	66.10	998	50,077	50.18	1,218	78,697	64.61
68	Randolph	313	16,831	53.77	477	19,472	40.82	787	41,368	52.56
69	Ripley	493	31,644	64.19	635	30,942	48.73	1,218	76,424	62.75

Part 3C

#	List of County	Economic Potential in \$K								
		Wholesale Trade			Educational Service			Information		
		Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages
47	Lawrence	349	26,314	75.40	1,629	52,038	31.94	254	17,149	67.52
48	Madison	1,137	77,918	68.53	4,246	123,282	29.03	831	50,995	61.37
49	Marion	10,316	736,703	71.41	34,131	1,032,693	30.26	7,421	474,562	63.95
50	Marshall	415	32,469	78.24	1,820	60,330	33.15	179	12,541	70.06
51	Martin	64	4,766	74.47	254	8,014	31.55	105	7,002	66.69
52	Miami	279	19,639	70.39	1,162	34,655	29.82	151	9,518	63.03
53	Monroe	1,243	85,664	68.92	16,599	484,675	29.20	1,929	119,044	61.71
54	Montgomery	400	32,023	80.06	2,087	70,790	33.92	338	24,231	71.69
55	Morgan	915	83,249	90.98	2,524	97,294	38.55	344	28,026	81.47
56	Newton	190	14,958	78.73	360	12,008	33.36	80	5,640	70.50
57	Noble	511	40,384	79.03	1,332	44,600	33.48	250	17,692	70.77
58	Ohio	48	4,225	88.03	197	7,347	37.30	50	3,941	78.83
59	Orange	112	7,231	64.56	517	14,142	27.35	66	3,816	57.81
60	Owen	200	14,576	72.88	641	19,792	30.88	217	14,161	65.26
61	Parke	219	14,747	67.34	430	12,268	28.53	117	7,055	60.30
62	Perry	25	1,874	74.95	512	16,259	31.76	103	6,913	67.12
63	Pike	142	10,752	75.72	435	13,955	32.08	105	7,119	67.80
64	Porter	1,659	165,108	99.52	8,011	337,792	42.17	1,096	97,675	89.12
65	Posey	378	34,776	92.00	1,176	45,839	38.98	83	6,838	82.38
66	Pulaski	167	11,999	71.85	424	12,907	30.44	77	4,954	64.34
67	Putnam	417	34,781	83.41	2,138	75,553	35.34	237	17,701	74.69
68	Randolph	281	19,067	67.86	869	24,983	28.75	102	6,198	60.76
69	Ripley	127	10,287	81.00	1,077	36,960	34.32	101	7,326	72.53

Part 4A

#	List of Counties	Economic Potential in \$K													
		Population		Manufacturing			Health Care			Retail Trade			Accommodation & Food Service		
		2018	2017	Labor	Dollar (k)	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages
70	Rush	16,663	16,659	1,958	136,759	69.85	791	42,857	54.18	749	21,076	28.14	481	9,431	19.61
71	St. Joseph	270,771	269,994	24,463	1,856,546	75.89	18,930	1,114,435	58.87	15,635	478,022	30.57	9,044	192,677	21.30
72	Scott	23,878	23,853	3,078	220,761	71.72	1,405	78,169	55.64	1,317	38,053	28.89	371	7,470	20.13
73	Shelby	44,593	44,404	5,227	434,450	83.12	2,943	189,751	64.48	1,896	63,486	33.48	1,163	27,136	23.33
74	Spencer	20,327	20,417	2,395	192,328	80.30	1,205	75,064	62.29	751	24,296	32.35	478	10,776	22.54
75	Starke	22,935	22,966	2,834	175,075	61.78	1,201	57,554	47.92	991	24,663	24.89	603	10,457	17.34
76	Steuben	34,586	34,421	4,932	377,926	76.63	1,526	90,708	59.44	2,251	69,489	30.87	1,268	27,276	21.51
77	Sullivan	20,690	20,699	1,226	80,199	65.42	1,269	64,395	50.74	875	23,059	26.35	587	10,779	18.36
78	Switzerland	10,717	10,617	829	52,347	63.15	485	23,757	48.98	268	6,818	25.44	217	3,847	17.73
79	Tippecanoe	193,048	191,670	15,289	1,121,294	73.34	11,151	634,398	56.89	9,865	291,468	29.55	7,870	162,028	20.59
80	Tipton	15,128	15,139	1,854	145,250	78.34	980	59,558	60.77	500	15,781	31.56	450	9,897	21.99
81	Union	7,037	7,162	432	28,573	66.14	495	25,397	51.31	494	13,163	26.65	400	7,427	18.57
82	Vanderburgh	180,974	180,900	14,603	950,681	65.10	13,238	668,533	50.50	10,544	276,536	26.23	6,949	126,996	18.28
83	Vermillion	15,479	15,487	1,344	88,717	66.01	693	35,485	51.21	808	21,487	26.59	290	5,374	18.53
84	Vigo	107,386	107,723	7,084	432,521	61.06	7,698	364,598	47.36	5,887	144,803	24.60	4,619	79,168	17.14
85	Wabash	31,410	31,280	3,697	263,436	71.26	2,237	123,652	55.28	1,435	41,194	28.71	1,081	21,623	20.00
86	Warren	8,263	8,198	1,022	87,519	85.64	517	34,344	66.43	414	14,283	34.50	227	5,457	24.04
87	Warrick	62,567	62,505	5,206	499,739	95.99	5,269	392,352	74.46	3,556	137,517	38.67	1,604	43,223	26.95
88	Washington	27,943	27,807	2,846	193,738	68.07	1,729	91,303	52.81	1,361	37,324	27.42	572	10,931	19.11
89	Wayne	65,936	66,178	5,603	340,331	60.74	5,178	243,978	47.12	3,368	82,415	24.47	2,268	38,672	17.05
90	Wells	28,206	28,014	3,175	244,625	77.05	2,003	119,714	59.77	1,489	46,217	31.04	730	15,789	21.63
91	White	24,133	24,165	2,783	207,816	74.67	1,535	88,917	57.93	1,304	39,228	30.08	483	10,125	20.96
92	Whitley	34,074	33,777	4,459	369,483	82.86	1,988	127,785	64.28	2,078	69,368	33.38	658	15,306	23.26
	<i>Total</i>			<i>589,558</i>	<i>46,290,268</i>		<i>432,028</i>	<i>26,599,669</i>		<i>345,503</i>	<i>11,000,362</i>		<i>211,515</i>	<i>4,635,399</i>	
	<i>Worker</i>			<i>2,448,818</i>											
	<i>Dollar</i>			<i>136,348,096</i>											

Part 4B

#	List of County	Economic Potential in \$K								
		Finance & Insurance			Transportation & Warehouse			Construction		
		Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages
70	Rush	217	12,439	57.32	362	15,753	43.52	610	34,181	56.03
71	St. Joseph	3,677	229,017	62.28	4,126	195,091	47.28	5,799	353,074	60.89
72	Scott	134	7,887	58.86	513	22,924	44.69	527	30,324	57.54
73	Shelby	809	55,184	68.21	1,051	54,425	51.78	1,634	108,957	66.68
74	Spencer	314	20,694	65.90	526	26,317	50.03	709	45,677	64.42
75	Starke	231	11,712	50.70	412	15,857	38.49	739	36,626	49.56
76	Steuben	331	20,816	62.89	1,035	49,412	47.74	753	46,291	61.48
77	Sullivan	188	10,093	53.69	383	15,610	40.76	583	30,596	52.48
78	Switzerland	147	7,618	51.82	187	7,357	39.34	4,361	220,923	50.66
79	Tippecanoe	1,904	114,600	60.19	2,262	103,358	45.69	3,998	235,234	58.84
80	Tipton	230	14,788	64.30	167	8,151	48.81	454	28,535	62.85
81	Union	92	4,994	54.28	145	5,975	41.21	102	5,412	53.06
82	Vanderburgh	3,421	182,778	53.43	3,449	139,894	40.56	4,827	252,108	52.23
83	Vermillion	174	9,426	54.17	274	11,269	41.13	509	26,955	52.96
84	Vigo	1,302	65,240	50.11	1,411	53,675	38.04	2,200	107,763	48.98
85	Wabash	391	22,865	58.48	446	19,800	44.40	717	40,988	57.17
86	Warren	103	7,239	70.28	180	9,604	53.35	283	19,443	68.70
87	Warrick	1,277	100,602	78.78	926	55,381	59.81	2,108	162,340	77.01
88	Washington	293	16,369	55.87	628	26,635	42.41	1,207	65,918	54.61
89	Wayne	1,054	52,541	49.85	972	36,784	37.84	1,414	68,904	48.73
90	Wells	553	34,967	63.23	644	30,914	48.00	731	45,185	61.81
91	White	248	15,198	61.28	434	20,191	46.52	806	48,286	59.91
92	Whitley	450	30,602	68.00	691	35,674	51.63	1,108	73,657	66.48
	Total	112,783	7,805,618		149,745	7,284,540		188,955	11,971,350	

Part 4C

#	List of County	Economic Potential in \$K								
		Wholesale Trade			Educational Service			Information		
		Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages	Labor	Dollar	Avg Wages
70	Rush	123	8,897	72.34	413	12,657	30.65	30	1,943	64.77
71	St. Joseph	4,476	351,799	78.60	18,559	618,016	33.30	2,303	162,086	70.38
72	Scott	185	13,741	74.28	737	23,194	31.47	36	2,394	66.51
73	Shelby	568	48,893	86.08	1,487	54,231	36.47	259	19,964	77.08
74	Spencer	352	29,274	83.17	552	19,450	35.24	127	9,458	74.47
75	Starke	163	10,428	63.98	900	24,396	27.11	59	3,380	57.29
76	Steuben	452	35,870	79.36	1,349	45,357	33.62	116	8,243	71.06
77	Sullivan	175	11,856	67.75	506	14,524	28.70	51	3,094	60.66
78	Switzerland	106	6,932	65.40	227	6,289	27.71	32	1,874	58.56
79	Tippecanoe	1,611	122,361	75.95	19,727	634,819	32.18	1,154	78,488	68.01
80	Tipton	64	5,193	81.14	519	17,841	34.38	103	7,483	72.65
81	Union	74	5,069	68.50	350	10,158	29.02	37	2,270	61.34
82	Vanderburgh	2,388	161,003	67.42	13,238	378,150	28.57	1,874	113,141	60.37
83	Vermillion	184	12,579	68.36	572	16,567	28.96	143	8,754	61.22
84	Vigo	1,016	64,244	63.23	6,183	165,644	26.79	662	37,484	56.62
85	Wabash	346	25,533	73.80	1,487	46,493	31.27	110	7,269	66.08
86	Warren	131	11,618	88.69	363	13,640	37.58	33	2,621	79.42
87	Warrick	1,069	106,274	99.41	2,532	106,648	42.12	555	49,407	89.02
88	Washington	262	18,471	70.50	824	24,613	29.87	221	13,952	63.13
89	Wayne	844	53,092	62.91	3,039	80,995	26.65	405	22,814	56.33
90	Wells	670	53,461	79.79	701	23,699	33.81	190	13,576	71.45
91	White	199	15,390	77.33	1,090	35,714	32.77	170	11,773	69.25
92	Whitley	303	26,002	85.82	1,148	41,739	36.36	256	19,672	76.84
	<i>Total</i>	<i>78,287</i>	<i>6,657,019</i>		<i>291,834</i>	<i>10,421,871</i>		<i>48,610</i>	<i>3,682,001</i>	

APPENDIX E. NATURAL GROWTH DATABASE

Part 1A

#	List of County	Region	Manufacturing			Health Care			Retail Trade			Accommodation & Food Service		
			Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio
1	Adams	3	59,000	67,299	114.07%	9,439	14,305	151.55%	32,505	45,161	138.94%	31,636	57,591	182.04%
2	Allen	3	59,000	67,299	114.07%	9,439	14,305	151.55%	32,505	45,161	138.94%	31,636	57,591	182.04%
3	Bartholomew	9	29,694	33,820	113.90%	6,989	5,193	74.30%	11,799	16,921	143.41%	11,946	21,586	180.70%
4	Benton	4	38,274	44,242	115.59%	4,938	8,158	165.21%	18,789	26,310	140.03%	20,038	36,261	180.96%
5	Blackford	6	15,335	16,815	109.65%	4,625	6,353	137.36%	12,709	17,624	138.67%	13,001	22,995	176.87%
6	Boone	5	62,879	73,410	116.75%	70,561	51,930	73.60%	103,247	146,418	141.81%	91,547	177,182	193.54%
7	Brown	8	10,317	11,617	112.60%	6,205	4,677	75.37%	11,098	16,015	144.31%	12,679	24,293	191.60%
8	Carroll	4	38,274	44,242	115.59%	4,938	8,158	165.21%	18,789	26,310	140.03%	20,038	36,261	180.96%
9	Cass	4	38,274	44,242	115.59%	4,938	8,158	165.21%	18,789	26,310	140.03%	20,038	36,261	180.96%
10	Clark	10	15,195	17,057	112.25%	6,453	5,200	80.58%	11,955	17,121	143.21%	12,256	22,847	186.41%
11	Clay	7	11,235	12,785	113.80%	5,297	3,742	70.64%	8,143	11,683	143.47%	9,420	16,461	174.75%
12	Clinton	4	38,274	44,242	115.59%	4,938	8,158	165.21%	18,789	26,310	140.03%	20,038	36,261	180.96%
13	Crawford	10	15,195	17,057	112.25%	6,453	5,200	80.58%	11,955	17,121	143.21%	12,256	22,847	186.41%
14	Daviess	8	10,317	11,617	112.60%	6,205	4,677	75.37%	11,098	16,015	144.31%	12,679	24,293	191.60%
15	Dearborn	9	29,694	33,820	113.90%	6,989	5,193	74.30%	11,799	16,921	143.41%	11,946	21,586	180.70%
16	Decatur	9	29,694	33,820	113.90%	6,989	5,193	74.30%	11,799	16,921	143.41%	11,946	21,586	180.70%
17	De Kalb	3	59,000	67,299	114.07%	9,439	14,305	151.55%	32,505	45,161	138.94%	31,636	57,591	182.04%
18	Delaware	6	15,335	16,815	109.65%	4,625	6,353	137.36%	12,709	17,624	138.67%	13,001	22,995	176.87%
19	Dubois	11	33,079	37,671	113.88%	15,452	11,056	71.55%	20,757	28,858	139.03%	19,031	34,447	181.00%
20	Elkhart	2	74,532	88,384	118.59%	15,078	10,853	71.98%	27,836	38,841	139.54%	24,137	44,884	185.96%
21	Fayette	6	15,335	16,815	109.65%	4,625	6,353	137.36%	12,709	17,624	138.67%	13,001	22,995	176.87%
22	Floyd	10	15,195	17,057	112.25%	6,453	5,200	80.58%	11,955	17,121	143.21%	12,256	22,847	186.41%
23	Fountain	4	38,274	44,242	115.59%	4,938	8,158	165.21%	18,789	26,310	140.03%	20,038	36,261	180.96%

Part 1B

#	List of County	Region	Finance & Insurance			Transportation & Warehouse			Construction		
			Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio
1	Adams	3	12,527	12,627	100.80%	30,970	41,249	133.19%	14,226	16,117	113.29%
2	Allen	3	12,527	12,627	100.80%	30,970	41,249	133.19%	14,226	16,117	113.29%
3	Bartholomew	9	4,670	4,818	103.17%	12,298	16,542	134.51%	5,183	5,933	114.47%
4	Benton	4	5,096	5,258	103.18%	10,053	19,328	192.26%	8,169	9,367	114.67%
5	Blackford	6	3,278	3,300	100.67%	9,062	11,221	123.82%	4,026	4,390	109.04%
6	Boone	5	56,924	59,602	104.70%	102,558	141,775	138.24%	43,434	52,732	121.41%
7	Brown	8	5,221	5,400	103.43%	7,574	9,768	128.97%	5,402	6,200	114.77%
8	Carroll	4	5,096	5,258	103.18%	10,053	19,328	192.26%	8,169	9,367	114.67%
9	Cass	4	5,096	5,258	103.18%	10,053	19,328	192.26%	8,169	9,367	114.67%
10	Clark	10	3,098	3,217	103.84%	11,635	14,563	125.17%	4,848	5,657	116.69%
11	Clay	7	2,319	2,373	102.33%	6,729	9,078	134.91%	3,724	4,106	110.26%
12	Clinton	4	5,096	5,258	103.18%	10,053	19,328	192.26%	8,169	9,367	114.67%
13	Crawford	10	3,098	3,217	103.84%	11,635	14,563	125.17%	4,848	5,657	116.69%
14	Daviess	8	5,221	5,400	103.43%	7,574	9,768	128.97%	5,402	6,200	114.77%
15	Dearborn	9	4,670	4,818	103.17%	12,298	16,542	134.51%	5,183	5,933	114.47%
16	Decatur	9	4,670	4,818	103.17%	12,298	16,542	134.51%	5,183	5,933	114.47%
17	De Kalb	3	12,527	12,627	100.80%	30,970	41,249	133.19%	14,226	16,117	113.29%
18	Delaware	6	3,278	3,300	100.67%	9,062	11,221	123.82%	4,026	4,390	109.04%
19	Dubois	11	7,220	7,398	102.47%	18,775	24,560	130.81%	11,642	13,569	116.55%
20	Elkhart	2	10,045	10,582	105.35%	24,094	31,837	132.14%	11,517	13,385	116.22%
21	Fayette	6	3,278	3,300	100.67%	9,062	11,221	123.82%	4,026	4,390	109.04%
22	Floyd	10	3,098	3,217	103.84%	11,635	14,563	125.17%	4,848	5,657	116.69%
23	Fountain	4	5,096	5,258	103.18%	10,053	19,328	192.26%	8,169	9,367	114.67%

Part 1C

#	List of County	Region	Wholesale Trade			Educational Service			Information		
			Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio
1	Adams	3	1,811	2,735	151.02%	18,382	17,655	96.05%	5,153	3,900	75.68%
2	Allen	3	1,811	2,735	151.02%	18,382	17,655	96.05%	5,153	3,900	75.68%
3	Bartholomew	9	969	1,469	151.60%	6,589	6,518	98.92%	1,831	1,483	80.99%
4	Benton	4	2,294	3,486	151.96%	16,450	15,506	94.26%	2,155	1,754	81.39%
5	Blackford	6	905	1,372	151.60%	8,107	7,686	94.81%	1,530	1,344	87.84%
6	Boone	5	2,935	4,349	148.18%	39,900	38,403	96.25%	30,297	26,159	86.34%
7	Brown	8	660	985	149.24%	5,307	4,901	92.35%	617	460	74.55%
8	Carroll	4	2,294	3,486	151.96%	16,450	15,506	94.26%	2,155	1,754	81.39%
9	Cass	4	2,294	3,486	151.96%	16,450	15,506	94.26%	2,155	1,754	81.39%
10	Clark	10	318	460	144.65%	5,524	5,316	96.23%	1,236	1,080	87.38%
11	Clay	7	506	746	147.43%	5,307	4,901	92.35%	617	460	74.55%
12	Clinton	4	2,294	3,486	151.96%	16,450	15,506	94.26%	2,155	1,754	81.39%
13	Crawford	10	318	460	144.65%	5,524	5,316	96.23%	1,236	1,080	87.38%
14	Daviess	8	660	985	149.24%	5,307	4,901	92.35%	617	460	74.55%
15	Dearborn	9	969	1,469	151.60%	6,589	6,518	98.92%	1,831	1,483	80.99%
16	Decatur	9	969	1,469	151.60%	6,589	6,518	98.92%	1,831	1,483	80.99%
17	De Kalb	3	1,811	2,735	151.02%	18,382	17,655	96.05%	5,153	3,900	75.68%
18	Delaware	6	905	1,372	151.60%	8,107	7,686	94.81%	1,530	1,344	87.84%
19	Dubois	11	1,519	2,266	149.18%	9,738	9,487	97.42%	2,579	2,108	81.74%
20	Elkhart	2	1,865	2,821	151.26%	18,559	17,464	94.10%	3,699	2,985	80.70%
21	Fayette	6	905	1,372	151.60%	8,107	7,686	94.81%	1,530	1,344	87.84%
22	Floyd	10	318	460	144.65%	5,524	5,316	96.23%	1,236	1,080	87.38%
23	Fountain	4	2,294	3,486	151.96%	16,450	15,506	94.26%	2,155	1,754	81.39%

Part 2A

#	List of County	Region	Manufacturing			Health Care			Retail Trade			Accommodation & Food Service		
			Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio
24	Franklin	9	29,694	33,820	113.90%	6,989	5,193	74.30%	11,799	16,921	143.41%	11,946	21,586	180.70%
25	Fulton	2	74,532	88,384	118.59%	15,078	10,853	71.98%	27,836	38,841	139.54%	24,137	44,884	185.96%
26	Gibson	11	33,079	37,671	113.88%	15,452	11,056	71.55%	20,757	28,858	139.03%	19,031	34,447	181.00%
27	Grant	3	59,000	67,299	114.07%	9,439	14,305	151.55%	32,505	45,161	138.94%	31,636	57,591	182.04%
28	Greene	8	10,317	11,617	112.60%	6,205	4,677	75.37%	11,098	16,015	144.31%	12,679	24,293	191.60%
29	Hamilton	5	62,879	73,410	116.75%	70,561	51,930	73.60%	103,247	146,418	141.81%	91,547	177,182	193.54%
30	Hancock	5	62,879	73,410	116.75%	70,561	51,930	73.60%	103,247	146,418	141.81%	91,547	177,182	193.54%
31	Harrison	10	15,195	17,057	112.25%	6,453	5,200	80.58%	11,955	17,121	143.21%	12,256	22,847	186.41%
32	Hendricks	5	62,879	73,410	116.75%	70,561	51,930	73.60%	103,247	146,418	141.81%	91,547	177,182	193.54%
33	Henry	6	15,335	16,815	109.65%	4,625	6,353	137.36%	12,709	17,624	138.67%	13,001	22,995	176.87%
34	Howard	4	38,274	44,242	115.59%	4,938	8,158	165.21%	18,789	26,310	140.03%	20,038	36,261	180.96%
35	Huntington	3	59,000	67,299	114.07%	9,439	14,305	151.55%	32,505	45,161	138.94%	31,636	57,591	182.04%
36	Jackson	9	29,694	33,820	113.90%	6,989	5,193	74.30%	11,799	16,921	143.41%	11,946	21,586	180.70%
37	Jasper	1	30,875	32,380	104.87%	8,959	12,465	139.13%	34,171	48,393	141.62%	34,614	61,629	178.05%
38	Jay	6	15,335	16,815	109.65%	4,625	6,353	137.36%	12,709	17,624	138.67%	13,001	22,995	176.87%
39	Jefferson	9	29,694	33,820	113.90%	6,989	5,193	74.30%	11,799	16,921	143.41%	11,946	21,586	180.70%
40	Jennings	9	29,694	33,820	113.90%	6,989	5,193	74.30%	11,799	16,921	143.41%	11,946	21,586	180.70%
41	Johnson	5	62,879	73,410	116.75%	70,561	51,930	73.60%	103,247	146,418	141.81%	91,547	177,182	193.54%
42	Knox	11	33,079	37,671	113.88%	15,452	11,056	71.55%	20,757	28,858	139.03%	19,031	34,447	181.00%
43	Kosciusko	2	74,532	88,384	118.59%	15,078	10,853	71.98%	27,836	38,841	139.54%	24,137	44,884	185.96%
44	La Porte	1	30,875	32,380	104.87%	8,959	12,465	139.13%	34,171	48,393	141.62%	34,614	61,629	178.05%
45	Lagrange	3	59,000	67,299	114.07%	9,439	14,305	151.55%	32,505	45,161	138.94%	31,636	57,591	182.04%
46	Lake	1	30,875	32,380	104.87%	8,959	12,465	139.13%	34,171	48,393	141.62%	34,614	61,629	178.05%

Part 2B

#	List of County	Region	Finance & Insurance			Transportation & Warehouse			Construction		
			Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio
24	Franklin	9	4,670	4,818	103.17%	12,298	16,542	134.51%	5,183	5,933	114.47%
25	Fulton	2	10,045	10,582	105.35%	24,094	31,837	132.14%	11,517	13,385	116.22%
26	Gibson	11	7,220	7,398	102.47%	18,775	24,560	130.81%	11,642	13,569	116.55%
27	Grant	3	12,527	12,627	100.80%	30,970	41,249	133.19%	14,226	16,117	113.29%
28	Greene	8	5,221	5,400	103.43%	7,574	9,768	128.97%	5,402	6,200	114.77%
29	Hamilton	5	56,924	59,602	104.70%	102,558	141,775	138.24%	43,434	52,732	121.41%
30	Hancock	5	56,924	59,602	104.70%	102,558	141,775	138.24%	43,434	52,732	121.41%
31	Harrison	10	3,098	3,217	103.84%	11,635	14,563	125.17%	4,848	5,657	116.69%
32	Hendricks	5	56,924	59,602	104.70%	102,558	141,775	138.24%	43,434	52,732	121.41%
33	Henry	6	3,278	3,300	100.67%	9,062	11,221	123.82%	4,026	4,390	109.04%
34	Howard	4	5,096	5,258	103.18%	10,053	19,328	192.26%	8,169	9,367	114.67%
35	Huntington	3	12,527	12,627	100.80%	30,970	41,249	133.19%	14,226	16,117	113.29%
36	Jackson	9	4,670	4,818	103.17%	12,298	16,542	134.51%	5,183	5,933	114.47%
37	Jasper	1	9,332	9,399	100.72%	26,592	32,983	124.03%	17,267	19,614	113.59%
38	Jay	6	3,278	3,300	100.67%	9,062	11,221	123.82%	4,026	4,390	109.04%
39	Jefferson	9	4,670	4,818	103.17%	12,298	16,542	134.51%	5,183	5,933	114.47%
40	Jennings	9	4,670	4,818	103.17%	12,298	16,542	134.51%	5,183	5,933	114.47%
41	Johnson	5	56,924	59,602	104.70%	102,558	141,775	138.24%	43,434	52,732	121.41%
42	Knox	11	7,220	7,398	102.47%	18,775	24,560	130.81%	11,642	13,569	116.55%
43	Kosciusko	2	10,045	10,582	105.35%	24,094	31,837	132.14%	11,517	13,385	116.22%
44	La Porte	1	9,332	9,399	100.72%	26,592	32,983	124.03%	17,267	19,614	113.59%
45	Lagrange	3	12,527	12,627	100.80%	30,970	41,249	133.19%	14,226	16,117	113.29%
46	Lake	1	9,332	9,399	100.72%	26,592	32,983	124.03%	17,267	19,614	113.59%

Part 2C

#	List of County	Region	Wholesale Trade			Educational Service			Information		
			Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio
24	Franklin	9	969	1,469	151.60%	6,589	6,518	98.92%	1,831	1,483	80.99%
25	Fulton	2	1,393	2,125	152.55%	18,559	17,464	94.10%	3,699	2,985	80.70%
26	Gibson	11	1,519	2,266	149.18%	9,738	9,487	97.42%	2,579	2,108	81.74%
27	Grant	3	1,811	2,735	151.02%	18,382	17,655	96.05%	5,153	3,900	75.68%
28	Greene	8	660	985	149.24%	5,307	4,901	92.35%	617	460	74.55%
29	Hamilton	5	2,935	4,349	148.18%	39,900	38,403	96.25%	30,297	26,159	86.34%
30	Hancock	5	2,935	4,349	148.18%	39,900	38,403	96.25%	30,297	26,159	86.34%
31	Harrison	10	318	460	144.65%	5,524	5,316	96.23%	1,236	1,080	87.38%
32	Hendricks	5	2,935	4,349	148.18%	39,900	38,403	96.25%	30,297	26,159	86.34%
33	Henry	6	905	1,372	151.60%	8,107	7,686	94.81%	1,530	1,344	87.84%
34	Howard	4	2,294	3,486	151.96%	16,450	15,506	94.26%	2,155	1,754	81.39%
35	Huntington	3	1,811	2,735	151.02%	18,382	17,655	96.05%	5,153	3,900	75.68%
36	Jackson	9	969	1,469	151.60%	6,589	6,518	98.92%	1,831	1,483	80.99%
37	Jasper	1	1,865	2,821	151.26%	17,965	17,248	96.01%	2,935	2,384	81.23%
38	Jay	6	905	1,372	151.60%	8,107	7,686	94.81%	1,530	1,344	87.84%
39	Jefferson	9	969	1,469	151.60%	6,589	6,518	98.92%	1,831	1,483	80.99%
40	Jennings	9	969	1,469	151.60%	6,589	6,518	98.92%	1,831	1,483	80.99%
41	Johnson	5	2,935	4,349	148.18%	39,900	38,403	96.25%	30,297	26,159	86.34%
42	Knox	11	1,519	2,266	149.18%	9,738	9,487	97.42%	2,579	2,108	81.74%
43	Kosciusko	2	1,393	2,125	152.55%	18,559	17,464	94.10%	3,699	2,985	80.70%
44	La Porte	1	1,865	2,821	151.26%	17,965	17,248	96.01%	2,935	2,384	81.23%
45	Lagrange	3	1,811	2,735	151.02%	18,382	17,655	96.05%	5,153	3,900	75.68%
46	Lake	1	1,865	2,821	151.26%	17,965	17,248	96.01%	2,935	2,384	81.23%

Part 3A

#	List of County	Region	Manufacturing			Health Care			Retail Trade			Accommodation & Food Service		
			Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio
47	Lawrence	8	10,317	11,617	112.60%	6,205	4,677	75.37%	11,098	16,015	144.31%	12,679	24,293	191.60%
48	Madison	5	62,879	73,410	116.75%	70,561	51,930	73.60%	103,247	146,418	141.81%	91,547	177,182	193.54%
49	Marion	5	62,879	73,410	116.75%	70,561	51,930	73.60%	103,247	146,418	141.81%	91,547	177,182	193.54%
50	Marshall	2	74,532	88,384	118.59%	15,078	10,853	71.98%	27,836	38,841	139.54%	24,137	44,884	185.96%
51	Martin	8	10,317	11,617	112.60%	6,205	4,677	75.37%	11,098	16,015	144.31%	12,679	24,293	191.60%
52	Miami	4	38,274	44,242	115.59%	4,938	8,158	165.21%	18,789	26,310	140.03%	20,038	36,261	180.96%
53	Monroe	8	10,317	11,617	112.60%	6,205	4,677	75.37%	11,098	16,015	144.31%	12,679	24,293	191.60%
54	Montgomery	4	38,274	44,242	115.59%	4,938	8,158	165.21%	18,789	26,310	140.03%	20,038	36,261	180.96%
55	Morgan	5	62,879	73,410	116.75%	70,561	51,930	73.60%	103,247	146,418	141.81%	91,547	177,182	193.54%
56	Newton	1	30,875	32,380	104.87%	8,959	12,465	139.13%	34,171	48,393	141.62%	34,614	61,629	178.05%
57	Noble	3	59,000	67,299	114.07%	9,439	14,305	151.55%	32,505	45,161	138.94%	31,636	57,591	182.04%
58	Ohio	9	29,694	33,820	113.90%	6,989	5,193	74.30%	11,799	16,921	143.41%	11,946	21,586	180.70%
59	Orange	8	10,317	11,617	112.60%	6,205	4,677	75.37%	11,098	16,015	144.31%	12,679	24,293	191.60%
60	Owen	8	10,317	11,617	112.60%	6,205	4,677	75.37%	11,098	16,015	144.31%	12,679	24,293	191.60%
61	Parke	7	11,235	12,785	113.80%	5,297	3,742	70.64%	8,143	11,683	143.47%	9,420	16,461	174.75%
62	Perry	11	33,079	37,671	113.88%	15,452	11,056	71.55%	20,757	28,858	139.03%	19,031	34,447	181.00%
63	Pike	11	33,079	37,671	113.88%	15,452	11,056	71.55%	20,757	28,858	139.03%	19,031	34,447	181.00%
64	Porter	1	30,875	32,380	104.87%	8,959	12,465	139.13%	34,171	48,393	141.62%	34,614	61,629	178.05%
65	Posey	11	33,079	37,671	113.88%	15,452	11,056	71.55%	20,757	28,858	139.03%	19,031	34,447	181.00%
66	Pulaski	1	30,875	32,380	104.87%	8,959	12,465	139.13%	34,171	48,393	141.62%	34,614	61,629	178.05%
67	Putnam	7	11,235	12,785	113.80%	5,297	3,742	70.64%	8,143	11,683	143.47%	9,420	16,461	174.75%
68	Randolph	6	15,335	16,815	109.65%	4,625	6,353	137.36%	12,709	17,624	138.67%	13,001	22,995	176.87%
69	Ripley	9	29,694	33,820	113.90%	6,989	5,193	74.30%	11,799	16,921	143.41%	11,946	21,586	180.70%

Part 3B

#	List of County	Region	Finance & Insurance			Transportation & Warehouse			Construction		
			Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio
47	Lawrence	8	5,221	5,400	103.43%	7,574	9,768	128.97%	5,402	6,200	114.77%
48	Madison	5	56,924	59,602	104.70%	102,558	141,775	138.24%	43,434	52,732	121.41%
49	Marion	5	56,924	59,602	104.70%	102,558	141,775	138.24%	43,434	52,732	121.41%
50	Marshall	2	10,045	10,582	105.35%	24,094	31,837	132.14%	11,517	13,385	116.22%
51	Martin	8	5,221	5,400	103.43%	7,574	9,768	128.97%	5,402	6,200	114.77%
52	Miami	4	5,096	5,258	103.18%	10,053	19,328	192.26%	8,169	9,367	114.67%
53	Monroe	8	5,221	5,400	103.43%	7,574	9,768	128.97%	5,402	6,200	114.77%
54	Montgomery	4	5,096	5,258	103.18%	10,053	19,328	192.26%	8,169	9,367	114.67%
55	Morgan	5	56,924	59,602	104.70%	102,558	141,775	138.24%	43,434	52,732	121.41%
56	Newton	1	9,332	9,399	100.72%	26,592	32,983	124.03%	17,267	19,614	113.59%
57	Noble	3	12,527	12,627	100.80%	30,970	41,249	133.19%	14,226	16,117	113.29%
58	Ohio	9	4,670	4,818	103.17%	12,298	16,542	134.51%	5,183	5,933	114.47%
59	Orange	8	5,221	5,400	103.43%	7,574	9,768	128.97%	5,402	6,200	114.77%
60	Owen	8	5,221	5,400	103.43%	7,574	9,768	128.97%	5,402	6,200	114.77%
61	Parke	7	2,319	2,373	102.33%	6,729	9,078	134.91%	3,724	4,106	110.26%
62	Perry	11	7,220	7,398	102.47%	18,775	24,560	130.81%	11,642	13,569	116.55%
63	Pike	11	7,220	7,398	102.47%	18,775	24,560	130.81%	11,642	13,569	116.55%
64	Porter	1	9,332	9,399	100.72%	26,592	32,983	124.03%	17,267	19,614	113.59%
65	Posey	11	7,220	7,398	102.47%	18,775	24,560	130.81%	11,642	13,569	116.55%
66	Pulaski	1	9,332	9,399	100.72%	26,592	32,983	124.03%	17,267	19,614	113.59%
67	Putnam	7	2,319	2,373	102.33%	6,729	9,078	134.91%	3,724	4,106	110.26%
68	Randolph	6	3,278	3,300	100.67%	9,062	11,221	123.82%	4,026	4,390	109.04%
69	Ripley	9	4,670	4,818	103.17%	12,298	16,542	134.51%	5,183	5,933	114.47%

Part 3C

#	List of County	Region	Wholesale Trade			Educational Service			Information		
			Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio
47	Lawrence	8	660	985	149.24%	5,307	4,901	92.35%	617	460	74.55%
48	Madison	5	2,935	4,349	148.18%	39,900	38,403	96.25%	30,297	26,159	86.34%
49	Marion	5	2,935	4,349	148.18%	39,900	38,403	96.25%	30,297	26,159	86.34%
50	Marshall	2	1,393	2,125	152.55%	18,559	17,464	94.10%	3,699	2,985	80.70%
51	Martin	8	660	985	149.24%	5,307	4,901	92.35%	617	460	74.55%
52	Miami	4	2,294	3,486	151.96%	16,450	15,506	94.26%	2,155	1,754	81.39%
53	Monroe	8	660	985	149.24%	5,307	4,901	92.35%	617	460	74.55%
54	Montgomery	4	2,294	3,486	151.96%	16,450	15,506	94.26%	2,155	1,754	81.39%
55	Morgan	5	2,935	4,349	148.18%	39,900	38,403	96.25%	30,297	26,159	86.34%
56	Newton	1	1,865	2,821	151.26%	17,965	17,248	96.01%	2,935	2,384	81.23%
57	Noble	3	1,811	2,735	151.02%	18,382	17,655	96.05%	5,153	3,900	75.68%
58	Ohio	9	969	1,469	151.60%	6,589	6,518	98.92%	1,831	1,483	80.99%
59	Orange	8	660	985	149.24%	5,307	4,901	92.35%	617	460	74.55%
60	Owen	8	660	985	149.24%	5,307	4,901	92.35%	617	460	74.55%
61	Parke	7	506	746	147.43%	5,307	4,901	92.35%	617	460	74.55%
62	Perry	11	1,519	2,266	149.18%	9,738	9,487	97.42%	2,579	2,108	81.74%
63	Pike	11	1,519	2,266	149.18%	9,738	9,487	97.42%	2,579	2,108	81.74%
64	Porter	1	1,865	2,821	151.26%	17,965	17,248	96.01%	2,935	2,384	81.23%
65	Posey	11	1,519	2,266	149.18%	9,738	9,487	97.42%	2,579	2,108	81.74%
66	Pulaski	1	1,865	2,821	151.26%	17,965	17,248	96.01%	2,935	2,384	81.23%
67	Putnam	7	506	746	147.43%	5,307	4,901	92.35%	617	460	74.55%
68	Randolph	6	905	1,372	151.60%	8,107	7,686	94.81%	1,530	1,344	87.84%
69	Ripley	9	969	1,469	151.60%	6,589	6,518	98.92%	1,831	1,483	80.99%

Part 4A

#	List of County	Region	Manufacturing			Health Care			Retail Trade			Accommodation & Food Service		
			Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio
70	Rush	6	15,335	16,815	109.65%	4,625	6,353	137.36%	12,709	17,624	138.67%	13,001	22,995	176.87%
71	St. Joseph	2	74,532	88,384	118.59%	15,078	10,853	71.98%	27,836	38,841	139.54%	24,137	44,884	185.96%
72	Scott	10	15,195	17,057	112.25%	6,453	5,200	80.58%	11,955	17,121	143.21%	12,256	22,847	186.41%
73	Shelby	5	62,879	73,410	116.75%	70,561	51,930	73.60%	103,247	146,418	141.81%	91,547	177,182	193.54%
74	Spencer	11	33,079	37,671	113.88%	15,452	11,056	71.55%	20,757	28,858	139.03%	19,031	34,447	181.00%
75	Starke	1	30,875	32,380	104.87%	8,959	12,465	139.13%	34,171	48,393	141.62%	34,614	61,629	178.05%
76	Steuben	3	59,000	67,299	114.07%	9,439	14,305	151.55%	32,505	45,161	138.94%	31,636	57,591	182.04%
77	Sullivan	7	11,235	12,785	113.80%	5,297	3,742	70.64%	8,143	11,683	143.47%	9,420	16,461	174.75%
78	Switzerland	9	29,694	33,820	113.90%	6,989	5,193	74.30%	11,799	16,921	143.41%	11,946	21,586	180.70%
79	Tippecanoe	4	38,274	44,242	115.59%	4,938	8,158	165.21%	18,789	26,310	140.03%	20,038	36,261	180.96%
80	Tipton	4	38,274	44,242	115.59%	4,938	8,158	165.21%	18,789	26,310	140.03%	20,038	36,261	180.96%
81	Union	6	15,335	16,815	109.65%	4,625	6,353	137.36%	12,709	17,624	138.67%	13,001	22,995	176.87%
82	Vanderburgh	11	33,079	37,671	113.88%	15,452	11,056	71.55%	20,757	28,858	139.03%	19,031	34,447	181.00%
83	Vermillion	7	11,235	12,785	113.80%	5,297	3,742	70.64%	8,143	11,683	143.47%	9,420	16,461	174.75%
84	Vigo	7	11,235	12,785	113.80%	5,297	3,742	70.64%	8,143	11,683	143.47%	9,420	16,461	174.75%
85	Wabash	3	59,000	67,299	114.07%	9,439	14,305	151.55%	32,505	45,161	138.94%	31,636	57,591	182.04%
86	Warren	4	38,274	44,242	115.59%	4,938	8,158	165.21%	18,789	26,310	140.03%	20,038	36,261	180.96%
87	Warrick	11	33,079	37,671	113.88%	15,452	11,056	71.55%	20,757	28,858	139.03%	19,031	34,447	181.00%
88	Washington	10	15,195	17,057	112.25%	6,453	5,200	80.58%	11,955	17,121	143.21%	12,256	22,847	186.41%
89	Wayne	6	15,335	16,815	109.65%	4,625	6,353	137.36%	12,709	17,624	138.67%	13,001	22,995	176.87%
90	Wells	3	59,000	67,299	114.07%	9,439	14,305	151.55%	32,505	45,161	138.94%	31,636	57,591	182.04%
91	White	4	38,274	44,242	115.59%	4,938	8,158	165.21%	18,789	26,310	140.03%	20,038	36,261	180.96%
92	Whitley	3	59,000	67,299	114.07%	9,439	14,305	151.55%	32,505	45,161	138.94%	31,636	57,591	182.04%

Part 4B

#	List of County	Region	Finance & Insurance			Transportation & Warehouse			Construction		
			Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio
70	Rush	6	3,278	3,300	100.67%	9,062	11,221	123.82%	4,026	4,390	109.04%
71	St. Joseph	2	10,045	10,582	105.35%	24,094	31,837	132.14%	11,517	13,385	116.22%
72	Scott	10	3,098	3,217	103.84%	11,635	14,563	125.17%	4,848	5,657	116.69%
73	Shelby	5	56,924	59,602	104.70%	102,558	141,775	138.24%	43,434	52,732	121.41%
74	Spencer	11	7,220	7,398	102.47%	18,775	24,560	130.81%	11,642	13,569	116.55%
75	Starke	1	9,332	9,399	100.72%	26,592	32,983	124.03%	17,267	19,614	113.59%
76	Steuben	3	12,527	12,627	100.80%	30,970	41,249	133.19%	14,226	16,117	113.29%
77	Sullivan	7	2,319	2,373	102.33%	6,729	9,078	134.91%	3,724	4,106	110.26%
78	Switzerland	9	4,670	4,818	103.17%	12,298	16,542	134.51%	5,183	5,933	114.47%
79	Tippecanoe	4	5,096	5,258	103.18%	10,053	19,328	192.26%	8,169	9,367	114.67%
80	Tipton	4	5,096	5,258	103.18%	10,053	19,328	192.26%	8,169	9,367	114.67%
81	Union	6	3,278	3,300	100.67%	9,062	11,221	123.82%	4,026	4,390	109.04%
82	Vanderburgh	11	7,220	7,398	102.47%	18,775	24,560	130.81%	11,642	13,569	116.55%
83	Vermillion	7	2,319	2,373	102.33%	6,729	9,078	134.91%	3,724	4,106	110.26%
84	Vigo	7	2,319	2,373	102.33%	6,729	9,078	134.91%	3,724	4,106	110.26%
85	Wabash	3	12,527	12,627	100.80%	30,970	41,249	133.19%	14,226	16,117	113.29%
86	Warren	4	5,096	5,258	103.18%	10,053	19,328	192.26%	8,169	9,367	114.67%
87	Warrick	11	7,220	7,398	102.47%	18,775	24,560	130.81%	11,642	13,569	116.55%
88	Washington	10	3,098	3,217	103.84%	11,635	14,563	125.17%	4,848	5,657	116.69%
89	Wayne	6	3,278	3,300	100.67%	9,062	11,221	123.82%	4,026	4,390	109.04%
90	Wells	3	12,527	12,627	100.80%	30,970	41,249	133.19%	14,226	16,117	113.29%
91	White	4	5,096	5,258	103.18%	10,053	19,328	192.26%	8,169	9,367	114.67%
92	Whitley	3	12,527	12,627	100.80%	30,970	41,249	133.19%	14,226	16,117	113.29%

Part 4C

#	List of County	Region	Wholesale Trade			Educational Service			Information		
			Current	Openings	Ratio	Current	Openings	Ratio	Current	Openings	Ratio
70	Rush	6	905	1,372	151.60%	8,107	7,686	94.81%	1,530	1,344	87.84%
71	St. Joseph	2	1,393	2,125	152.55%	18,559	17,464	94.10%	3,699	2,985	80.70%
72	Scott	10	318	460	144.65%	5,524	5,316	96.23%	1,236	1,080	87.38%
73	Shelby	5	2,935	4,349	148.18%	39,900	38,403	96.25%	30,297	26,159	86.34%
74	Spencer	11	1,519	2,266	149.18%	9,738	9,487	97.42%	2,579	2,108	81.74%
75	Starke	1	1,865	2,821	151.26%	17,965	17,248	96.01%	2,935	2,384	81.23%
76	Steuben	3	1,811	2,735	151.02%	18,382	17,655	96.05%	5,153	3,900	75.68%
77	Sullivan	7	506	746	147.43%	5,307	4,901	92.35%	617	460	74.55%
78	Switzerland	9	969	1,469	151.60%	6,589	6,518	98.92%	1,831	1,483	80.99%
79	Tippecanoe	4	2,294	3,486	151.96%	16,450	15,506	94.26%	2,155	1,754	81.39%
80	Tipton	4	2,294	3,486	151.96%	16,450	15,506	94.26%	2,155	1,754	81.39%
81	Union	6	905	1,372	151.60%	8,107	7,686	94.81%	1,530	1,344	87.84%
82	Vanderburgh	11	1,519	2,266	149.18%	9,738	9,487	97.42%	2,579	2,108	81.74%
83	Vermillion	7	506	746	147.43%	5,307	4,901	92.35%	617	460	74.55%
84	Vigo	7	506	746	147.43%	5,307	4,901	92.35%	617	460	74.55%
85	Wabash	3	1,811	2,735	151.02%	18,382	17,655	96.05%	5,153	3,900	75.68%
86	Warren	4	2,294	3,486	151.96%	16,450	15,506	94.26%	2,155	1,754	81.39%
87	Warrick	11	1,519	2,266	149.18%	9,738	9,487	97.42%	2,579	2,108	81.74%
88	Washington	10	318	460	144.65%	5,524	5,316	96.23%	1,236	1,080	87.38%
89	Wayne	6	905	1,372	151.60%	8,107	7,686	94.81%	1,530	1,344	87.84%
90	Wells	3	1,811	2,735	151.02%	18,382	17,655	96.05%	5,153	3,900	75.68%
91	White	4	2,294	3,486	151.96%	16,450	15,506	94.26%	2,155	1,754	81.39%
92	Whitley	3	1,811	2,735	151.02%	18,382	17,655	96.05%	5,153	3,900	75.68%

APPENDIX F. BROADBAND CONTRIBUTION FACTOR AND TOTAL ECONOMIC IMPACT DATABASE

Part 1A

#	List of County	Manufacturing				Health Care				Retail Trade				Accommodation & Food Service			
		County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact
1	Adams	313,268	114.07%	3.66%	13,078	92,970	151.55%	2.10%	2,959	42,049	138.94%	2.23%	1,303	14,709	182.04%	1.61%	431
2	Allen	2,374,765	114.07%	3.66%	99,142	1,225,046	151.55%	2.10%	38,988	636,207	138.94%	2.23%	19,711	57,038	182.04%	1.61%	1,672
3	Bartholomew	1,147,237	113.90%	3.66%	47,823	321,995	74.30%	2.10%	5,024	139,672	143.41%	2.23%	4,467	67,416	180.70%	1.61%	1,961
4	Benton	58,024	115.59%	3.66%	2,455	16,282	165.21%	2.10%	565	12,092	140.03%	2.23%	378	2,574	180.96%	1.61%	75
5	Blackford	99,102	109.65%	3.66%	3,977	32,127	137.36%	2.10%	927	11,656	138.67%	2.23%	360	3,970	176.87%	1.61%	113
6	Boone	528,689	116.75%	3.66%	22,591	399,271	73.60%	2.10%	6,171	144,150	141.81%	2.23%	4,559	47,194	193.54%	1.61%	1,471
7	Brown	110,280	112.60%	3.66%	4,545	63,105	75.37%	2.10%	999	29,293	144.31%	2.23%	943	13,406	191.60%	1.61%	414
8	Carroll	213,023	115.59%	3.66%	9,012	67,927	165.21%	2.10%	2,357	28,419	140.03%	2.23%	887	11,602	180.96%	1.61%	338
9	Cass	340,865	115.59%	3.66%	14,421	137,691	165.21%	2.10%	4,777	46,754	140.03%	2.23%	1,460	16,019	180.96%	1.61%	467
10	Clark	685,261	112.25%	3.66%	28,154	493,668	80.58%	2.10%	8,354	220,138	143.21%	2.23%	7,030	95,006	186.41%	1.61%	2,851
11	Clay	188,022	113.80%	3.66%	7,831	96,142	70.64%	2.10%	1,426	40,577	143.47%	2.23%	1,298	16,011	174.75%	1.61%	450
12	Clinton	337,982	115.59%	3.66%	14,299	109,378	165.21%	2.10%	3,795	42,527	140.03%	2.23%	1,328	16,982	180.96%	1.61%	495
13	Crawford	62,501	112.25%	3.66%	2,568	28,203	80.58%	2.10%	477	10,532	143.21%	2.23%	336	4,440	186.41%	1.61%	133
14	Daviess	208,258	112.60%	3.66%	8,583	77,634	75.37%	2.10%	1,229	42,105	144.31%	2.23%	1,355	17,695	191.60%	1.61%	546
15	Dearborn	363,276	113.90%	3.66%	15,143	239,514	74.30%	2.10%	3,737	97,480	143.41%	2.23%	3,117	39,351	180.70%	1.61%	1,145
16	Decatur	322,643	113.90%	3.66%	13,450	81,971	74.30%	2.10%	1,279	39,319	143.41%	2.23%	1,257	18,508	180.70%	1.61%	538
17	De Kalb	530,066	114.07%	3.66%	22,129	133,618	151.55%	2.10%	4,253	73,190	138.94%	2.23%	2,268	24,996	182.04%	1.61%	733
18	Delaware	379,921	109.65%	3.66%	15,247	405,058	137.36%	2.10%	11,684	155,811	138.67%	2.23%	4,818	83,586	176.87%	1.61%	2,380
19	Dubois	604,553	113.88%	3.66%	25,198	177,085	71.55%	2.10%	2,661	67,386	139.03%	2.23%	2,089	19,424	181.00%	1.61%	566
20	Elkhart	2,638,642	118.59%	3.66%	114,523	552,056	71.98%	2.10%	8,345	304,150	139.54%	2.23%	9,464	143,443	185.96%	1.61%	4,295
21	Fayette	152,594	109.65%	3.66%	6,124	91,520	137.36%	2.10%	2,640	26,235	138.67%	2.23%	811	8,293	176.87%	1.61%	236
22	Floyd	528,805	112.25%	3.66%	21,726	421,626	80.58%	2.10%	7,135	160,988	143.21%	2.23%	5,141	53,574	186.41%	1.61%	1,608
23	Fountain	159,669	115.59%	3.66%	6,755	39,599	165.21%	2.10%	1,374	19,579	140.03%	2.23%	611	5,667	180.96%	1.61%	165

Part 1B

#	List of County	Finance & Insurance				Transportation & Warehouse				Construction			
		County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact
1	Adams	24,070	100.80%	2.82%	684	18,843	133.19%	1.19%	299	74,313	113.29%	1.52%	1,280
2	Allen	541,030	100.80%	2.82%	15,379	457,928	133.19%	1.19%	7,258	623,450	113.29%	1.52%	10,736
3	Bartholomew	73,258	103.17%	2.82%	2,131	45,782	134.51%	1.19%	733	138,403	114.47%	1.52%	2,408
4	Benton	9,112	103.18%	2.82%	265	11,068	192.26%	1.19%	253	17,183	114.67%	1.52%	299
5	Blackford	4,127	100.67%	2.82%	117	6,893	123.82%	1.19%	102	8,449	109.04%	1.52%	140
6	Boone	122,884	104.70%	2.82%	3,628	112,221	138.24%	1.19%	1,846	207,304	121.41%	1.52%	3,826
7	Brown	10,844	103.43%	2.82%	316	12,644	128.97%	1.19%	194	50,229	114.77%	1.52%	876
8	Carroll	11,216	103.18%	2.82%	326	22,282	192.26%	1.19%	510	51,999	114.67%	1.52%	906
9	Cass	29,461	103.18%	2.82%	857	24,309	192.26%	1.19%	556	60,634	114.67%	1.52%	1,057
10	Clark	193,882	103.84%	2.82%	5,677	174,660	125.17%	1.19%	2,602	178,108	116.69%	1.52%	3,159
11	Clay	23,800	102.33%	2.82%	687	21,858	134.91%	1.19%	351	39,927	110.26%	1.52%	669
12	Clinton	15,376	103.18%	2.82%	447	29,158	192.26%	1.19%	667	60,906	114.67%	1.52%	1,062
13	Crawford	3,400	103.84%	2.82%	100	8,181	125.17%	1.19%	122	12,875	116.69%	1.52%	228
14	Daviess	17,802	103.43%	2.82%	519	36,245	128.97%	1.19%	556	92,212	114.77%	1.52%	1,609
15	Dearborn	74,515	103.17%	2.82%	2,168	86,424	134.51%	1.19%	1,383	151,859	114.47%	1.52%	2,642
16	Decatur	21,930	103.17%	2.82%	638	12,332	134.51%	1.19%	197	43,975	114.47%	1.52%	765
17	De Kalb	34,327	100.80%	2.82%	976	42,284	133.19%	1.19%	670	71,256	113.29%	1.52%	1,227
18	Delaware	87,382	100.67%	2.82%	2,481	59,943	123.82%	1.19%	883	145,705	109.04%	1.52%	2,415
19	Dubois	46,717	102.47%	2.82%	1,350	35,050	130.81%	1.19%	546	76,070	116.55%	1.52%	1,348
20	Elkhart	118,867	105.35%	2.82%	3,531	167,438	132.14%	1.19%	2,633	237,300	116.22%	1.52%	4,192
21	Fayette	11,254	100.67%	2.82%	319	15,168	123.82%	1.19%	223	24,329	109.04%	1.52%	403
22	Floyd	162,806	103.84%	2.82%	4,767	115,126	125.17%	1.19%	1,715	157,831	116.69%	1.52%	2,799
23	Fountain	19,580	103.18%	2.82%	570	12,832	192.26%	1.19%	294	26,939	114.67%	1.52%	470

Part 1C

#	List of County	Wholesale Trade				Educational Service				Information				Total Impact
		County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	
1	Adams	23,455	151.02%	2.23%	790	35,581	96.05%	2.55%	871	20,677	75.68%	16.78%	2,626	24,321
2	Allen	505,084	151.02%	2.23%	17,010	623,890	96.05%	2.55%	15,280	268,039	75.68%	16.78%	34,040	259,217
3	Bartholomew	53,270	151.60%	2.23%	1,801	136,080	98.92%	2.55%	3,433	15,178	80.99%	16.78%	2,063	71,844
4	Benton	12,834	151.96%	2.23%	435	22,779	94.26%	2.55%	548	4,916	81.39%	16.78%	671	5,944
5	Blackford	9,436	151.60%	2.23%	319	15,108	94.81%	2.55%	365	3,621	87.84%	16.78%	534	6,954
6	Boone	140,018	148.18%	2.23%	4,627	180,417	96.25%	2.55%	4,428	85,664	86.34%	16.78%	12,411	65,557
7	Brown	14,757	149.24%	2.23%	491	29,073	92.35%	2.55%	685	5,366	74.55%	16.78%	671	10,134
8	Carroll	16,697	151.96%	2.23%	566	43,322	94.26%	2.55%	1,041	5,464	81.39%	16.78%	746	16,690
9	Cass	22,059	151.96%	2.23%	748	47,394	94.26%	2.55%	1,139	9,723	81.39%	16.78%	1,328	26,809
10	Clark	103,284	144.65%	2.23%	3,332	127,835	96.23%	2.55%	3,137	62,586	87.38%	16.78%	9,176	73,473
11	Clay	16,976	147.43%	2.23%	558	40,713	92.35%	2.55%	959	7,154	74.55%	16.78%	895	15,125
12	Clinton	36,546	151.96%	2.23%	1,238	32,816	94.26%	2.55%	789	18,979	81.39%	16.78%	2,592	26,712
13	Crawford	1,692	144.65%	2.23%	55	6,402	96.23%	2.55%	157	4,275	87.38%	16.78%	627	4,803
14	Daviess	18,162	149.24%	2.23%	604	27,874	92.35%	2.55%	656	9,471	74.55%	16.78%	1,185	16,842
15	Dearborn	52,282	151.60%	2.23%	1,767	72,885	98.92%	2.55%	1,839	17,418	80.99%	16.78%	2,367	35,310
16	Decatur	24,284	151.60%	2.23%	821	28,060	98.92%	2.55%	708	22,381	80.99%	16.78%	3,042	22,696
17	De Kalb	31,927	151.02%	2.23%	1,075	44,127	96.05%	2.55%	1,081	28,936	75.68%	16.78%	3,675	38,086
18	Delaware	69,182	151.60%	2.23%	2,339	207,654	94.81%	2.55%	5,020	22,876	87.84%	16.78%	3,372	50,640
19	Dubois	63,708	149.18%	2.23%	2,119	55,156	97.42%	2.55%	1,370	18,577	81.74%	16.78%	2,548	39,795
20	Elkhart	179,589	151.26%	2.23%	6,058	237,182	94.10%	2.55%	5,691	67,160	80.70%	16.78%	9,094	167,825
21	Fayette	14,827	151.60%	2.23%	501	12,935	94.81%	2.55%	313	6,218	87.84%	16.78%	917	12,488
22	Floyd	72,189	144.65%	2.23%	2,329	111,779	96.23%	2.55%	2,743	39,669	87.38%	16.78%	5,816	55,780
23	Fountain	14,361	151.96%	2.23%	487	15,002	94.26%	2.55%	361	4,160	81.39%	16.78%	568	11,654

Part 2A

#	List of County	Manufacturing				Health Care				Retail Trade				Accommodation & Food Service			
		County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact
24	Franklin	215,363	113.90%	3.66%	8,978	101,682	74.30%	2.10%	1,587	40,771	143.41%	2.23%	1,304	8,705	180.70%	1.61%	253
25	Fulton	197,329	118.59%	3.66%	8,565	53,491	71.98%	2.10%	809	29,659	139.54%	2.23%	923	7,300	185.96%	1.61%	219
26	Gibson	329,282	113.88%	3.66%	13,725	111,073	71.55%	2.10%	1,669	47,179	139.03%	2.23%	1,463	22,440	181.00%	1.61%	654
27	Grant	300,932	114.07%	3.66%	12,563	232,063	151.55%	2.10%	7,386	87,311	138.94%	2.23%	2,705	37,167	182.04%	1.61%	1,089
28	Greene	138,260	112.60%	3.66%	5,698	97,997	75.37%	2.10%	1,551	43,930	144.31%	2.23%	1,414	19,244	191.60%	1.61%	594
29	Hamilton	2,654,142	116.75%	3.66%	113,411	2,396,039	73.60%	2.10%	37,031	903,159	141.81%	2.23%	28,562	377,779	193.54%	1.61%	11,772
30	Hancock	518,512	116.75%	3.66%	22,156	431,091	73.60%	2.10%	6,663	175,822	141.81%	2.23%	5,560	57,428	193.54%	1.61%	1,789
31	Harrison	280,954	112.25%	3.66%	11,543	167,948	80.58%	2.10%	2,842	66,728	143.21%	2.23%	2,131	21,309	186.41%	1.61%	640
32	Hendricks	1,135,982	116.75%	3.66%	48,540	993,616	73.60%	2.10%	15,356	401,008	141.81%	2.23%	12,682	144,162	193.54%	1.61%	4,492
33	Henry	286,227	109.65%	3.66%	11,487	163,763	137.36%	2.10%	4,724	58,710	138.67%	2.23%	1,816	25,161	176.87%	1.61%	716
34	Howard	662,811	115.59%	3.66%	28,042	272,008	165.21%	2.10%	9,437	105,497	140.03%	2.23%	3,294	67,728	180.96%	1.61%	1,973
35	Huntington	362,030	114.07%	3.66%	15,114	136,374	151.55%	2.10%	4,340	48,528	138.94%	2.23%	1,504	23,355	182.04%	1.61%	685
36	Jackson	446,350	113.90%	3.66%	18,606	129,537	74.30%	2.10%	2,021	73,954	143.41%	2.23%	2,365	21,492	180.70%	1.61%	625
37	Jasper	230,307	104.87%	3.66%	8,840	121,511	139.13%	2.10%	3,550	66,026	141.62%	2.23%	2,085	20,864	178.05%	1.61%	598
38	Jay	200,657	109.65%	3.66%	8,053	56,972	137.36%	2.10%	1,643	20,052	138.67%	2.23%	620	7,714	176.87%	1.61%	220
39	Jefferson	336,580	113.90%	3.66%	14,031	108,827	74.30%	2.10%	1,698	48,303	143.41%	2.23%	1,545	18,810	180.70%	1.61%	547
40	Jennings	239,844	113.90%	3.66%	9,998	92,016	74.30%	2.10%	1,436	47,106	143.41%	2.23%	1,506	18,370	180.70%	1.61%	534
41	Johnson	1,132,643	116.75%	3.66%	48,398	763,279	73.60%	2.10%	11,797	305,359	141.81%	2.23%	9,657	126,979	193.54%	1.61%	3,957
42	Knox	180,894	113.88%	3.66%	7,540	153,090	71.55%	2.10%	2,300	49,855	139.03%	2.23%	1,546	33,035	181.00%	1.61%	963
43	Kosciusko	1,246,787	118.59%	3.66%	54,113	247,736	71.98%	2.10%	3,745	112,919	139.54%	2.23%	3,514	44,171	185.96%	1.61%	1,322
44	La Porte	754,071	104.87%	3.66%	28,944	372,878	139.13%	2.10%	10,895	156,652	141.62%	2.23%	4,947	69,459	178.05%	1.61%	1,991
45	Lagrange	705,982	114.07%	3.66%	29,473	72,567	151.55%	2.10%	2,310	48,503	138.94%	2.23%	1,503	19,821	182.04%	1.61%	581
46	Lake	2,856,674	104.87%	3.66%	109,651	2,109,210	139.13%	2.10%	61,627	735,191	141.62%	2.23%	23,218	374,403	178.05%	1.61%	10,732

Part 2B

#	List of County	Finance & Insurance				Transportation & Warehouse				Construction			
		County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact
24	Franklin	16,213	103.17%	2.82%	472	24,364	134.51%	1.19%	390	56,250	114.47%	1.52%	979
25	Fulton	17,118	105.35%	2.82%	509	16,714	132.14%	1.19%	263	34,513	116.22%	1.52%	610
26	Gibson	26,229	102.47%	2.82%	758	32,630	130.81%	1.19%	508	50,981	116.55%	1.52%	903
27	Grant	32,568	100.80%	2.82%	926	52,310	133.19%	1.19%	829	53,110	113.29%	1.52%	915
28	Greene	30,978	103.43%	2.82%	904	33,024	128.97%	1.19%	507	64,859	114.77%	1.52%	1,131
29	Hamilton	1,537,776	104.70%	2.82%	45,405	279,030	138.24%	1.19%	4,590	786,846	121.41%	1.52%	14,520
30	Hancock	158,134	104.70%	2.82%	4,669	90,552	138.24%	1.19%	1,490	248,628	121.41%	1.52%	4,588
31	Harrison	58,046	103.84%	2.82%	1,700	46,757	125.17%	1.19%	696	93,900	116.69%	1.52%	1,665
32	Hendricks	295,704	104.70%	2.82%	8,731	405,385	138.24%	1.19%	6,669	389,788	121.41%	1.52%	7,193
33	Henry	41,301	100.67%	2.82%	1,173	32,987	123.82%	1.19%	486	63,391	109.04%	1.52%	1,051
34	Howard	67,243	103.18%	2.82%	1,957	47,741	192.26%	1.19%	1,092	101,430	114.67%	1.52%	1,768
35	Huntington	27,707	100.80%	2.82%	788	35,162	133.19%	1.19%	557	59,610	113.29%	1.52%	1,027
36	Jackson	27,163	103.17%	2.82%	790	30,375	134.51%	1.19%	486	60,160	114.47%	1.52%	1,047
37	Jasper	22,316	100.72%	2.82%	634	42,970	124.03%	1.19%	634	107,356	113.59%	1.52%	1,854
38	Jay	7,175	100.67%	2.82%	204	9,455	123.82%	1.19%	139	36,625	109.04%	1.52%	607
39	Jefferson	17,340	103.17%	2.82%	504	20,758	134.51%	1.19%	332	46,585	114.47%	1.52%	811
40	Jennings	12,140	103.17%	2.82%	353	27,253	134.51%	1.19%	436	61,427	114.47%	1.52%	1,069
41	Johnson	244,674	104.70%	2.82%	7,224	216,192	138.24%	1.19%	3,556	361,213	121.41%	1.52%	6,666
42	Knox	23,421	102.47%	2.82%	677	32,997	130.81%	1.19%	514	41,337	116.55%	1.52%	732
43	Kosciusko	85,587	105.35%	2.82%	2,543	52,364	132.14%	1.19%	823	125,432	116.22%	1.52%	2,216
44	La Porte	78,528	100.72%	2.82%	2,230	89,242	124.03%	1.19%	1,317	164,088	113.59%	1.52%	2,833
45	Lagrange	16,108	100.80%	2.82%	458	19,057	133.19%	1.19%	302	59,917	113.29%	1.52%	1,032
46	Lake	374,933	100.72%	2.82%	10,649	708,520	124.03%	1.19%	10,458	910,476	113.59%	1.52%	15,720

Part 2C

#	List of County	Wholesale Trade				Educational Service				Information				Total Impact
		County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	
24	Franklin	17,692	151.60%	2.23%	598	25,436	98.92%	2.55%	642	7,734	80.99%	16.78%	1,051	16,252
25	Fulton	27,357	152.55%	2.23%	931	17,913	94.10%	2.55%	430	6,172	80.70%	16.78%	836	14,092
26	Gibson	34,102	149.18%	2.23%	1,134	38,115	97.42%	2.55%	947	14,301	81.74%	16.78%	1,961	23,722
27	Grant	33,677	151.02%	2.23%	1,134	123,552	96.05%	2.55%	3,026	30,100	75.68%	16.78%	3,823	34,396
28	Greene	13,031	149.24%	2.23%	434	37,916	92.35%	2.55%	893	13,546	74.55%	16.78%	1,695	14,820
29	Hamilton	875,392	148.18%	2.23%	28,926	1,004,689	96.25%	2.55%	24,658	549,856	86.34%	16.78%	79,664	388,540
30	Hancock	149,343	148.18%	2.23%	4,935	151,585	96.25%	2.55%	3,720	55,697	86.34%	16.78%	8,070	63,640
31	Harrison	38,291	144.65%	2.23%	1,235	44,434	96.23%	2.55%	1,090	16,817	87.38%	16.78%	2,466	26,009
32	Hendricks	289,721	148.18%	2.23%	9,573	332,805	96.25%	2.55%	8,168	113,823	86.34%	16.78%	16,491	137,896
33	Henry	32,774	151.60%	2.23%	1,108	48,350	94.81%	2.55%	1,169	19,939	87.84%	16.78%	2,939	26,668
34	Howard	48,034	151.96%	2.23%	1,628	83,396	94.26%	2.55%	2,005	43,272	81.39%	16.78%	5,910	57,105
35	Huntington	32,547	151.02%	2.23%	1,096	55,702	96.05%	2.55%	1,364	24,141	75.68%	16.78%	3,066	29,540
36	Jackson	44,123	151.60%	2.23%	1,492	37,514	98.92%	2.55%	946	8,220	80.99%	16.78%	1,117	29,496
37	Jasper	27,052	151.26%	2.23%	912	44,797	96.01%	2.55%	1,097	21,014	81.23%	16.78%	2,864	23,069
38	Jay	7,050	151.60%	2.23%	238	15,099	94.81%	2.55%	365	5,155	87.84%	16.78%	760	12,849
39	Jefferson	15,149	151.60%	2.23%	512	37,245	98.92%	2.55%	940	6,920	80.99%	16.78%	940	21,860
40	Jennings	18,310	151.60%	2.23%	619	25,406	98.92%	2.55%	641	8,884	80.99%	16.78%	1,207	17,800
41	Johnson	216,801	148.18%	2.23%	7,164	257,710	96.25%	2.55%	6,325	106,767	86.34%	16.78%	15,469	120,212
42	Knox	29,420	149.18%	2.23%	979	38,626	97.42%	2.55%	960	15,928	81.74%	16.78%	2,185	18,394
43	Kosciusko	56,072	152.55%	2.23%	1,907	101,460	94.10%	2.55%	2,435	44,495	80.70%	16.78%	6,025	78,643
44	La Porte	55,271	151.26%	2.23%	1,864	13,208	96.01%	2.55%	323	11,058	81.23%	16.78%	1,507	56,853
45	Lagrange	21,031	151.02%	2.23%	708	29,900	96.05%	2.55%	732	8,668	75.68%	16.78%	1,101	38,200
46	Lake	396,670	151.26%	2.23%	13,380	649,937	96.01%	2.55%	15,912	249,750	81.23%	16.78%	34,040	305,388

Part 3A

#	List of County	Manufacturing				Health Care				Retail Trade				Accommodation & Food Service			
		County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact
47	Lawrence	272,282	112.60%	3.66%	11,221	186,876	75.37%	2.10%	2,958	79,013	144.31%	2.23%	2,543	23,196	191.60%	1.61%	716
48	Madison	535,260	116.75%	3.66%	22,872	480,508	73.60%	2.10%	7,426	172,796	141.81%	2.23%	5,465	83,293	193.54%	1.61%	2,595
49	Marion	3,269,765	116.75%	3.66%	139,716	3,621,238	73.60%	2.10%	55,967	1,474,490	141.81%	2.23%	46,630	716,940	193.54%	1.61%	22,340
50	Marshall	511,905	118.59%	3.66%	22,218	137,484	71.98%	2.10%	2,078	65,222	139.54%	2.23%	2,029	28,439	185.96%	1.61%	851
51	Martin	58,750	112.60%	3.66%	2,421	33,971	75.37%	2.10%	538	15,412	144.31%	2.23%	496	6,056	191.60%	1.61%	187
52	Miami	254,271	115.59%	3.66%	10,757	105,766	165.21%	2.10%	3,669	43,729	140.03%	2.23%	1,365	21,274	180.96%	1.61%	620
53	Monroe	435,142	112.60%	3.66%	17,933	461,390	75.37%	2.10%	7,303	203,021	144.31%	2.23%	6,533	142,142	191.60%	1.61%	4,385
54	Montgomery	415,969	115.59%	3.66%	17,598	101,703	165.21%	2.10%	3,528	63,157	140.03%	2.23%	1,972	23,437	180.96%	1.61%	683
55	Morgan	427,836	116.75%	3.66%	18,281	281,385	73.60%	2.10%	4,349	143,726	141.81%	2.23%	4,545	54,108	193.54%	1.61%	1,686
56	Newton	109,771	104.87%	3.66%	4,213	33,908	139.13%	2.10%	991	24,469	141.62%	2.23%	773	8,515	178.05%	1.61%	244
57	Noble	668,476	114.07%	3.66%	27,908	136,209	151.55%	2.10%	4,335	53,922	138.94%	2.23%	1,671	27,356	182.04%	1.61%	802
58	Ohio	51,765	113.90%	3.66%	2,158	23,605	74.30%	2.10%	368	8,561	143.41%	2.23%	274	4,605	180.70%	1.61%	134
59	Orange	127,926	112.60%	3.66%	5,272	43,331	75.37%	2.10%	686	18,008	144.31%	2.23%	579	23,468	191.60%	1.61%	724
60	Owen	149,608	112.60%	3.66%	6,166	70,637	75.37%	2.10%	1,118	25,146	144.31%	2.23%	809	9,186	191.60%	1.61%	283
61	Parke	101,175	113.80%	3.66%	4,214	31,777	70.64%	2.10%	471	18,179	143.47%	2.23%	582	8,524	174.75%	1.61%	240
62	Perry	196,200	113.88%	3.66%	8,178	51,537	71.55%	2.10%	774	19,039	139.03%	2.23%	590	13,023	181.00%	1.61%	380
63	Pike	95,701	113.88%	3.66%	3,989	39,302	71.55%	2.10%	591	16,170	139.03%	2.23%	501	5,603	181.00%	1.61%	163
64	Porter	1,314,235	104.87%	3.66%	50,446	866,816	139.13%	2.10%	25,327	316,100	141.62%	2.23%	9,983	156,572	178.05%	1.61%	4,488
65	Posey	244,472	113.88%	3.66%	10,190	121,490	71.55%	2.10%	1,825	38,937	139.03%	2.23%	1,207	15,137	181.00%	1.61%	441
66	Pulaski	110,310	104.87%	3.66%	4,234	41,332	139.13%	2.10%	1,208	12,409	141.62%	2.23%	392	4,499	178.05%	1.61%	129
67	Putnam	234,845	113.80%	3.66%	9,781	110,830	70.64%	2.10%	1,644	71,184	143.47%	2.23%	2,278	30,182	174.75%	1.61%	849
68	Randolph	192,433	109.65%	3.66%	7,723	78,780	137.36%	2.10%	2,272	30,144	138.67%	2.23%	932	10,116	176.87%	1.61%	288
69	Ripley	251,995	113.90%	3.66%	10,505	104,838	74.30%	2.10%	1,636	45,245	143.41%	2.23%	1,447	20,067	180.70%	1.61%	584

Part 3B

#	List of County	Finance & Insurance				Transportation & Warehouse				Construction			
		County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact
47	Lawrence	48,516	103.43%	2.82%	1,415	33,838	128.97%	1.19%	519	67,518	114.77%	1.52%	1,178
48	Madison	114,477	104.70%	2.82%	3,380	98,450	138.24%	1.19%	1,620	171,948	121.41%	1.52%	3,173
49	Marion	1,049,544	104.70%	2.82%	30,990	1,505,006	138.24%	1.19%	24,758	1,504,287	121.41%	1.52%	27,760
50	Marshall	37,634	105.35%	2.82%	1,118	39,443	132.14%	1.19%	620	66,912	116.22%	1.52%	1,182
51	Martin	2,833	103.43%	2.82%	83	14,247	128.97%	1.19%	219	13,557	114.77%	1.52%	237
52	Miami	17,961	103.18%	2.82%	523	42,940	192.26%	1.19%	982	49,294	114.67%	1.52%	859
53	Monroe	86,671	103.43%	2.82%	2,528	56,635	128.97%	1.19%	869	151,940	114.77%	1.52%	2,651
54	Montgomery	22,078	103.18%	2.82%	642	29,042	192.26%	1.19%	664	85,522	114.67%	1.52%	1,491
55	Morgan	97,621	104.70%	2.82%	2,882	142,091	138.24%	1.19%	2,337	221,236	121.41%	1.52%	4,083
56	Newton	14,536	100.72%	2.82%	413	23,397	124.03%	1.19%	345	32,201	113.59%	1.52%	556
57	Noble	41,459	100.80%	2.82%	1,178	36,704	133.19%	1.19%	582	81,852	113.29%	1.52%	1,410
58	Ohio	7,255	103.17%	2.82%	211	9,268	134.51%	1.19%	148	12,206	114.47%	1.52%	212
59	Orange	8,186	103.43%	2.82%	239	11,381	128.97%	1.19%	175	45,564	114.77%	1.52%	795
60	Owen	11,435	103.43%	2.82%	334	21,659	128.97%	1.19%	332	62,666	114.77%	1.52%	1,093
61	Parke	7,738	102.33%	2.82%	223	10,330	134.91%	1.19%	166	23,109	110.26%	1.52%	387
62	Perry	10,929	102.47%	2.82%	316	5,591	130.81%	1.19%	87	34,604	116.55%	1.52%	613
63	Pike	4,380	102.47%	2.82%	127	14,622	130.81%	1.19%	228	28,271	116.55%	1.52%	501
64	Porter	196,377	100.72%	2.82%	5,578	203,446	124.03%	1.19%	3,003	421,637	113.59%	1.52%	7,280
65	Posey	28,652	102.47%	2.82%	828	40,293	130.81%	1.19%	627	63,500	116.55%	1.52%	1,125
66	Pulaski	8,825	100.72%	2.82%	251	11,109	124.03%	1.19%	164	20,482	113.59%	1.52%	354
67	Putnam	16,326	102.33%	2.82%	471	50,077	134.91%	1.19%	804	78,697	110.26%	1.52%	1,319
68	Randolph	16,831	100.67%	2.82%	478	19,472	123.82%	1.19%	287	41,368	109.04%	1.52%	686
69	Ripley	31,644	103.17%	2.82%	921	30,942	134.51%	1.19%	495	76,424	114.47%	1.52%	1,330

Part 3C

#	List of County	Wholesale Trade				Educational Service				Information				Total Impact
		County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	
47	Lawrence	26,314	149.24%	2.23%	876	52,038	92.35%	2.55%	1,225	17,149	74.55%	16.78%	2,145	24,796
48	Madison	77,918	148.18%	2.23%	2,575	123,282	96.25%	2.55%	3,026	50,995	86.34%	16.78%	7,388	59,519
49	Marion	736,703	148.18%	2.23%	24,343	1,032,693	96.25%	2.55%	25,346	474,562	86.34%	16.78%	68,755	466,605
50	Marshall	32,469	152.55%	2.23%	1,105	60,330	94.10%	2.55%	1,448	12,541	80.70%	16.78%	1,698	34,347
51	Martin	4,766	149.24%	2.23%	159	8,014	92.35%	2.55%	189	7,002	74.55%	16.78%	876	5,403
52	Miami	19,639	151.96%	2.23%	666	34,655	94.26%	2.55%	833	9,518	81.39%	16.78%	1,300	21,575
53	Monroe	85,664	149.24%	2.23%	2,851	484,675	92.35%	2.55%	11,414	119,044	74.55%	16.78%	14,893	71,359
54	Montgomery	32,023	151.96%	2.23%	1,085	70,790	94.26%	2.55%	1,702	24,231	81.39%	16.78%	3,309	32,675
55	Morgan	83,249	148.18%	2.23%	2,751	97,294	96.25%	2.55%	2,388	28,026	86.34%	16.78%	4,060	47,363
56	Newton	14,958	151.26%	2.23%	505	12,008	96.01%	2.55%	294	5,640	81.23%	16.78%	769	9,102
57	Noble	40,384	151.02%	2.23%	1,360	44,600	96.05%	2.55%	1,092	17,692	75.68%	16.78%	2,247	42,584
58	Ohio	4,225	151.60%	2.23%	143	7,347	98.92%	2.55%	185	3,941	80.99%	16.78%	536	4,370
59	Orange	7,231	149.24%	2.23%	241	14,142	92.35%	2.55%	333	3,816	74.55%	16.78%	477	9,521
60	Owen	14,576	149.24%	2.23%	485	19,792	92.35%	2.55%	466	14,161	74.55%	16.78%	1,772	12,858
61	Parke	14,747	147.43%	2.23%	485	12,268	92.35%	2.55%	289	7,055	74.55%	16.78%	883	7,940
62	Perry	1,874	149.18%	2.23%	62	16,259	97.42%	2.55%	404	6,913	81.74%	16.78%	948	12,352
63	Pike	10,752	149.18%	2.23%	358	13,955	97.42%	2.55%	347	7,119	81.74%	16.78%	976	7,780
64	Porter	165,108	151.26%	2.23%	5,569	337,792	96.01%	2.55%	8,270	97,675	81.23%	16.78%	13,313	133,256
65	Posey	34,776	149.18%	2.23%	1,157	45,839	97.42%	2.55%	1,139	6,838	81.74%	16.78%	938	19,477
66	Pulaski	11,999	151.26%	2.23%	405	12,907	96.01%	2.55%	316	4,954	81.23%	16.78%	675	8,127
67	Putnam	34,781	147.43%	2.23%	1,143	75,553	92.35%	2.55%	1,779	17,701	74.55%	16.78%	2,214	22,283
68	Randolph	19,067	151.60%	2.23%	645	24,983	94.81%	2.55%	604	6,198	87.84%	16.78%	914	14,828
69	Ripley	10,287	151.60%	2.23%	348	36,960	98.92%	2.55%	932	7,326	80.99%	16.78%	996	19,193

Part 4A

#	List of County	Manufacturing				Health Care				Retail Trade				Accommodation & Food Servic			
		County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact
70	Rush	136,759	109.65%	3.66%	5,488	42,857	137.36%	2.10%	1,236	21,076	138.67%	2.23%	652	9,431	176.87%	1.61%	269
71	St. Joseph	1,856,546	118.59%	3.66%	80,578	1,114,435	71.98%	2.10%	16,845	478,022	139.54%	2.23%	14,874	192,677	185.96%	1.61%	5,769
72	Scott	220,761	112.25%	3.66%	9,070	78,169	80.58%	2.10%	1,323	38,053	143.21%	2.23%	1,215	7,470	186.41%	1.61%	224
73	Shelby	434,450	116.75%	3.66%	18,564	189,751	73.60%	2.10%	2,933	63,486	141.81%	2.23%	2,008	27,136	193.54%	1.61%	846
74	Spencer	192,328	113.88%	3.66%	8,016	75,064	71.55%	2.10%	1,128	24,296	139.03%	2.23%	753	10,776	181.00%	1.61%	314
75	Starke	175,075	104.87%	3.66%	6,720	57,554	139.13%	2.10%	1,682	24,663	141.62%	2.23%	779	10,457	178.05%	1.61%	300
76	Steuben	377,926	114.07%	3.66%	15,778	90,708	151.55%	2.10%	2,887	69,489	138.94%	2.23%	2,153	27,276	182.04%	1.61%	799
77	Sullivan	80,199	113.80%	3.66%	3,340	64,395	70.64%	2.10%	955	23,059	143.47%	2.23%	738	10,779	174.75%	1.61%	303
78	Switzerland	52,347	113.90%	3.66%	2,182	23,757	74.30%	2.10%	371	6,818	143.41%	2.23%	218	3,847	180.70%	1.61%	112
79	Tippecanoe	1,121,294	115.59%	3.66%	47,439	634,398	165.21%	2.10%	22,010	291,468	140.03%	2.23%	9,102	162,028	180.96%	1.61%	4,721
80	Tipton	145,250	115.59%	3.66%	6,145	59,558	165.21%	2.10%	2,066	15,781	140.03%	2.23%	493	9,897	180.96%	1.61%	288
81	Union	28,573	109.65%	3.66%	1,147	25,397	137.36%	2.10%	733	13,163	138.67%	2.23%	407	7,427	176.87%	1.61%	211
82	Vanderburgh	950,681	113.88%	3.66%	39,625	668,533	71.55%	2.10%	10,045	276,536	139.03%	2.23%	8,574	126,996	181.00%	1.61%	3,701
83	Vermillion	88,717	113.80%	3.66%	3,695	35,485	70.64%	2.10%	526	21,487	143.47%	2.23%	687	5,374	174.75%	1.61%	151
84	Vigo	432,521	113.80%	3.66%	18,014	364,598	70.64%	2.10%	5,409	144,803	143.47%	2.23%	4,633	79,168	174.75%	1.61%	2,227
85	Wabash	263,436	114.07%	3.66%	10,998	123,652	151.55%	2.10%	3,935	41,194	138.94%	2.23%	1,276	21,623	182.04%	1.61%	634
86	Warren	87,519	115.59%	3.66%	3,703	34,344	165.21%	2.10%	1,192	14,283	140.03%	2.23%	446	5,457	180.96%	1.61%	159
87	Warrick	499,739	113.88%	3.66%	20,830	392,352	71.55%	2.10%	5,895	137,517	139.03%	2.23%	4,263	43,223	181.00%	1.61%	1,260
88	Washington	193,738	112.25%	3.66%	7,960	91,303	80.58%	2.10%	1,545	37,324	143.21%	2.23%	1,192	10,931	186.41%	1.61%	328
89	Wayne	340,331	109.65%	3.66%	13,658	243,978	137.36%	2.10%	7,038	82,415	138.67%	2.23%	2,549	38,672	176.87%	1.61%	1,101
90	Wells	244,625	114.07%	3.66%	10,213	119,714	151.55%	2.10%	3,810	46,217	138.94%	2.23%	1,432	15,789	182.04%	1.61%	463
91	White	207,816	115.59%	3.66%	8,792	88,917	165.21%	2.10%	3,085	39,228	140.03%	2.23%	1,225	10,125	180.96%	1.61%	295
92	Whitley	369,483	114.07%	3.66%	15,425	127,785	151.55%	2.10%	4,067	69,368	138.94%	2.23%	2,149	15,306	182.04%	1.61%	449

Part 4B

#	List of County	Finance & Insurance				Transportation & Warehouse				Construction			
		County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact
70	Rush	12,439	100.67%	2.82%	353	15,753	123.82%	1.19%	232	34,181	109.04%	1.52%	567
71	St. Joseph	229,017	105.35%	2.82%	6,804	195,091	132.14%	1.19%	3,068	353,074	116.22%	1.52%	6,237
72	Scott	7,887	103.84%	2.82%	231	22,924	125.17%	1.19%	341	30,324	116.69%	1.52%	538
73	Shelby	55,184	104.70%	2.82%	1,629	54,425	138.24%	1.19%	895	108,957	121.41%	1.52%	2,011
74	Spencer	20,694	102.47%	2.82%	598	26,317	130.81%	1.19%	410	45,677	116.55%	1.52%	809
75	Starke	11,712	100.72%	2.82%	333	15,857	124.03%	1.19%	234	36,626	113.59%	1.52%	632
76	Steuben	20,816	100.80%	2.82%	592	49,412	133.19%	1.19%	783	46,291	113.29%	1.52%	797
77	Sullivan	10,093	102.33%	2.82%	291	15,610	134.91%	1.19%	251	30,596	110.26%	1.52%	513
78	Switzerland	7,618	103.17%	2.82%	222	7,357	134.51%	1.19%	118	220,923	114.47%	1.52%	3,844
79	Tippecanoe	114,600	103.18%	2.82%	3,334	103,358	192.26%	1.19%	2,365	235,234	114.67%	1.52%	4,100
80	Tipton	14,788	103.18%	2.82%	430	8,151	192.26%	1.19%	186	28,535	114.67%	1.52%	497
81	Union	4,994	100.67%	2.82%	142	5,975	123.82%	1.19%	88	5,412	109.04%	1.52%	90
82	Vanderburgh	182,778	102.47%	2.82%	5,281	139,894	130.81%	1.19%	2,178	252,108	116.55%	1.52%	4,466
83	Vermillion	9,426	102.33%	2.82%	272	11,269	134.91%	1.19%	181	26,955	110.26%	1.52%	452
84	Vigo	65,240	102.33%	2.82%	1,883	53,675	134.91%	1.19%	862	107,763	110.26%	1.52%	1,806
85	Wabash	22,865	100.80%	2.82%	650	19,800	133.19%	1.19%	314	40,988	113.29%	1.52%	706
86	Warren	7,239	103.18%	2.82%	211	9,604	192.26%	1.19%	220	19,443	114.67%	1.52%	339
87	Warrick	100,602	102.47%	2.82%	2,907	55,381	130.81%	1.19%	862	162,340	116.55%	1.52%	2,876
88	Washington	16,369	103.84%	2.82%	479	26,635	125.17%	1.19%	397	65,918	116.69%	1.52%	1,169
89	Wayne	52,541	100.67%	2.82%	1,492	36,784	123.82%	1.19%	542	68,904	109.04%	1.52%	1,142
90	Wells	34,967	100.80%	2.82%	994	30,914	133.19%	1.19%	490	45,185	113.29%	1.52%	778
91	White	15,198	103.18%	2.82%	442	20,191	192.26%	1.19%	462	48,286	114.67%	1.52%	842
92	Whitley	30,602	100.80%	2.82%	870	35,674	133.19%	1.19%	565	73,657	113.29%	1.52%	1,268

Part 4C

#	List of County	Wholesale Trade				Educational Service				Information				Total Impact
		County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	County GDP	Growth	Factor	Impact	
70	Rush	8,897	151.60%	2.23%	301	12,657	94.81%	2.55%	306	1,943	87.84%	16.78%	286	9,690
71	St. Joseph	351,799	152.55%	2.23%	11,968	618,016	94.10%	2.55%	14,830	162,086	80.70%	16.78%	21,948	182,920
72	Scott	13,741	144.65%	2.23%	443	23,194	96.23%	2.55%	569	2,394	87.38%	16.78%	351	14,306
73	Shelby	48,893	148.18%	2.23%	1,616	54,231	96.25%	2.55%	1,331	19,964	86.34%	16.78%	2,892	34,724
74	Spencer	29,274	149.18%	2.23%	974	19,450	97.42%	2.55%	483	9,458	81.74%	16.78%	1,297	14,783
75	Starke	10,428	151.26%	2.23%	352	24,396	96.01%	2.55%	597	3,380	81.23%	16.78%	461	12,089
76	Steuben	35,870	151.02%	2.23%	1,208	45,357	96.05%	2.55%	1,111	8,243	75.68%	16.78%	1,047	27,155
77	Sullivan	11,856	147.43%	2.23%	390	14,524	92.35%	2.55%	342	3,094	74.55%	16.78%	387	7,510
78	Switzerland	6,932	151.60%	2.23%	234	6,289	98.92%	2.55%	159	1,874	80.99%	16.78%	255	7,714
79	Tippecanoe	122,361	151.96%	2.23%	4,147	634,819	94.26%	2.55%	15,259	78,488	81.39%	16.78%	10,720	123,195
80	Tipton	5,193	151.96%	2.23%	176	17,841	94.26%	2.55%	429	7,483	81.39%	16.78%	1,022	11,734
81	Union	5,069	151.60%	2.23%	171	10,158	94.81%	2.55%	246	2,270	87.84%	16.78%	335	3,569
82	Vanderburgh	161,003	149.18%	2.23%	5,356	378,150	97.42%	2.55%	9,394	113,141	81.74%	16.78%	15,518	104,138
83	Vermillion	12,579	147.43%	2.23%	414	16,567	92.35%	2.55%	390	8,754	74.55%	16.78%	1,095	7,864
84	Vigo	64,244	147.43%	2.23%	2,112	165,644	92.35%	2.55%	3,901	37,484	74.55%	16.78%	4,689	45,536
85	Wabash	25,533	151.02%	2.23%	860	46,493	96.05%	2.55%	1,139	7,269	75.68%	16.78%	923	21,435
86	Warren	11,618	151.96%	2.23%	394	13,640	94.26%	2.55%	328	2,621	81.39%	16.78%	358	7,348
87	Warrick	106,274	149.18%	2.23%	3,535	106,648	97.42%	2.55%	2,649	49,407	81.74%	16.78%	6,776	51,854
88	Washington	18,471	144.65%	2.23%	596	24,613	96.23%	2.55%	604	13,952	87.38%	16.78%	2,046	16,316
89	Wayne	53,092	151.60%	2.23%	1,795	80,995	94.81%	2.55%	1,958	22,814	87.84%	16.78%	3,363	34,637
90	Wells	53,461	151.02%	2.23%	1,800	23,699	96.05%	2.55%	580	13,576	75.68%	16.78%	1,724	22,284
91	White	15,390	151.96%	2.23%	522	35,714	94.26%	2.55%	858	11,773	81.39%	16.78%	1,608	18,130
92	Whitley	26,002	151.02%	2.23%	876	41,739	96.05%	2.55%	1,022	19,672	75.68%	16.78%	2,498	29,190
									<i>Current GDP</i>	<i>136,348,096</i>	<i>Future GDP</i>	<i>159,520,306</i>	<i>Sum Impact</i>	<i>4,509,574</i>
									<i>% Broadband</i>	<i>3.31%</i>	<i>% Broadband</i>	<i>2.83%</i>		

APPENDIX G. TOTAL RANKING OF ECONOMIC IMPACT BY COUNTY

#	List of County	Economic Impact (\$ K)	Highway Passed
49	Marion	466,604.62	65, 69, 70, 74, 165, 465, US 31, US 40, US 52, US 136, US 421
29	Hamilton	388,539.89	69, 465, US 31, US 421
46	Lake	305,388.08	65, 80, 94, 90, 165, 294, US 6, US 12, US 20, US 30, US 41, US 231
2	Allen	259,216.97	69, 469, US 24, US 27, US 30, US 33
71	St. Joseph	182,920.13	80, 94, US 6, US 20, US 31, US 112S
20	Elkhart	167,825.38	80, 94, US 6, US 20, US 33, US 131
32	Hendricks	137,895.88	65, 70, 74, 165, US 136
64	Porter	133,255.98	80, 94, 90, US 6, US 12, US 20, US 30, US 231
79	Tippecanoe	123,194.52	65, 165, US 52, US 231
41	Johnson	120,211.79	65, 165
82	Vanderburgh	104,138.17	64, 69, 164, US 41
43	Kosciusko	78,642.94	US 30
10	Clark	73,473.00	65, 165, 265, US 31
3	Bartholomew	71,844.18	65, 165, US 31
53	Monroe	71,359.33	69
6	Boone	65,556.65	65, 74, 165, 465, 865, US 136, US 421
30	Hancock	63,639.87	70
48	Madison	59,519.33	69
34	Howard	57,104.80	US 31, US 35
44	La Porte	56,853.15	80, 94, 90, US 6, US 12, US 20, US 30, US 35, US 421
22	Floyd	55,779.73	64, 265, US 150
87	Warrick	51,854.15	64, 69, 164
18	Delaware	50,639.97	69, US 35
55	Morgan	47,363.18	69, 70
84	Vigo	45,535.90	70, US 41, US 150

57	Noble	42,584.01	US 6, US 33
19	Dubois	39,794.97	64, US 231
45	Lagrange	38,199.70	80, 94
17	De Kalb	38,085.88	69, US 6
15	Dearborn	35,309.77	74, 275, US 50
73	Shelby	34,724.22	65, 74, 165, US 421
89	Wayne	34,637.34	70, US 27, US 112S
27	Grant	34,395.61	69, US 35
50	Marshall	34,347.50	US 6, US 30, US 31
54	Montgomery	32,675.37	74, US 136, US 231
35	Huntington	29,539.88	69, US 24, US 224
36	Jackson	29,496.32	65, US 31, US 50
92	Whitley	29,189.86	US 24, US 30, US 33
76	Steuben	27,154.71	69, 80, 94, US 20
9	Cass	26,809.44	US 24, US 35, US 112S
12	Clinton	26,711.87	65, 165, US 421
33	Henry	26,668.10	70
31	Harrison	26,008.61	64
47	Lawrence	24,796.25	US 50
1	Adams	24,320.91	US 27,US 33
26	Gibson	23,722.11	64, 69, 164, US 41
37	Jasper	23,068.79	65, 165, US 24, US 231
16	Decatur	22,695.56	74, US 224, US 421
90	Wells	22,284.34	69, US 224
67	Putnam	22,283.06	70, US 231
39	Jefferson	21,860.01	US 421
52	Miami	21,574.80	US 24, US 31
85	Wabash	21,434.73	US 20
65	Posey	19,477.13	64
69	Ripley	19,192.53	74,US 50, US 421

42	Knox	18,394.04	US 41, US 50
91	White	18,130.44	65, 165, US 24, US 231, US 421
40	Jennings	17,800.21	US 50
14	Daviess	16,842.12	69, US 50, US 150, US 231
8	Carroll	16,690.30	US 421
88	Washington	16,315.53	
24	Franklin	16,252.46	74
11	Clay	15,124.68	70
68	Randolph	14,828.04	US 27
28	Greene	14,819.51	69, US 231
74	Spencer	14,782.64	64, US 231
72	Scott	14,305.98	65, 165, US 31
25	Fulton	14,091.80	US 31
60	Owen	12,858.20	US 231
38	Jay	12,849.17	US 27
21	Fayette	12,488.21	
62	Perry	12,352.15	64
75	Starke	12,089.16	US 30, US 35, US 421
80	Tipton	11,733.53	165, US 31
23	Fountain	11,653.73	74, US 41, US 136
7	Brown	10,133.54	
70	Rush	9,690.02	US 421
59	Orange	9,520.74	
56	Newton	9,102.46	65, 165, US 24, US 41
66	Pulaski	8,126.88	US 35, US 421
61	Parke	7,939.51	US 41
83	Vermillion	7,863.58	74, US 36, US 136
63	Pike	7,779.81	69, US 36
78	Switzerland	7,713.77	
77	Sullivan	7,510.07	US 41

86	Warren	7,347.90	US 41, US 136
5	Blackford	6,954.26	
4	Benton	5,944.00	US 41
51	Martin	5,402.84	US 50, US 231
13	Crawford	4,803.03	64
58	Ohio	4,369.56	64, 69
81	Union	3,568.87	US 27
	SUM	4,509,573.71	

APPENDIX H. TOTAL RANKING OF ECONOMIC IMPACT BY INDUSTRY

No	Industry Name	Impact
1	Manufacturing	1,931,616
2	Health Care	549,350
3	Retail Trade	346,270
4	Accommodation & Food Service	138,764
— 5	Finance & Insurance	227,758
6	Transportation & Warehouse	117,744
7	Construction	212,203
8	Wholesale Trade	222,130
9	Educational Service	253,906
10	Information	509,833
	SUM	4,509,574

APPENDIX I. TOTAL RANKING OF ECONOMIC IMPACT BY CITY

#	City	City Population	County	County Population	Ratio (City/County)	County Impact (k USD)	City Impact (k USD)
1	Indianapolis	867,125	Marion	954,670	90.83%	466,780	423,975
2	Fort Wayne	267,633	Allen	375,351	71.30%	259,586	185,090
3	Evansville	117,963	Vanderburgh	180,974	65.18%	104,220	67,933
4	South Bend	101,860	St. Joseph	270,771	37.62%	183,020	68,849
5	Carmel	93,510	Hamilton	330,086	28.33%	388,805	110,144
6	Fishers	93,362	Hamilton	330,086	28.28%	388,805	109,970
7	Bloomington	84,981	Monroe	146,917	57.84%	71,401	41,300
8	Hammond	75,795	Lake	484,411	15.65%	305,422	47,789
9	Gary	75,282	Lake	484,411	15.54%	305,422	47,465
10	Lafayette	72,168	Tippecanoe	193,048	37.38%	123,388	46,127
11	Muncie	68,529	Delaware	114,772	59.71%	50,706	30,276
12	Noblesville	63,133	Hamilton	330,086	19.13%	388,805	74,364
13	Terre Haute	60,753	Vigo	107,386	56.57%	45,589	25,792
14	Kokomo	57,869	Howard	82,366	70.26%	57,170	40,166
15	Greenwood	58,778	Johnson	156,225	37.62%	120,333	45,274
16	Anderson	55,037	Madison	129,461	42.51%	59,645	25,356
17	Elkhart	52,367	Elkhart	205,560	25.48%	167,967	42,790
18	Mishawaka	49,931	St. Joseph	270,771	18.44%	183,020	33,749
19	Lawrence	49,046	Marion	954,670	5.14%	466,780	23,981
20	Jeffersonville	47,432	Clark	117,360	40.42%	73,526	29,716
21	Columbus	47,543	Bartholomew	82,753	57.45%	71,896	41,306
22	West Lafayette	48,308	Tippecanoe	193,048	25.02%	123,388	30,876
23	Westfield	41,528	Hamilton	330,086	12.58%	388,805	48,915
24	Portage	36,806	Porter	169,594	21.70%	133,320	28,934
25	New Albany	36,604	Floyd	77,781	47.06%	55,805	26,262
26	Richmond	35,353	Wayne	65,936	53.62%	34,720	18,616

27	Valparaiso	33,729	Porter	169,594	19.89%	133,320	26,515
28	Goshen	33,566	Elkhart	205,560	16.33%	167,967	27,427
29	Michigan City	31,118	La Porte	110,007	28.29%	56,915	16,100
30	Crown Point	30,059	Lake	484,411	6.21%	305,422	18,952
31	Marion	28,047	Grant	65,936	42.54%	34,459	14,658
32	Hobart	28,040	Lake	484,411	5.79%	305,422	17,679
33	East Chicago	27,930	Lake	484,411	5.77%	305,422	17,610
34	Franklin	25,248	Johnson	156,225	16.16%	120,333	19,447
35	Greenfield	22,564	Hancock	76,351	29.55%	63,786	18,851
36	La Porte	21,610	LaPorte	110,007	19.64%	56,915	11,180
37	Seymour	19,731	Jackson	44,111	44.73%	29,649	13,262
38	Shelbyville	19,326	Shelby	44,593	43.34%	34,829	15,094
39	Logansport	17,728	Cass	37,955	46.71%	26,887	12,558
40	Vincennes	17,171	Knox	36,895	46.54%	18,545	8,631
41	New Castle	17,268	Henry	48,271	35.77%	26,744	9,567
42	Huntington	17,019	Huntington	36,240	46.96%	29,643	13,921
43	Crawfordsville	16,114	Montgomery	38,346	42.02%	32,752	13,763
44	Lebanon	16,117	Boone	66,999	24.06%	65,681	15,800
45	Frankfort	15,831	Clinton	32,250	49.09%	26,857	13,184
46	New Haven	15,711	Allen	375,351	4.19%	259,586	10,865
47	Jasper	15,569	Dubois	42,565	36.58%	39,966	14,618
48	Beech Grove	14,839	Marion	954,670	1.55%	466,780	7,255
49	Warsaw	14,941	Kosciusko	79,344	18.83%	78,896	14,857
50	Bedford	13,284	Lawrence	45,668	29.09%	24,830	7,223
51	Auburn	13,391	DeKalb	43,226	30.98%	38,190	11,831
52	Connerville	12,768	Fayette	23,047	55.40%	12,503	6,927
53	Washington	12,149	Daviess	33,147	36.65%	16,955	6,214
54	Lake Station	11,869	Lake	484,411	2.45%	305,422	7,483
55	Greensburg	11,916	Decatur	26,794	44.47%	22,783	10,132

56	Madison	11,879	Jefferson	32,208	36.88%	21,897	8,076
57	Martinsville	11,644	Morgan	70,116	16.61%	47,454	7,881
58	Peru	10,904	Miami	35,567	30.66%	21,647	6,637
59	Greencastle	10,530	Putnam	37,779	27.87%	22,337	6,226
60	Wabash	10,054	Wabash	31,410	32.01%	21,574	6,906
61	Bluffton	10,110	Wells	28,206	35.84%	22,379	8,022
62	Plymouth	9,889	Marshall	46,248	21.38%	34,501	7,377
63	Kendallville	9,864	Noble	47,532	20.75%	42,706	8,863
64	Decatur	9,843	Adams	35,636	27.62%	24,417	6,744
65	Columbia City	9,155	Whitley	34,074	26.87%	29,237	7,855
66	Angola	8,702	Steuben	34,586	25.16%	27,235	6,852
67	Princeton	8,642	Gibson	33,452	25.83%	23,782	6,144
68	Elwood	8,403	Madison, Tipton	129,461	6.49%	59,645	3,871
69	Charlestown	8,274	Clark	117,360	7.05%	73,526	5,184
70	Brazil	8,064	Clay	26,170	30.81%	15,159	4,671
71	Tell City	7,237	Perry	19,102	37.89%	12,395	4,696
72	Nappanee	6,831	Elkhart, Kosciusko	205,560	3.32%	167,967	5,582
73	Scottsburg	6,750	Scott	23,878	28.27%	14,351	4,057
74	North Vernon	6,712	Jennings	27,611	24.31%	17,830	4,334
75	Batesville	6,683	Ripley, Franklin	28,523	23.43%	19,258	4,512
76	Mount Vernon	6,457	Posey	25,540	25.28%	19,541	4,940
77	Garrett	6,390	DeKalb	43,226	14.78%	38,190	5,646
78	Boonville	6,237	Warrick	62,567	9.97%	51,924	5,176
79	Salem	6,197	Washington	27,943	22.18%	16,400	3,637
80	Portland	6,085	Jay	20,764	29.31%	12,967	3,800
81	Huntingburg	6,124	Dubois	42,565	14.39%	39,966	5,750
82	Rushville	6,046	Rush	16,663	36.28%	9,755	3,540
83	Rochester	6,000	Fulton	20,092	29.86%	14,180	4,235
84	Rensselaer	5,837	Jasper	33,370	17.49%	23,163	4,052

85	Gas City	5,757	Grant	65,936	8.73%	34,459	3,009
86	Hartford City	5,766	Blackford	11,930	48.33%	6,970	3,369
87	Monticello	5,260	White	24,133	21.80%	18,255	3,979
88	Linton	5,210	Greene	32,006	16.28%	14,883	2,423
89	Tipton	5,104	Tipton	15,128	33.74%	11,855	4,000
90	Lawrenceburg	5,005	Dearborn	49,564	10.10%	35,368	3,572
91	Alexandria	5,015	Madison	129,461	3.87%	59,645	2,310
92	Whiting	4,825	Lake	484,411	1.00%	305,422	3,042
93	Clinton	4,724	Vermillion	15,479	30.52%	7,901	2,411
94	Winchester	4,721	Randolph	24,851	19.00%	14,972	2,844
95	Greendale	4,417	Dearborn	49,564	8.91%	35,368	3,152
96	Ligonier	4,372	Noble	47,532	9.20%	42,706	3,928
97	Mitchell	4,261	Lawrence	45,668	9.33%	24,830	2,317
98	Berne	4,135	Adams	35,636	11.60%	24,417	2,833
99	Austin	4,120	Scott	23,878	17.25%	14,351	2,476
100	Sullivan	4,093	Sullivan	20,690	19.78%	7,573	1,498
101	Aurora	3,703	Dearborn	49,564	7.47%	35,368	2,642
102	Knox	3,549	Starke	22,935	15.47%	12,111	1,874
103	Union City	3,462	Randolph	24,851	13.93%	14,972	2,086
104	Attica	3,147	Fountain	16,351	19.25%	11,695	2,251
105	Delphi	2,882	Carroll	20,127	14.32%	16,784	2,403
106	Bicknell	2,868	Knox	36,895	7.77%	18,545	1,442
107	Loogootee	2,714	Martin	10,217	26.56%	5,435	1,444
108	Butler	2,694	DeKalb	43,226	6.23%	38,190	2,380
109	Covington	2,529	Fountain	16,351	15.47%	11,695	1,809
110	Oakland City	2,405	Gibson	33,452	7.19%	23,782	1,710
111	Dunkirk	2,314	Blackford, Jay	20,764	11.14%	12,967	1,445
112	Petersburg	2,307	Pike	12,410	18.59%	7,811	1,452
113	Rockport	2,169	Spencer	20,327	10.67%	14,883	1,588

114	Rising Sun	2,146	Ohio	5,844	36.72%	4,371	1,605
115	Jasonville	2,145	Greene	32,006	6.70%	14,883	997
116	Southport	1,763	Marion	954,670	0.18%	466,780	862
117	Montpelier	1,691	Blackford	11,930	14.17%	6,970	988
118	Jonesboro	1,662	Grant	65,936	2.52%	34,459	869
119	Woodburn	1,603	Allen	375,351	0.43%	259,586	1,109
120	Cannelton	1,504	Perry	19,102	7.87%	12,395	976

About the Joint Transportation Research Program (JTRP)

On March 11, 1937, the Indiana Legislature passed an act which authorized the Indiana State Highway Commission to cooperate with and assist Purdue University in developing the best methods of improving and maintaining the highways of the state and the respective counties thereof. That collaborative effort was called the Joint Highway Research Project (JHRP). In 1997 the collaborative venture was renamed as the Joint Transportation Research Program (JTRP) to reflect the state and national efforts to integrate the management and operation of various transportation modes.

The first studies of JHRP were concerned with Test Road No. 1 — evaluation of the weathering characteristics of stabilized materials. After World War II, the JHRP program grew substantially and was regularly producing technical reports. Over 1,600 technical reports are now available, published as part of the JHRP and subsequently JTRP collaborative venture between Purdue University and what is now the Indiana Department of Transportation.

Free online access to all reports is provided through a unique collaboration between JTRP and Purdue Libraries. These are available at <http://docs.lib.purdue.edu/jtrp>.

Further information about JTRP and its current research program is available at <http://www.purdue.edu/jtrp>.

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