School of Public and Environmental Affairs
Indiana University - Bloomington

SPEA CAPSTONE: ECONOMIC DEVELOPMENT STRATEGY FOR SOUTHWEST CENTRAL INDIANA

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Executive Summary:

A Steering Committee of regional leaders and stakeholders invested in the Southwest Central Indiana (SWCI) region has been given a $650,000 planning grant to identify opportunities, assets, and resources that can be better utilized to enhance the economic development and ensure a sustainable standard of living for SWCI residents and communities. The following tasks were completed by Indiana University graduate student participants in the School of Public and Environmental Affairs Capstone in an effort to assist the Steering Committee move forward in developing a strategy for the SWCI region.

Task I: Benchmarking the Southwest Central Indiana Economy

Examining data and conducting qualitative research from fourteen geographical regions across the country, this section analyzes potential SWCI peer places for benchmarking purposes. This section includes economic and demographic data as well as discussions on the types of economic development strategies employed in each region. From the original list of fourteen, three were selected that exhibited similar characteristics with the SWCI region in terms of demographics, economic performance, industry sectors, and major institutions serving as economic drivers, while also showing a strong record of enhanced economic performance. The strategies and initiatives employed in these peer regions may serve as models for the strategy that is to be developed for SWCI.

Task II: Strengths & Weaknesses

The strengths and weaknesses of the SWCI region were identified through a thorough analysis of existing data as well as communications with each county's local tourism and economic development officials. This report includes both an overview of the regional strengths and weaknesses as well as detailed, county-specific analyses. While a great deal of data was made available to us, several important questions remain regarding this region's potential assets and opportunities. To address this missing information, we recommend the implementation of a region-wide survey designed to elicit the missing data from the residents of each county. Through a partnership with the Indiana University Center for Survey Research, we have developed a useful survey instrument and included it in this report.

Task III: Technology Transfer

SWCI is endowed with many research institutions that generate valuable scientific and technical knowledge. The majority of this knowledge originates from two institutions within the region: Indiana University - Bloomington and Naval Surface Warfare Center (NSWC) Crane. These public institutions and their satellite private institutions - such as contractors and spin-off businesses - produce vast quantities of untapped intellectual property. The commercialization of this knowledge through effective technology transfer mechanisms and practices can and should be leveraged for economic development in the Region. The Technology Transfer group reviewed literature on technology transfer, spoke with technology transfer leaders at both IU and NSWC Crane, examined mechanisms and strategies for the commercialization of public technologies to the private sector, and identified barriers related to transfer of technologies. Best practices and mechanisms to overcome the barriers to technology transfer are identified that could be implemented to increase the spillover of technologies and economic welfare throughout SWCI.

Task IV: Quality of Life

The quality of life in a region along with regional amenities has been identified as a key strategy to foster regional economic development, particularly for regions where knowledge and human capital play a key role. The purpose of Task IV is to identify the viability of the quality of life in Southwest Central Indiana and how it can best be enhanced to foster economic development.

Task I: Benchmarking the Southwest Central Indiana Economy

Summary

Lilly Endowment Inc. awarded a planning grant to create an economic development strategy for Southwest Central Indiana (SWCI). SWCI currently includes eleven counties: Brown, Crawford, Daviess, Dubois, Greene, Lawrence, Martin, Monroe, Orange, Owen and Washington. Collectively, these counties comprise the Indiana Department of Workforce Development's Economic Growth Region 8 (EGR8) plus all of the counties served by Radius Indiana. The new I-69 corridor between Evansville and Indianapolis runs through the heart of SWCI, and is expected to enhance economic development opportunities while also offering greater regional connectivity via shorter routes and travel times (Roberts, 2013).The economic development strategy to be developed for SWCI will seek to leverage the existing assets and resources in the region, as well as take full advantage of the opportunities presented by the I-69 corridor, in order to provide enhanced economic opportunities for the residents and communities of SWCI.

The overall strategy will be partly based on benchmarking. Indiana University graduate student participants in the Public Affairs Capstone Task 1 group were assigned to identify successful cases of regional economic development across the United States and to provide an analysis of those regions and their strategies. An emphasis was placed on identifying regions with similar characteristics to those of SWCI. The goal of the benchmarking task is that the regional economic development strategies that have been successfully implemented by those regions can serve as a model for the strategy that is to be developed for SWCI.

From an initial set of "peer places" provided by the Indiana Business Research Center, the Task 1 group selected three regional peer place finalists that most closely resemble SWCI region in terms of demographics, economic performance, industry sectors, and major institutions that are economic drivers. The "regional peer place finalists" that have been selected by the Task 1 group include:

- North Alabama (Huntsville, Alabama)
- Innovation Valley (Knoxville-Oak Ridge, Tennessee)
- Richland/Pullman, Washington

The following report begins with a brief analysis of the eleven counties comprising SWCI. Following is a detailed analysis of each regional peer place finalist. Finally, the report concludes with supplemental information on the peer places that were initially considered as benchmarking candidates, but were ultimately rejected. Pertinent economic performance data, structural population characteristics, as well as a narrative analysis is provided for each of these places to illuminate the rationale for their rejection.

Economic Indicators and Analysis

The following are a sampling of economic and demographic indicators that will be used to offer comparison between SWCI and peer places:

Population & demographic characteristics	Income and wages
Education and educational attainment	Employment statistics
Economic structure / industry diversity	Economic performance trends

This list is not exhaustive; other indicators, comparisons, and data will be offered where relevant.

For regional peer place finalists, each analysis has been broken down into a "regional snapshot" of the region, providing a brief glimpse of the regional definition, demographic statistics, and key benchmarking features. The regional snapshot is followed by a description of the metropolis area within the peer region, identification of key benchmarking features (including information on the region's federal lab, research university, and regional economic development plan), and presentation of the region's demographic characteristics and economic performance data. The analysis of each regional peer place finalist concludes with a narrative discussion and analysis section that illuminates the reasoning for selection of the region as a finalist by drawing relevant comparisons between SWCI and the regional peer place finalist.

For purposes of this report, the data presented for each regional peer place finalist was attempted to be standardized as much as possible. However, given the varying definitions of the "region" for each regional peer place finalist and the availability of data for each, there is not complete symmetry between the data and analyses presented for each finalist.

Southwest Central Indiana (SWCI)

Regional Data and Overview

Unless stated otherwise, the statistical data is for the year 2012 and has been obtained from STATS America (Indiana Business Research Center, 2013).

Overview: Southwest Central Indiana
- Number of Counties: 11
- Total Population : 399,914
- Total Land Area (mi^2): 4,520.3
- Population Density (people/mi^2): 89
- Poverty Rate (2011, %): 17.8
- Per Capita Personal Income (2011, $): 32,175
- Median Household Income Range (2011, $): 37,674 - 53,376
- Major City: Bloomington, Indiana (Monroe County)

Federal Lab: Crane Naval Surface Warfare Center (Department of Defense)
- Established: 1941
- Employment: 3,700

Research University: Indiana University, Bloomington (IUB)
- Enrollment: 32,500

Figure 1 displays the varying populations of the SWCI eleven counties. Monroe County stands out with its large population, especially in comparison to Martin County, where the Crane NWSC is located.

Figure 1: Population Distribution of SWCI Counties (2012)

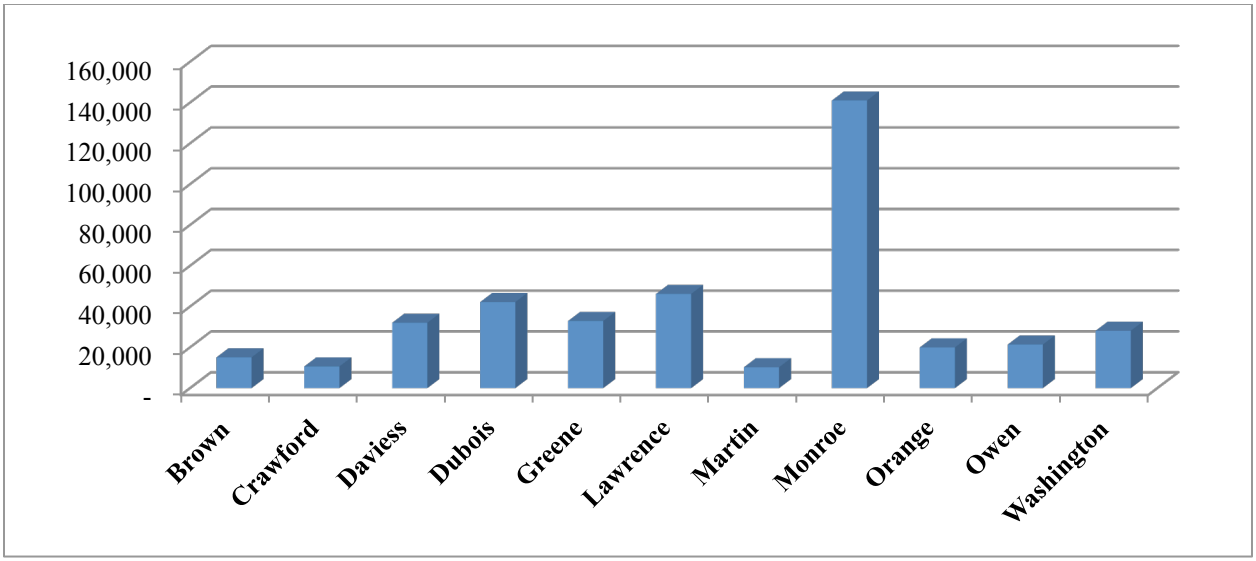


Figure 2 shows the age distribution of the SWCI population in 2012. Overall, the region is young, with 65% of the population in the 18-64 age group.

Figure 2: Age Distribution of SWCI Population (2012)

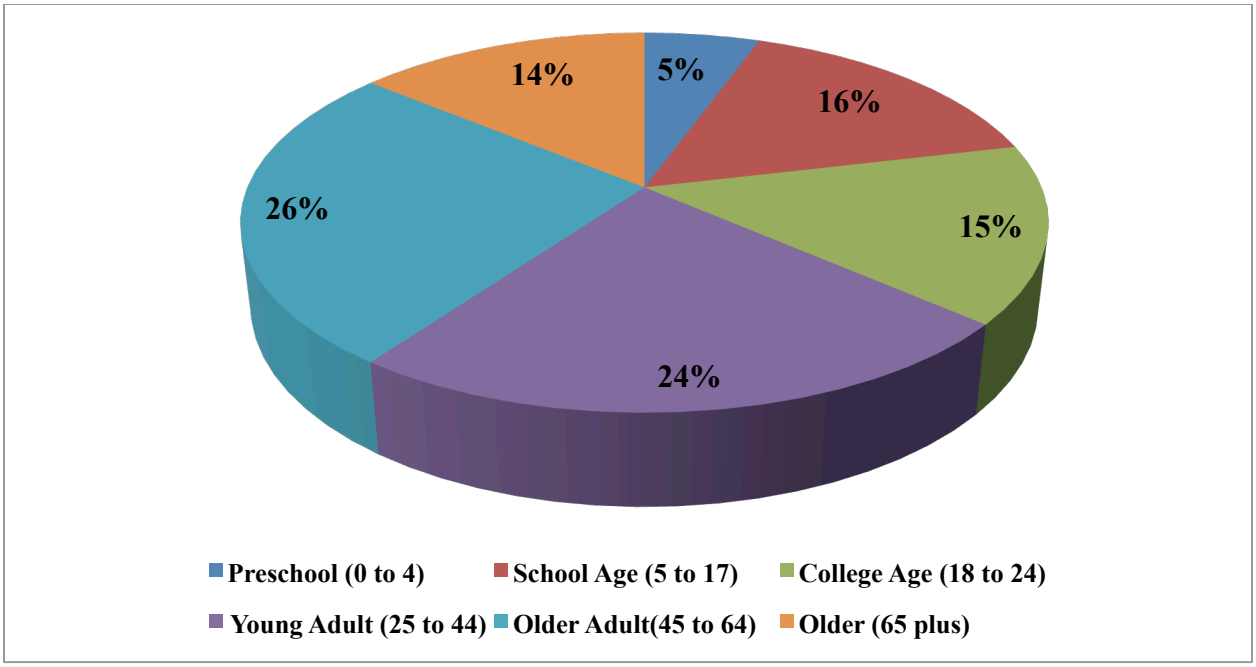
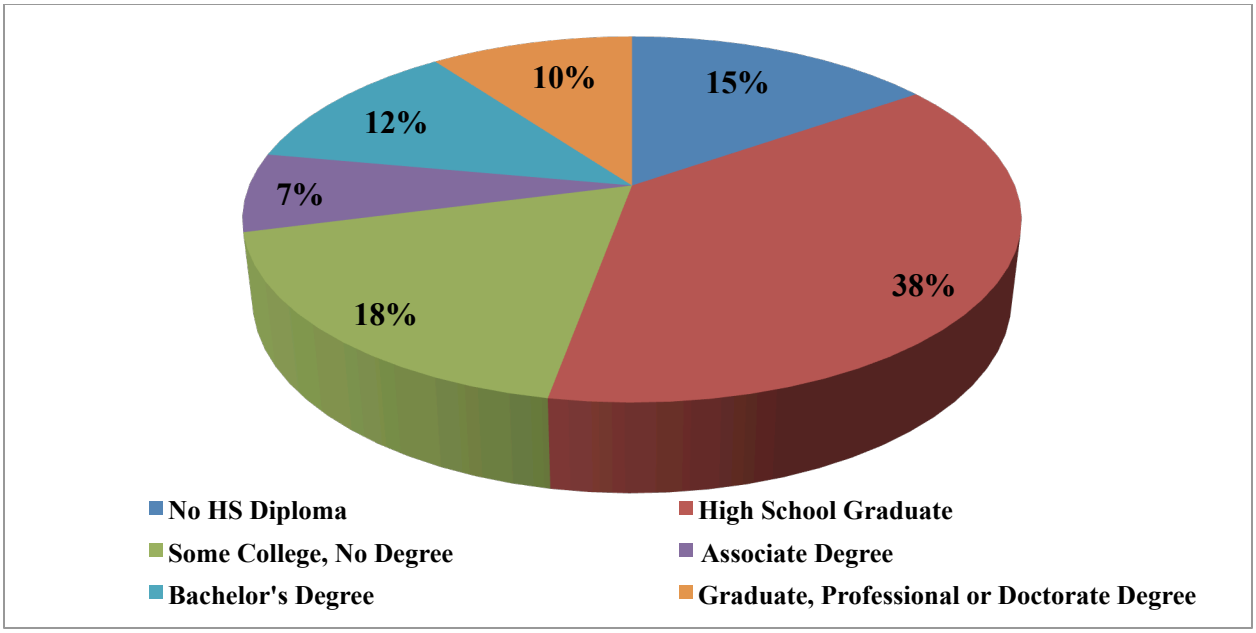


Figure 3 shows the distribution of the educational attainment of the SWCI region. While almost 40% of the population over 25 have a high school degree, the area overall does not particularly high educational attainment, with only 22% having a bachelor's degree or more.

Figure 3: Educational Attainment Distribution of SWCI Population (2012)



SWCI includes a world-class research university, Indiana University – Bloomington (IUB), and Naval Support Activity Crane (Crane), a military base that houses Indiana's sole federal laboratory. Collectively, IUB and Crane employ more than 10,000 people, making defense and education important industry sectors for SWCI (Roberts, 2013). Other industry sectors that are important to SWCI include manufacturing, life sciences, and tourism. SWCI's life sciences industry, in particular, is growing and currently employs 4,400 people (Roberts, 2013). Finally, SWCI also has a strong hospitality and entertainment industry, and is home to Indiana's largest concentration of state forests, parks, lakes, and wildlife areas.

Table 1: SWCI Top Employers

Employer	Industry Sector	Employees	County
Indiana University Bloomington	Educational Services	7,701	Monroe
US Naval Surface Warfare Center*	Manufacturing	4,000	Martin
IU Health Bloomington Hospital	Health Care and Social Assistance	3,000	Monroe
French Lick Springs Hotel	Accommodation and Food Services	1,700	Orange
Cook Group Inc	Manufacturing; Professional, Scientific, and Technical Services	2,800	Monroe, Owen

OFS Brands	Manufacturing	1,600	Dubois
Memorial Hospital	Health Care and Social Assistance	1,400	Dubois
Daviess Community Hospital	Health Care and Social Assistance	1,200	Daviess
Jasper Engines & Transmissions	Other Services (except Public Administration)	1,200	Dubois
Best Chairs Inc	Manufacturing	1,001	Dubois
Boston Scientific Corporation	Manufacturing	1,001	Owen
General Electric Company	Manufacturing	1,000	Monroe
Jasper Rubber Products Inc	Manufacturing	900	Dubois
Perdue Foods	Agriculture, Forestry, Fishing and Hunting	850	Daviess
Kimball International Inc	Wholesale Trade	800	Dubois
Master Brand Cabinets Inc	Manufacturing	700	Dubois
Baxter Healthcare Pharmaceuticals	Manufacturing	600	Monroe
GM Powertrain	Manufacturing	600	Lawrence
Paoli Inc	Manufacturing	600	Orange
Reynolds Inc	Construction	540	Orange
IU Health Bedford	Health Care and Social Assistance	520	Lawrence
Farbest Foods Inc	Manufacturing	500	Dubois
Modus Link PTS Inc	Manufacturing	500	Monroe
Stone Belt	Health Care and Social Assistance	500	Monroe

(Source: SWCI files provided by the IBRC containing data obtained from the U.S. Census Bureau)

County Data and Information

The following is a county-by-county breakdown of SWCI. Key demographic data, economic performance statistics, and a brief synopsis has been provided for each county. More information on the specific strengths, weaknesses, and quality of life in each of the SWCI counties is provided in the Task 2 and Task 4 reports.

Unless stated otherwise, the statistical data presented for the following counties is for the year 2012 and has been obtained from STATS America (IBRC, 2013).

Brown

County Seat	Nashville
Population	15,083
Land Area (mi^2)	312
Population Density (people/mi^2)	48
Poverty Rate (2011, %)	13
Per Capita Personal Income (2011, $)	35,863
Median Household Income (2011, $)	53,376

Brown County is a very loosely populated area that sees tourism as its primary business (Brown County, 2013). Retail trade, accommodation, and food services are large employment sectors for the county. Brown county is a hub for the arts; various studios are scattered throughout and the well known Brown County Art Colony is over a hundred years old. Residential development may be an appropriate area of economic development.

Crawford

County Seat	English
Population	10,658
Land Area (mi^2)	308.72
Population Density (people/mi^2)	35
Poverty Rate (2011, %)	19.5
Per Capita Personal Income (2011, $)	27,820
Median Household Income (2011, $)	37,674

Crawford County is the smallest county in the SWCI region, and also has the second lowest population density in the region (behind Martin County). Consequently, it is known for

being rural and community-focused. Crawford County heavily markets its outdoor recreation sites including O'Bannon Woods State Park, Patoka Lake, and Marengo Cave (Crawford County Tourism Board, 2013).

Economically, Crawford County is probably the most poorly situated of the SWCI counties. It has the lowest median household income in SWCI and a poverty rate of 19.5 percent, which is the second highest in SWCI (behind Monroe County). Furthermore, at 10.8 percent, the unemployment rate of Crawford County is tied with Lawrence County for the highest unemployment rate in SWCI. This percentage exceeds both the both the Indiana average and the nationwide average.

Not surprisingly, none of SWCI's top employers are located in Crawford County. Rather, Crawford County's economy consists primarily of the following businesses: Jasper Engines & Transmissions, Mulzer's Crushed Stone, and Marengo Warehouse & Distribution Center (Crawford County Economic Development, n.d.). Local sawmills and tourism are also important to Crawford County's economy (Crawford County Economic Development, n.d.). Due to lack of employment opportunities within the county, Crawford County has the highest commuter rate of SWCI; only 63.1 percent of Crawford County workers work within the county. Crawford County does, however, have an Economic Development office, which claims the county offers ample room for new growth and advertises an industrial park with over 445 acres available for use (Crawford County Economic Development, n.d.).

Daviess

County Seat	Washington
Population	32,064
Land Area (mi^2)	429.5
Population Density (people/mi^2)	75
Poverty Rate (2011, %)	15
Per Capita Personal Income (2011, $)	32,989
Median Household Income (2011, $)	43,800

Daviess County has a relatively large manufacturing sector, which generates 18% of wage employment (IBRC, 2013). The Daviess Chamber of Commerce heavily markets WestGate @ Crane Technology Park (Westgate, 2013). Furthermore, tourism generated by the large Old Order Amish community located within the county is also important to the Daviess County economy (*Daviess County Chamber of Commerce and Visitor's Bureau*, 2013).

The largest employers of Daviess County are Perdue/Shenandoah, Inc. (turkey farms, processing), Raydar & Associates, Inc. (engineering and technical services), and Williams Brothers Healthcare (medical equipment).

Dubois

County Seat	Jasper
Population	42,199
Land Area (mi^2)	435.3
Population Density (people/mi^2)	97
Poverty Rate (2011, %)	8.3
Per Capita Personal Income (2011, $)	40,718
Median Household Income (2011, $)	51,963

Dubois County is the second most populated county in SWCI (behind Monroe). Economically speaking, Dubois County is a star performer in SWCI. At only 5.9 percent, Dubois County has the lowest unemployment rate in SWCI and also has the lowest poverty rate (8.3 percent). Furthermore, Dubois County also has the second highest median household income (behind Brown County) in SWCI. It also ranks third among all Indiana counties for per capita income (Dubois Strong, n.d.).

Dubois County is a significant job hub for SWCI as many of SWCI's top employers are located within. These include:

- OFS Brands (1,600 employees; Manufacturing)
- Memorial Hospital (1,400 employees; Health Care and Social Assistance)
- Jasper Engines & Transmissions (1,200 employees; Other Services, except Public Administration)

- Best Chairs Inc. (1,001 employees; Manufacturing)
- Jasper Rubber Products Inc. (900 employees; Manufacturing)
- Kimball International Inc. (800 employees; Wholesale Trade)
- Master Brand Cabinets Inc. (700 employees; Manufacturing)

Given the wealth of employment opportunities that exist within the county, it is not surprising that Dubois County has the lowest commuter rate in SWCI: 93.8 percent of workers reside within the county.

Educationally speaking, Dubois County does fairly well SWCI. Behind Monroe and Brown counties, Dubois County has the third highest percentage of upper level educational attainment (bachelor's degree and above). The children of Dubois County perform well too; 80.41 percent of them passed both the Math and English/Language Arts sections of the Indiana Statewide Testing for Educational Progress (ISTEP) (IBRC, 2013). This percentage is the highest pass rate in SWCI. For comparison, Hamilton County had the highest pass rate percentage at 86.93 percent, and the statewide average for Indiana was 73.11 percent. Regarding upper level educational opportunity within the county, there is a Vincennes University campus located in Jasper.

Dubois County has an Economic Development organization, Dubois Strong, which markets the county as an "important regional focal point in south-central Indiana" (Dubois Strong, n.d.). As indicated by the above employers, Dubois County has a strong manufacturing sector that employs, in total, approximately 12,000 workers. However, it was also named first in the state for agricultural output, has a lively retail community, and has a first-class health care facility in Memorial Hospital (Dubois Strong, n.d).

Dubois County was named among the "Top 20 Counties to Live in the Midwest" by The Progressive Farmer magazine (Dubois Strong, n.d.), and Jasper has been recognized as the 25th Best Small Town in America and "#1 in Indiana" (Crampton, 1996).

Greene

County Seat	Bloomfield
Population	32,940
Land Area (mi^2)	542.5
Population Density (per mi^2)	60.72
Poverty Rate (2011, %)	14.3
Per Capita Personal Income (2011, $)	31,059
Median Household Income (2011, $)	42,877

The Greene County Economic Development Corporation (established in 1989) that serves to develop new businesses and support current businesses places strong emphasis on the opportunities available from the Westgate Technology Park (Inside Greene County, 2013). SAIC, an engineering services firm, and Greene County General Hospital are the two major employers of the county (Infogroup, 2013).

Lawrence

County Seat	Bedford
Population	46,195
Land Area (mi^2)	451.9
Population Density (people/mi^2)	102
Poverty Rate (2011, %)	15.4
Per Capita Personal Income (2011, $)	31,205
Median Household Income (2011, $)	43,471

Lawrence County has an Economic Growth Council, which has the general mission "to collaboratively plan for and guide the economic development of the County" (Lawrence County Economic Growth Council, n.d.). However, at 10.8 percent, the unemployment rate of Lawrence

County is tied with Crawford County for the highest unemployment rate in SWCI (IBRC, 2013). This may be partially attributable to the Dana Corporation and Visteon plant closings, which also caused a negative effect on the job growth index for Lawrence County between 2006 and 2009.

In spite of the high unemployment rate, Lawrence County is home to two of the top employers of SWCI: GM Powertrain (600 employees; Manufacturing) and IU Health Bedford (520 employees; Health Care and Social Assistance). Regarding opportunities for upper level education, Lawrence County is home to a satellite location of Vincennes University as well as a satellite location of Oakland City University.

Lawrence County is often known as Limestone Country and is considered the "Limestone Capital of the World." It is part of the Stone Belt, which begins in Putnam County and makes its way southward through Owen, Monroe, Lawrence, Washington, Orange, and Crawford Counties (Lawrence County Tourism Commission, 2011).

Martin

County Seat	Shoals
Population	10,260
Land Area (mi^2)	335.7
Population Density (people/mi^2)	31
Poverty Rate (2011, %)	14
Per Capita Personal Income (2011, $)	33,378
Median Household Income (2011, $)	44,715

The majority of NSWC Crane is located in Martin County. As indicated by the county's MHI, Martin County does take advantage of this feature, but a large portion of Crane employees also commute to the area.

Martin County has the lowest population density of SWCI. Furthermore, the population of Martin County has SWCI's lowest percentage of upper level educational attainment (Bachelor's degree and above). However, its population has the highest percentage of associate's degrees.

Monroe

County Seat	Bloomington
Population	141,019
Land Area (mi^2)	394.5
Population Density (people/mi^2)	358
Poverty Rate (2011, %)	24.7
Per Capita Personal Income (2011, $)	31,021
Median Household Income (2011, $)	40,262

Monroe County is by far the most densely populated county of the SWCI area. It has the highest rate of population with bachelor's and graduate degrees, but also has the highest poverty rate of SWCI. The MHI of Monroe County is actually at the lower end amongst the eleven SWCI counties. Despite the presence of the IU system, Monroe County considers health care and social assistance the largest of its economic sectors, with Cook Group, Indiana University Health and Baxter Healthcare Pharmaceuticals as its largest employers.

Indiana University, Bloomington had undergraduate enrollment of 32,371 and graduate enrollment of 9,762 in 2012 (UIRR, 2012).

Orange

County Seat	Paoli
Population	19,969
Land Area (mi^2)	408.19
Population Density (people/mi^2)	49
Poverty Rate (2011, %)	17.1
Per Capita Personal Income (2011, $)	30,007
Median Household Income (2011, $)	37,910

Orange County is known for tourism, gaming, outdoor sports, and resorts. French Lick Resort Casino, and Hoosier National Forest and Patoka Lake, which feature outdoor recreational activities of all types, are all located in Orange County and are tourist destinations for the entire south central Indiana region (Orange County Economic Development Partnership, 2013). Consistent with the presence of these features, Orange County's top two industries are accommodation and food services and manufacturing (Indiana Business Research Center, 2011). Orange County has an Economic Development Partnership that heavily markets its manufacturing strengths and otherwise works to retain, attract, and foster new business growth in Orange County (Orange County Economic Development Partnership, 2013). Although the county has traditionally been known as a stronghold in wood manufacturing, it has diversified into other types of manufacturing as well. The SWCI top employers located in Orange County include:

- French Lick Springs Hotel (1,700 employees; Accommodation and Food Services)
- Paoli Inc. (600 employees; Manufacturing)
- Reynolds Inc. (540 employees; Construction)

A chief challenge for Orange County is improving its educational attainment levels. Of all the SWCI counties, Orange County's population has the highest percentage of individuals that lack high school diplomas. Furthermore, many of the community's high school graduates that pursue secondary degrees do not return to the area (Indiana Business Research Center, 2011).

Owen

County Seat	Spencer
Population	21,380
Land Area (mi^2)	385.3
Population Density (people/mi^2)	56
Poverty Rate (2011, %)	15.3
Per Capita Personal Income (2011, $)	30,009
Median Household Income (2011, $)	41,004

Owen county is not densely populated and there is a lot of cross-transfer between Owen and neighboring Monroe County. The largest employers of Owen County are Boston Scientific (medical supplies) and Cook Urological (medical supplies). The manufacturing industry also comprises a large part of Owen County's economy.

Washington

County Seat	Salem
Population	28,147
Land Area (mi^2)	516.6
Population Density (people/mi^2)	55
Poverty Rate (2011, %)	15.2
Per Capita Personal Income (2011, $)	29,544
Median Household Income (2011, $)	39,085

Washington County is the seventh largest county in Indiana and has a relatively average population density for SWCI. Although none of SWCI's top employers are located in Washington County, the county does have a Chamber of Commerce that promotes and assists businesses and organizations in transacting business with one another (Washington County Chamber of Commerce, n.d.). According to the Indiana Department of Workforce Development (2013) the top employers of Washington County include:

- Tecumseh Products Co (Salem)
- Kimball Office (Salem)
- St Vincent Salem Hospital (Salem)
- Net Shape Technologies Inc (Campbellsburg)

Regarding upper level educational opportunities, there is an Ivy Tech Campus located in Salem.

Regional Peer Places

Initial Selection Criteria

The Task 1 Group selected the regional peer place finalists from an initial set of locations provided by the Indiana Business Research Center (IBRC). The IBRC created this initial set based on three key characteristics: (1) a major federal research laboratory, in close proximity to (2) a large research university, and (3) ruralism. They identified the places comprising the initial peer set by first mapping the locations of all federal labs, and then searching for major universities nearby; if one was not found in relatively close proximity, that federal lab/location was not included in the initial set. The final selection criterion - that the peer places should be relatively rural - was used by the IBRC to disqualify federal lab/university pairings that were near major metro areas. This final criterion served to eliminate many lab/university pairings in Maryland, Virginia, and California.

Peer Place Finalist Selection Methodology

After conducting initial research on each of the peer places in the initial set of locations provided by the IBRC, the Task 1 group utilized a three tiered approach in selecting the regional peer place finalists.

The first tier of the process involved essentially an expansion of the baseline criteria that were identified by IBRC. For example, although the initial set of peer places was based on the pairing of a federal lab with a nearby research university, not all of these pairings were contained within a single "region" as defined by a regional economic development or work force organization. Such peer places were eliminated as finalist contenders by the Task 1 group during this first phase of the selection process. Furthermore, one location in the initial set no longer has a federal lab. That peer place was also eliminated during phase one.

Because two main weaknesses identified in the SWCI Region Summary Profile were (1) that SWCI does not have a "clear regional leadership structure or strategic planning … process" and (2) that SWCI "[e]conomic and business development resources and incentives are not coordinated regionally," it was determined by the Task 1 group that peer place finalists should have a strong, *regionally focused* economic development strategy. Thus, the second and third tiers of the selection process involved consideration of each peer place as an entire region, as

defined by a regional economic development organization. The second tier involved evaluation of a regional peer place's structural characteristics (such as demographics and regional definition), economic performance, and presence of a regional economic development organization. Regions that were demographically and structurally dissimilar from SWCI, struggling economically, and/or lacking regional organization did not make it past this phase.

Many locations contained within the initial set were eliminated by the criteria of tiers one and two. For those that still remained, however, the third tier of the selection process involved consideration of a peer place's assets, resources, and industry sectors in comparison with those of SWCI. This final phase of the selection process also involved consideration of the strength of a peer place's regional economic organization and its regional development strategy.

Peer Place Finalists

Huntsville, Alabama (Region: North Alabama)

1. Regional Snapshot

Overall Region: North Alabama

- Number of Counties: 13
- Total Population (2012): 1,113,160

- Total Land Area (2012): 8,847.9 mi^2
- Population Density (2012): 126 people/mi^2
- Poverty Rate (2011, %): 16.6
- Per Capita Personal Income (2012, $): 35,378
- Median Household Income Range (2011, $): 31,018 - 55,298
- Major City: Huntsville, Alabama (Madison County)

Regional Organization: North Alabama Industrial Development Organization (NAIDA)

- Founded: 1949
- Target Areas: Automotive, Aerospace/Defense, Chemicals, Distribution/Logistics,
- Food/Packaging, Life Sciences, Metals/Fabricating, Plastics, and Wood Products.

Federal Lab: Marshall Space Flight Center (NASA)

- Established: 1960
- Employment: 6,000

Research University: University of Alabama in Huntsville (UAH)

- Enrollment: 7,700

Other Key Regional Features

- Redstone Arsenal
- Cummings Research Park

2. Regional Overview

1) Major City: Huntsville

Huntsville is the fourth largest city in Alabama and is located in Madison County. It is approximately 100 miles directly south of Nashville and is equidistant from its lateral state neighbors, Mississippi and Georgia. Huntsville and Madison County are within the region covered by the North Alabama Industrial Development Association (NAIDA). The region contains thirteen counties in northern Alabama: Colbert, Cullman, Cherokee, Dekalb, Franklin, Jackson, Madison, Marshall, Morgan, Lauderdale, Lawrence, Limestone, and Winston (NAIDA, n.d.). Huntsville is well known for its space, defense, and military aerospace programs, due primarily to the presence of NASA's Marshall Space Flight Center, Army's Redstone Arsenal, and Cummings Research Park (City of Huntsville, Alabama, 2013). Huntsville is also home to

several Fortune 500 companies and offers a broad base of manufacturing, retail, and service industries (City of Huntsville, Alabama, 2013).

Huntsville is "one of the most recognized cities in the Southeast and it is consistently named as one of the best places to live and work by a variety of national publications" (Office of the Mayor, 2013). Indeed, the Huntsville-Madison County area as a whole has received many media accolades indicating its superiority as a place not only to live and work, but also to retire, raise a family, and establish and grow a business. These accolades include titles and rankings such as:

- One of United States' "Top Ten Leading Creative Class Metros" (*The Atlantic Cities*, 2012)
- "4th Most Optimistic City in America" (*Gallup*, 2012)
- One of United States' Top 10 Best Performing Cities in the Country (*Milken Institute*, 2011)
- One of the "Leading Places to Retire" (*CNN/Money*, 2011)
- One of Forbes "Top 20 Leading Metros for Business" (Forbes, 2011)

Huntsville/Madison County exhibits exceedingly strong economic performance, especially in comparison with the rest of Alabama. The per capita income of Madison County, for example, ranks second in the state. Furthermore, in 2009, when the nation's economy as a whole was suffering, Huntsville was named as "America's Best City" by Kiplinger's Personal Finance based on its stable employment rates and robust job market (Best Cities, 2009). Based on its assets discussed below, Huntsville/Madison County has a strong aerospace and defense sector. However, it has a diverse economy and its other primary industry sectors include information technology, advanced manufacturing, and life sciences.

Huntsville also has numerous opportunities for upper level education. In addition to the University of Alabama in Huntsville, which is the largest university in the Huntsville area and is discussed further below, Huntsville is also home to Alabama A&M University, Oakwood University, and J.F. Drake State Community and Technical College. In addition, there are other colleges and universities that have satellite locations or extensions in Huntsville.

2) **Demographics**

The North Alabama region includes 13 counties: Colbert, Cullman, Cherokee, Dekalb, Franklin, Jackson, Madison, Marshall, Morgan, Lauderdale, Lawrence, Limestone, and Winston. This region collaboratively makes efforts to promote its regional economy via its regional

economic development organization, North Alabama Industrial Development Association (NAIDA).

The North Alabama region spans an area of 8,848 square miles, with a total population of 1,113,160 people. Of those, approximately 184,000 live in Huntsville, which is the only metropolis area in the region. Land area and population breakdown by county may be found in Table 2 below.

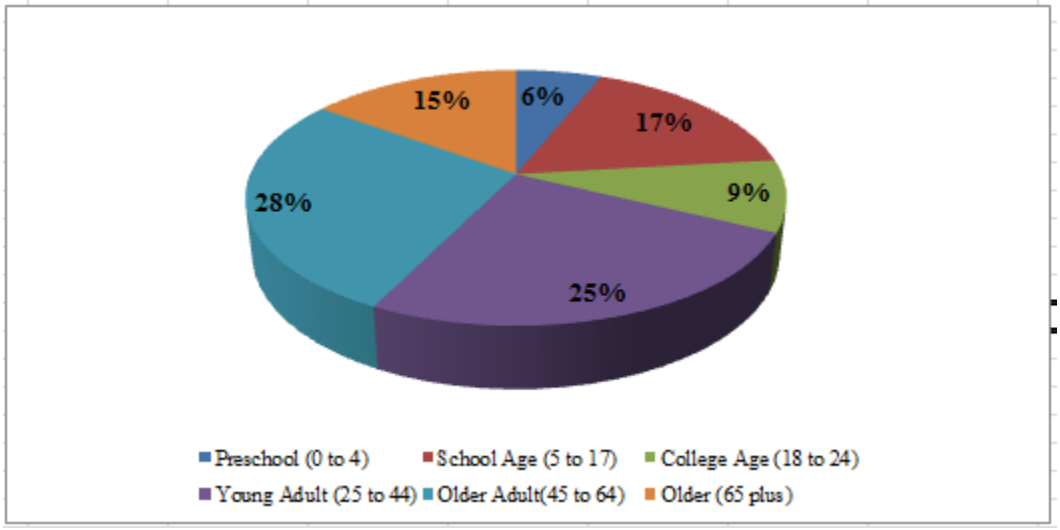
Table 2: Population Characteristics by Counties

County	Pop (2012)	Pop Density	Pop (2000)	Land Area (mi²)	Median Age
Colbert	54,446	92	54,984	592.6	42.1
Cullman	80,440	109	77,483	734.8	40.6
Cherokee	26,021	47	23,988	553.7	44.8
Dekalb	71,080	91	64,452	777.1	38.1
Franklin	31,761	50	31,223	633.8	38
Jackson	53,019	49	53,926	1077.9	42.1
Madison	343,080	428	276,700	801.6	37.9
Marshall	94,776	168	82,231	565.8	38.2
Morgan	120,395	208	111,064	579.3	39.4
Lauderdale	92,542	139	87,966	667.7	41.1
Lawrence	33,838	49	34,803	690.7	41.6
Limestone	87,654	157	65,676	559.9	38.7
Winston	24,108	39	24,843	613	43.9

(Source: STATS Indiana)

The median age North Alabama's population is 40.5 years. Figure 4 below displays the age distribution for North Alabama.

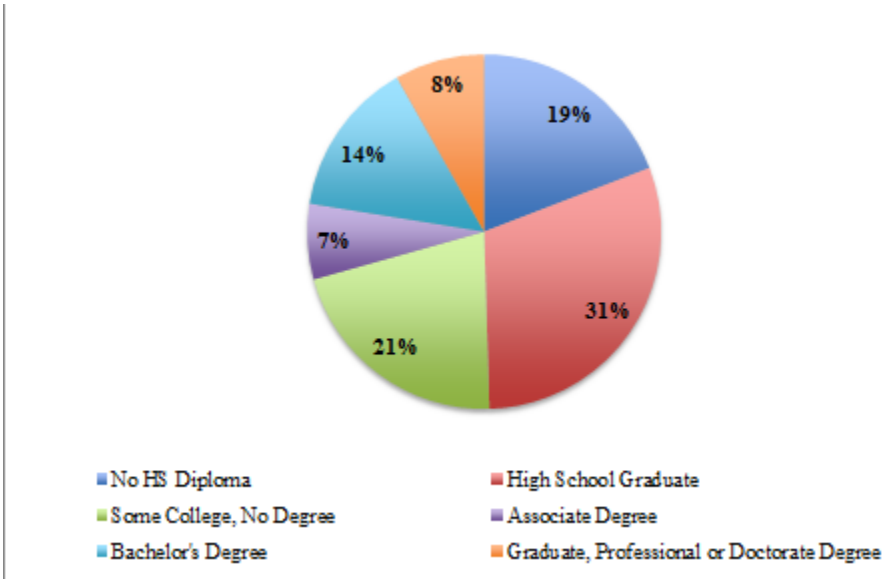
Figure 4: North Alabama Age Distribution (2012)



(IBRC, 2013)

As can be seen from the educational attainment chart below, more than eighty percent of North Alabama's population has received their high school diploma. Furthermore, 29 percent have succeeded in obtaining a post-high school degree.

Figure 5: North Alabama Educational Attainment (Age 25+, 2012)



(IBRC, 2013)

3) **Industrial Characteristics**

The aerospace and defense industry sector exhibits a strong presence throughout North Alabama and is targeted by NAIDA's recruiting efforts, but the region is also home to a diverse array of other industries. Automotive industry jobs have a particularly large presence, but the

other industrial sectors targeted by NAIDA include: life sciences, chemicals, food processing, packaging, wood products, distribution and logistics, plastics, and metal fabrication (NAIDA, March 2010). For the top employers of North Alabama, see Table 3 below.

Table 3: North Alabama Major Employers

Employer Name	Employees	Industry	County
US Army/Redstone Arsenal	31,500	Defense	Madison
Huntsville Hospital System	7,129	Medical	Madison
NASA/Marshall Space Flight Center	6,000	Aerospace	Madison
Pilgrim's Pride	5,058	Food	Colbert, Cullman, Franklin, Lawrence, Marshall, Morgan
Contigroup	2,539	Food	Marshall, Morgan
International Paper Co.	2,000	Wood Products	Lawrence
Huntsville City Schools	3,079	Education	Madison
The Boeing Company	2,600	Aerospace	Madison
AlaTrade Foods	1,275	Food	Marshall
Sara Lee	1,050	Food	Lauderdale
Siemens VDO	1,000	Automotive	Madison
Wise Metals Group LLC	1,000	Metalworking	Colbert

(Source: NAIDA. Some North Alabama top employers have been omitted from the table based on unavailability of employment data, but note that all the top employers in each industry sector targeted by NAIDA are provided through NAIDA's website, in addition to their location and contact information.)

4) **Economic Performance**

The median household income for North Alabama is $39,326. The region has an average unemployment rate of only 7.4 percent, but an average poverty rate of 18.2 percent. The county breakdown of these regional statistics is presented by Table 4 below.

Table 4: North Alabama Economic Indicators by Counties (2012)

County	Unemployment Rate (%)	MHI (2011, $)	MHI (2000, $)	Poverty Rate (2011, %)	Poverty Rate (2000, %)
Colbert	7.6	37,269	43,403	18.7	13.1
Cullman	6.4	39,395	43,683	18.2	12.8
Cherokee	7.1	34,738	41,064	23.8	15.6
Dekalb	8.5	35,487	40,608	20.3	14.8
Franklin	8.2	33,705	37,021	19.9	16.9
Jackson	7.1	36,746	43,484	17.9	13.3
Madison	6.2	55,298	59,743	13.8	10.1
Marshall	7.0	38,876	42,414	19.1	14.3
Morgan	7.0	43,615	51,617	16.8	11.1
Lauderdale	6.7	40,195	44,455	16.4	12.7
Lawrence	8.1	38,132	44,144	18.0	14.0
Limestone	6.2	46,760	50,923	13.9	12.2
Winston	9.8	31,018	37,054	19.8	17.6
Limestone	6.2	46,760	50,923	13.9	12.2
Winston	9.8	31,018	37,054	19.8	17.6

(Source: IBRC, 2013)

3. Key Benchmarking Features

1) Federal Laboratory: Marshall Space Flight Center (NASA)

The Marshall Space Flight Center (Marshall) is located on Redstone Arsenal and is one of NASA's largest and most important field centers. Marshall employees more than 8,600 people and manages key programs involving the space shuttle, the International Space Station, Payload Operation Center, space science, future moon and Mars missions, and Ares I and V launch vehicles (Federal Lab Consortium, n.d.). Marshall's key role in space science, aeronautics and exploration complements Army and Department of Defense research in other areas of North Alabama (NAIDA, 2010).

Marshall has a strong focus on partnerships and has a history of collaboration with universities, industry, and other government agencies. Space Act Agreements are the primary vehicle through which NASA partners with the external community. Such agreements allow Marshall to make its facilities, laboratories, knowledge, and skills available to third parties. In exchange and in furtherance of the goals of NASA, Marshall is allowed to access the technologies of the partner organization (NASA, 2013).

Marshall has a specific Partnership Office devoted to pursuing and fostering long-term relationships between Marshall and parties in the external community. The office helps potential partners explore opportunities with Marshall by assessing their needs, conveying Marshall's relevant capabilities, and connecting them with the appropriate technical contacts for more in-depth collaboration (NASA, 2013). The Partnership Office is accessible via office visits, community meetings, and online, and thus serves as an easy entry point for those unfamiliar with Marshall. In addition, Marshall also has a staffed Technology Transfer Office. Third parties, including small businesses and individuals, can use the Technology Transfer Office to search for technologies available for licensing and partnering, learn about the licensing and the partnering processes, find opportunities to participate in government-sponsored research and development, find software that is available for licensing, and submit new technologies that they have developed (NASA, 2013, November 21).

2) Research University: University of Alabama in Huntsville

The University of Alabama in Huntsville (UAH) is the largest university serving the greater Huntsville area and has earned a "very high" research activity classification from the Carnegie foundation (Carnegie Foundation, n.d.). UAH has a total enrollment of approximately

7,700 students, including about 1,600 graduate students. The University offers seventy-one undergraduate degree programs across the colleges of Business, Engineering, Liberal Arts, Nursing, and Science, as well as the school of graduate studies (UAH, 2013).

Research at UAH is conducted either within the individual colleges or through one of fifteen independent research centers, laboratories, and institutes (UAH, 2013). Research funding currently makes up about half of the school's budget. In the 2013 fiscal year, research funding reached a record high of $97.36 million (Gattis, 2013). UAH ranks 14th in NASA-funded research expenditures and 18th in Department of Defense-funded research expenditures (Gattis, 2013). Cultivating revenue from these agencies is a priority of the UAH, but other avenues of research are also pursued. Major interdisciplinary research thrusts include: applied optics, earth system science, information technology, management of science and technology, mechanical and aerospace engineering, modeling and simulation, nano devices, space plasmas and astrophysics, space propulsion, structural biology, systems engineering, and robotics (UAH, 2013).

UAH has strong research partnerships with NASA and the U.S. Army (NAIDA 2010). There is employee crossover as well: close to 400 UAH employees work on Redstone Arsenal and 100 NASA employees work at the University (Gattis, 2013). In addition, a former NASA Administrator is now an Eminent Scholar and Professor of Mechanical and Aerospace Engineering at UAH (NAIDA, 2010). UAH also an anchor tenant of Cummings Research Park (UAH, 2013).

3) Economic Development Strategy: North Alabama Industrial Development Association

NAIDA was founded in 1949 partially due to the concern that many young people were moving away from North Alabama to find work. Funded by the electric power distributors of Tennessee Valley Authority Power, NAIDA is a regionally focused effort for industrial development and provides assistance to businesses and site location consultants seeking to locate in North Alabama. NAIDA also works with local economic developers from each of the thirteen counties to promote the North Alabama region as a whole. In addition, the association also works with the state's Chamber of Commerce as well as other agencies to recruit industry for North Alabama.

4. Other Regional Attributes

1) Redstone Arsenal

Redstone Arsenal is a 38,000-acre, secure U.S. Army Complex that is an important part of the economy in North Alabama. Located in adjacent to Huntsville in Madison County, Redstone Arsenal is a major federal research, development, testing, and engineering center, and is home to Marshall Space Flight Center. It also serves as a base for the Army's missile, missile defense and aviation programs, the Missile Defense Agency, the Defense Intelligence Agency, and NATO's MEADS program (Boyette, 2012).

Redstone Arsenal employees more than 35,000 people (composed of approximately 1,000 active duty military, 19,500 government civilians, and 15,000 contractors) (Team Redstone, 2013). The workforce at Redstone Arsenal is highly educated; 68 percent have bachelor's degrees or higher and the major career fields include science and engineering, logistics management, and acquisition and contracting (Team Redstone, 2013).

2) Cummings Research Park

Cummings Research Park (CRP), one of the country's leading science and technology parks, is a 3,800-acre site located adjacent to Redstone Arsenal. CRP is the second largest research park in the United States and the fourth largest in the world. It employs 29,000 workers and is home to 300 tenants, which include a mixture of Fortune 500 companies, local and international high-tech enterprises, United States space and defense agencies, and higher-education institutions (Quick Facts, n.d.). The key industries of CRP include: aerospace and defense, computers and electronics, engineering services, hardware and software development, information technology, life sciences and biotechnology, and research and development (NAIDA 2010).

CRP has a large economic impact on the Huntsville/Madison County area as well as North Alabama as a whole. It is a catalyst of high-tech job growth, which has helped Madison County lead all other Alabama counties in number of new jobs created in twenty out of the past twenty-six years (Quick Facts, n.d.). In addition, the fact that the Huntsville Metro Area has the highest concentration of engineers in the country is based largely on the technology companies located in CRP. Furthermore, despite federal budget struggles affecting the outlook for defense contractors, CRP has continued to thrive and is poised for further future growth (Swant, 2013), with approximately 450 acres of land still available for development (Quick Facts, n.d.).

5. Discussion and Analysis

North Alabama contains many similarities to SWCI such that it is aptly suited as a peer place for comparison purposes. The regions are similar with regard to demographics, regional characteristics, assets, and targeted industry sectors. However, it is the economic success of North Alabama in leveraging its assets, recruiting business to its targeted industry sectors, and utilizing the strength of a regional economic development approach, that make it ideal as a peer place finalist that SWCI would do well to model in implementing its own economic development strategy.

First, the demographic and regional characteristics of the regions are similar. The North Alabama region is made up of thirteen counties, while SWCI is made up of eleven. North Alabama is bigger than SWCI, both with regard land area and population. (The land area of North Alabama is approximately two times greater than the land area of SWCI; North Alabama's population is approximately 1.1 million, as compared to SWCI's population of approximately 400,000.) However, the population densities of the regions are similar: North Alabama has approximately 126 people per square mile and SWCI has approximately 89 people per square mile.

Furthermore, each region has only one significant metropolitan area: Huntsville for North Alabama and Bloomington for SWCI. Again, although the population of Huntsville exceeds that of Bloomington, the populations of these cities make up similar percentages of their overall respective regions. Huntsville accounts for approximately 17% of North Alabama's population and Bloomington accounts for approximately 20% of SWCI's. The counties containing these cities have by far the largest population densities of the counties in their respective regions. Although North Alabama counties are, on the average, slightly more populated than those of SWCI, those counties other than Madison are still relatively rural. Relatedly, the North Alabama and SWCI regions both have a strong presence of agrarian life.

The second reason for selection of North Alabama as a peer place finalist is that the industry targets and assets of the region are similar to those of SWCI. The SWCI Region Summary Profile noted the growth of SWCI's high tech sectors (including life sciences, defense, and IT), but recommended that SWCI would benefit from a coordinated cluster strategy. Not only does the North Alabama region have similar high tech sectors that are well developed, but defense and life sciences are two of the sectors that are specifically targeted by NAIDA as part of

their regional economic development strategy for North Alabama. Furthermore, NAIDA targets other industry sectors such as manufacturing, food/packaging, wood products, and chemicals that would also be particularly applicable to a regional economic strategy for SWCI.

With regard to specific assets, as ensured by the peer place selection criteria and methodology, North Alabama has a federal lab and research university within the region covered by its economic development organization, NAIDA. However, the close geographic proximity of these assets (Marshall Space Flight Center and University of Alabama in Huntsville) in North Alabama is also similar to the geographic proximity of Crane and Indiana University in SWCI. This implicates that the positive relationship between Marshall and UAH with regard to employment overlap, research collaboration, and technology transfer is something that could have particular relevance to SWCI and should be a point of discussion during the site visit to North Alabama to determine whether it is feasible for Crane and IU to model certain attributes of that relationship.

Just as what could be termed the "main assets" of North Alabama (e.g. Marshall, UAH, Redstone Arsenal, and Cummings Research Park) are largely clustered around Huntsville, the main assets of SWCI (e.g., Indiana University and Crane) are largely clustered around Bloomington. As discussed above, Huntsville in particular has a large economic impact on North Alabama due to the presence of such assets, and the economic performance the Huntsville/Madison County area coupled with its numerous media accolades indicate that it is a community whose micro-level economic development strategy has certainly been successful at leveraging those assets. Huntsville/Madison County, however, is only a single community within the North Alabama region, and recognizing this fact is has been a key part of NAIDA's overall regional economic development strategy.

North Alabama's focus on economic development of the entire region is the third reason that North Alabama was selected as a peer place finalist. The regional economic development organization for North Alabama, NAIDA, is a strong organization that represents the thirteen counties of the North Alabama. Rather than opting for a fragmented county-by-county approach to economic development, NAIDA's strategy focuses on the region as a whole. Each year, it develops a multi-faceted marketing plan based on the industry sector targets that NAIDA has identified for the North Alabama region as a whole. The marketing plan includes things such as

attendance and presentations at trade shows, hosting corporate visits, and traveling to different locations to call on companies.

Tate Godfrey, President and CEO of NAIDA, said that NAIDA's regionally-focused approach is critical to North Alabama's economic success, especially with regard to recruiting industry and businesses. Godfrey said that not only is having a unified, regional approach much more attractive to companies, but that none of the individual communities within the North Alabama region, including Huntsville, could harness the recruiting power that NAIDA is able to utilize when it promotes the region as a whole. NAIDA's comprehensive, regionally focused strategy allows all of North Alabama to prosper, even though the counties comprising it have different assets, strengths, and demographics.

NAIDA's consciousness of the differences between the counties in North Alabama is reflected in their development strategy. For example, the Aerospace and Defense industry target is oriented toward the Huntsville area due to the specific assets and high tech employers located there, just as SWCI's defense target is mostly oriented toward Crane's area, for similar reasons. However, although NAIDA is cognizant of the unique assets and opportunities presented by Huntsville, the Association makes a conscious effort to also promote the other North Alabama communities that are less populated and more rural. In fact, many of NAIDA's industry targets were purposely selected based on their fit for such communities. Godfrey specifically identified wood products, food packaging, plastics, and chemicals as NAIDA's industry targets that are geared toward the smaller, rural counties of North Alabama. Given that one of the threats identified by the SWCI Region Summary Profile was "differing community interest[s], cultural identities, and strategic visions across the [SWCI] region," SWCI could greatly benefit to learn from NAIDA how to implement a regionally focused economic development strategy where the counties comprising the region have substantially different characteristics.

A primary goal in starting NAIDA was to entice STEM graduates and other young people to remain in North Alabama, rather than moving out of the state or to more urban areas. NAIDA has been largely successful in this regard. The assets now offered by North Alabama within the high tech industry targets such as aerospace and defense are particularly attractive to STEM graduates. Local employers within these industries certainly recruit from UAH, but they also recruit from other colleges in the state (and all over the world, for that matter), including University of Alabama and Auburn University. In addition, many young people in Alabama now

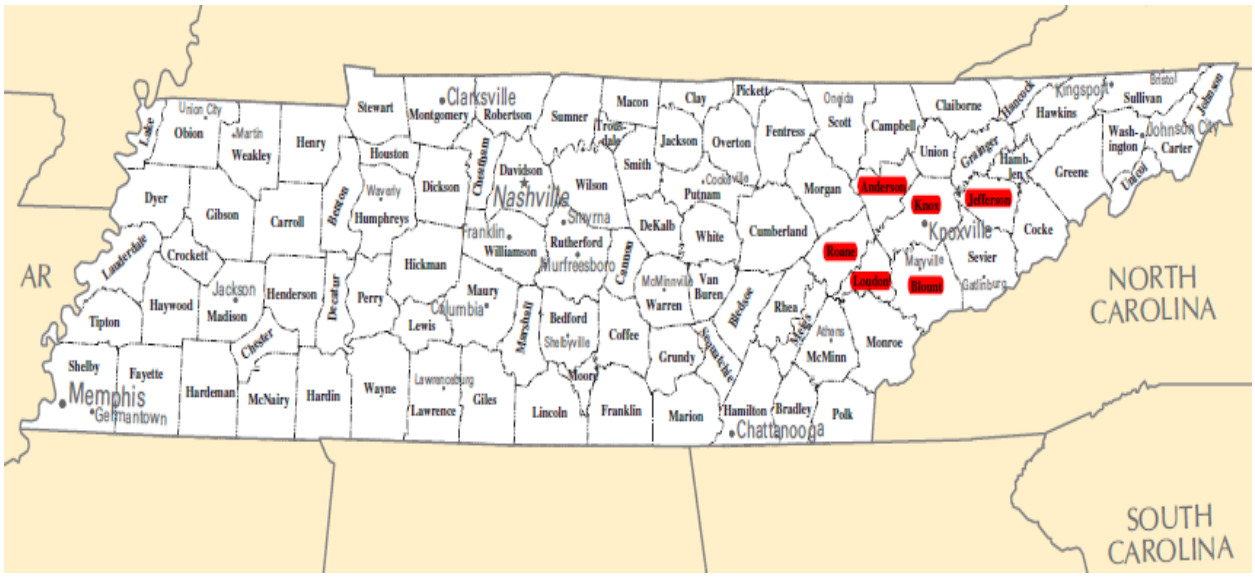
also find work within the other industry sectors targeted by NAIDA such as chemicals, plastics, metal fabrication, and automotive. Godfrey said that NAIDA devotes a lot of effort to considering how to promote opportunities for young people for whom an upper level education may not be a feasible personal or economic option. Consequently, he said, NAIDA spends a lot of time on alternative education and training programs for the North Alabama workforce.

NAIDA's focus on attracting and retaining STEM graduates, while also being conscious to provide opportunities for less educated member of the workforce is an approach that would be applicable to SWCI. Like Huntsville/Madison County, Martin County has a large concentration of STEM employment. However, Indiana has long been known for its own brain drain problem, just as North Alabama once was. Consequently, it was identified as a key finding in the SWCI Region Summary Profile that a STEM talent pipeline for NSWC Crane is needed. Here again, SWCI would do well to further explore the intricacies of the relationship between UAH and Marshall to determine what positive attributes can serve as models for the relationship between IU and Crane. However, just as North Alabama's high tech industry sectors recruit outside of the region, the talent pipeline for Crane should include multiple universities in Indiana (and elsewhere), even though located outside of SWCI's defined region. Toward that end, the "[s]trong interest in R&D and technology transfer partnerships with Crane among higher education institutions [other than] Indiana University, [including] Purdue University, Rose Hulman, University of Southern Indiana, and Ivy Tech Community College" identified by the SWCI Regional Summary Profile should be viewed as an opportunity to be encouraged, rather than a threat to be guarded against.

Another key finding identified in the SWCI Region Summary Profile was that workforce education and training options are lacking for much of the region beyond Monroe County. For those SWCI counties with large populations of young people for whom upper-level education may not be an option, SWCI can learn from NAIDA's focus on such individuals in North Alabama and from their efforts to provide training and opportunities as a model when implementing the regional economic development strategy for SWCI.

Knoxville, Tennessee (Region: Innovation Valley)

1. Regional Snapshot



Overall Region: Innovation Valley

- Number of Counties : 6
- Total Population (2012): 796,357
- Total Land Area (2012, mi^2): 2,268.1
- Population Density (2012, people/mi^2): 351
- Per Capita Personal Income ($): 38,560
- Median Household Income Range (2011, $): 38,174 - 50,375
- Major city: Knoxville (Knox County)

Regional Organization: Knoxville-Oak Ridge Innovation Valley

- Founded: 2000
- Target Areas : advanced technology & manufacturing, corporate services, creative media services, energy and transportation

Federal Laboratory: Oak Ridge National Laboratory

- Established: 1943
- Employment: 4,400

Research University: University of Tennessee, Knoxville (UT)

- Established : 1974
- Enrollment : 27,000

2. Regional Overview

1) Major City

Knoxville is the county seat of Knox County, Tennessee and is located approximately 180 miles east of Nashville, Tennessee's capital. With a population of 182,200 people, Knoxville is the third largest city in Tennessee and spans an area of 104.2 square miles. Its population density is 1,816 people per square mile (U.S Census Bureau, 2013). Knoxville is home to the main campus of the University of Tennessee, and Oak Ridge National Laboratory, a federal laboratory for the U.S Department of Energy, is located about 12 miles away in Oak Ridge (Knoxville, 2013).

While the Knoxville economy does not have a single dominant employment sector, in 2011, 15.9 percent of the Knoxville Metropolitan Statistical Area's workforce was employed by government entities, while 14.1% were employed in the professional service sector (Knoxville-Knox County Metropolitan Planning Commission, 2011).

2) Demographics

Knoxville Oak Ridge Innovation Valley is a regional economic development partnership that covers the six Tennessee counties of Knox, Blount, Anderson, Roane, Jefferson and Loudon. The area as a whole is referred to as "Innovation Valley" (KORIV, 2013).

In 2012, Innovation Valley had a total population of 789,299, a total land area of 2629.6 square miles, and a population density of 291.8 people square mile. Within the region, Knox County has the largest population of 441,311, followed by Blount, Anderson, Roane, Jefferson, and Loudon. Land area and population breakdown by county may be found in Table 5 below (IBRC, 2013).

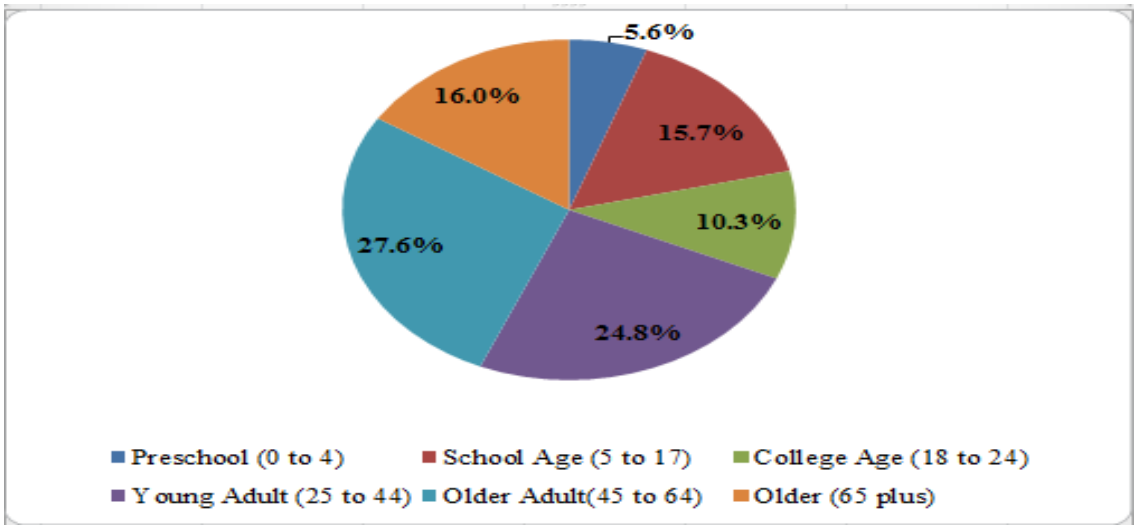
Table 5: Innovation Valley Population Characteristics by County

County	Pop (2012)	Pop Density	Pop (2000)	Land Area (mi²)	Median Age
Anderson	75,416	224	71,330	337.2	42.9
Blount	124,177	222	105,823	558.7	42.3
Jefferson	52,191	190	44,294	274.1	41.1
Knox	441,311	868	382,032	508.2	37.3
Loudon	49,793	217	39,086	229.2	46.6
Roane	53,469	148	51,910	360.7	45.8

(Source: STATS Indiana)

An age distribution for Innovation Valley is in Figure 6 below (IBRC, 2013).

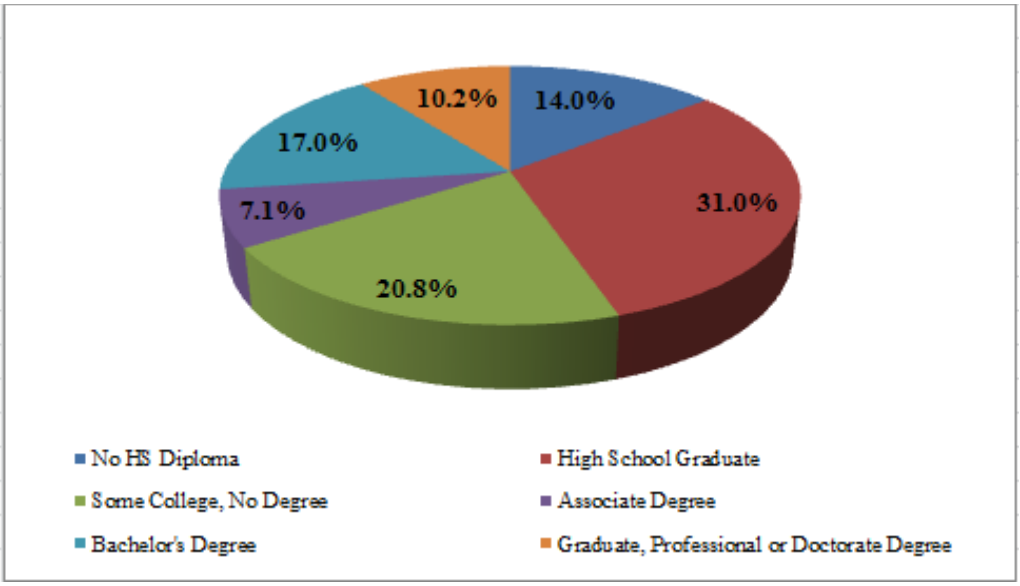
Figure 6: Innovation Valley Age Distribution (2012)



(Source: STATS Indiana)

As can be seen from Figure 7 below, approximately 86% of the total population in Innovation Valley has received their high school diploma. Furthermore, the percentage of adults (aged 25 and over) who have attained a bachelor's degree or higher is 20.8% in Innovation Valley (IBRC, 2013).

Figure 8: Innovation Valley Educational Attainment (Age 25+, 2012)



(Source: STATS Indiana)

3) **Industrial Characteristics**

Innovation Valley's largest employer is the U.S Department of Energy. This is because Oak Ridge National Laboratory for the U.S Department of Energy is within Innovation Valley and employs over 4,000 people. Other than government entities, other large industry sector employers for Innovation Valley include health services, retail trade, and manufacturing. See Table 6 below for a list of the top ten employers in Innovation Valley (KORIV, 2013).

Table 6: Major Employers (2012)

Company	Total Employees	Sector
U.S Dept. of Energy	12,947	Government (science & technology research)
Covenant Health	9,238	Health Services
Knox County Schools	6,771	Government (Public school system)
University of Tennessee	6,409	Government (Four-year state University)

Tennova Healthcare	4,613	Health Services
University Health System	3,986	Health Services
K-VA-T Food Stores	3,597	Retail Trade
Knox County Government	3,037	Government (County government)
DENSO Mfg. Tennessee	3,000	Manufacturing
Clayton Homes, Inc.	2,829	Manufacturing

(Source: Innovation Valley Facts and Figures)

The biggest industry sector in Innovation Valley is government with 51,092 employees and an average wage $39,683. Business Services is the second largest industry with 47,953 employees, followed by retail trade, health services, and leisure and hospitality. The major industries of Innovation Valley are listed in Table 7 below (KORIV, 2009).

Table 7: Innovation Valley Major Industries (2009)

Industry Sector	Total Employment	Average Wage ($)
Government	51,092	39,682
Business Services	47,953	53,363
Retail Trade	43,224	25,257
Health Services	42,176	44,138
Leisure & Hospitality	36,668	14,759
Manufacturing	33,717	50,635

(Source: Innovation Valley Facts and Figures)

4) **Educational Opportunities**

The main campus of the University of Tennessee is located in Knoxville. The University of Tennessee, classified as a research university by the Carnegie Commission, has a strong relationship with regional industries as well as Oak Ridge National Laboratory through various research conducted in the field of science and technology. The University of Tennessee is

discussed further below. Besides the University of Tennessee, Innovation Valley has five four-year colleges and universities, and four two-year educational institutions. See Table 8 below for the other educational institutions within Innovation Valley (KORIV, n.d).

Table 8: Innovation Valley Educational Institutions

Classification	Institutions
Research University	University of Tennessee - Knoxville
Four-year colleges and Universities	Carson-Newman University Johnson University Knoxville College Lincoln Memorial University Maryville College
Two-year colleges and institutions	Pellissippi State Technical Community College Roane State Community College Tennessee Colleges of Applied – Knoxville Tennessee Colleges of Applied – Harriman

(Source: Innovation Valley Facts and Figures)

5) **Economic performance**

The median household income for Innovation Valley is $ 43,912. The region has an average unemployment rate of only 7.6 percent, but an average poverty rate of 16.1 percent. The county-by-county breakdown of these regional statistics is presented in Table 9 below (IBRC, 2013).

Table 9: Innovation Valley Economic Indicators by County (2012)

County	Unemployment Rate (%)	MHI (2011, $)	MHI (2000, $)	Poverty Rate (2011, %)	Poverty Rate (2000, %)
Anderson	7.8	41,694	48,464	16.7	12.2
Blount	6.8	45,539	50,812	14.6	10.0
Jefferson	10.1	38,174	43,729	19.5	13.7
Knox	6.3	45,149	51,113	14.7	10.8
Loudon	6.7	50,375	54,043	13.1	9.6

Roane	7.6	42,542	44,904	17.8	12.8

(Source: STATS Indiana)

3. Key Benchmarking Features

1) Federal Laboratory: Oak Ridge National Laboratory

Oak Ridge National Laboratory (ORNL) is a U.S Department of Energy (DOE) federal laboratory located in Anderson and Roane counties. ORNL is the DOE's largest multidisciplinary science and energy laboratory with over 4,000 staff members, plus 3,000 guest researchers from 84 countries. The annual budget for ORNL is approximately $1.4 billion (ORNL, 2013).

ORNL has various partnerships with the state of Tennessee, universities, and industries in order to promote regional economic development. The lab has five core research areas, including Nanotechnology and Materials Sciences, Computational Sciences, Biotechnology, Energy and Environment, and Homeland Security. ORNL's research performances in these areas are commercialized through licensing and user agreements with various regional organizations. ORNL also has a number of high tech experimental facilities, which are shared with external researchers, engineers, and businesses. This provides opportunities for the regional community of Innovation Valley to use ORNL's advanced technology, equipment. and instrumentation. In addition, ORNL supports specified research and development activities through Cooperative Research & Development Agreements (CRADAs), and various other collaborative research activities (ORNL, 2010). For more information, see Table 10 below.

Table 10: ORNL's research area and facilities

Research Areas	Nanotechnology and Materials Sciences Computational Sciences Biotechnology Energy and Environment Homeland Security
User Facilities	Building Technologies Research Integration Center Center for Nanophase Materials Sciences Center for Structural Molecular Biology Carbon Fiber Technology Facility High Flux Isotope Reactor

	Manufacturing Demonstration Facility National Transportation Research Center Oak Ridge Leadership Computing Facility Spallation Neutron Source

(Source: Oak Ridge National Laboratory)

2) Research University: University of Tennessee

The University of Tennessee (UT) was established in 1794 and has five campuses within the state for a total enrollment of 46,000 students. The main campus is located in Knoxville, and has 27,000 students and 1,400 faculty members (UT, 2013).

UT, classified as a research university by the Carnegie Commission, conducts externally-funded research that totals more than $300 million annually. UT is ORNL's largest research partner and the entities jointly conduct several research projects. UT and ORNL also run five joint institutes and centers, in the areas of Biological Sciences, Computational Sciences, Neutron Sciences, Heavy Ion Research and the National Transportation Center (UT-Battle, 2013).

UT plays a vital role in supporting regional companies and industries. In particular, the University of Tennessee of Center for Industrial Services (UTCIS), was created specifically for the purpose of assisting the state's manufacturers and businesses in becoming more productive, profitable, and competitive. To fulfill this mission, UTCIS provides research and consulting services for companies, identifies their technology needs, and helps them to find specific solutions (UTCIS, 2010). See Table 11 below for more information on the activities of UTCIS.

Table 11: UTCIS' Major Activities

Area	Purpose
Consulting	UTCIS provides consulting solutions to help companies improve and grow. UTCIS assesses a company's needs and provides value-added services with the most experienced consultants and most recent technologies.
Training	UTCIS courses are delivered conveniently throughout the year at sites all across the state. All courses are taught by subject-matter experts and people who have worked in manufacturing plants, as well as service-oriented businesses.

Connecting	UTCIS helps companies, communities, entrepreneurs, and other organizations connect to resources in order to advance the state's economic well-being and to help create and retain quality job opportunities.

(Source: UT Center for Industrial Services)

3) Economic Development Strategy: Knoxville-Oak Ridge Innovation Valley

Knoxville-Oak Ridge Innovation Valley (KORIV) is the regional economic development partnership managed by the Knoxville Chamber of Commerce. KORIV covers the six Tennessee counties of Knox, Anderson, Roane, Loudon, Blount, and Jefferson. KORIV is currently implementing Innovation Valley Blueprint 2.0, its second five-year strategic plan for business growth in Innovation Valley. According to this strategy, KORIV aims to foster an industrial cluster in areas of advanced technology & manufacturing, corporate services, creative media services, energy, and transportation (KORIV, 2013).

To attract business to this region, KORIV provides various incentives which typically fall into three main categories: infrastructure, workforce training funds, and tax credits. As of 2012, it was estimated that over 40,000 companies are located in Innovation Valley, which accounts for over 14% of total industry in the state (KORIV, 2013).

4. Discussion and Analysis

Innovation Valley is similar to SWCI with regard to demographics, regional characteristics, and industrial characteristics. First, Knoxville, the largest city in this region, has much in common with Bloomington, the largest city of SWCI. Research facilities are located within or near these cities. Knoxville has both ORNL and UT within its area. Also, Bloomington has Indiana University and is only 36 miles away from Crane. In addition, both cities are within commutable distance from the capital city of the state. Knoxville is 180 miles from Nashville, the capital city of Tennessee, and Bloomington is only 51 miles away from Indianapolis, the capital city of Indiana. This means that both of cities are in an advantageous position to lead their economic development of their regions.

Second, Innovation Valley is more densely populated than SWCI. While the average population density of Innovation Valley is 312 people per square mile, SWCI has an average population density of only 88 people per square mile. However, with the exception of Knox County, Innovation Valley includes small- and medium-sized communities in rural areas like

SWCI. Again, with the exception of Knox County (with a population of 441,311 people), the other Innovation Valley counties have populations smaller than 15,000. The population of SWCI counties ranges between 141,019 (Monroe) and 10,260 (Martin) (U.S Census Bureau, 2013). However, the people of Innovation Valley are slightly older and slightly less educated than the people of SWCI. The population aged 25 and older accounts for 68.4 percent of Innovation Valley's total population, which is higher than SWCI's percentage of 63.6 percent. The median age of Innovation Valley is 42.9, which is also higher than SWCI's median age of 40.4 (IBRC, 2013). However, the minor differences in the population characteristics of the two regions are not so large as to indicate a problem for benchmarking this Innovation Valley's economic development plans.

Third, Innovation Valley has similar economic characteristics to those of SWCI. Both regions have similarly sized research facilities. UT has 6,409 employees and 27,171 students (UT, 2013), and ORNL employs over 4,000 people in Innovation Valley (ORNL, 2013). SWCI also has two major research facilities, Indiana University and Crane. Indiana University and Crane have 7,701 and 4,000 employment respectively. This indicates that both regions have sufficient research resources and capabilities to significantly contribute to their regional economic development.

What makes Innovation Valley ideal as a regional peer place finalist is that due to its successful economic collaborations, the regional economy is well developed. Many economic indicators show that this region's economy is doing better than SWCI's. Population has increased by 14.7 percent since 2012 in Innovation Valley, whereas SWCI's population has increased only by 7.1 percent. While SWCI's poverty rate has increased by 5.5 percent since 2010, Innovation Valley's poverty rate has increased only by 4.6 percent. Also, as of 2012, Innovation Valley has a higher median household income and a lower unemployment rate than SWCI (IBRC, 2013). See Table 12 below for a comparison of economic growth indicators between Innovation Valley and SWCI.

Table 12: Innovation Valley's Economic Growth in Comparison with SWCI

	Innovation Valley	SWCI
Population (2012)	796,357	399,914
Population Change (2000-2012)	▲ 14.7%	▲ 7.1%
Poverty Rate (2012)	16.6%	17.8%
Poverty rate change (2000-2012)	▲4.6%	▲5.5%
Median Household Income (2012)	43,912	43,283
Median Household Income Change (2000-2012)	▼10.1%	▼12.2%
Unemployment Rate (2012)	7.6%	8.3%

(Source: STATS Indiana)

Also important is that Innovation Valley demonstrates a good example of a regionally focused economic development strategy, evidenced by the following. First, research facilities in this region seem to assist regional business and industries very successfully. ORNL, as the federal laboratory, supports regional enterprises by enabling them to utilize the lab's intellectual property and/or by providing opportunities to use the lab's advanced resources and capabilities. UT, as a research university, supports regional industries and companies through various research and consulting services. ORNL and UT also have a strong relationship between them and undertake multiple collaborative research activities. For example, there are five joint institutes and centers for collaborative research that are jointly run by ORNL and UT (UT-Battle, 2013). Second, the regional economic development entities are well-developed in partnership. KORIV, managed mainly by the Knoxville Chamber of Commerce, has 34 business and industrial parks across its six counties. These six counties all have the same long-term strategy for economic development, "Innovation Valley Blueprint 2.0." KORIV has also established a collaborative system to provide various incentives for regional business and industries, which is effective at creating new businesses and expanding existing ones (KORIV, 2013). Finally, over 15,000 small businesses exist in Innovation Valley and there are various programs in place to support them. These programs can be expected to significantly contribute in fulfilling the

potential of Innovation Valley's regional economy (KORIV, 2013). For more information on each program, see Table 13 below.

Table 13: Support for Small Businesses Provided by Innovation Valley

Name	Feature
Knoxville Entrepreneur Center	Knoxville Entrepreneur Center provides access to a regionally recognized company development program, an involved network of dedicated capital sources, successful local mentors, and world class training.
Anderson Center for Entrepreneurship & Innovation	The Anderson Center for Entrepreneurship & Innovation at UT was formed to foster an entrepreneurial culture at the university and across the state by developing student skills, providing experiential learning opportunities, and connecting students with mentors and resources that can help them successfully start and grow new businesses.
Center for Entrepreneurial Growth	The Center for Entrepreneurial Growth (CEG) is an entrepreneurial support organization within Tech 20/20. The CEG delivers sponsored programs to assist entrepreneurs in the process of developing an execution strategy that leads to a sustainable company. The CEG's Strategic Company Playbook process is a proven road map model for entrepreneurial startups that have innovative ideas and want to grow their businesses.

(Source: Innovation Valley Facts and Figures)

Washington

1. Regional Snapshot

Overall Region: Tri-Cities, Washington (Benton & Franklin Counties)

- Number of Counties: 2
- Total Population (2012): 268,243
- Total Land Area (2012, mi^2): 2,943
- Population Density (2012, people/ mi^2): 88
- Per Capita Personal Income ($): 35,272
- Median Household Income Average (2011, $): 55,221
- Major City: Kennewick-Richland, Washington (Benton County)

Regional Organization: Tri-City Development Council

- Target Areas: Agriculture/Agri-Business, Viticulture, Industrial, Commercial, Energy, Nuclear Related Industries, Water Resources, Visitor Serving/Recreation

Federal Lab: Battelle/Pacific Northwest National Laboratory (Department of Energy)

- Established: 1965
- Employment: 4,485

Research University: Washington State University, Tri-Cities Extension

- Enrollment: 1,520
- Areas of Education: Agriculture, Business, Computer Science, Education, Engineering, Liberal Arts, Nursing, Sciences
- Degrees: 17 Baccalaureate, 14 Masters, 5 Doctoral

Other Key Regional Features

- Mid-Columbia Energy Initiative
- High Innovation Index Scoring

2. Regional Overview

1) Major City: Kennewick

Kennewick is the largest city in the Tri-Cities area and is located in the Columbia Valley in Washington, on the border with Oregon, at the confluence of the Columbia, Snake, and Yakima Rivers. It is approximately 136 miles southwest of Spokane and 225 miles southeast of Seattle. It has a population of 76,410 people, making it the thirteenth largest city in Washington. The combined Kennewick-Richland population is approximately 253,340 people (U.S. Census Bureau, 2013). The city of Pasco, the county seat of Franklin County, is directly across the Columbia River from Kennewick and has a population of 65,600 people. The population density in Benton County is 107 people per square mile; Franklin County has a population density of 69 people per square mile; the combined average is 88 people per square mile (STATS Indiana, n.d.).

Richland in Benton County is home to the Washington State University Tri-Cities campus as well as the Battelle/Pacific Northwest National Laboratory (PNNL), a federal laboratory with the U.S. Department of Energy. Richland is approximately 10 miles north of Kennewick. The dominant employment sectors in Benton County are professional and technical services with 13.8%, government entities with 12.9%, administrative services with 12.6%, and retail with 10.9% (STATS Indiana, n.d.).

The Tri-Cities area is developing a reputation as one of the fastest growing regions in Washington State as well as one of the strongest locations for job growth and stability in the

country. The Tri-Cities region as a whole has received numerous accolades celebrating its merits as a place to live and work, raise a family, and establish a business. Examples of some of these recognitions include:

- First in "Top U.S. Cities People are Moving to" (*The Fiscal Times*, 2012)
- First in Job Growth in the "Garner Economics Reports on Year-to-Year Job Growth" (*Garner Economics*, 2010)
- First in the Nation for Housing (*Smart Money*, 2010)
- First in Washington State for "Best States for Keeping College Grads" (*Forbes*, 2009)
- First in Washington for number of patents per employee (*U.S. Patent & Trademark Office*, 2010)
- Second Best City for New Jobs (*Forbes*, 2009)
- Second in Greatest City to Raise Your Kids (*Kiplinger*)
- Second Best City for Employment in the U.S. (*HR Morning*, 2009)
- Second in "Top 5 MSA's with Highest Concentration of Employment in Research, Testing, and Medical Laboratories" (*Business Facilities Magazine*, 2008)
- Fastest growing Metropolitan Statistical Area (MSA) in Washington State (*U.S. Census Bureau*, 2010)
- Number 5 for "Best Job Growth Since the Recession" (*Garner Economics*, 2012)
- Number 11 Policom 2013 Economic Strength (*Policom Corporation*, 2011)
- Number 16 for "Best Performing Cities 2013: Where America's Jobs are Created and Sustained" (*The Milken Institute*, 2013)

Additionally, the region has experienced strong economic growth over the last ten years. Median household income in Benton County is higher than the national average and also higher than Washington's state average. Washington State University (WSU) is a major research institute and has a campus located in Richland that is designed to offer students in the area the same quality education. The main campus is approximately two hours away in Pullman. Walla Walla University, though not a research university, is also located only 45 miles away and Columbia Basin College in Franklin County offers associates degrees. Moreover, the region has strong economic development ties with PNNL and cooperation between both counties' government offices and the Tri-Cities Development Council (Benton County, 2007).

2) Demographics

The Tri-Cities region includes two counties: Benton and Franklin. The region collaboratively seeks to promote economic development initiatives through the Tri-Cities Development Council (TRIDEC) and in cooperation with the federal laboratory's economic development office, city and county governments, and WSU.

The region spans a combined area of nearly 3,000 square miles with a total population of approximately 268,000 (STATS Indiana, n.d.). Of those, about 51,000 live in Richland, where PNNL and WSU are located, about 76,000 live in Kennewick, and about 65,000 live in Pasco across the Columbia River (STATS Indiana, n.d.). Population and total area figures are broken down by county in the table below.

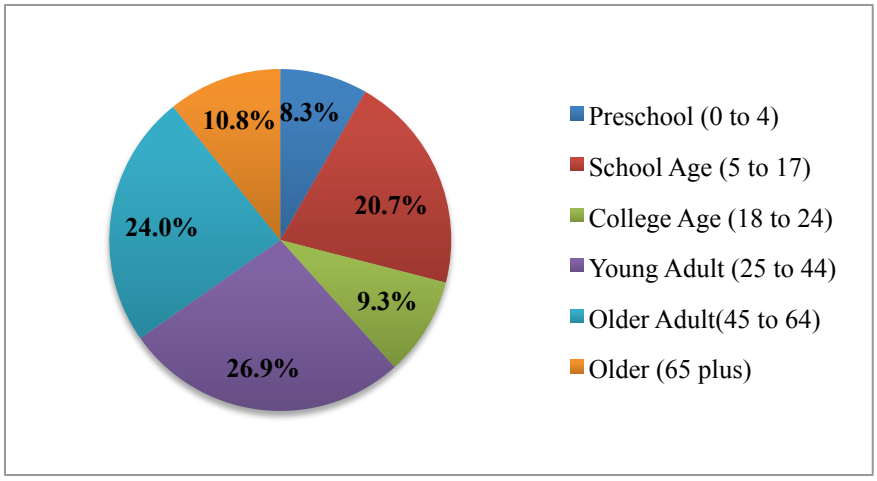
Table 14: Population Characteristics by Counties

County	Pop (2012)	Pop Density	Pop (2000)	Land Area (mi²)	Median Age
Benton	182,389	107	142,475	1,700.4	35.7
Franklin	85,845	69	49,347	1,242.2	28.6

(Source: STATS Indiana, n.d.)

The median age within the region is 32.15 years. Figure 9 below shows the breakdown of age distribution in the region.

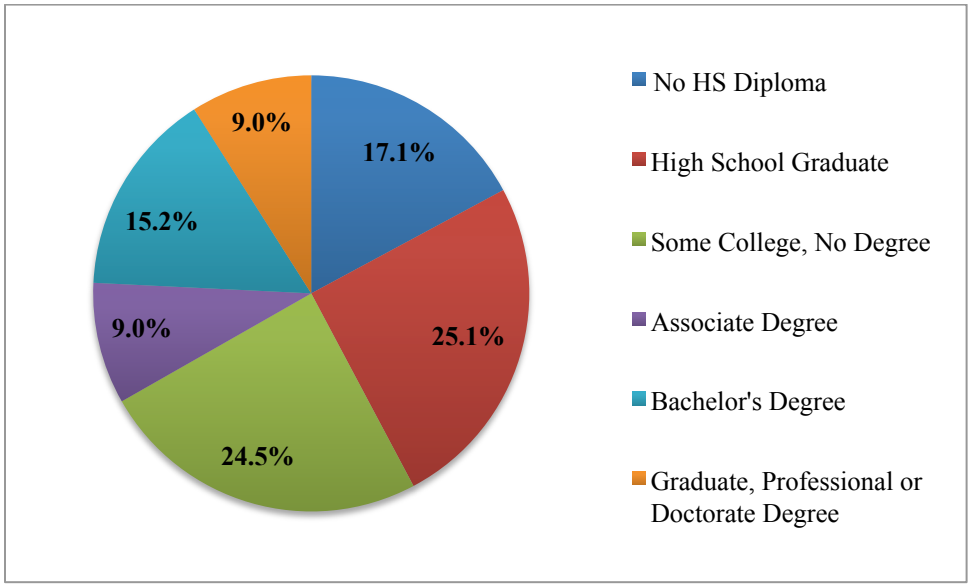
Figure 9: Tri-Cities Age Distribution (2012)



(Source: STATS Indiana, n.d.)

The chart below displays the breakdown of educational achievement levels in the Tri-Cities area. As demonstrated, the region has a well-educated population. More than 80% have a high school diploma and 33% have succeeded in acquiring a post-high school degree.

Figure 10: Tri-Cities Educational Attainment (Age 25+, 2011)



(Source: STATS Indiana)

3) Industrial Characteristics

The Department of Energy exhibits a strong presence in the region. Among the top twenty employers in the area, seven are organizations that contract with the Department of Energy. This, coupled with the Department of Energy's presence and PNNL make government and the Department of Energy associated with nearly half of the region's top employers. Part of the economic development plans underway includes a focus on the energy sector (Tri-City Development Council, n.d.). The Department of Energy's dominance has likely been a major influencer toward that objective. Other major industries include health services, agri-business, and manufacturing.

Table 15: Tri-Cities Top 20 Employers

Employer Name	Business or Product	Employees
Battelle/Pacific Northwest National Laboratory	Research/National Laboratory	4,485
URS	Government/DOE Contractor	3,500
CH2M Hill	Government/DOE Contractor	3,260
ConAgra	Food Processor (potatoes)	3,057
Bechtel National	Government/DOE Contractor	2,850
Kadlec Medical Center	Health Services	2,175
Washington River Protection	Government/DOE Contractor	1,686
Mission Support Alliance	Government/DOE Contractor	1,478
Washington Closure Hanford	Government/DOE Contractor	1,370
Tyson Foods	Meat Packing	1,300
Energy Northwest	R&D/Manufacturing/Utility Generator	1,222
Kennewick General Hospital	Health Services	1,072
Broetje Orchards	Ag Products Grower/Distributor	1,000
Lourdes Health Network	Health Services	807
AREVA	Manufacturing	662
Apollo Inc.	Manufacturing	625
Lockheed Martin	Technology/Government	600
Boise Cascarde	Manufacturing	571
Fluor Federal Services	Government/DOE Contractor	541
Department of Energy	U.S. Government	414

(Source: Tri-Cities Development Council)

4) Economic Performance

The average median household income for the Tri-Cities region is $55,222. The region had an average unemployment rate of 9 percent, putting it only slightly above the national average of 8.1 percent and the Washington State average of 8.2. The region has an average poverty rate of 18 percent.

Table 16: Tri-Cities Economic Indicators by County (20??)

County	Unemployment Rate (2012, %)	MHI (2011, $)	MHI (2000, $)	Poverty Rate (2011, %)	Poverty Rate (2000, %)
Benton	8.7	61,539	63,222	11.7	9.5
Franklin	9.4	48,904	49,731	24.2	16.7

(Source: STATS Indiana, n.d.)

3. Benchmarking Features

1) Federal Laboratory: Battelle/Pacific Northwest National Laboratory

The Battelle/Pacific Northwest National Laboratory is located in Richland and is one of ten national laboratories managed by the Department of Energy's science office (PNNL, n.d.). The world's largest research and development nonprofit, Battelle, has been managing the lab since 1965 through its contract with the Department of Energy (DOE). A unique feature of that relationship is that the contract allows the lab to produce research for private industry (PNNL, n.d.). The lab currently employs more than 4,400 people and makes approximately $950 million in business volume (PNNL, n.d.). The lab conducts interdisciplinary research on behalf of the DOE as well as other entities (Federal Lab Consortium, n.d.). Its mission is to advance the field of study in science, energy, health, national security, and the environment. More specifically, it focuses on energy research that decreases the national dependency on foreign oil, prevents terrorism and the proliferation of weapons of mass destruction, promotes sustainable systems and reduces negative environmental impacts of human activity (Federal Lab Consortium, n.d.). Many of the labs achievements have been incorporated into commercial uses.

The lab also houses the William R. Riley Environmental Molecular Sciences Laboratory (EMSL), which is at the forefront of environmental and energy research at the molecular level. The DOE funds EMSL's innovative research in "atmospheric aerosols, feedstocks, global carbon cycling, biogeochemistry, subsurface science, and energy materials," (Environmental Molecular Sciences Laboratory, n.d.). Since its opening at PNNL in 1997, scientists in academia, industry, and other national laboratories from all 50 states and over 30 countries have applied resources and research coming out of EMS (Environmental Molecular Sciences Laboratory, n.d.).

PNNL has a strong history of collaboration with other public and private entities, including the Department of Homeland Security, the National Nuclear Security Administration,

and other government departments, as well as universities and industries (PNNL, n.d.). The lab has established partnerships with several universities and specifically collaborated with Washington State University to launch a program that allows select doctorate students to conduct research for part of their dissertations with the lab (PNNL, n.d.). The lab also cooperates with topical institutes to conduct joint research on specific topics. Finally, the lab has an Economic Development Office designed to collaborate with and help businesses grow in the Richland community. It has helped more than 400 companies in the region and 100 others nationwide "to expand the economy's technology sector and create high-value jobs," (PNNL, n.d.). PNNL is a huge asset to this region and has been a significant player in developing the local economy.

2) Research University: Washington State University, Tri-Cities

Washington State University's main campus is located in Pullman, Washington, approximately 130 miles from the Tri-Cities region. However, it also has a campus located in Richland – the Tri-Cities campus, established in 1989. The Washington State University System is defined as a "research university" with "very high research activity," according to the Carnegie classifications (Carnegie Foundation, n.d.). Unlike other university systems, such as Indiana University, the Carnegie Foundation applied this rating to the Washington State University system as a whole.

Washington State University Tri-Cities has 1,347 students, 135 of whom are freshmen, and hailing from 15 different countries (Washington State University, n.d.). The campus has approximately 225 employees (Tri-City Development Council, n.d.). The Tri-Cities campus is also the most diverse campus within the WSU system. The Tri-Cities campus offers 18 different bachelor's degrees, 10 master's degrees, and 6 doctoral degrees (Washington State University, Tri-Cities, n.d.). Subjects include agriculture, business, computer science, education, engineering, liberal arts, nursing, and sciences (Washington State University, Tri-Cities, n.d.).

WSU was ranked 68th in the National Science Foundation in 2010 for research and development expenditures (Office of Research, n.d.). In 2011, the University received more than $445 million for research expenditures, including more than $200 million for sponsored program expenditures (Office of Research, n.d.). More than half of those funds were shared among the different WSU campuses. The U.S. Department of Agriculture and the Department of Energy were among the top sponsors in 2012, highlighting the university's and the region's significant

relationship to energy, environmental, and agricultural research and reinforcing these industries within the area (Office of Research, n.d.). Since 2008, funding is steadily increasing.

3) Economic Development Strategy: Tri-Cities Development Council

Tri-Cities Development Council (TRIDEC) is an associate of the Washington Department of Commerce, Trade, and Economic Development, and the lead organization bringing a holistic vision for economic development within the Tri-Cities region. Its approach has been to focus on the strengths of the Benton and Franklin Counties as hubs for energy, environmental, and sustainability research. It is also collaborates with State Chambers of Commerce in the region as well as the city governments. In addition, TRIDEC collaborates with the Department of Energy's activities in the area as well as PNNL (Tri-City Development Council, n.d.).

4. Other Regional Attributes

1) Mid-Columbia Energy Initiative

The Mid-Columbia Energy Initiative (MCEI) is an economic development initiative specifically focused on capitalizing on the region's expertise and resources in the energy sector (Mid-Columbia Energy Initiative, n.d.). The initiative is being backed by TRIDEC and was established in 2009 and was inspired by the U.S. Department of Energy's plan to implement a "footprint reduction" strategy in the region and turn vacant land into clean-tech energy parks (Mid-Columbia Energy Initiative, n.d.). Since its founding, MCEI is collaborating with 120 members to make the Tri-Cities area a national leader in adopting innovative approaches to environmental and energy challenges. Areas of focus within the energy industry include wind, solar, hydro, nuclear, bioproducts, smartgrid, electrical vehicles, utilities, and others.

Among its membership are 75 companies and 9 utilities (Mid-Columbia Energy Initiative, n.d.). MCEI also leverages connections with PNNL and the Bioproducts Sciences and Energy Laboratory located at the WSU Tri-Cities campus, as well as Columbia Basin College to achieve its development goals (Mid-Columbia Energy Initiative, n.d.). Finally, MCEI works to encourage collaboration between public and private sectors.

2) Innovation Index

An additional significant feature of the Tri-Cities region is that it has a very strong ranking on the Innovation Index. The Innovation Index is described as a measurement of a

selected region's propensity for innovation outputs. Thus, it can be an important indicator for economic growth potential. The index can take several factors into consideration to determine an economy's innovation output potential, but they generally fall into two categories: (1) human capital, which is the extent to which a community's labor force is able to support and engage in innovative activities; and (2) economic dynamics, which looks at local business conditions and resources available to them (STATS Indiana, n.d.).

With the national innovation index average set to 100, the largest and most prosperous counties along the coasts tend to score the best. The Tri-Cities region, however, tends to score a median and mean of 80 (IBRC, 2013). This is significant especially because of the region's relatively small population and population density and its geographical location vis-à-vis larger economic hubs, such as Seattle.

5. Discussion and Analysis

The Tri-Cities region contains many similarities to SWCI, making it a suitable peer location for comparison and benchmarking. The regions are similar in terms of demographics, geographical characteristics, assets, and regional characteristics. While some of the recent economic data on the Tri-Cities region indicates a potential slowdown in growth, its economic characteristics fair better than SWCI's. Additionally, it has a strong record of growth over the last ten years, coupled with robust economic development planning initiatives that have excelled at identifying and harnessing the region's strengths. These features make the Tri-Cities region an ideal candidate as a benchmarking finalist and SWCI is likely to benefit from using it as a model for aspects of its own strategy.

First the demographic characteristics of the regions are very similar and Tri-Cities has high educational attainment levels. The Tri-Cities region has a population density of 88 people per square mile, which matches perfectly to SWCI's population density of the same number. The total population for the Tri-Cities region is smaller than SWCI: 268,243 compared to 399,941. However, this should not cut against comparisons between regions. The number of counties for the Tri-Cities region is only two, as compared to SWCI's eleven. The purpose for examining only Benton and Franklin counties in this report was because these locations were included in an easily identifiable and comprehensive economic development initiative through TRIDEC. It should be noted that the Indiana Business Research Center referenced this region as including

seven counties. We did not have information about which other counties were included, but the IBRC's data confirms that the total population and population densities remain comparable: the seven counties had a total population of 402,364 in 2012 and a population density of 47 people per square mile, making virtually the same as SWCI's 399,941 population and lower than its 88 population density figure (IBRC, 2013).

Additionally significant for the Tri-Cities region is the remarkable increase in population it has experienced in the last ten years. Between 2000 and 2011, Benton County experienced a 23% increase from 142,475 to 182,398, and Franklin County had an astonishing boom of 58% from 49,347 to 85,845. The SWCI region has increased its population as well, but its figures do not come close to the Tri-Cities area. The rise in population along with the regions accolades and accomplishments in economic growth suggest that there are important reasons why people are choosing to move here. Moreover, the population in Tri-Cities is relatively young, even compared to the SWCI. The average median age between the two counties in the Tri-Cities area is 32 years-old, with more than half of its population over in the young adult (25-44) to older adult (45-64) range and presumably in the job market (STATS Indiana, n.d.). SWCI's population, on the other hand, is much older at 40 years (STATS Indiana, n.d.). Still, SWCI matches the Tri-Cities region with over half of its population in young to older adult range.

The educational attainment levels of the Tri-Cities area indicates strong potential for job growth, future innovation, and economic stability. Approximately 33% of the population over the age of 25 have a earned a post-high school degree. In the SWCI, on the other hand, 29% have a post-high school degree. Under a more detailed comparison, the Tri-Cities region exceeds SWCI in the percentages of those acquiring bachelor's, associate's degrees, as well as the percent of the population that has had at least some college. The only category in which SWCI outpaces the Tri-Cities area is the percent of those who only acquired a high school degree. Overall, the regions have a similar total percentage acquiring at least a high school degree (83% for Tri-Cities and 85% for SWCI). But more individuals in the Tri-Cities region are attempting a college degree.

The second reason the Tri-Cities region is a good match for benchmarking purposes is due to the similarities of its geographical and regional characteristics. The Tri-Citries region has only one Metropolitan Statistical Area (MSA) in Kennewick-Richland, located in Benton County, as does SWCI with Bloomington (U.S. Census Bureau, 2010). In both locations, the

MSA accounts for the regions' majority population as well as population densities, while other areas are far more rural. Relatedly, both the Tri-Cities and the SWCI regions boast strong agricultural communities, also representing an important part of their economies. While TRIDEC has mostly focused its economic development goals in the region on the energy and technology sectors, agriculture has not been left out and viticulture is one of the strongest ag-based businesses in the region (County of Benton, 2007). WSU Tri-Cities also has a degree program supporting this focus (Washington State University, Tri-Cities, n.d.).

Not surprisingly, in both regions the majority of economic activity occurs closest to these MSA locations. Both PNNL and WSU Tri-Cities are located in Richland in Benton County. The majority of businesses in the area, especially those with close ties to the lab and the Department of Energy, are also more concentrated in the Kennewick-Richland area. This is also evidenced by the higher median household income in Benton as compared to Franklin – approximately $62,000 versus $48,000. Likewise, Bloomington is the economic hub of the SWCI region and also hosts Indiana University. Crane, while located in Martin County, is only 35 miles away, which is not significantly greater than the 16 mile distance between Kennewick and PNNL.

Third, both regions have similar target industries and regional assets. The SWCI regional profile commented on the growth of SWCI's tech industries – notably life sciences, defense, and IT. Similar industries are also targeted in the Tri-Cities region. Although TRIDEC and other economic development agency plans place an emphasis on developing the energy sector, PNNL does a significant amount of additional research in biotechnology and national defense, health services are among the largest employers in the region, as are other private companies like Lockheed Martin that are known leaders in technology and defense. A strong presence of high tech research and industries are a significant characteristic of the Tri-Cities region that it continues to cultivate.

As for regional assets, the Tri-Cities region meets all the criteria under the peer place methodology. PNNL is a large scale federal laboratory with a comparable number of employees and conducting research applicable to a number of industry fields beyond only energy. Washington State University is a major research institution with a campus in Richland. Although it is a smaller campus, the WSU Tri-Cities school is considered part of the larger WSU system and with a significant amount of resource and revenue sharing with the main campus located in Pullman. Additionally, the Pullman campus is a similar distance from Kennewick as Indiana

University is from some of the southernmost locations within the SWCI region. Finally, the Tri-Cities region has an economic development organization, TRIDEC, which has included both the federal lab and WSU in its economic strategy. Moreover, there are strong indicators that WSU and PNNL are also working together to foster a collaborative relationship for research, technology transfer, and job recruitment. This level of cooperation is likely to be of great interest to SWCI as it moves forward with its economic development planning. SWCI should discuss the process of this relationship with the lab, university, and TRIDEC during a site visit and consider whether it is possible for Indiana University and Crane could foster a similar relationship.

The Tri-Cities area's focus on regional strengths in its economic development plan is a fourth reason for adopting this location as a finalist. The regional economic development organization, TRIDEC, is a well-connected organization that is dedicated to representing both Benton and Franklin Counties. Although the number of counties targeted is smaller than SWCI's, TRIDEC has taken an approach that seeks to focus on the strengths of the region as a whole. Moreover, it is leveraging the assets of PNNL as well as WSU and also collaborating with the Washington's Chamber of Commerce, county, and local government offices in each of the counties.

The Mid-Columbia Energy Initiative (MCEI), which TRIDEC is sponsoring, may offer a useful example of how a well-organized and focused development initiative can transform a region into an industry leader. MCEI is leveraging the cooperation of major utility companies, PNNL, WSU and other nearby universities, technology centers, and other private public entities to make the Tri-Cities region a leader in energy technology. The new energy tech park that MCEI is planning to develop is anticipated to bring in thousands of new jobs, and investments in utilities and new facilities will reduce energy costs to consumers. TRIDEC is also working with the county governments to develop a viticulture park to address industry needs in light of the explosive growth of the wine industry in the southeastern region of Washington. These initiatives demonstrate how the Tri-Cities region is working to leverage strengths while also supporting existing industries to continue to improve economic performance in the region while also establishing national recognition for energy and technology expertise.

Reviews of Rejected Peer Places

China Lake, California

Location	Southeast California
Counties in Region	3 (Kern, Inyo, San Bernardino)
Federal Lab	Naval Surface Warfare Center – Weapons Division, China Lake
Lab Type	Department of Defense
Population	2,955,966
Land Area (mi^2)	38,369.7
Population Density (people/mi^2)	77
Poverty Rate (2011, %)	20.9
Per Capita Personal Income (2011, $)	32,830
Median Household Income Range (2011, $)	44,903 - 51,017

The Indiana Business Research Center identified the federal lab located in China Lake, Naval Air Warfare Center Weapons Division (NAWCWD), located in the northeastern corner of Kern County, which borders both San Bernardino County and Inyo County. More specifically, it is located in the Mojave Desert, about 150 miles north of Los Angeles and 100 miles east of Bakersfield, the county seat for Kern County. The lab was established in 1943 as a test and evaluation (T&E) and research and development (R&D) site for naval weapons systems (Federal Lab Consortium, n.d.). It has approximately 4,200 civilian employees, including 1,000 scientists and engineers, and 400 military personnel (Federal Lab Consortium, n.d.). No economic development initiative could be found that ties any of these counties together in a comprehensive plan, but each of the individual counties do (County of San Bernardino Economic Development Agency, 2012) (County of Kern, 2012).

Although the Southeast region of California contains the NAWCWD, and employs a significant number of people, there are other regional factors that make this area an unsuitable candidate as a benchmarking community.

First the region where the federal lab is located is geographically and demographically dissimilar from SWCI. First of all, in terms of total land area, each of these counties is much bigger than the SWCI region. Population also significant exceeds each of the counties in the SWCI area. Kern County, for instance, has more than 850,000 people and has experienced a 26.9% increase in population since 2000 (STATS Indiana, n.d.). Inyo county, to the northeast of Kern County, is more similar with a total population of 18,495 and a growth rate of 3.3% since 2000 (STATS Indiana, n.d.). However, this county does not actually house the federal lab, it is sparsely populated, and is part of an economic development initiative with other counties farther away in Nevada (Rural Desert Southwest Brownfields Coalition, n.d.). Additionally, China Lake, where the federal lab is located, is in an isolated region of the state. It is located in middle of the Mojave Desert, not far from Death Valley National Park, and is separated from more populated areas by more than 100 miles in all directions due to the Sierra Nevada Mountain range to the west and south. Bakersfield, the county seat for Kern County, is more than two hours away. Edwards Air Force Base is also in Kern County and not far from China Lake, but this is also part of the secluded military corridor with very little other economic activity.

Second, there are no major research universities close by and only very recently has NAWCWD indicated an effort to begin engaging with smaller technical universities in the Kern County region. The closest higher education institution is a small community college in Ridgecrest. Bakersfield is home to a small handful of four-year universities, including California State University, Bakersfield, but this is two hours away and none are major research institutes like Indiana University. In addition, these smaller universities are in competition with the larger UC's like UCLA, UC Riverside, and UC Irvine, as well as other major universities like USC, all concentrated in the greater Los Angeles area to the south.

Third, the area is experiencing economic decline. All three counties have experienced between 4.5% to 5.7% decreases in median household income since 2000 (STATS Indiana, n.d.). Unemployment and poverty rates in these counties is also running high, with Kern County currently at 13.3% unemployment and a poverty rate of 24.6 in 2011, up from 18.6 in 2000 (STATS America, n.d.). Both of these figures are higher than the national average. Additionally

frustrating is that a people in Kern County are achieving approximately the same level of education as those in the SWCI region—only 14.6% in Kern County earn a bachelor's degree or higher, compared to a 15.8% average for the SWCI region.

These combined factors suggest that China Lake and the General Southeastern/Kern County region is not an ideal match for benchmarking purposes. Its geographical characteristics are significantly different from SWCI and may limit the potential for impactful economic development strategies between the isolated military corridor and more populated areas. Additionally, its economic conditions and demographic characteristics share similarities with SWCI and indicate that this region may also be struggling.

Panama City, Florida

Location	Northwest Florida
Counties in Region	16
Federal Lab	Naval Surface Warfare Center - Panama City Division
Lab Type	Department of Defense
Population	1,400,233
Land Area (mi^2)	7,005
Population Density (people/mi^2)	200
Poverty Rate (2011, %)	17.8
Per Capita Personal Income ($)	37,510
Median Household Income Range (2011, $)	32,395 - 53,155

The Federal Lab in this region that led to its initial selection as a peer place is known as "Coastal Systems Station" and is located in Bay County on St. Andrew's Bay in Panama City. It was established in 1945 employs more than 1,350 civilians and 130 military personnel (FLC, n.d). Enterprise Florida, the official economic development organization for the state of Florida, divides the state into eight regions. Panama City/Bay County is in the "Northwest Region"

(commonly known as the Florida Panhandle), which extends along the Gulf of Mexico from Pensacola to Tallahassee, and abuts the southern borders of both Georgia and Alabama (Enterprise Florida, 2013).

Northwest Florida has a regional economic development initiative, "Florida's Great Northwest" (FGNW), that represents the sixteen counties comprising Northwest Florida. These counties include: Bay, Calhoun, Escambia, Franklin, Gadsden, Gulf, Holmes, Jackson, Jefferson, Leon, Liberty, Okaloosa, Santa Rosa, Wakulla, Walton, and Washington. FGNW is an investor-supported nonprofit corporation created to assist companies that are evaluating Northwest Florida as a business location. Its mission is "to market and brand the 16-county Northwest Florida region as a globally competitive location for business and to work with regional partners to recruit new jobs and investment throughout Northwest Florida" (FGNW, n.d.).

Although Northwest Florida contains a Naval Surface Warfare Center Lab run by the Department of Defense as well as a regional economic development initiative, other regional factors make it unsuitable for comparison with SWCI such that it is not a good benchmarking region. First, Northwest Florida is geographically and demographically dissimilar from SWCI. The permanent population and population density of Northwest Florida far exceed those of SWCI. In addition to its large permanent population, Northwest Florida is known throughout the world as a tourist destination and attracts seven million people annually to the area for touristic purposes (Bay Economic Development Alliance, n.d.). Furthermore, the area is growing rapidly. Bay County alone has added an average of 2,300 people per year and that growth is projected to continue by at least by the same rate over the next 20 years (Bay Economic Development Alliance, n.d.). Even with construction of the new I-69 corridor, it is unlikely that SWCI will experience this rapid influx of population and growth, seasonal or otherwise.

Second, the military presence and number of research universities in Northwest Florida is greater than in SWCI. Bay County, where Coastal Systems Station is located, considers itself to be "at the center of America's military" and Northwest Florida as a whole, in addition to Coastal Systems Station, is also home to a significant concentration of Air Force and Navy installations, including Naval Air Station Pensacola, Naval Air Station Whiting Field, Eglin Air Force Base, Hurlburt Field, and Tyndall Air Force Base (Bay Economic Development Alliance, n.d.). Northwest Florida also hosts three research universities: Florida State University (Tallahassee),

Florida A&M University (Tallahassee), and University of West Florida (Pensacola). Indiana University, on the other hand, is the only research university in SWCI.

Third, and probably most importantly, Northwest Florida also fails as a benchmarking community from an economic perspective. The MHI of Northwest Florida is considerably below that of SWCI. Furthermore, most of the counties within the region have been designated by the state of Florida as an area of "Critical Economic Concern." Such areas are defined as rural communities, or a region composed of rural communities, that have been adversely affected by extraordinary economic events or natural disasters (DEO, n.d.). Nine counties of Northwest Florida plus the City of Freeport in Walton County, comprise the Northwest Rural Area of Critical Economic Concern (RACEC), which has its own regional economic development alliance, Opportunity Florida, that is specifically focused on strengthening the existing businesses within the critical area (Opportunity Florida, 2013). Although the classification may be only temporary, it suggests the Northwest Florida is not an ideal benchmarking community for SWCI at this time.

Although the region itself may not be a match, it the Florida Rural Broadband Alliance (FRBA) is a unique feature of Northwest Florida that the Steering Committee may wish to explore further to see if a similar effort could be implemented in SWCI. FRBA is regional collaboration of local governments, community activists, and economic development agencies from rural and economically disadvantaged communities located throughout fifteen counties within Florida's Northwest and South Central Rural Areas of Critical Economic Concern. Currently, only 39 percent of the FRBA region has broadband service. The FRBA project seeks to build a "Middle Mile" broadband infrastructure. By delivering up to 1,000 times the existing capacity within the coverage area, the Middle Mile seeks to create jobs, enhance public safety, improve delivery of healthcare services, enhance emergency services, and promote educational opportunities (Florida Rural Broadband Alliance, n.d.).

Warren, Mississippi

Location	Central Mississippi
Counties in Region	7 (Warren, Yazoo, Madison, Hinds, Rankin, Copiah, and Simpson)
Federal Lab	Engineer Research and Development Center
Lab Type	Department of Defense
Population	624,884
Land Area (mi^2)	5,237.5
Population Density (people/mi^2)	119
Poverty Rate (2011, %)	20.6
Per Capita Personal Income ($)	39,405
Median Household Income Range (2011, $)	28,449 - 59,890

The federal laboratory situated in this region is "Engineer Research and Development Center (ERDC) for the U.S. Department of Defense – Army". ERDC was established in 1999 by consolidating seven research laboratories in four different areas around the country into one organization. Among the seven labs, ERDC serves as the headquarters, but four of the other labs are also located in Warren County. As the research organization of the U.S. Army, ERDC conducts research and development (R&D) in the field of Military Engineering and Geospatial Data. It is estimated that ERDC has 1,500 federal employees and contractors in this region (ERDC, 2013).

Although this region shares certain characteristics with SWCI, other regional factors make this region unsuitable as a benchmarking community. First, it does not seem that this region's economy has improved beyond the level of SWCI. The average poverty rate is 15.62% (2011), which is much higher than most of SWCI. Except for Madison County, median household income of each county in this region is under $40,000, whereas most counties in SWCI have median household incomes over $ 40,000. This region also has a higher

unemployment rate than that of SWCI (IBRC, 2013). Without giving SWCI much to aspire to economically, this region is not ideal as a benchmarking candidate.

Second, this region has different geographical characteristics than SWCI. It is located at the confluence of the Mississippi River and Yazoo River diversion canal. The Port of Vicksburg is also situated within this region, and is the eleventh largest inland port and is designated as a Foreign Trade Zone. Due to these geographical factors, tourism and transportation industries have been significantly developed in this region around the port (Warren County Port Commission, n.d). SWCI, on the other hand, has no comparable transportation asset such as the port. Furthermore, the percentage of the tourism and transportation industries in SWCI is smaller than this region. Combined the differing assets and industry focuses of this region imply that its economic development strategies would not be suited for modeling by SWCI.

Oneida, New York

Location	North Central New York (Mohawk Valley, east of Lake Ontario)
Counties in Region	6 (Oneida, Herkimer, Fulton, Montgomery, Schoharie, and Otsego)
Federal Laboratory	Air Force Research Laboratory
Lab Type	Department of Defense
Population	496,738
Land Area (mi^2)	4,761.2
Population Density (people/mi^2)	104
Poverty Rate (2011, %)	16.8
Per Capita Personal Income ($)	37,334
Median Household Income Range (2011, $)	40,160 - 49,610

The federal laboratory situated in this region is the Air Force Research Laboratory (AFRL) Information Directorate for the U.S. Department of Defense-Air Force. The directorate was established in 1951, in order to advance information systems science and technology to meet

the Air Force's unique requirements. In addition to its primary mission, the directorate has partnered with state and local governments, and numerous universities to work on problems of common interest. The directorate employs approximately 800 military personnel and scientists in this region (WPAFB, 2009).

Although this region shares certain characteristics with the SWCI, this region is not a good benchmarking community for the following reasons. First, it includes a fairly urban and populous county, Oneida. Oneida, as the region's largest county, plays a vital role in the region's economic development. As of 2012, Oneida had a population of 233,556, which significantly exceeds each of the counties in SWCI. The population density is 193, which is also much higher that SWCI's population density (IBRC, 2013).

Second, there is not any major research university within this region. Although AFRL has partnered with small educational institutions in this region for purposes of tech transfer, they are all college level or under without sufficient research functions. AFRL has also partnered with Syracuse University, which classified as a research university and is approximately a one-hour drive away from the lab (WPAFB, 2013). However, Onondaga County, where Syracuse University is located, is not within the region. On the other hand, SWCI has both Indiana University and Naval Surface Warfare Center - Crane Division within its region, so it is expected that cooperation between the two research facilities will create significant synergistic effects for SWCI's economic development. Thus, this region, which does not contain a major research university within its bounds at all, is not an ideal model for benchmarking.

Bonneville, Idaho

Location	Eastern Idaho
Counties in Region	6 (Bonneville, Jefferson, Clark, Fremont, Madison, and Teton)
Federal Lab	Idaho National Laboratory (INL)
Lab Type	Department of Energy
Population	194,702
Land Area (mi^2)	7,506

Population Density (people/mi^2)	26
Poverty Rate (2011, %)	31,951
Per Capita Personal Income ($)	18.8
Median Household Income Range (2011, $)	40,581 - 51,561

The federal lab in this region that led to its initial selection as a peer place is known as "Idaho National Laboratory (INL)." INL was founded in 1949 for the U.S Department of Energy. INL, as a nuclear energy facility, conducts research mainly on environmental and energy issues and employs more than 4,000 people. For tech transfer, INL experts work cooperatively with the universities and industry. INL also supports regional small business by licensing its intellectual property (INL, 2013).

Despite a federal laboratory of sufficient scale and research capabilities, this region is not suitable as a benchmarking community for the following reasons. First, there is no long-term economic development strategy covering all areas in this region. Although the Idaho State Government designated six counties as "Eastern Idaho," this was done only for administrative purposes, not for collaborative economic development. Currently, each county has its own individual economic development plan. Close economic cooperation among counties is not present. Idaho Falls, the largest city in this region has "Grow Idaho Falls, INC.," an economic development agency that pursues various policies for business creation and expansion in the Idaho Falls area. However, this agency covers only Bonneville County (Grow Idaho Fall, INC, 2013). Consequently, because this region does not have a collaborative economic development strategy, it is not a good benchmarking community.

In addition though, there is no research university within this region. Educational institutions in this region are all college level or under. INL has partnered with Idaho State University, which classified as a research university, but is located in Bannock county, which is not within this region. SWCI, on the other hand, has both Indiana University and Naval Surface Warfare Center - Crane Division within its region, so it is expected that cooperation between the two facilities will create significant synergistic effects for SWCI's economic development. Thus,

this region, which does not contain a major research university within its bounds at all, is not an ideal model for benchmarking.

Grafton, New Hampshire

Location	Northern New Hampshire
Counties in Region	3 (Grafton, Coos, and Carroll)
Federal Lab	Cold Regions Research and Engineering Laboratory
Lab Type	Department of Defense
Population	168,844
Land Area (mi^2)	4,434.5
Population Density (people/mi^2)	38
Poverty Rate (2011, %)	11.8
Per Capita Personal Income ($)	45,559
Median Household Income Range (2011, $)	32,605 - 49,446

The federal laboratory in this region that led to its initial selection as a peer place is known as "ERDC - Cold Regions Research and Engineering Laboratory (CRREL)." CRREL, founded in 1961, has a purpose of advancing and applying science and engineering in a winter battlefield environment. CRREL operates a number of high-tech facilities and laboratories that are shared with local governments, private companies, and academic institutions in the region. CRREL also supports the regional community through various collaborative research activities (CRREL, 2013).

Despite the federal laboratory within this region, it is not suitable as a benchmarking community. This is because there is no long-term economic development strategy covering all areas in this region. In this region, there are two major economic organizations - "North Country Council" and "Grafton County Economic Development Council" - but they do not comprehensively cover the region. North Country Council, a nonprofit regional planning agency

for Northern New Hampshire, covers only Coos County, and parts of Grafton and Carroll counties (NCC, 2013). It does not include Hanover City in Grafton County, where CRREL is located. Grafton County Economic Development Council, on the other hand, makes efforts to stimulate the regional economy in collaboration with Dartmouth University, a research university, and CRREL. But, this Council covers only Grafton County (CCEDC, 2013). All things considered, it can be concluded that this region does not have successfully collaborative economic development to serve as a benchmarking community for SWCI.

Dahlgren, Virginia

Location	East Central Virginia
Counties in Region	5 (City of Fredericksburg, Caroline, King George, Spotsylvania, Stafford)
Federal Lab	Naval Surface Warfare Center - Dahlgren Division
Lab Type	Department of Defense
Population	340,815
Land Area (mi^2)	1,388
Population Density (people/mi^2)	246
Poverty Rate (2011, %)	8.1
Per Capita Personal Income ($)	37,595
Median Household Income Range (2011, $)	50,522 - 90,748

The Fredericksburg Region in east Virginia is a small, densely populated, well-educated area less than an hour's distance away from the Washington D.C.-Northern Virginia metropolitan area. While the region is wealthy and quite successful in its mission to attract and maintain businesses, it is not a suitable comparison against SWCI.

First, although the Fredericksburg Region is predominantly rural except for the areas surrounding the City of Fredericksburg and northern Stafford County (where the Quantico

Marine Corps Base is located), overall it would not qualify as rural. The population of the area is comparable to SWCI but the size of the area is only a third of SWCI, indicating higher population density. Furthermore, while the proximity to the Washington D.C. metropolitan area may be useful for the economic development of the Fredericksburg Region, it also means that there are many more urbanization factors available to the Fredericksburg Region than to SWCI. It would be difficult to separate out the Fredericksburg Region's economic success from its closeness to the capitol region and the resources and opportunities available therefore.

Secondly, the Fredericksburg Region does not have any research universities located within its four-county area. Although George Mason University, University of Virginia, and Virginia Commonwealth University are all within two-hours distance of the Dahlgren NSWC, none of them are located within the economic development region. The University of Mary Washington in the City of Fredericksburg is a major participant in the region's strategic economic development, but it is not a research institution.

Finally, the development strategy of the Fredericksburg Regional Alliance does not emphasize any particular target industries and has no discernible focus on linking the military bases to business opportunities. The most aggressive activity of the regional alliance is on networking and business retention, including attracting investment away from the Northern Virginia area. Due to all these factors, the Fredericksburg Region of Virginia is an inappropriate peer region for comparison with SWCI.

Aberdeen, Maryland

Location	Northeast Maryland
Counties in Region	4 (Baltimore City, Baltimore, Harford, Cecil)
Federal Lab	Aberdeen Proving Ground
Lab Type	Department of Defense
Population	1,789,115
Land Area (mi^2)	7,506
Population Density (people/mi^2)	1,269
Poverty Rate (2011, %)	14.6
Per Capita Personal Income ($)	46,978
Median Household Income Range (2011, $)	38,478 - 77095

Harford County, where Aberdeen Proving Ground (APD) is located, is a fairly urban, populous area. The four combined jurisdictions of Harford, Baltimore, Cecil County and Baltimore City are much wealthier than SWCI and also have better economic indicators overall. The major industries of the region are government enterprises, retail trade and healthcare and social assistance.

For regional comparison purposes, the data presented above includes counties other than Harford County but there is technically no regional development authority that extends beyond Harford County. While the creation of the arbitrary region for comparison purposes would allow the inclusion of Johns Hopkins University and the University of Maryland, Baltimore County campus in the region, it is difficult to overcome the lack of a research university within Harford County. And although APD is an old and very large laboratory facility with 21,000 civilian, military, and contractor employees, it is not the largest employer in the region compared to Johns Hopkins Medical Institutions (22,000) the Black and Decker, Corp (22,000) (Sunspot, 2013). Furthermore, Harford County's proximity to Baltimore County and Baltimore City, as well as Wilmington, DE and Philadelphia, PA, present it as an example of an urbanized area and

therefore an inappropriate comparison model for SWCI. This is further indicated in the lack of a regional economic development effort.

Tulsa, Oklahoma

Location	Tulsa Metropolitan Area
Counties in Region	7 (Tulsa, Creek, Okmulgee, Osage, Pawnee, Rogers, Wagoner)
Federal Laboratory	National Energy Technology Lab
Lab Type	Department of Energy
Population	951,880
Land Area (mi^2)	6,282
Population Density (people/mi^2)	152
Poverty Rate (2011, %)	15.1
Per Capita Personal Income ($)	45,350
Median Household Income Range (2011, $)	35,226 - 54,974

The primary reason we have selected to reject this region is because the National Energy Technology Lab (NETL) is now located in Houston, Texas (U.S. Department of Energy, 2012). The office was originally located in Bartlesville, Oklahoma and then moved to Tulsa, Oklahoma in 1998. In 2000, the Tulsa office became part of the National Energy Technology Laboratory system. In 2008 it was moved again to Houston, Texas (U.S. Department of Energy, 2012). In the years that the lab was still in operation in Tulsa, it was part of the NETL system, its focus was on fossil energy research, particularly in the areas of oil, natural gas, and coal (Federal Lab Consortium, n.d.).

Aside from no longer hosting a federal lab, there are additional factors that make the Tulsa Metropolitan Area (TMA) region a less than ideal comparison. First, the region is geographically and demographically dissimilar from SWCI. While the surrounding counties are predominantly rural, Tulsa is a metropolitan statistical area (U.S. Census Bureau, 2010). The city

itself is 1.5 times the size of the entire SWCI population, and the entire Tulsa metropolitan area is more than double. Additionally, Tulsa it is the second largest city in the state, making it a natural location for business and economic development and population growth. The population density of Tulsa is 1,077 people per square mile (STATS Indiana, n.d.). The largest population within the SWCI region is located in Monroe County, which has a population density of only 357 people per square mile (IBRC, 2013). Outside of Tulsa, populations are much smaller, but remain significantly higher than SWCI's regional average—228 per square mile, compared to 88 per square mile in Indiana (STATS Indiana, n.d.) (IBRC, 2013).

Second, virtually all of the largest employers, those with more than 1,000 employees, are concentrated in the county of Tulsa. Two of the largest employers are located in Rogers County, but these are the only exceptions out of 36 companies and organizations (Tulsa Chamber of Commerce, 2013). Additionally, statistics tracking commuting patters in the TMA region show significant inflow into Tulsa County from surrounding localities. Tulsa County is the only one that experiences a positive net commuting flow (i.e. living elsewhere – working elsewhere). These factors indicate that Tulsa is the economic hub of the region. In the SWCI region, on the other hand, employers with more than 1,000 employees are much more spread out throughout the region (IBRC, 2013). Furthermore, while government is one of the largest employers in the TMA region this is not due to the presence of a federal lab but rather state government entities. Thus, the highly concentrated development of business in the TMA region and the lack of a federal lab to influence these statistics were significant factors for rejecting the TMA region.

Third, the TMA region has several universities within close proximity. Most of these are located in Tulsa—University of Tulsa, Oral Roberts University, and the Tulsa Technology Center. University of Tulsa is also a major research institute, while Oral Roberts is a four-year private university, and the Tulsa Technical Center is a vocational school. Oklahoma State University, located in Payne County, is also a research university, and is one hour from Tulsa and only thirty minutes from Pawnee in Pawnee County. Additionally, Oklahoma University is only about 90 minutes away and is also a major research university. Thus, the Tulsa Metropolitan Area has at least two major research universities within one hour's drive, one additional private university, and a technical vocational school. Rather surprisingly, however, the Tulsa Metropolitan Area's educational achievement levels are practically equivalent to the SWCI region's levels: the Tulsa Metropolitan Area is 22.6 percent; the SWCI regional average is 22.1

percent (STATS Indiana, n.d.) (IBRC, 2013). The fact that the TMA region has so many universities within the vicinity and has a relatively low educational achievement rate compared to other regions analyzed contributed to our reasons for rejecting it.

The TMA region did have a strong and well defined economic development initiative, called Grow Metro Tulsa, with a clearly defined target region. However, without a federal lab in the area, its goals, strategies, and key players in continuing to improve the economic health of the region are not likely to be as valuable for benchmarking purposes with SWCI. Additional factors indicating a high concentration of economic activity, a much larger population, and low educational attainment rates despite a larger number of universities in the area all provided additional reasons for rejecting this location, as well as the lack of a federal lab as of 2008.

Albany, Oregon

Location	Northwest Oregon (Southern Willamette Valley)
Counties in Region	2 (Linn, Benton)
Federal Lab	National Energy Technology Lab
Lab Type	Department of Energy
Population	204,790
Land Area (mi^2)	2,965
Population Density (people/mi^2)	69
Poverty Rate (2011, %)	20.3
Per Capita Personal Income ($)	34,738
Median Household Income Range (2011, $)	42,836 - 46,272

The federal lab located in this region is the National Energy Technology Lab (NETL) is located in Albany, Oregon in Linn County. It began as the Albany Research Center in 1945 as part of the U.S. Bureau of Mines and its mission was to develop methods to use “low-grade resources” in the area for energy (National Energy Technology Laboratory, n.d.). It continued to

be a leader in mineral research until the Bureau of Mines was closed and the center was transferred to the Department of Energy under the Office of Fossil Energy in 1996 (National Energy Technology Laboratory, n.d.). It became a national lab in 2005 (National Energy Technology Laboratory, n.d.), and is devoted to fossil energy R&D (Federal Lab Consortium, n.d.). It has approximately 82 employees and has partnered with and conducted cooperative research with universities as well as the private sector (Federal Lab Consortium, n.d.).

Although this shares certain characteristics with the SWCI region, it was ultimately rejected. First, the region is experiencing economic decline. Population has increased in Linn County by more than 13% from 2000 to 2011 but median household income has declined in both counties. In 2000 it stood at approximately $49,000 and by 2011 it had dropped 13% to $42,800, which is below the state average of $47,785 in Linn (STATS Indiana, n.d.). Benton County experienced an even more dramatic decline from $57,600 to $46,200 (STATS Indiana, n.d.). Unemployment and poverty rates have also increased over the last ten years. In 2000, Linn's poverty and unemployment rates were 11.1 and 6.6%, respectively; in Benton, the poverty rate was 9.3 and unemployment was 3.9% (U.S. Bureau of Labor Statistics, 2000). By 2011 they shot up to a 19.2 poverty rate and 11.8% unemployment rate for Linn and 21.8 poverty rate and 6.7% unemployment rate for Benton, well above the averages in Oregon as well as the rest of the country (STATS Indiana, n.d.). Additionally, the education attainment rates in Linn county is similar to SWCI: 16.7% have earned a bachelor's degree or higher compared to a 15.8% average for the same level across the SWCI counties (Benton County fares much better with 47.5%) (STATS Indiana, n.d.). The decline in economic prosperity and low rates for higher education suggests that the Linn / Benton Counties region may not be ideal for benchmarking purposes.

Second, the NETL lab in Albany is significantly smaller than the Crane Lab in terms of number of employees and it does not appear to be a major Small lab, not a major employer in the area. The private sector dominates the job market in both counties, while Benton's largest employer is Oregon State University (Albany-Millersburg Economic Development Corp., 2013). Although government entities are listed as a major employment sector in the region (STATS Indiana, n.d.), there is no indication that the lab plays a significant role. It bears mentioning that this region does benefit from the proximity of two research universities less than an hour away—namely, Oregon State University and University of Oregon. However, because of its poor economic performance in the last ten years, Oregon is not an ideal candidate for benchmarking.

Morgantown, West Virginia

Location	Northern West Virginia
Counties in Region	13 (Brooke, Doddridge, Hancock, Harrison, Lewis, Marion, Marshall, Monongalia, Ohio, Preston, Taylor, Tyler, Wetzel)
Federal Lab	National Energy Technology Laboratory
Lab Type	Department of Energy
Population	457,889
Land Area (mi^2)	3,808
Population Density (people/mi^2)	120
Poverty Rate (2011, %)	17.1
Per Capita Personal Income ($)	34,824
Median Household Income Range (2011, $)	35,261 - 43,447

Region 1 is a large rural area in northern West Virginia, defined by the West Virginia Department of Commerce (WVDC, 2013). Although this region is close to the Pittsburgh metro region and has the state's largest research university, West Virginia University, it would not be suitable for SWCI to attempt to emulate because the economic characteristics are worse than those of SWCI with an equally high poverty rate and only a slightly higher per capita personal income.

However, the primary reason for rejecting the West Virginia Region 1 as a benchmarking community for SWCI is due to the decentralized economic development structure. While the cities and counties of Region 1 each have their own economic development authorities and there is a manager appointed by the West Virginia Department of Commerce, there is no regional association or organization that drives the economic development of all thirteen counties together.

Furthermore, the National Energy Technology Laboratory in Morgantown, Monongalia County is much smaller than Crane NWSC, with only 250-300 civilian and contractor employees. Neither the Monongalia County Development Authority nor the West Virginia University Research Office promotes an association or partnership with the NETL, discounting the usefulness of this region as a possible role-model in federal laboratory-research university economic development cooperation.

Task II: Strengths and Weaknesses

Summary

The following report on the strengths and weaknesses of the eleven counties of SWCI will demonstrate that this region is ripe for further economic development. In order to make informed judgments about the region's strengths and weaknesses, we identified the most compelling metrics of economic health and analyzed the region, county by county, to establish each county's specific strengths and specific weaknesses. We begin our report with an overview of the most important regional strengths and weaknesses of the region.

Following the overview of regional strengths and weaknesses, the metrics we have chosen as the basis for our analysis are explained in detail. These metrics are divided into four types of capital. Government/Financial Capital measures the economic capacity for growth and includes availability of land/property, water, electricity, economic incentives and investment capital. Human Capital measures the human capacity for growth in the region and includes academic attainment, demographic characteristics, educational and training capacity, and the health of residents. Social Capital measures the community trust, collaborativeness, networking, and openness to change. Finally, Creative Capital refers to residents with occupations in the sciences, engineering, and higher education as well as the arts, music, and entertainment.

Unfortunately these metrics cannot identify all of the strengths and weaknesses of a region nor can they capture some other important elements of economic development. One such element that is absent in all available data is a community's willingness and readiness for change. A community may have all the demographic and social characteristics that indicate a fertile environment for economic development. However, if that community is resistant to change or unable to understand the benefits of a potential change, economic development is unlikely to succeed. Direct surveys may be the only way to determine a community's willingness and readiness for change. This report recommends a comprehensive survey of the region to identify the residents' willingness to change as well as other social capital and attitudinal attributes that are only available through survey research.

Following the recommended survey instrument, we have included brief county analyses for each of the eleven counties of SWCI. The analyses provide the most apparent strengths and weaknesses we have identified in terms of the four capitals discussed above.

Regional Strengths and Weaknesses

In terms of government/financial capital, the biggest strength of the SWCI region is an awareness of the importance of economic development incentives on the part of county economic development officials. Most county governments are actively working to attract, retain, and create business within their jurisdictions. Most counties also offer a variety of economic and legal incentives to attract both foreign and domestic investments.

The most pressing concerns in the region in terms of governmental/financial capital is a lack of resources, particularly financing and personnel. Most counties in the region are small and remote, which has led to a scarcity of funding resources. Only two counties in this region benefited from Foreign Direct Investment (FDI) during the last decade. The lack of a strong workforce is also problematic. While there has been slight population growth in recent years, young people are leaving the region to find jobs or study elsewhere. Policy failures as well as a lack of leadership have also hampered regional economic development.

The SWCI region benefits from a number of strengths in terms of human capital. First and foremost, the presence of Indiana University in Monroe County provides obvious benefits in terms of human capital in that it attracts some of the best minds from around the world to the region. Similarly, the Crane Naval Surface Warfare Center in Martin County employs a large number of scientists, engineers, and various other highly skilled individuals. Another strength of the region is the quality of elementary and secondary education in comparison to the rest of Indiana. Eight of the eleven counties boast ISTEP passing scores that exceed the state average.

The biggest human capital weaknesses of the SWCI region has to do with population demographics. The population of eight of the eleven counties has decreased since 2010 as the elderly pass away and the young move to bigger population centers to find better work and educational opportunities. This has left most of the counties with much larger elderly populations than there are young people to replace them.

Based on the available data the biggest strength of these eleven counties in terms of social capital is the high rate of homeownership. The region has an average rate of homeownership of 66 percent, which is higher than the state average and nearly 10 percentage points higher than the national average. This high rate of homeownership indicates that residents of these counties are willing to make long-term investments in their communities and would presumably be supportive of efforts to improve local economic conditions.

Assessing weaknesses in regards to social capital is difficult based on the available data. Residents of this area of Southern Indiana seem to give less money to charity, on average, than the rest of the state or nation. They may, however, donate more of their time to charities through volunteering. The survey we recommend is essential for determining the true social capital weaknesses of these eleven counties.

The SWCI region as a whole has very little in the way of the creative class. The region has little racial or cultural diversity, and very little high-tech and knowledge based industry and thus few employees considered as members of the creative class. There are some notable exceptions, however. Monroe County, by virtue of being the home of Indiana University, has a high concentration of knowledge workers, patents, cultural diversity, entertainment and is also blessed with amenities and outdoor recreation facilities from biking and hiking trails, to state forests and Lake Monroe. Martin County has engineers and high-tech workers at Crane Naval Surface Warfare Center. The SWCI region is also blessed with a vibrant life science industry that includes major corporations like Cook Group, Inc, Boston Scientific Corp, and Baxter Healthcare Pharmaceuticals. Finally, Brown County has a long history of, and is committed to fostering a vibrant arts community.

A comprehensive list of the arts, entertainment and regional outdoor recreation areas can be found in Appendix 3. The data was derived from county tourism websites and brochures as well as telephone conversations with county tourism offices.

Financial Capital

What role does local government play in economic development?

Local government plays a crucial role in economic development (Wolman & Spitzley, 1996). As domestic and global competition grows, local government has become even more important in fostering favorable economic conditions for residents. The means by which local governments develop the local economy can be summarized into three broad categories: Business Recruitment, Business Retention and Expansion, and Entrepreneurship or Business Creation (Morgan, 2009).

Local governments have a number of measures at their disposal to stimulate investment and job creation. Traditionally, in order to recruit business, they have utilized zoning and permit assistance and offered infrastructure upgrades, such as road construction, street improvement,

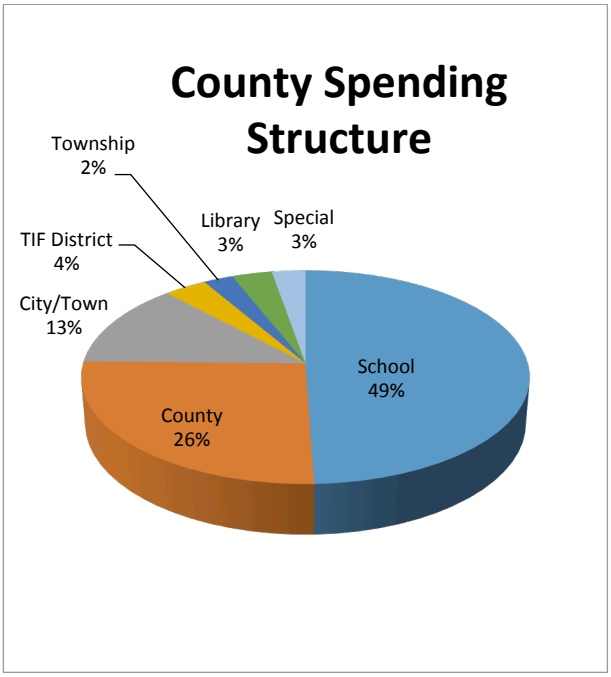
sewer extensions, etc. As more voices call for an equitable distribution of economic costs and benefits, the role of local government has changed to focus more on business retention and entrepreneurship development. For example, local governments are doing more marketing and promotional activities and using tax incentives to maintain or create businesses in their communities. In addition to incentives, understanding the difficulties each county faces in terms of economic development is crucial to mounting a successful economic plan (Morgan, 2009).

Basic analysis on budget and spending

County economic development is related to many things, such as human capital, social capital, creative capital, etc. Local county government can do a lot to improve these through its budget. With its budget, local government provides public goods, such as education, roads, and security, which are directly related to the local economy (Local Government Forum, 2008). Understanding the budget and spending of local government will illustrate the relationship between local government and economic development.

County spending

According to 2013 budget reports of all eleven counties, most counties are spending nearly half of their budget on schooling. The graph on the right shows the average spending structure of all eleven counties. Some counties spent more on education. Owen county's school spending was 68.26%, while, Monroe and Daviess counties' school budgets were 38.95% and 38.58%, respectively.

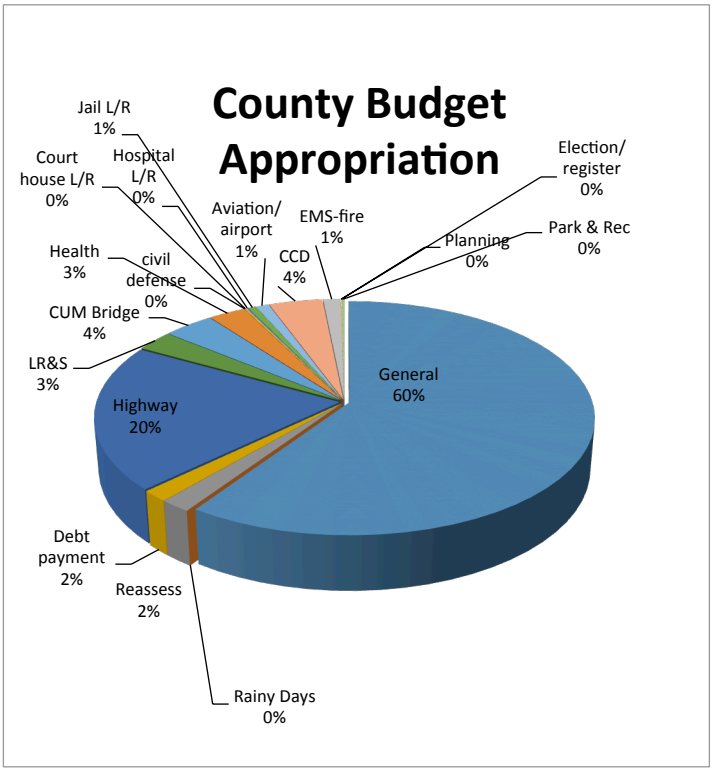


Additionally, nearly one third of budgets were allocated to county government. In some counties with larger cities like Monroe and Lawrence, the city budget portion was much bigger than others.

County budget

Let's look at county budgets specifically. The graph on the right displays the average budget appropriation structure of all eleven counties.

As mentioned, county government covers one third of total county budget. County government budget can be also break down into many specified appropriations. Among them, the largest portion belongs to the "general" fund, which covers all the costs the local government incurs other than specified budgets, such as highway. From the general appropriation budget counties can allocate special funds for economic development measures.



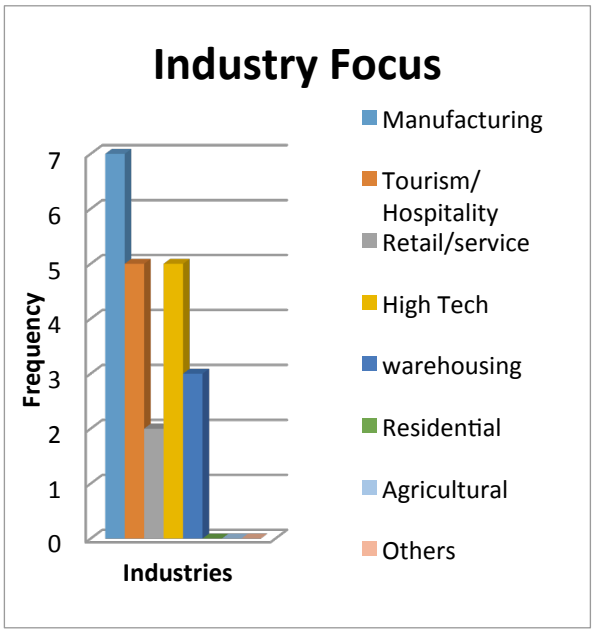
Measuring elements of local government capability

To understand better the strengths and weaknesses of all counties in this region in terms of governmental/financial capital, some email questions were sent to the heads of the economic development agency in all eleven counties. Questions, chosen in a prior study (Morgan, 2009), were all intended to reveal the economic policy trend, financing status, economic development incentives, and pending issues in each county. We have nine responses from eleven counties to the following questions:

1. On what industry does your county mostly focus?
2. What funding source(s) does your county have?
3. What kind of development incentives does your county offer in terms of business recruitment, business retention and business entrepreneurship?
4. What other economic development incentives does your county have?
5. What barriers to economic development does your county have?

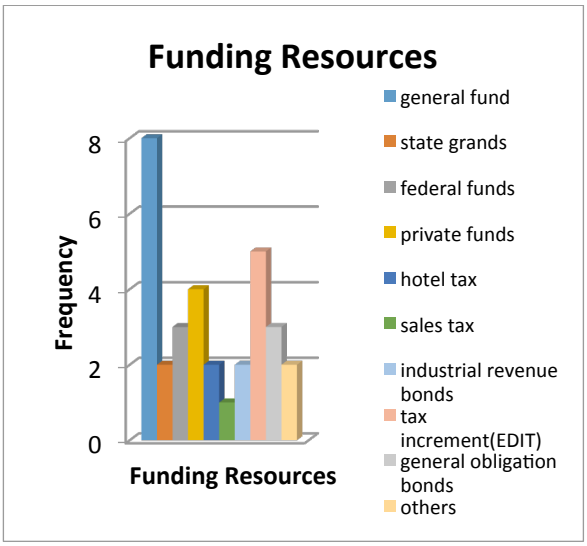
On what industry does your county mostly focus?

This question was intended to measure the primary focus of county government economic development efforts. As shown in the graph on the right, most counties responded that manufacturing is the primary focus in local government economic development efforts. Tourism/hospitality and high tech industry followed. It is notable that many counties still make efforts to boost the local manufacturing industry.



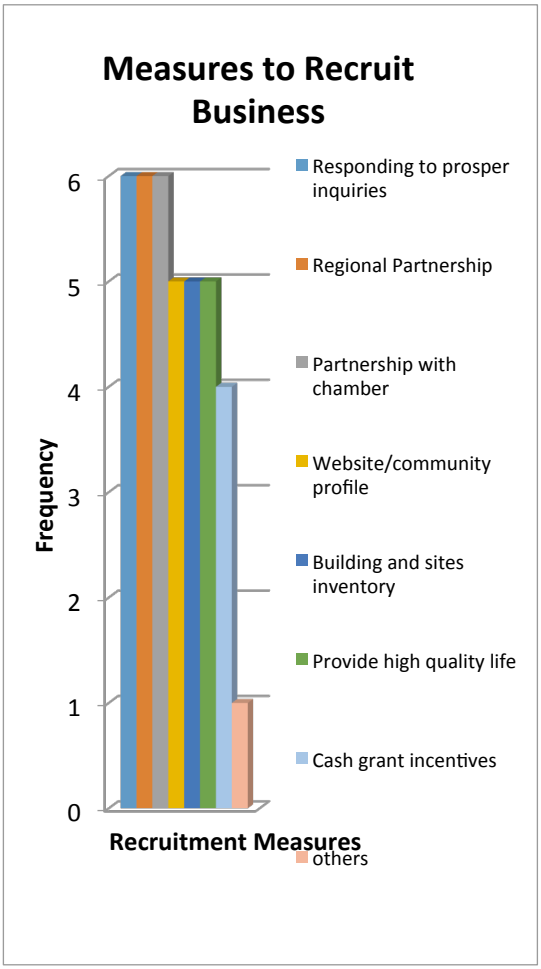
What funding source(s) does your county have?

The most frequently cited source was a 'general fund'. Tax increment financing, such as the economic development income tax (EDIT) as well as private funds were available in some counties. Many resources were mentioned, but the general status of funding seemed to be poor.



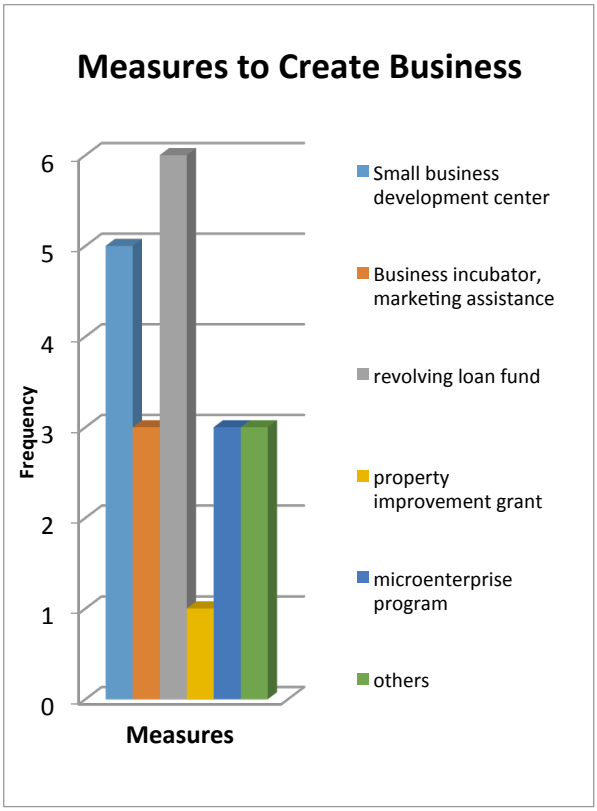
What kind of development incentives does your county have in terms of business recruitment, business retention and business entrepreneurship?

This question was intended to determine what measures the eleven counties employ in order to recruit business. According to the survey results, most counties currently have various measures to recruit business. The most frequently used methods are 'responding to inquiries,' 'partnership with regional entities,' 'partnership with chamber of commerce,' and 'website.' Some counties responded that they offer cash incentives depending on the situation.



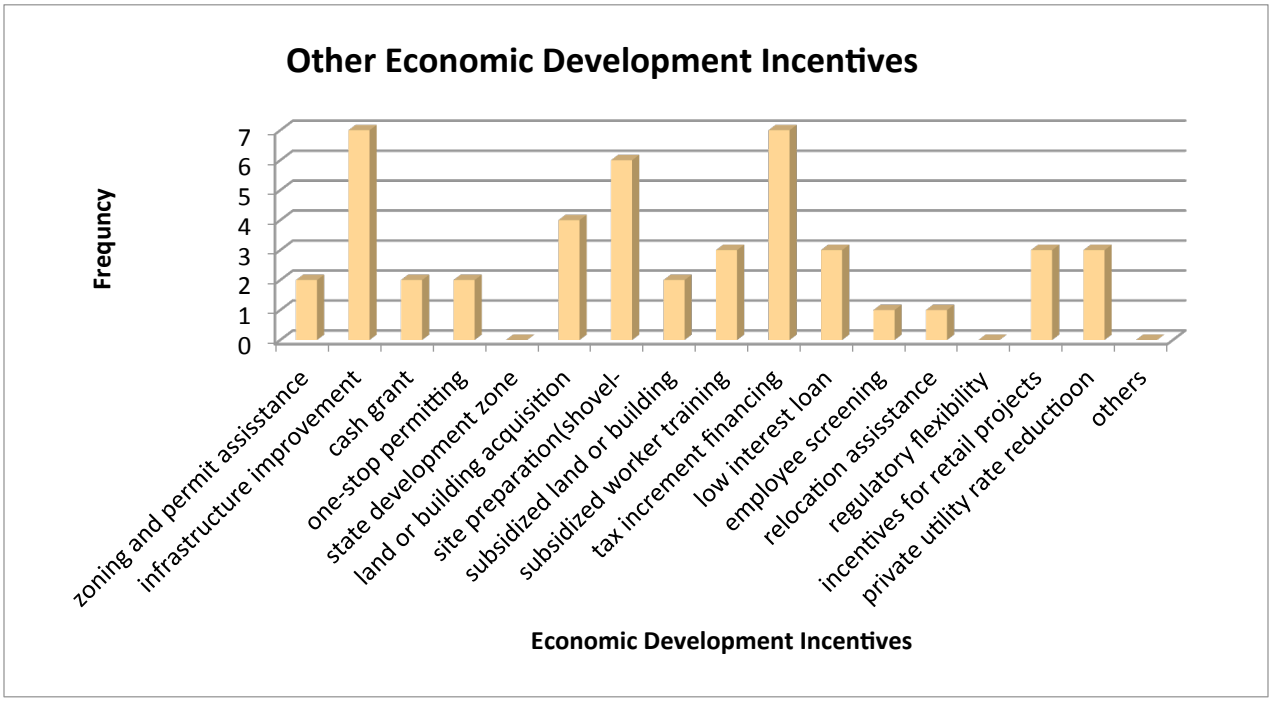
What kind of development incentives does your county have for entrepreneurship?

As shown in the graph on the right, most counties had the 'revolving loan fund' for business creation. Then, running 'small business development center' and 'marketing assistance' followed. However, considering the frequency, business creation measures were less preferred than others like business recruitment and retention.



What other economic development incentives does your county have?

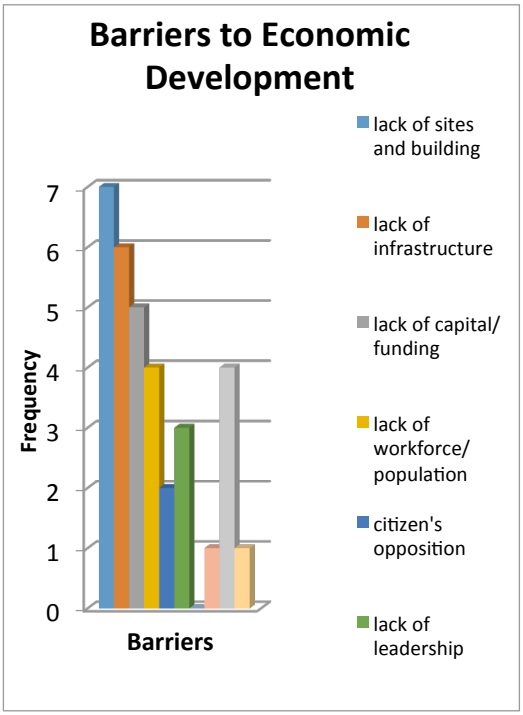
Besides measures for business recruitment, retention/expansion, and entrepreneurship, there are a lot of methods chosen by county governments to develop the local economy. The most frequently used methods among all counties are infrastructure improvement and tax increment financing. Site preparation designations, such as 'shovel ready' are commonly used as well. Additionally, zoning and permit assistance, cash grant, one-stop permitting services, and utility rate reduction services are also methods employed by county governments to spur local economic development.



* In these eleven counties, there are 3 sites designated as state 'shovel ready': Specifically, Dubois County (Huntington Airport Technology Park, 196 acres), Greene County (Scotland Meadows Business & Technology Park, 50acres), Monroe County (300 North Curry Park, 60 acres).

What barriers to economic development does your county have?

Respondents indicated that the lack of sites and buildings is the most common difficulty county governments currently face. Lack of infrastructure and lack of workforce or population were the next most common barriers. It is worth noting that two counties mentioned a lack of leadership as a barrier to economic development.



Human Capital

What is human capital and why is it important?

For a region to grow in employment and per capita income, it must save and invest in its human resources in order to accumulate and grow human capital (Mathur, 1999). Human capital has long been stressed as a prerequisite for economic growth (Mathur, 1999). Human capital is an accumulated stock of skills and talents, and it manifests itself in the educated and skilled workforce in the region along with the development of potential workforce (Barro, 2001). Recognizing the human capital of a region can help to influence economic development as it provides a profile of the available workforce and of the community.

Measuring Human Capital

Measuring the human capital of the eleven counties in the Southwest Central Indiana economic development strategy is important because it allows policymakers to strategize the strengths and weaknesses of the region in comparison to one another. In comparison the regionalized measurements allow for a comprehensive observation of the region. The human capital measures quantified are as followed: population, age demographics, regional diversity, education, employment and labor, and regionalized labor force, income and poverty data

(Appendix 1). The indicators selected were based on available data along with standard components of human capital based on background literature. The measurements were gathered through hoosierdata.in.gov which allowed for data to be focused by county and human capital measure.

Based on a regionalized view of the Southwest Central Indiana economic region compiled by Hoosierdata.in.gov, the labor force and income and poverty were examined. The total residential labor force of the region is 180,595 and 166,097 are employed as of 2011. In comparison the unemployed are at 14,498 and makes up 5.1% of the entire states unemployed. The unemployment rate of the region (7%) is slightly below the states average (7.5%) as of August 2013. The per capita income (2011) is below the state average and the Welfare (3%) and Food Stamp Recipients (4.4%) in the area make up a small portion of Indiana's total. Most human capital indicators were readily available to acquire either through state or county websites. However, an important indicator was missing throughout the entire region. Electricity prices and other utilities costs are critical in economic development and business attraction. None of the county economic development websites in the region provided monthly rate averages and only a few provided the names of the utility companies. Crawford County was the only county that had an example of the potential utilities costs provided by state averages. In comparison, by implementing the survey we will be able to illicit attitude-related responses in the community not found in available data to the members of the community.

Social Capital

What is social capital and why is it important?

Social capital is an important yet often over-looked asset in any community. In general, social capital can be thought of as the ties that bind a community together allowing them to take effective collective action and work for the benefit of the community as a whole. Measuring the social capital of the eleven counties under review is important for the Southwest Central Indiana economic development strategy because understanding the social capital environment will give policy makers a better understanding of each county's character. Additionally, this understanding will provide valuable insight into each county's capacity and openness for change. As a number of studies have demonstrated that social capital is positively correlated with economic development and growth, measuring each county's existing social capital will further

demonstrate their strengths and weaknesses and identify potential assets that could be leveraged or improved upon for the economic betterment of the whole.

Social capital defined

A number of researchers have attempted to define the concept of social capital. What follows are the definitions employed by some of the most prominent researchers to have tackled this subject.

> "Social capital generally refers to trust, concern for one's associates, a willingness to live by the norms of one's community and to punish those who do not." (Bowles & Gintis, 2002)

> "The information, trust, and norms of reciprocity inhering in one's social networks." (Woolcock, 1998)

> "Social capital can be defined simply as an instantiated set of informal values or norms shared among members of a group that permits them to co-operate with one another. If members of the group come to expect that others will behave reliably and honestly, then they will come to trust one another. Trust acts like a lubricant that makes any group or organization run more efficiently." (Fukuyama, 1999)

> "We define individual social capital as a person's social characteristics – including social skills, charisma, and the size of his Rolodex – which enables him to reap market and non-market returns from interactions with others." (Glaeser, Baibson & Sacerdote, 2002)

These definitions all point to the importance of social networks and social norms to the concept of social capital. These connections among individuals in a community facilitate interactions of all sorts, and most importantly for this evaluation, interactions of the economic sort.

Measuring social capital

As social capital is not an aspect of a community that can be measured directly, researchers have identified a number of proxy measures that capture an element of social capital

and have been demonstrated to correlate with economic growth. Rubin, Engbers, and Aubuchon demonstrated that social capital, measured as non-profits and volunteerism, can be a more important driver of local economic development than some more traditional measures (2012). Rupasingha, Goetz, and Freshwater demonstrated that higher levels of social capital had a positive impact on economic growth. These researchers measured social capital through a number of proxies, including the number of non-profits per 10,000 people and the presence of and attendance at religious organizations (2002). Charitable giving is another common measure of social capital in a community. Brown found that higher rates of charitable giving among members of a community increased social capital and was correlated with economic growth (2007). Homeownership is another measure of social capital. Glaeser, Laibson, and Sacerdote found that homeownership increases social capital because it limits individuals' mobility and leads them to make stronger social investments in their communities (2002).

The following list represents the proxies used by the above researchers:

A. Amount of charitable giving
B. Number of nonprofits
C. The presence of and attendance at religious organizations
D. Rate of homeownership
E. Hours spent volunteering
F. Membership and participation in civic organizations (Helliwell & Putnam, 1995)
G. Newspaper readership (Helliwell & Putnam, 1995)

Proxies A through D can be found in existing data and are available in Appendix 2. Proxies E through G can only accurately be found through the use of a well-planned survey which follows later in this report.

Interpreting social capital measures at the county level:

The purpose of the social capital county analysis found later in this text is to note the most obvious strengths and weaknesses in each county found in this limited data based on the available research. Is it fair to say that a county with fewer religious congregations than another has less social capital? Is it accurate to claim that a county with low rates of charitable giving must also be low in social capital? We want to stress that these measures are used as *proxies* for social capital and by no means should they be interpreted *by themselves* to tell the entire story of

the nature of community in each of the eleven counties. This data will be more useful when combined with the results of the survey recommended in this report.

Creative Class

What is the Creative Class?

A relatively recent theory has emerged correlating the existence of a strong "creative class" in a location to economic health. This theory hypothesizes that certain types of workers can be the economic drivers of the future much as manufacturing drove the economic growth in the 20th century. Richard Florida (2002), a leading proponent of creative class theory, defines creative class workers as belonging to two principal categories. The Super-Creative Core is comprised of a number of occupations that include the sciences, engineering, higher education, information technology, and research. These workers are likely to "create" new products, services, ideas and patentable technologies. Artists, musicians, and other innovators are also included in this category. The second category of workers are the Creative Professionals which are knowledge based workers such as lawyers, physicians, accountants, bankers, etc. These workers have a high degree of education and training in solving complex problems in their fields.

Florida has created a "Creative Index" which includes the workforce sizes in creative jobs in the arts, entertainment, finance, high-tech, the numbers of patents per capita, and racial and cultural diversity. Florida uses a measure of the number of gays in a community as a proxy for diversity and an indicator of tolerance. Florida also posits that certain quality of life aspects like music, entertainment, high-end and ethnic restaurants, and outdoor recreation areas are attractive to the creative class as well as being a subset of the super-creative core. The quality of life aspects may not always be apparent in wages and employment statistics, but may be used as an enticement to attract new companies and as such they are inventoried in Appendix 3.

However, there is significant disagreement about the causal effect of the creative class on economic growth. Florida (2013) himself wrote that America is sorting itself into two nations. There continues to be a migration by highly skilled, highly educated and affluent people to a small group of cities and regions with a high creative index that have high wages and higher productivity. The rest of the nation is comprised of less skilled regions that continue to have overall lower wages and productivity. The question remains as to whether economic development initiatives can generate jobs and higher wages by supporting industries employing

creative class individuals. Enrico Moretti (2012) claims that it is wrong to assume that cities can provide amenities to attract the creative class. He maintains that people likely move to where the jobs are, and that businesses locate where the talent is located creating a feedback loop of growth. Higher wage workers have more disposable income to spend at restaurants and entertainment venues, and create a higher local tax base that can then afford to invest in city amenities.

SWCI has some large industries and organizations employing individuals that fit the "Creative Class" theory that include life science companies, the presence of Indiana University, Crane Naval Research, Indiana University Research and Technology (IURTC), WestGate@Crane Technology Park, Bloomington Technology Park, as well as the arts, food, and recreation facilities in Brown, Monroe, Martin and Dubois counties. The Bloomington gay community (rated by www.kinseyconfidential.org as the 4th gayest city in the US) indicates a high level of tolerance in that particular city. However, there are large tracts without any significant creative class contributions. SWCI seems overall to fall in the category of a region that is less skilled and has lower wages.

Survey

A survey has been developed that can be conducted in each of the eleven counties in SWCI to fill in the gaps left by the available data. The intention of the survey is to gauge attitudes and opinions about metrics of social capital, support for local government, community fealty, opinions on economic development efforts, and readiness for change in their communities.

Implementation methods, recommendations and limitations:

We have consulted with Indiana University's Center for Survey Research throughout the development of the included survey. All survey data must have certain characteristics in order to draw significant inferences:

1. The sample must be of statistically sufficient size.
2. The survey must be administered to randomly selected individuals

There are advantages and disadvantages to each common method for administering surveys. Internet surveys are easy to construct, easy to use and the most cost-effective method of

administering surveys. There are several distinct disadvantages to this approach, such as low-compliance rates which could result in bias due to small sample sizes and an inherent bias due to lack of a randomized survey population. Compliance rates can be improved by offering a reward or prize for completing the survey. Selection bias can be addressed in a number of ways, including augmenting and checking the data for robustness by administering surveys through sending them to randomly chosen individuals in the mail, by using telephone surveys techniques using randomly generated selection of telephone numbers, or by having surveyors go door-to-door to randomly chosen addresses.

Telephone surveys are significantly more costly to construct and administer than web surveys, but can be more cost effective than face-to-face or mail surveys. The sample population can be randomly selected which eliminates selection bias and the compliance rate is higher than that of internet surveys. However, many people have abandoned landline service and rely solely on cellular telephones. As a result, telephone directories no longer list a large segment of the population. Mail surveys are simple to construct and can be mailed at random. They are expensive and traditionally have a very low compliance rate. Finally, door-to-door surveys can be administered. Addresses can be selected at random, and the surveyors are able to ensure that the sample sizes are sufficient. However, this method is expensive, time consuming and can present a potential danger to surveyors.

Indiana University's Center for Survey Research (IU CSR) has translated the survey we designed into a web-based survey. We believe that this can be an effective method for SWCI to elicit good information about the attitudes and beliefs of the population. However, individuals that do not have access to the internet, or lack the technical expertise or desire to use computers are not included in the sample population of web surveys. This may result in biased data. Additionally, Daviess County has a large Amish population that will not be responsive to either web survey or telephone survey techniques as the Amish eschew modern technology. Our recommendation is that door-to-door surveyors or mail surveys should be used in Daviess County.

IU CSR believes in the advisability of testing the survey on a limited basis, which helps to highlight any confusing questions or possible omissions. Additionally, the CSR maintains that current good practices of survey methodology recommends the use of focus groups. We recommend that focus group discussions be held across the region. The purpose of these focus

group discussions would be to elicit information not covered either in the data or in the formal surveys and to determine if the current questionnaire adequately elicits accurate opinions from the entire target population. Each group should be comprised of 5-7 individuals demonstrating various demographic and economic characteristics.

An internet version of the following survey has been developed in consultation with the CSR. To utilize the web version or to discuss a research plan and obtain a cost estimate using, please contact:

Alycia Cameron, Study Director & Technologies Analyst
ahcamero@indiana.edu
812-856-9160; or

Reya Calistes, Director of Research Project Management Services
rcaliste@indiana.edu
812-855-0175

CSR is already familiar with the scope of the project and the survey is already designed and programmed, meaning significant savings to SWCI. CSR can also discuss ways of addressing concerns about sample bias and how to reach potentially difficult populations such as the Amish community.

Proposed Survey:

	Personal and Social Activities	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	N/A
1.	I like to attend festivals, carnivals, and or community events in my county.						
2.	I travel to nearby counties to attend festivals, carnivals, and or community events.						
3.	I enjoy engaging in outdoor activities in my county.						
4.	I travel to nearby counties to engage in outdoor activities.						
5.	I attend religious services in my community.						
6.	The I69 expansion will improve my quality of life.						
7.	I am able to pursue my professional goals while living in my community.						
8.	I am able to pursue my educational goals while living in my community.						
9.	I am able to meet my medical needs in my county.						

	Community	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	N/A
1.	The area in which I live is attractive.						
2.	I feel that civic leaders listen to concerns about proposed changes.						
3.	The area in which I live is clean.						
4.	My community leaders have a clear vision for the future.						
5.	I live in a community that demonstrates support for change.						
6.	I trust my local police.						
7.	Appropriate resources are allocated that are needed to make positive change for the community.						
8.	I feel that civic leaders actively seek input from the people most likely to be affected by changes.						
9.	I would recommend/encourage others to live in this community.						
10.	This is a good community in which to raise a family.						

	Government and Economic Development	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	N/A
1.	I vote in local elections.						
2.	My local government is responsive to my needs.						
3.	My local government has an efficient and equitable budgeting process.						
4.	My local government provides adequate financial support to economic development initiatives or organizations.						
5.	My community has strong economic development leadership.						
6.	My community actively pursues economic development opportunities.						
7.	The community is supportive of economic development initiatives in the county.						
8.	My local government is good at dealing with citizen conflicts or disagreements.						
9.	My county's economic development policy is effective.						

Please circle or enter the appropriate answers below:

How many times in the past 12 months have you volunteered in your community?

0 1-5 6-10 More than 10

How many hours, on average, do you spend volunteering in your community each week?

0 1-5 6-10 More than 10

How many professional or civic organizations in your community do you belong to?

0 1-5 6-10 More than 10

How often do you attend meetings of professional or civic organizations in your community?

0 1-5 per year 1-5 per month 1-5 per week More than 5 per week

How often do you attend religious services or meetings?

Never Major holidays or events only Monthly Weekly More than once per week

If employed, how many miles do you live from your place of employment? _____

Will the I69 expansion shorten your daily commute time? Y N

If yes, please estimate how many minutes per day will using I69 save you? _____

What is your gender? Male Female

What county do you reside in? _____

How old are you?

18-25 26-40 41-64 65 or over

Do you live in or outside town limits? In town Outside of town

Please tell us anything else you would like us to know about your county?

County Analysis

*All statistics are 2011 census data. Arts, entertainment, sports and outdoor activities are derived from community websites (Oct. 2013) and information provided directly by community tourism or Chambers of Commerce.

Owen

Demographically, 88.5% of the population has a high school diploma and 44.5% also have a higher degree or more. Owen County ISTEP scores are slightly above the state average. The population in 2011 was a little more than 21,000 and shrinking. Approximately 45% of the population is over the age of 45.

Economically, Owen County has a higher unemployment rate than the state average. Two of the top 16 employers in the region are in Owen County, yet the average wage is a full 16% lower than the state average. However the wage rate has shown an impressive 13.4% growth over the previous decade. Also, local economic development leadership is strong. While it was once one of the poorest counties, today Owen County is one of the most fiscally sound local governments in the state. Debt is very low in the community making it a good place to invest and work.

Owen County is a relatively rural community with most of the activity centered in Spencer. Festivals are focused on food and family. The outdoor activities are traditional Midwest camping, boating, fishing, hiking and horseback riding. The Owen County tourism site is organized and easy to navigate, which is a nice feature. However, there is no apparent tourism strength.

In terms of social capital, Owen County's biggest strength is a high rate of homeownership with owner-occupied housing representing 68% of all housing units in the county, higher than the state average and significantly higher than the national average. A comparatively high number of non-profits per 10,000 people is also an indication of high social capital.

Monroe

Demographically, Monroe County has the youngest average population and, like the rest of the region, is relatively homogenous racially. The county has the largest population in the region at about 140,000. Educationally, students in the county score higher than the state average on the Indiana ISTEP test, and Monroe County has the highest percentage of high school, college and graduate degrees.

Economically, Monroe County has one of the lowest unemployment rates in the region which is well below the Indiana unemployment rate. It boasts 7 of the top 16 employers in the region. IU is the largest employer in the county, and has a vibrant healthcare and life science employment base. However, even though the employment rate is lower than the state average, so is the average wage rate at 11.4% below the state average. Monroe County wage rates have been almost completely stagnant over the last ten years.

The Bloomington Economic Development Corporation (BEDC) highlighted three economic incentives present in the city: infrastructure improvement, worker training, and tax increment financing. Additionally, we find that BEDC's focus on entrepreneurship and business creation is relatively unique among the 11 eleven counties. BEDC did note several barriers to economic development, such as the lack of available sites and buildings and the lack of public awareness of the benefits/advantages to the different approaches to business development.

Monroe County is dominated by Bloomington and Indiana University. Bloomington is vibrant with arts, theater, music, food, sports and culture. IU is a destination for thousands of people each year. The county is blessed with lakes, forest, parks and natural beauty. There are over fifty festivals and community events annually, mostly in Bloomington. Bloomington has been ranked as one of the 10 Small Cities for Retirement (2011) by AARP, one of the 100 Best Small Places for Business and Careers by Forbes Magazine (2013), number seven on the list of Smartest Towns in America by VentureBeat (2013), number 3 on Livability.com's list of Top Ten Foodie Towns (2013), the 4th Hardest Working Town in America by Parade Magazine (2012) and more. Julie Warren of VisitBloomington feels that tourism will explode with the completion of I-69.

Monroe County also benefits from a high level of social capital. Of the eleven counties being reviewed in this analysis, Monroe County is first in terms of charitable giving. Additionally, the large number of community events and non-profits in the county demonstrate a

high level of social capital. While homeownership rates are lower in Monroe County than any of the other counties, as a college town, this is to be expected and is not an indicator of low social capital.

Brown

Demographically, Brown County is sparsely populated at a little more than 15,000 people in 2011 and the population is shrinking. Brown County's students scored at the state average on the ISTEP exam. 83.63% of the population has a high school diploma and about 24% of those also have a higher degree. Brown County has the oldest population with 55% over the age of 45.

Economically, Brown County's unemployment rate is lower than the state average. None of the region's top 16 employers are in Brown County and the wage rate is 42% lower than the Indiana state average and falling.

Brown County is currently reorganizing all facets of their economic development plan. For this reason, information on this topic is difficult to find and their offices are not open. The newly appointed head of Brown County economic development did mention that local economic development leaders seem more interested in studying issues rather than acting on results. This may make integrating economic development plans in Brown County difficult.

Brown County is dubbed the Art colony of the Midwest and is one of the oldest art communities in America. Activities in the county are focused on art, music and natural outdoor experiences. The rolling hills and changing of the leaves in the autumn attract visitors from around the nation.

Social capital in Brown County is difficult to measure without further survey research. While it has a high rate of homeownership, the number of non-profits and rate of charitable giving are both average for these eleven counties. Also, Brown has a low rate of religious adherence as compared to the other counties. However, Brown County's historic art community and various festivals and events point to a locality rich in social capital. Again, this warrants further study.

Greene

The population (approximately 33,000) of Greene County is similar in age to most of the region with about 45% above the age of 45. Also, students scored above the state average on the ISTEP exam.

Greene County is rural and entertainment is focused on community fairs and school activities. The county is weak in arts and entertainment, although there are a couple of art fairs in the summer. There does not seem to be much outdoor activity either.

None of the region's top 16 employers are in Greene County. The unemployment rate is slightly higher than the state average and the wage rate is almost 30% lower than the state average and has fallen over the previous decade.

Greene County does have significant economic development incentives. The county has no zoning and provides streamlined permitting processes customized for each client as well as one-stop permitting. The county also has shovel-ready land as well as subsidized worker training. Greene County is eager for economic development and the county government is willing to consider most viable options. Unfortunately, Greene County has several barriers to economic development, such as very limited availability of sites and almost no available buildings frequently making build-to-suit the only viable option for new businesses. Furthermore, the population of Greene County is generally resistant to economic development initiatives and lacks an understanding of the benefits of regionalism and intra-county cooperation.

Greene County does not score highly in the social capital measures that we have compiled. Like most of these eleven counties, Greene has a relatively high rate of homeownership; however, the other measures are inconclusive. The data in the preceding paragraphs would indicate that social capital is likely not high as economic indicators for the county are not particularly positive. Survey research will do more to illuminate the nature of community in Greene County.

Daviess

Approximately 32,000 people live in Daviess County and the population is growing unlike most of the region. Students scored above the state average on the ISTEP exam, but the

population has the second lowest educational attainment in the region. The county has a large Amish population, which is unusual for the region. About 40% of the county population is over the age of 45.

The unemployment rate in Daviess County is the lowest in the region with two of the 16 largest regional employers located there. The wage rate has increased at a rate that exceeds the state average rate increase, but the average wage rate is still 24% less than the state average.

Information on economic development in Daviess County is difficult to come by, perhaps because there is not much in the way of economic development planning occurring. Presumably, the predominantly Amish nature of the community explains the lack of interest in economic development. Our inquiries into local economic development goals and incentives did not provide any insight into the nature of economic development planning in Daviess County.

Daviess County is unique among the SWCI counties because of the concentration of Amish families. This imbues the county with a different personality that provides inhabitants with festivals and events centered on Amish food, entertainment, antiques and crafts, and livestock auctions. Not unexpectedly, the tourism website is below average. However, the Chamber of Commerce was very helpful and provided ample information through the mail promptly. Any surveys are recommended to be implemented using the US mail, or in person as there are large segments of the population without telephones or internet.

The available social capital data for Daviess County are unlikely to capture the true nature of community in this county. Homeownership is relatively high but all other available measures are average in comparison to the rest of the counties in this study. Presumably Amish communities are tight-knit and trusting. Also the low unemployment rate and increasing wage rate could support higher levels of social capital. Like most counties, a full survey should be conducted to gain more insight into the nature of social capital in this county.

Martin

Martin County has the lowest population in the region at 10,260 residents. The students of the county have scored below the state ISTEP average. Educational attainment is below the regional average with 74.2% having completed high school and 15.45% having a higher degree.

Economically, Martin County has unemployment rates that are about 2 percentage points lower than the state average, and the average wage rate far exceeds the state average. In 2011 the average wage rate was almost 55% higher than the state average and rising. The second largest employer in the region is located in the county. Martin County does well in terms of the traditional economic development measures of business recruitment, retention and expansion as well as entrepreneurship and business creation. The county economic development office was frank in their assessment of the county's weaknesses in this regard. Based on the interaction from the Martin County Economic Development office, the concept of economic development is new in the county and as a result is currently in development and trying to achieve citizen support. Also, the county lacks a sizable workforce and workforce development funds. Lack of infrastructure and available building sites is also an issue.

Martin County has a below average website for tourism and no real coordinated tourism efforts. Other searches revealed that the county activities are community centered. We've been unable to confirm the completeness of the arts and entertainment data.

The extent of social capital is difficult to identify in Martin County. While charitable giving is among the lowest of the eleven counties, the number of non-profits is among the highest. The high rate of homeownership (71.6%) as well as high wages and low unemployment indicate a community with significant social capital development potential.

Orange

Orange County has a population of 19,690 and the it is shrinking. ISTEP rates are lower than the state and educational attainment is lower than the state average in every category.

Economically, Orange County's unemployment rate is higher than the state average. The wage rate is 25% lower than the state average but has risen 4% over the previous ten years. Three of the top 16 regional employers are located in Orange County. Additionally, Orange County is home to a large casino and two resort hotels, providing significant tax revenue and funding for local schools.

According to the executive director of the Orange County Economic Development Partnership, the county has a solid economic development plan and has conducted several in depth studies of the local economic development environment. Despite these efforts, the county

simply does not have much to work with in terms of resources and workforce. A particular weakness of Orange County is a shortage of broadband internet access, due in large part to the topography of the area. Tourism, though, is a special strength of Orange County with the above-mentioned casino and resorts as well as the Paoli Peaks ski resort.

Social capital in Orange County was estimated based on the available statistics. Charitable giving is average for the eleven counties under study while the number of non-profits is comparatively high. The rate of homeownership is about the state average. A thorough survey will further illuminate the nature of social capital in Orange County.

Dubois

Dubois County has a population of over 42,000 and is growing. Dubois County students score above the state average. Educational attainment is higher than the state average and is in the top three counties in the region. The unemployment rate is lower than the state average. The average wage rate is below the state average but has increased by 29.7% since 2000.

Dubois County seems to be committed to the arts, theater, music and outdoor activities. Jasper Arts Center has frequent exhibits, plays and concerts. There are numerous festivals, fairs and community events throughout the year. Patoka Lake, walking, biking, hiking and horseback trails lend an outdoorsy and physically active environment to the county. The tourism website is well-designed and the tourism office was prompt and helpful in providing information.

Economic development planning in Dubois County requires further research. Our efforts to reach out to local economic development officials have thus far gone unanswered, which could be considered a weakness.

Social capital in Dubois County is probably the highest of these eleven counties. Dubois County has the second-highest rate of charitable giving and the highest number of non-profits among the eleven counties. The high rates of homeownership and religious adherence also point to a community high in social capital. Further survey research will provide more insight into the nature of social capital in Dubois County.

Crawford

Crawford County is the second smallest with a population of 10,665 and shrinking. Crawford County students have the highest passing rate in ISTEP scores in the region, but the education attainment is lower than the regional average in every category.

The county unemployment rate is 10.9% which is higher than the state average. The average wage per job is lower than the state average but has increased by 11.7% over the last 5 years. Crawford County seems to be rural and sleepy. There are few activities, festivals or fairs. Patoka Lake seems to be the major draw of the county.

Economic development in Crawford County does not appear to be priority. The county does have shovel-ready status as well as available land subsidies, permit assistance, and special incentives for retail projects. Particular weaknesses of Crawford County are the lack of a significant workforce as well as a lack of available buildings and infrastructure.

Social capital in Crawford County appears to be among the lowest of the eleven counties based on available statistics. The county has the lowest rate of charitable giving and the second-lowest number of non-profits. While the rate of homeownership roughly matches the state average, religious participation is among the lowest. We acknowledge that these measures could not possibly capture all aspects of social capital. A survey of Crawford County is needed to fully understand the nature its social capital.

Lawrence

Lawrence County has the second highest population in the region at 46,078; however, the population is shrinking. The students in the county scored among the lowest in the region on the ISTEP exam with only 70.1% passing both English and Math. The county has a higher rate of individuals attaining a high school diploma or more, but has a lower rate of higher degrees than the regional average.

The county has the highest unemployment rate in the region at 9.3% in October of 2012.

Lawrence County is proud of its limestone caverns and astronauts, which could be looked upon as an economic asset-specifically as a site of astronaut appreciation. One of the most popular tourist spots in Lawrence County is the Virgil I. Gus Grissom Memorial. However, it seems to be a community focused county with little in the way of activities and art.

Lawrence County's Economic Growth Council has a number of incentives for local economic development. They focus on the traditional economic development measures of business recruitment, retention and expansion as well as entrepreneurship and business creation. They also offer a number of incentives, such as infrastructure improvements, cash grants, site preparation, subsidized land and buildings, low interest loans, and incentives for retail projects. In an effort to avoid painting too rosy a picture of economic development in Lawrence County, it bears mentioning that the Economic Growth Council declined to identify any weakness or barriers to economic development in their county when asked. We anticipate the survey will be useful in identifying any weaknesses that may be present.

Lawrence County likely has a healthy level of social capital. Charitable giving is the third-highest among the eleven counties and the rate of homeownership is among the highest. A survey will provide more insight into the nature of Lawrence County's social capital.

Washington County

Washington County has almost 28,000 individuals and the population is shrinking. Washington county students have ISTEP passing rates above the state average. Educational attainment is lower than the average in the region on all levels except the rate of high school diplomas and the rate of individuals that have attended some college.

The unemployment rate in Washington County is about the state average. The average wage per job is one of the lowest in the region. Washington County is also a proud small community with some lakes, but not much else in the way of activities, festivals or art.

Economic development planning in Washington County requires further research. Our efforts to reach out to local economic development officials have thus far gone unanswered.

A survey will be useful to determine the true nature of social capital in Washington County. The available statistics paint a glum picture. The rate of charitable giving and the number of non-profits are the lowest of the eleven counties in this study. However, the rate of homeownership is high. A survey is necessary to get a true sense of the social capital of Washington County.

Task III: Technology Transfer for Regional Economic Development

Summary:

Southwest Central Indiana (SWCI) is endowed with many research institutions that generate valuable scientific and technical knowledge. Leaders and stakeholders within the region have come together to identify opportunities, assets, and resources that can be better utilized and leveraged to enhance a sustainable standard of living for its residents and communities. This section will discuss Task III "Technology Transfer from Knowledge Sources to Regional Commercialization" of the "Economic Development Strategy for Southwest Central Indiana." The purpose of this task was to identify mechanisms and practices that can be implemented to enhance the transfer of technology from the knowledge-creating institutions to the public in order to stimulate economic development throughout the region. Research and interviews with key players led to an understanding of current practices of technology transfer (T2) among key regional players, along with the barriers therein. Interviews and literature review provided the backbone for a discussion of T2 best practices and ways to harness T2 for regional economic development through clustering. A series of specific recommendations concludes this section.

I. Introduction

Federal laboratories and other research institutions in SWCI, such as Indiana University, Bloomington, are powerhouses for the development of new technologies and medical breakthroughs. These entities receive large amounts of internal and external sources of funding, and produce a variety of technologies and intellectual property through applied and academic research. The technologies developed at these institutions have the capacity to improve the quality of life and the economic status of the region through their commercialization and private market infiltration. Without the proper technology transfer mechanisms, policies, and practices, however, these technologies will remain stagnant as intellectual property and never reach the commercial sector. "Technology Transfer" is the movement of intellectual property (IP) from knowledge-creating institutions to the market for commercial use. Diffusing these technologies to the marketplace holds significant potential to facilitate economic growth; job creation,

improved quality of life, health, efficiency, safety, and convenience are a few of the many benefits that these novel innovations can yield.

Defining Technology Transfer:

The concept of technology transfer encompasses many disciplines, resulting in diverse definitions. The Federal Laboratory Consortium (FLC) for Technology Transfer defines technology transfer as "the process by which existing knowledge, facilities, or capabilities developed under federal research and development (R&D) funding are utilized to fulfill public and private need" (Hughes, Howieson, Walejko, Gupta, Jonas, Brenner, Holmes, Shyu, & Shipp, 2011, p. 7). An alternative definition of technology transfer is "the process of sharing, transmitting, or conveying technology, data, and information (Intellectual Property) between government agencies, industry, and academia" (Howieson, Shipp, Walejko, Rambow, Peña, Holloman, & Miller, 2013, p. 2).

The FLC identifies three key players in the technology transfer process: the producer of a technology, its user, and an interface that connects the two, to "transfer" the technology from the developer to the user (Hughes et al., 2011). The commercialization process of new technologies is expensive, lengthy, and has low predictive capacity. Some of the common components of the commercialization process include: market assessment, product design, raising capital, management of intellectual property rights, marketing, manufacturing, and training. The IDA also mentioned that the commercialization success rate is very low; less than five percent of new technologies are ever brought to the marketplace (Hughes et al., 2011).

Commercialization is "the process of transforming new technologies into commercially successful products" (Hughes et al., 2011, p. 8). Figure 1 (Fred Hutchinson Cancer Research Center, 2013) depicts the technology transfer process. The process begins with the discovery of an innovation. The innovation is subsequently disclosed to the proper personnel who evaluate its potential commercial applications and market viability. Protecting the idea is the next step of the commercialization process. If the technology is considered to be viable, an intellectual property protection provision is traditionally sought out. Discoveries determined to have limited commercial application or viability are returned to the incubation stage. Viable innovations are then marketed with the intention of attaining a licensee who further develops a marketable product, and introduces it to the marketplace. Investors who seek to obtain a license for an

invention must submit a plan for developing and marketing the invention. Patent licenses can take a variety of forms and can be limited to a specific field of use. The submitted plan is treated as privileged and confidential and is not subject to disclosure under the Freedom of Information Act (Hughes et al., 2011).

Figure 1: Technology Transfer Process

The Institute for Defense Analyses (IDA) Science and Technology Policy Institute (STPI), a non-profit corporation that operates federally funded research and development centers, describes how the technology transfer and commercialization process usually occurs along three distinct pathways: direct, indirect, and network pathways (Hughes et al., 2011). The direct pathway "results in the exchange of products or processes, or collaborative research for developing technologies, between laboratories and other parties" (Hughes et al., 2011, p. iv). The indirect pathway occurs when mechanisms such as conferences, seminars, workshops, education, and publications lead to the dissemination of technologies in which commercialization occurs. Finally, the network pathway uses both direct and indirect methods to build clusters of institutions that create and diffuse the technology. The network pathway involves conveying information through the use of forums and other media to connect researchers with potential commercialization partners. However, the direct pathway produces technology commercialization more often than the indirect and network pathways (Hughes et al., 2011).

There are three types of technology transfer related to the direct pathway (Hughes et al., 2011). Commercial transfer occurs when a technology is transferred from the producer to a user, usually from a public entity to a private entity in order to bring a technology to market (Hughes

et al., 2011). Some technologies serve applications in both the private and public sectors. These are referred to as dual use technologies, which fall under the commercial transfer direct pathway route (Hughes et al., 2011).

Federal laboratories often choose to provide their expertise to external organizations in an attempt to facilitate technology development. This practice is referred to as "exporting resources." "Importing resources" occurs when a federal laboratory or agency incorporates technologies created by external entities in order to achieve their mission advance a particular goal (Hughes et al., 2011).

A number of legal and voluntary mechanisms facilitate technology transfer and commercialization (Hughes et al., 2011). Table 1 (from Hughes et al., 2011, p.10) depicts technology transfer mechanisms and their respective pathways. Several of these mechanisms are described later in the document.

Table 1: Technology Transfer Mechanisms by Type of Pathway

Indirect Pathway Mechanisms	Direct Pathway Mechanisms	Network Pathway Mechanisms
Conference Papers	*Invention Protection*	Commercialization Assistance Program
Education Partnership Agreements	Invention disclosures	Entrepreneurship-in-residence programs
Field Days	Patent applications	Entrepreneurship Training
Intramural Research Training Awards	Issued patents	Mentor-Protégé Program
Publications	*Transfer of Property*	Personnel Exchange Agreements
Seminars	Material Transfer Agreements	Partnership Intermediary Agreements
Teaching	Patent licenses	Venture Capital Forums
Workshops	Inter-Institutional Agreements	
	Collaborative Research Agreements	
	Cooperative Research and Development Agreements	
	Space Act Agreements	
	Collaboration Agreements (Non-CRADA)	
	Resource Use Agreements	
	Commercial Test Agreements	
	Test Service Agreements	
	User Facility Agreements	
	Work for Others	

Although there are many mechanisms that can be used to facilitate technology transfer, numerous factors exist at federal laboratories that can influence their successful 'transfer' and commercialization. These factors include: laboratory mission, laboratory management, congressional support and oversight, agency leadership and laboratory director support, organization and coordination of technology transfer and commercialization activities, offices of research and technology applications (ORTAs), researchers, government-industry interactions, and resources (Hughes et al., 2011, p. v-vi). While not all will be applicable to every situation, Hughes et al. (2011) identify these factors and their potential to affect the magnitude and rate in which federal laboratory technologies are transferred to the private sector. Many of these factors and pathways can be related to additional institutions within SWCI.

Major Players in the Southwest Central Indiana Region:

Key parties that play a large role in the development and commercialization of technologies in the Region were identified. These entities, usually extensive, complex organizations that employ thousands of individuals with diverse scientific and professional backgrounds, receive large amounts of internal and external sources of funding, and produce a variety of technologies and intellectual property through applied and academic research. The technologies developed at these institutions have the capacity to improve the quality of life and the economic status of the Region through their commercialization and private market infiltration. Without the proper technology transfer mechanisms, policies, and practices, however, these technologies may never reach the commercial sector and remain stagnant as intellectual property. Identification of the Region's key players was essential to the analysis and assessment of technology transfer mechanisms, policies, and practices currently being utilized. Naval Surface Warfare Center (NSWC) Crane, the WestGate Technology Park (WestGate), and Indiana University were identified as fundamental technology transfer institutions in the Region.

NSWC Crane, a military base that houses Indiana's only federal laboratory, employs several thousand civilian and military personnel. Originally developed as a secure inland ammunitions storage facility, NSWC Crane provides engineering services, technical support, and product development to protect and enable the Warfighter by specializing in the total lifecycle support of three focus areas: Special Missions, Strategic Missions, and Electronic Warfare/Information Operations. They strive to be the Department of Defense's premier

engineering, acquisition, and sustainment organization (NSWC Crane, 2013). Crane is the third largest Navy installation in the world, the eleventh largest single site employer in Indiana, and the third largest employer in the Southwest Indiana (NSWC Crane, 2013).

WestGate Technology Park (WestGate), housed outside the gates of NSWC Crane, consists of a cluster of defense-related Fortune 500 companies specializing in applied sciences and engineering that contracts primarily with NSWC Crane. WestGate offers commercial defense and private industry opportunities to utilize government resources, such as state-of-the art research facilities and technical expertise, and holds Certified Technology Park (CTP) status from the Indiana Economic Development Corporation (IEDC), which makes it eligible for direct state support (WestGate, 2013). WestGate is a spawning ground for the development of defense-related innovations that often contain commercial value.

The Battery Innovation Center (BIC) is a unique, collaborative, non-profit organization within WestGate that focuses on energy storage technologies. BIC provides access to the entire spectrum of research and development (R&D) to commercialization in a facility capable of managing all aspects of the battery life cycle (BIC, 2013). At BIC, researchers can utilize state-of -the-art technologies to develop, test, and commercialize new products that are more efficient and reliable. The BIC facility will be a hub for the development of new energy storage technologies, coinciding with commercialization and economic benefits to the region.

The Science Applications International Corporation (SAIC) is a technology and engineering company that resides at WestGate. They provide engineering and IT analysis and solutions, emphasizing efficiency, security, and support of the Warfighter. SAIC also provides training and simulation modules. Stimulus Engineering is another entity within WestGate. They provide engineering and consulting services to stimulate the success of businesses and support the Special Missions and Electronic Warfare sectors at NSWC Crane.

Indiana University (IU) is a public institution dedicated to providing educational access to students throughout the world. The University "seeks to create dynamic partnerships with the state and local communities in economic, social, and cultural development and to offer leadership in creative solutions for 21st century problems" (IU, 2013). Its mission and values deviate from that of a federal lab or technology development center. Unlike Crane, IU is an educational institution, so it does not dedicate as much effort toward the development of new technologies that aim to solve defense-related issues.

The Indiana University Research & Technology Corporation (IURTC) is a not-for-profit agency that helps IU faculty and researchers protect their IP and evaluate the potential to commercialize their innovations. They "engage the strengths of IU to support the health, economic and social development of Indiana, the nation, and the world through technology commercialization, business and economic development, and technology parks" (IURTC website, 2013). The IURTC protects the rights of the inventor, the university, and investors by obtaining the patents and copyrights for these discoveries. They also help inventors commercialize their innovations by either licensing them to an existing company or assisting with small business startups (IURTC, 2013).

Private industry entities in the region such as Cook, Kimball, and Baxter are major players because they can serve as investors of technologies developed at IU, NSWC Crane, and WestGate. These private, local industries have the capacity to increase economic welfare in the region through the commercial transfer of technologies, especially in the life sciences.

II. Major Legislation and Legal Mechanisms

Legislation:

There are many legal acts that directly relate to the field of technology transfer and the commercialization of intellectual property and knowledge capital. These legal acts provide the foundation for agreements that partners engage in throughout the technology transfer process.

The Stevenson-Wydler Technology Innovation Act of 1980 promotes and authorizes technology transfer from federal laboratories to non-federal entities. The Act states that "the federal government shall strive, where appropriate, to transfer technology to state and local governments as well as to the private sector" (Hughes et al., 2011, p. 6). The Act required the establishment of a technology transfer office, known as an Office of Research and Technology Application (ORTA), for laboratories with a 200 or more technical staff (Hughes et al., 2011, Appendix B).

The Bayh-Dole Act of 1980 permitted federal entities and Government-Owned, Government-Operated (GOGO) laboratories to issue exclusive licenses to patents held by the federal government. Before the ratification of this act, only non-exclusive or open licenses could be granted to outside organizations. Future amendments gave Government-Owned, Contractor-

Operated (GOCO) laboratories the authority to allow private companies to obtain exclusive licenses for the full life of a government-owned patent (Hughes et al., 2011).

The Small Business Innovation Development Act of 1982 required agencies to provide dedicated funds for Research and Development (R&D) that was related to the agencies' missions and also established the Small Business Innovation Research Program (SBIR) (Hughes et al., 2011, Appendix B).

The Trademark Clarification Act of 1984 gave GOCO laboratories the authority to make decisions in regards to awarding licenses for patents, and allowed contractors to receive patent royalties for use in R&D. This Act also permitted university laboratories and nonprofit entities to retain titles to inventions (Hughes et al., 2011, Appendix B).

The Federal Technology Transfer Act of 1986 (FTTA) strengthened technology transfer in federal laboratories by mandating that "technology transfer be a responsibility of all science and engineering professionals consistent with their mission responsibilities and the establishing a royalty-sharing minimum for federal inventors at 15 percent" (Hughes et al., 2011, p. 6). The FTTA allowed GOGO laboratories to enter into Cooperative Research and Development Agreements (CRADAs) with other federal agencies, industrial organizations, nonprofit organizations, state and local governments, and universities. The FFTA instated the Federal Laboratory Consortium for Technology Transfer (FLC) and required that portions of a federal agency's budget be devoted to the FLC (Hughes et al., 2011). The National Competitiveness Technology Transfer Act of 1989 allowed GOCO federal laboratories to create CRADAs with private industries and universities (Hughes et al., 2011).

The National Technology Transfer and Advancement Act of 1995 created legislation to guarantee that a CRADA partner will have the option to choose between a non-exclusive or exclusive license to their innovation. The Technology Transfer Commercialization Act of 2000 revised the reporting requirements for technology transfer and allowed laboratories to enter into CRADAs with existing government inventions. Lastly, The Energy Policy Act of 2005 required that the Department of Energy (DOE) establish a technology transfer coordinator position to be the DOE Secretary's principal advisor on all matters related to technology transfer and commercialization (Hughes et al., 2011). These key legislative acts provide the foundation for technology transfer and commercialization of knowledge capital.

Legal Mechanisms:

There are many legal mechanisms that provide an avenue to fulfill technology transfer and commercialization ventures. This section defines some of the common technology transfer mechanisms and the federal agencies that use them.

Cooperative Research and Development Agreements (CRADAs) are "formal research contracts between federal laboratories and non-federal entities to work together to advance technologies toward applications of interest to the non-federal entity and simultaneously toward meeting agency missions" (Hughes et al., 2011, p. 10-11). Simply put, CRADAs are collaborative research agreements between institutions intended to facilitate the creation and dissemination of technologies (Hughes et al., 2011).

Federal laboratories often initiate programs and allocate funds to facilitate technology transfer. The National Institute of Standards and Technology (NIST) developed the Small Business Innovation Research Technology Transfer program (SBIR-TT) to increase private sector commercialization of innovations derived from federal research activities. The SBIR program creates a fund that is used to further the development of innovations derived from federal laboratories (Hughes et al., 2011).

Partnership Intermediary Agreements (PIAs) allow federal research agencies and non-profit organizations to enter into technology transfer agreements (Hughes et al., 2011). The partnership intermediary's goals align with those of the federal laboratory, increasing the chances of achieving the successful commercialization of an innovation. They "provide services including marketing assessments, business plan development, identification of funding sources, access to facilities, equipment and research expertise" (Hughes et al., 2011, Appendix C-6). PIAs can increase economic development and allow businesses to compete on a global scale (Hughes et al., 2011).

Invention Disclosure Agreements (IDAs) describe what an innovation is. A Non-Disclosure Agreement (NDA) is a confidentially agreement, or legal contract, where two parties share information about an innovation or intellectual property that is keep in confidential between the parties in the agreement. Purdue University uses a Technology Disclosure Form (TDF) to disclose and assign inventions, copyrightable works, and other types of intellectual property (Purdue, 2013). Non-Disclosure Agreements (NDAs) are used to bridge the gap

between the industry's need to protect their IP and the needs of the researcher to gain access to information (Howieson et. al, 2013, p. 34).

III. Methods

A literature search and review, combined with a variety of interviews, was conducted to obtain pertinent information about the mechanisms, barriers, and best practices of technology transfer within and outside of SWCI. The literature review consisted of Department of Defense (DOD) and IDA documents as well as academic literature on technology transfer. The interviewees and their role in technology transfer are discussed below.

Indiana University:

Southwest Central Indiana is home to renowned research facilities (Indiana University, Bloomington) and the Naval Support Activity (NSA) Crane, which houses Indiana's only federal laboratory. These entities, and several others throughout the region, were identified as major players in the development of technical and scientific innovations, acting as the fuel for the technology transfer and commercialization process. It was recommended that we speak to representatives from the relevant parties to gain insight about technology transfer, knowledge spillovers, commercialization of intellectual property, and the current technology transfer practices, policies, and mechanism in place at these institutions. Email communication was used to schedule meetings and interviews, which were carried out in person, over the phone, or on site visits to learn about technology transfer and commercialization processes within and outside of SWCI.

Tony Armstrong, President and CEO of the IU Research and Technology Corporation (IURTC), is an Indiana University employee at the IU Office of Engagement. He works with the Vice President for Engagement to further the economic development and job-creation goals of the University, especially in the health and life sciences sector. Mr. Armstrong "helps guide IU's efforts to support new business ventures, transfer IU-developed technologies to the marketplace, and build partnerships with businesses and universities across Indiana and throughout the nation and world" (IURTC website, 2013). The Office of Engagement provides start-up resources and expertise for early-stage businesses, helps secure research funding for IU faculty, and works with business and governments to pursue strategic opportunities in the public and private sectors. The

mission of the Office of Engagement is to "coordinate and connect the University's vast intellectual and creative resources, assets, and expertise, stimulate Indiana's economic growth and development, and enhance the quality of life for all Hoosiers." (Innovate Indiana website, 2013). The IURTC's mission is to "actively engage the strengths of IU to support the health, economic, and social development of Indiana, the nation, and the world through technology commercialization, business and economic development, and technology parks" (Innovate Indiana website, 2013). The IURTC plays a very important role in the technology transfer process.

Kirk White is the Assistant Vice President for Strategic Partnerships at the IU Office of Engagement. He is responsible for coordinating national defense and homeland security partnerships with state and federal government agencies as well as maintaining relationships with economic development organizations throughout Southwest Indiana (Innovate Indiana website, 2013). Mr. White also acts as a military liaison for the IU Office of the President, is the Associate Director of IU's Center on American and Global Security, and is actively involved in the ongoing I-69 corridor expansion project.

NSWC Crane:

The technology transfer task group was fortunate enough to visit NSWC Crane and speak to several of their constituents in order to gain a greater understanding of Crane's operations and technology transfer practices on November 1, 2013. John Dement, Technology Transfer Manager at the Office of Research and Technology Applications (ORTA), Brian Blackwell, Director for the Office of Engagement at Crane, and Donald Schulte, Executive Director of Westgate Technology Park, provided overview presentation and offered question and answer sessions. Brooke Pyne, Small Business Innovation Research (SBIR) Program Manager, Kelly Siffin, Contracting Officer at Crane, and Samantha Nelson, Stimulus Engineering, were also in attendance at these sessions. Charles LaSota, President and CEO of the Battery Innovation Center (BIC), hosted a talk and excellent tour of the BIC.

External Entities:

Additional entities outside of the region were identified and interviewed to contrast how other institutions facilitate the transfer and commercialization of technologies. Among these outside sources were the Purdue Research Foundation (PRF) Office of Technology Commercialization (OTC) and Allied Minds, a technology transfer consulting firm located in Boston, MA.

The Purdue Research Foundation Office of Technology Commercialization (PRF-OTC) works with faculty and student-entrepreneurs, providing them with resources to understand how to protect their intellectual property and assisting with the marketing and development of commercially viable innovations. Tom Hutton, Associate Director of Life Sciences at the OTC, was interviewed over the phone to learn how the Purdue Research Foundation promotes technology transfer and the commercialization of Purdue's innovations. Some of his responsibilities include identifying strategic partners, evaluating the commercial viability of Purdue innovations, and developing commercialization strategies. One of the important themes derived from this discussion was how well the OTC communicated with researchers at the university. Some of the communication tactics include: meeting regularly with faculty and department heads, speaking at faculty meetings, holding seminars, and conducting surveys (Tom Hutton, Personal Communication, October 29, 2013).

Allied Minds focuses on the commercialization of Intellectual Property, and provides capital for university faculty and federally funded laboratories. Dan Espinal and Will Reardon, Directors at Allied Minds Boston, MA office, were interviewed over the phone on October 24, 2013 to comprehend some of the barriers and solutions in bringing technologies to the marketplace.

IV. Current Practices

This section examines the practices and methods by which the two largest institutions in the region, IU and NSWC Crane, carry out the process of technology transfer, their relationships to one another, and common or shared initiatives.

NSWC Crane

Naval Surface Warfare Center Crane has dedicated itself to the mission of the warfighter, namely to best equip the Department of Defense personnel, in the field or in an operations center in the United States and abroad. As such, commercialization of technology developed at Crane has often come as an afterthought to mission-related activities on the base. In the 21st century, Crane has become more dedicated to the commercialization of its technologies.

Despite 161 patents being issued since 2000, Crane is only able to dedicate two employees to pursue commercialization from a total of 3119 employees (J. Dement, personal communication, November 1, 2013). The organization is aware of the lack of resources dedicated to technology transfer. Acute mission-focus, in the case of NSWC Crane - "equipping the warfighter" - is seen both as an impediment to tech transfer and as the impetus behind many of the innovations that are commercializable in the long-term. NSWC Crane issues roughly 35 invention disclosure agreements a year but wishes to be in the range of 100 to 150 (J. Dement, personal communication, November 1, 2013). This goal, while ambitious, indicates that Crane has the desire to tap the vast potential for technology transfer within the organization and SWCI as a whole.

NSWC Crane has developed relationships with a number of universities and private organizations across the state of Indiana, leveraging them in a variety of ways. In the academic sphere, NSWC Crane has developed relationships with both of Indiana's largest universities, Indiana and Purdue, as well as Ball State University, the University of Southern Indiana, and the Rose-Hulman Institute of Technology. The University of Southern Indiana (USI) has measured the amount of patents issued, the scope of commercially-viable technology created on base, and has polled industry to see what NSWC Crane innovations might be of interest to them. USI has also been active in Crane's Innovation Discovery events, which have taken place at least three times since 2012. Ball State University's "Military to Market" program has also yielded some successful student-designed plans to bring Crane technologies to the commercial market. The Indiana Business Research Center (IBRC), affiliated with the IU Kelley School of Business, has worked with the Department of the Navy's Technology Transfer Office to examine the use of CRADAs, PIAs, and Limited Partnership-CRADAs across the Navy as whole (IBRC 2010).

These research projects demonstrate the investment of the academic community towards the success of the military-led research, and NSWC Crane in particular.

Crane has recently entered into relationships with the private sector as well. TechLink is a Montana-based firm that works with a number of federal labs throughout the country, including NSWC Crane. Additionally, Crane has been interacting with Allied Minds, a Boston-based venture capital firm specializing in technology transfer at universities and federal labs. To date, Crane has entered into 27 Partnership Intermediary Agreements (PIAs) with private companies, 15 of which are located in Indiana, and, from January 2010 to the end of August 2013, Crane had six CRADAs and one in process. These collaborative agreements allow outside organizations to use Crane facilities and offer their research for Crane to use. These concepts of commercialization and contracting are referred to as "Spin-out" and "Spin-In" activities.

Indiana University

Indiana University has a variety of institutions within its ranks who are major players in the field of technology transfer. Among these, the biggest is the medical field, represented primarily by IU Health. This is focused primarily in Indianapolis, along with an engineering program located at IUPUI. In Bloomington, the Departments of Biology and Chemistry, the Department of Computer Science, and the School of Informatics and Computing are some of the major contributors to commercially-viable patents (T. Armstrong, personal communication, November 15, 2013).

The Indiana University Research and Technology Corporation, part of the IU Office of Engagement, is a major player in bringing commercially-viable technologies from the University to market. Technology development managers are located at both the Bloomington and Indianapolis campuses, and one of them has recently been imbedded on the campus to work directly with professors in the sciences on the Bloomington campus. (T. Armstrong, personal communication, November 15, 2013).

The IURTC was institutionalized in 1997 and IU is relatively late to develop its commercializing mission. Although the Bayh-Dole Act predates this event by 17 years, land-grant universities like Purdue have traditionally been tasked with commercializing for longer than "flagship" universities like Indiana University (T. Armstrong, personal communication,

November 15, 2013). "Industrial Relations" was a mandate of land-grant universities from the beginning. Despite the lag in time, there were 238 faculty invention disclosures on the campuses of IU-Bloomington and Indiana University – Purdue University Indianapolis (IUPUI) in 2012, including 40 patenting licenses (T. Armstrong, personal communication, November 15, 2013).

The commercialization process at IU is well defined in theory, but not necessarily easy to undertake. When a faculty member chooses to disclose an invention to enter into the licensing process, he or she agrees to a profit-sharing agreement where 35% of revenue goes back to the professor, 15% goes into the lab, 15% to his or her respective department, and 35% to IURTC (T. Armstrong, personal communication, November 15, 2013). But in order for a disclosure to reach commercial viability, a long process of investment must first take place. While IU has certain resources designated toward the commercialization of IU innovations, such as the Innovate Indiana fund and grants from the Federal government, much more could be done to fund student and faculty innovations. As the medical field becomes more and more competitive, IURTC is also seeking to diversify both the sectors in which it promotes IU research and the number of private firms it works with to commercialize IU's medical inventions. Pennsylvania University in Philadelphia was mentioned as a prime example of a university that is establishing connections to university networks (T. Armstrong, personal communication, November 15, 2013).

IU and Crane:

In the last three years, Crane and IU have signed a Partnership Intermediary Agreement and an Educational Partnership Agreement. These agreements have initiated relationships that allow Crane researchers to make use of resources like the IU Cyclotron. Further, they enable IU to serve as an intermediary between businesses and Crane as well as share information and resources more freely. Nonetheless, differing communication mechanisms and goals continue to make collaboration difficult. Designated personnel serve as liaisons between IU and Crane, but the size of each institution and the breadth of communication needed for smooth collaboration is difficult to achieve. Other actors, such as military contractors, utilize IU resources through Crane's status as an intermediary, thus creating another link in the communication chain (K. White, personal communication, October 15, 2013).

Both IU and Crane have been in contact with the angel investment firm Allied Minds, though they are at different stages of the collaboration process. In the case of IU, 3-D modeling and recognition has been the focus of collaboration, though a more institutionalized agreement is still in the process. Allied Minds specializes in the identification of commercial markets for technologies developed at federal labs and universities. As a private venture, they are generally interested in technologies that are projected to yield substantial returns on investment (W. Reardon, personal communication, October 24, 2013). On the university side or in interactions with individuals, work can be carried on without a formal agreement for some time. Allied Minds can incorporate a five-year first right of refusal into a contract, in which they can invest, pause, or pass on a potentially viable research project (W. Reardon). One the other hand, institutions have been eager to build relationships with Allied Minds for their expertise in identifying markets and their commitment to seeing a company through from seed funding to viable enterprises.

Regional Private Sector Actors:

The WestGate Technology Park at Crane houses 27 tenants in 14 buildings, including the new collaborative Battery Innovation Center (BIC) research facility, the Fortune 500 company Science Applications International Corporation (SAIC), and other military contractors. Westgate became a Certified Technology Park in 2006 and is an influential actor in bridging the commercial sector to NSWC Crane in the region (D. Schulte, Personal Communication, November 1, 2013). The BIC, sponsored by a public-private consortium of institutions throughout Indiana, was completed in August 2013. The BIC facility provides space for Ivy Tech classes and high-quality battery testing equipment for private companies to use. Outside SWCI, NWSC Crane partners with other private sector military contractors around the country, such as MilTech and TechLink (J. Dement, Personal Communication, November 1, 2013).

Indiana University has a diverse set of commercial partners around the state and world. For example, IU Chemistry Professor Richard DiMarchi, Merck, Lilly, Roche, and Bristol-Myers Squibb, have been involved in licensing IP that originated in Bloomington. DiMarchi co-founded IU-licensed Marcadia Biotech, purchased by Roche in 2011, for a reported $537 million (IU Media Relations, 2012). These relationships, as well as start-ups like Marcadia, illustrate the

diversity of private-sector partners in which IU carries out the commercialization process. Despite these achievements, IURTC directs an estimated two-thirds of its funding to the Indianapolis campus, due primarily to ventures related with IU Health. Indianapolis is not part of the region nor are most the pharmaceuticals companies that do business with IU Health. Bloomington does have a small but growing biosciences business sector, represented by the Bloomington Life Sciences Partnership. IU's $10 million Innovate Indiana Fund was unveiled in 2009.

A comprehensive list of SBIR and STTR grants in the state of Indiana in 2009 shows 15 Bloomington firms carrying out at least one project under an SBIR or STTR grant (21st Century Fund, 2009). This shows a vibrant high-tech private sector has indeed cropped up in Bloomington, at least in part due to the presence of Indiana University. Beyond Bloomington, however, Hawthorne Mushroom Farms, Inc. in Montgomery was the only company in the region to implement a project under an SBIR or STTR grant out of the 297 projects granted in 2009. Of the 50 U.S. States, Indiana is 16th in population yet 27th in number of SBIR and STTR grants awarded since the programs' first operational year in 1983 (United States Government 2013). This incongruity is confirmed in the master plan for the Bloomington Certified Technology Park, which makes note of the dearth of regional SBIR and STTR awards (City of Bloomington 2013, p. 100). This park includes technology transfer as a primary goal, noting that the IU Technology Corridor already underway "essentially function[s] as department space" (pp. 10, 100). A new 60,000 square foot multi-use facility within the Corridor is expected to be completed by July 2014, increasing the potential to bring in outside institutions. The Bloomington CTP, however, hopes to attract defense contractors itself (City of Bloomington, 2013, p. 100).

V. Technology Transfer Barriers

After conducting extensive research and numerous interviews, barriers inherent to the transfer of technology in SWCI were identified. The overarching barriers hindering the transfer of technology in the region appear to be communication and collaboration, both internally and externally. Although these barriers are particularly focused on Crane, Westgate, and IU, they can be related to other technology transfer entities in the region.

Communication:

Communication plays a major role in the success of any program. While communication does exist internally and externally between the region's major entities, there is ample room for improvement. In order to sufficiently convey the identified barriers to communication, it is divided it into two subcomponents: internal communication and external communication.

Internal communication refers to the exchange of ideas, information, and knowledge through verbal or written mechanisms within an organization (e.g., IU). Since IU and Crane are large, complex organizations with numerous departments and divisions (often with their own role, vision, and purpose), it can be challenging to effectively communicate internally between faculty, staff, scientists, engineers, researchers, directors, departments, and offices, inter alia. Further, such communication may be perceived as undesirable and bothersome. It has been noted that it is very difficult to keep track of ongoing faculty-led research at IU (K. White, personal communication, October 15, 2013). The IURTC, for example, serves as a mechanism for IU research innovations to be disclosed, assessed, and further developed once a commercial market value for a technology has been identified. To initiate this process, a technology must first be disclosed through some form of internal communication. If the IURTC is not recognized by an innovator, then a valuable technology may not be identified. Additionally, IU faculty and researchers are not required to disclose innovations at the University level (T. Armstrong, personal communication, November 15, 2013). As a result, little incentive exists to share new technologies with the IURTC, especially if its presence and function is not known.

We suspect that these crucial technology transfer offices are neither widely known nor recognized for their services and functions throughout the various departments and divisions of Crane and IU. For example, IURTC participates in department meetings and seminars at IU, but only about once or twice a year (T. Armstrong, personal communication, November 15, 2013). This level of communication with targeted departments and directors is not adequate to effectively convey the presence and purpose of the IURTC. Thus, the technology transfer offices are not adequately educating and raising the awareness of their services and function within their organizations.

External communication refers to the exchange of ideas, information, and knowledge through verbal or written mechanisms between organizations (e.g., Crane and IU). It is apparent

that only a few individuals serve as contacts between IU and Crane (T. Armstrong, personal communication, November 15, 2013; K. White, personal communication, October 15, 2013; J. Dement, personal communication, November 1, 2013). This limited external communication creates a barrier to identifying viable commercializable technologies, including an innovation's potential uses in the marketplace, and effective mechanisms to successfully commercialize a technology.

Communicating externally with the commercial sector, including potential and previous investors, is equally crucial. This type of communication can be extremely valuable since the private sector, by its very nature, has a greater understanding of markets and the market forces involved when considering a technology as a new commercial product (Geller, 2003). Therefore, communicating new technologies with the private sector can serve several advantages. It is evident that this type of communication is occurring only to a limited extent between IU and private entities. However, it is clear that both IU and Crane adequately communicate with previous investors and licensees (T. Armstrong, personal communication, November 15, 2013; J. Dement, personal communication, November 1, 2013; D. Shulte, personal communication, November 1, 2013; B. Blackwell, personal communication, November 1, 2013).

Collaboration:

Collaboration is closely associated with the communication theme, but relates more to the concept of working together, both internally and externally, towards a common goal. While it appears that internal collaboration is more prevalent than external collaboration at IU and Crane, there is still ample room for improvement. Once again, this barrier is divided into two subcomponents: internal collaboration and external collaboration.

Internal collaboration refers to the idea of working together towards a common goal within the same organization (e.g., IU). Collaborating internally may be a larger function of an organization's culture as opposed to its written rules and objectives. It is therefore valuable to develop solid relationships between departments and individuals within an organization. While this is not necessarily the case at IU and Crane, it appears that limited collaboration exists and that the proper mechanisms are not in place to adequately facilitate internal collaboration related to innovation development, market value assessments, and, ultimately, technology transfer. The

idea of technology transfer only begins once an idea or innovation is disclosed to the proper office or department (T. Armstrong, personal communication, November 15, 2013; J. Dement, personal communication, November 1, 2013).

External collaboration refers to the idea of working together towards a common goal between organizations (e.g., Crane and IU). Although Crane and IU do have partnerships in place, in our opinion, they are young, underutilized, and underdeveloped. In September of 2011, for example, IU and Crane signed an educational partnership agreement with the intentions of building a collaborative partnership in areas including technology transfer, intellectual property, and regional economic development (Leonard, 2011). Mr. Kirk White (personal communication, October 15, 2013) indicated that this partnership had not necessarily resulted in additional benefits within the realm of technology transfer to date, but that the IU-Crane Cyclotron partnership had been very successful. Collaborating with the private sector is thought to be equally important, as it may speed up the process of transferring a technology to the commercial sector (K. White, personal communication, October 15, 2013)..

Organization Mission:

The missions of the major players in SWCI are vastly dissimilar to one another and, from a fundamental perspective, are not aimed toward technology transfer and commercialization. As a whole, innovations are not created for the purpose of commercial application within these institutions; they are created for non-commercial purposes through applied and academic research. For example, the mission of NSWC Crane is to "harness the power of technology for the Warfighter." NSWC Crane's mission is accomplished through applied research that focuses on solving specific defense-related problems. In addition, WestGate's mission is to promote the growth of technology activity and was established to create jobs and wealth in Southwest Indiana (D. Schulte, personal communication, November 1, 2013). The majority of WestGate's work, however, is sponsored through Crane contracting and is therefore focused on solving specific defense-related problems (B. Blackwell, personal communication, November 1, 2013; D. Schulte, personal communication, November 1, 2013). As an academic institution, IU focuses on basic academic research, applied research through grants, and classroom education (K. White, personal communication, October 15, 2013).

Within these major institutions, the concept of technology transfer becomes relevant only once a technology has been created and disclosed to the proper office or department. It is evident that innovations in these institutions are not created for marketable purposes, nor are they initially intended for commercial applications. The BIC, on the other hand, is unique in that its purpose is to further the development of energy storage technologies through collaborative research and development prior to their defense- or commercial-related applications (C. LaSota, personal communication, November 1, 2013). This novel approach will surely lead to technology transfer enhancements related to energy storage technologies by decreasing the disconnect between the primary missions of NSWC Crane, WestGate, and IU, but only once an innovation has been developed, recognized, and properly safeguarded (i.e., through a legal or voluntary agreement).

Additional barriers related to the organizational missions of NSWC Crane, IU, and Westgate are related to the systems under which they operate. IU is a public institution that is prohibited from classified research, whereas NSWC Crane is involved in top-secret federal research (K. White, personal communication, October 15, 2013). As a result, the two institutions cannot openly interact with one another without the proper legal agreements in place and IU cannot participate in NSWC Crane classified research. Further, NSWC Crane and IU operate under different priorities and legal requirements. For example, IU is obliged to comply with the Bayh-Dole Act whereas NSWC Crane must follow the legislation enacted for federal laboratories (e.g., FTTA). To avoid these barriers, it may be wise to utilize a private entity as an intermediary in order to better facilitate interaction between IU and NSWC Crane (K. White, personal communication, October 15, 2013).

Limited T2-dedicated Personnel:

It is evident that there are very few individuals at IU, NSWC Crane, and Westgate dedicated to technology transfer-related activities. These individuals carry tremendous responsibilities and immeasurable challenges: identifying technologies, education and outreach, assessing the market potential and commercial value of an innovation, and building and maintaining relationships, internally and externally (T. Armstrong, personal communication, November 15, 2013; K. White, personal communication, October 15, 2013; J. Dement, personal

communication, November 1, 2013; D. Shulte, personal communication, November 1, 2013; B. Blackwell, personal communication, November 1, 2013). While all of these responsibilities and challenges are important, the concept of building and maintaining relationships may be the most important and challenging task for technology transfer personnel. Without relationships, communication and collaboration are non-existent and the other responsibilities and challenges of the technology transfer manager cannot be completed. Overall, technology transfer managers serve numerous purposes within their institutions and their role cannot be underestimated, understaffed, or underfunded.

Commercial Viability & Assessment of Market Use(s):

As previously mentioned, new technologies are not developed for commercial purposes at NSWC Crane, WestGate, and IU. NSWC Crane and WestGate, for example, create highly-specialized technologies for military applications whereas their viability as a commercial product is not assessed during their development. Additionally, there may be no commercial value or use of a specific technology. Nonetheless, a new technology must first be recognized and subsequently assessed for its market potential and commercial value. This step in the technology transfer process requires both communication and collaboration, legal mechanisms (e.g., non-disclosure agreement), and solid relationships. Limited relationships with the commercial and private sectors serve as a major barrier in the identification of market applications and commercial value of technologies developed at IU, NSWC Crane, and WestGate.

Risks Involved in New Technology Investments:

Technologies developed at IU and Crane are often in the early stages of development. As a result, investments in these technologies require enormous risks and substantial monetary and human resources to make them viable for the marketplace. These facets create a significant barrier to the transfer of technologies from both IU and Crane since these innovations are not immediately ready for commercialization, require ample time and money to ‘de-risk’ them, and are viewed as a risky investment by the commercial and private sectors. Research, development, and demonstration (RD&D) activities are usually associated with the ‘de-risking’ of technologies

(T. Armstrong, personal communication, November 15, 2013; J. Dement, personal communication, November 1, 2013).

Market Acceptance and Diffusion:

Throughout the interview process, the concept of diffusion theory was neither mentioned nor discussed. Diffusion theory examines the process by which an innovation is adopted throughout time and consists of four major components: innovation, communication, time, and social system (Rogers, 1995). The rate of an innovation's adoption is often depicted by the use of a diffusion curve, where the early to late adoption of an innovation over time follows an S-shaped pattern. In addition, Rogers (1995) identifies several attributes that affect the rate by which innovations are adopted within social systems; these attributes are also related a technology's acceptance in the marketplace and consist of an innovation's compatibility, complexity, trialability, observability, and relative advantage in contrast with other technologies or ideas (Rogers, 1995). Overall, "innovations that are perceived by individuals as having greater relative advantage, compatibility, trialability, and observability and less complexity will be adopted more rapidly than other innovations" (Rogers, 1995, p. 16). Furthermore, Rogers (1995) identifies the need for opinion leaders and change agents throughout the diffusion process and defines the point at which an innovation is self-sustaining in the marketplace. This point is known as "critical mass" and, once it is reached, an innovation has successfully been adopted by a social system (Rogers, 1995).

The theory of diffusion leads to the point that even if a technology is 'transferred' to the market or an investor, its commercial success is not guaranteed. Thus, the concepts of diffusion theory must be taken into account throughout the technology transfer process in order for innovations to successfully gain acceptance to and infiltrate the marketplace. Ignoring these invaluable concepts undoubtedly creates barriers to the successful transfer of technologies.

VI. Best Practices in Technology Transfer

As Southwest Central Indiana works towards creating a regional strategy for economic development, other regions in the United States with similar attributes as SWCI can lead us to discover what attributes define highly efficient tech transfer systems. Exemplary institutions and

best practices are gleaned from Purdue University in Indiana and from case studies at federal labs in Alabama and New Mexico are examined.

Choosing Points of Comparison

Since the advent of the Bayh-Dole Act, the United States has witnessed an unprecedented rise in university-driven innovation. In 1975, research universities were granted less than 0.5% of U.S. patents; by 2000, this percentage had risen above 3.5% (Rhines and Levenson 2005). Patents do not always turn into businesses, however, and some states have done better than others in this realm. The SBIR grant is a good indicator of entrepreneurial activity in a state. In terms of the state-by-state distribution of SBIR grants, California and Massachusetts dominate the scene (Peng 2006). Collaboration between universities and private research institutions is well documented in regions such as North Carolina's Research Triangle, California's Silicon Valley, and Boston's Route 128 corridor (Link and Scott 2005). These regions, however, have distinctly different demographic and geographic characteristics than SWCI due to their urban characteristics, lack of large federal labs, and clustered research universities. For these reasons, examples more relevant to IU, Crane, and the SWCI Region as a whole are examined.

Purdue University

Purdue University is a prime example of best practices in the field of commercializing technology from a university context. Purdue faculty members were some of the primary drivers for the creation of the Bayh-Dole act in the late 1970s, illustrating their long-term investment in this arena. While Purdue has been working on T2 for much longer than Indiana University, and its fields of innovation are unlike IU's, the proximity of the two universities lends them to comparison. Both universities collaborate with NSWC Crane and are essential players in the economic development of the state of Indiana. Purdue Research Foundation's Office of Technology Commercialization (PRF-OTC) plays a similar role on its campus as the IURTC does at IU. Purdue's four research parks are instrumental in housing the product of decades of innovation. Producing 380-400 invention disclosures per year, PRF-OTC maintains a significant relationship with its researchers, meeting regularly with key faculty and department heads (T. Hutton, personal communication, October 29, 2013). PRF-OTC staff attend faculty meetings and

present at seminars on topics related to commercializing university-based innovations (T. Hutton). This highly-integrated communication platform in practice at Purdue is not merely the result of planning, but of years of experience in the field.

Purdue has a variety of instruments at its disposal to encourage innovation commercialization. a number of options of varying complexity and structure can be chosen according to a student or faculty member's experience and expertise. From a legal perspective, Purdue offers a diversity of options to its researchers: a Full License Agreement, an Express License Agreement, and a Commercial Evaluation Agreement. The latter two agreements are aimed at researchers who want either a ready-to-sign agreement without customization or those who are interested in testing their product's commercial viability for a limited period of time (PRF website).

At the financial level, Purdue has two internal options for commercialization funding and a large host of commercial partners to provide external funding. Internally, the Trask Innovation Fund started in the early 1970s offers competitive grants to researchers, while the Emerging Innovations Fund offers competitive awards to Purdue-affiliated companies, with a slightly larger amount of money than the Trask fund. The Trask fund is an "Evergreen Fund" meaning the revenue from profitable ventures is split between inventors, departments, and the fund itself. The existence of the latter fund is a key link to between initial grant money and angel investing from the outside. Purdue spun off 11 new companies in both 2010 and 2011, and helped create both Cook Biotech and Endocyte (Pogorelc 2012).

Case Studies of Tech Transfer at Federal Labs: Alabama and New Mexico

Federal Labs in the post-World War II era grew as a result of federal legislation, budget allocations, and public outreach. With legislative changes in the 1980s, research at Federal Labs went from a legal impossibility to a new form of public outreach. By 2012, the Department of Defense had issued a strategy entitled, "For Accelerating Technology Transfer (T2) and Commercialization of Federal Research in Support of High Growth Businesses," marking another shift in priorities. With or without this support, various federal labs have pushed forward with the commercialization process at the local level. We will examine a few of these cases in

order to derive a sense for what characterizes a successful technology transfer process from a federal lab.

Los Alamos National Laboratory (LANL), U.S. Air Force Phillips Laboratory (USAFPL), and Sandia National Laboratory (SNL) are located in New Mexico in proximity to the University of New Mexico at Albuquerque. The LANL Deputy Principal Associate Director presented at a House Science and Technology committee staff caucus in 2011, reporting that 28 patent licenses were executed with NM companies, 40 Entrepreneurial Leave of Absence participants, and 56 new startups had been initiated to date (McBranch 2011, p. 10). In a series of case studies of technology companies spun off from these institutions, two major factors were identified that are needed to create a technology-cluster: risk capital for starting-up technology-based ventures and outside entrepreneurs (Carayannis et al., 1998, p. 10). Carayannis et al. 1998 note that "surrogate entrepreneurs" played a crucial role in some of the spin-offs. In another report of the New Mexico laboratories and private partners, specific CRADA relationships were examined. In these cases, the researchers found that, "the initial contact between CRADA partners is serendipitous, and occurs in an almost accidental manner" (Rogers et al. 1998, p. 81). Physical, strategic, and technical proximity were found to be helpful in overcoming differences in organizational culture, mission objectives, and speeds of operation (p. 83).

Case studies of technology transfer (T2) occurring in the area around Huntsville, Alabama and NASA's Marshall Space Flight Center found commercialization to be laudable but with room for improvement. Though the studies are from two decades, their insights prove what qualities are needed for T2 success. In the first study, it was found that focus groups, seminars, and exchange fairs were useful tools to engage potential clients from the base (Spann et al. 1993, p. 71). Other recommended improvements were targeted marketing, better understanding of business motives, multi-stage relationships between labs and businesses, and better measurement of T2 objectives (pp. 71-72). Another study of NASA's T2 success found it to be relatively successful: "25% of patents filed by and assigned to NASA between 1994 and 2002 were licensed to firms" (Jung 2007, p. 25). It was also found that, "The more technologically important (as measured by forward citation counts) and the broader in technology areas (as measured by the number of claims), the higher commercial value a patent is likely to have" (pp. 25-26). The findings from the Huntsville, Alabama and New Mexico areas should be helpful to NSWC Crane as it seeks to improve its use of T2 mechanisms.

VII. Keeping It Local – Clustering

In an increasingly interconnected knowledge economy, technology transfer does not necessarily flow over into regional economic growth. Examples of commercialization at both IU and Crane cannot expect to have limited impacts. However, the increasing the regional identity of SWCI from a technological level can help attract and maintain knowledge spillovers local. Research confirms that, "Both the knowledge spillovers and the human capital development constitute important locational attractors for private sector R&D and for high technology production" (Anselin, Varga, & Acs, 1997, p. 423). Such chains and loops of interactions between the employee base, private companies, and public institutions looks much like what might best be termed as economic clustering. Such a cluster can be defined as "a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities" (Porter 1998, 199).

In interviews, it was found that clusters of regional economic activity are of interest to key T2 personnel at both IU and Crane. The expansion of the I-69 corridor from Crane to Bloomington, set to be completed in 2014 or 2015, could constitute a lynchpin in trying to link these institutions closer together by cutting down commuting time and elevating the region's profile to those living in Evansville, Indianapolis, and beyond. But beyond physical proximity, economic clustering should focus around a certain technological field of expertise. This technological identity has been found key in academic research: "the percentage of university spin-off companies is relatively greater in research parks that have a biotechnology focus has important policy implications—regional economic development policy implications in particular" (Link & Scott 2005, p. 1111). In Bloomington, the life sciences sector has been growing a significantly, as evidenced by the 25 institutions involved in the Bloomington Life Sciences Partnership. Combining IU and NSWC Crane, however, means that life sciences is no longer the primary research interest.

Bioscience is not the only sector with effective clustering practices. In another example, a Maine consortium of a University of Maine research center, boat builders, and trade associations worked together to create an internationally-competitive regional cluster called the North Star Alliance. They received a $15 million matching grant from the federal Employment and Training Administration to advance the sector and participate in an international boat trade show (Mills et

al. 2008, p. 5). This example proves the viability of the clustering concept, but also the way in which federal money can be used to bear the fruit for local economic development.

Cybersecurity, supercomputing, data, and analytics, are relevant sectors for both IU, with its Big Red II supercomputer, and NSWC Crane, with its renowned innovations in technological warfare. In fact, given the quicker commercialization process in these fields than in the life sciences, computing commercialization should be considered "low-hanging fruit" (T. Armstrong, personal communication, November 15, 2013). Innovation in computing is on the rise at the IU-Bloomington campus with the expansive growth of the School of Informatics. Since they are almost immediately marketable, innovations developed in the Information Technology sector have a quicker turn around between the lab and the market than the bioscience sector, although their payoffs are not as consistently high as in bioscience.

Using the new and existing resources of the Bloomington CTP and Westgate at Crane, new companies have more opportunities to start up in proximity to either NSWC Crane or IU-Bloomington than ever before. In addition, Bloomington houses a large cluster of public and private life sciences companies. These local clusters often increase as public investment in research increases, according to Wolfe, who contends that "Proximity to the source of the research is important in influencing the success with which knowledge generated in the research laboratory is transferred to firms for commercial exploitation, or process innovations are adopted and diffused across developers and users" (Wolfe 2005, p. 11).

SWCI must look to develop its resources in innovative ways that cater to its existing talent pools and ongoing projects. While many look to Boston, Silicon Valley, and North Carolina's Research Triangle, many regions do not have the right combinations of characteristics and assets to achieve similar results as those three. This does not mean that increased regional economic development initiatives have no place in leveraging existing resources to new heights. For example, small improvements in rural infrastructure can make a big difference. "Although there will be only a few new Silicon Valleys, long-term local and national competitiveness would be enhanced by improvements in education, research, urban and rural infrastructure, and cooperation among the private, public, and nonprofit sectors" (Malecki 1984, p. 267).

VIII. Recommendations

After thorough examination of literature, and conducting interviews with key players in the region, recommendations have been developed that, if implemented, could enhance knowledge spillovers of technology and knowledge capital while spurring economic development throughout the region. These recommendations, in no particular order of importance, are listed below.

Implement an institutionally-centralized database tracking system of all previous, ongoing, and planned research activities

Maintaining records of research activities at the institutional level will ultimately lead to the increased identification of transferable technologies. Implementing the use of a secure, centralized database systems at IU and Crane that enables faculty and other relevant personnel to input and search for all research projects and interests will facilitate effective coordination, collaboration, and lead to the efficient use of resources and further the development of technologies. This system will allow faculty, department heads, and other entities to communicate directly with one another, reinforcing university cohesion, which will prevent research duplication and build collaborative relationships. Technology transfer offices and personnel will use these databases to identify technologies with market potential and commercial value. Beyond this, private sector investors and entrepreneurs could be provided access to these technologies in a way similar to the University of Michigan Business Engagement Center's Directory of Available Technologies (http://inventions.umich.edu/), which allows people to "search for university technologies and entrepreneurial resources that add value to your business."

Promote internal invention disclosures to IURTC

Promoting internal invention disclosures will enable the identification of transferable technologies that would otherwise not be acknowledged until a faculty's retirement. Enforcing both the letter and the spirit of Indiana University's intellectual property code, which gives the IURTC sole right of commercialization, will ensure that faculty are aware of that their time researching new technologies should be commercialized for both personal and institutional gain,

allowing the proceeds of commercialization to be re-invested back into their labs for further research. Access to invention disclosures should continue to be strictly limited to technology transfer personnel and protected with the highest degree of cyber security available. With the university's guarantee of legal protection for faculty's intellectual property, IURTC should instill confidence among faculty who are considering whether a technology should move into the disclosure process.

Increase the internal awareness of technology transfer offices within IU and NSWC Crane

It is evident from our research that technology transfer offices (TTOs) in the region are underutilized among faculty, staff, and researchers within their institutions. The IURTC, for example, must advertise and promote its existence so that faculty members may utilize TTO resources in order to facilitate the commercialization of their intellectual property or innovations. Mechanisms used by the PRF-OTC appear to increase the awareness of their office and their services offered. These mechanisms include: regularly attending and speaking at faculty and department head meetings, educating faculty about the importance of technology transfer and the mechanisms by which innovations are protected, and holding seminars on topics relevant to T2 (T. Hutton, personal communication, October 29, 2013). NSWC Crane's ORTA should also seek to expand its presence within the base, drawing from outside researchers to research commercializable technology if obtaining more T2 staff is not feasible. Maintaining imbedded personnel within departments as IURTC is experimenting with on the IU-Bloomington campus, is another way to ORTA can assist researchers on a more personal level.

Increasing the awareness of TTOs can yield positive externalities among university faculty. For instance, a faculty member could rise in both academic and professional prominence through commercializing lab innovations. A "star scientist" with a high level of research citations tends to also have the most amount of success in entrepreneurial activity. Research has found "a strong co-location of university star scientists and start-up firms in biotechnology," and that these firms have a notable positive impact on regional economies (Feldman, 2000, p. 349). Knowing this should encourage the IURTC.

Promote and expand the services that technology transfer offices provide

Even if faculty and researchers are aware of TTOs within their institutions, they will not necessarily use their services, understand the importance and benefits of technology transfer, nor the legal mechanisms by which intellectual property is protected and disseminated. TTOs should actively educate internal faculty and researchers about these topics. Electronic mail digests, regularly attending and participating in department and staff meetings, and sponsoring forums and seminars are a few of the many educational and promotional activities that TTOs could engage in. These communications could increase collaboration across departments and sponsor the development and identification of valuable, commercializable technologies. In addition, TTOs should make themselves widely accessible and identifiable to faculty and researchers within their institutions. Such practices will facilitate in strengthening internal and cross-departmental relationships, communication, and collaboration.

Various sources cite the vast potential of teaming with the schools of businesses to increase researcher's knowledge of business techniques, allowing them to be both researchers and entrepreneurs. Creating partnerships between Kelley School of Business and the Department of Chemistry, for instance, could provide practical advice for both institutions. These partnerships could also take the form classes and networking events.

Elicit feedback from faculty, staff, and investors to evaluate the effectiveness and improve the performance of technology transfer offices

TTOs should develop surveys in order to elicit feedback mechanisms from which they can assess their performance and effectiveness in technology transfer activities. Such surveys should be targeted for both internal and external players in the technology transfer process and incorporate a section for which respondents can inscribe general comments and suggestions. Feedback from these surveys can be evaluated to make improvements in communications and services offered by TTOs, leading to new ideas that could be implemented to increases their effectiveness. Distributing surveys may also serve as a viable mechanism in maintaining and strengthening external relationships.

Increase the amount of experienced staff members dedicated to technology transfer

Increasing the expertise or amount of expert technology transfer personnel at TTOs, such as the IURTC, could generate a greater number of businesses from IU resources. One study analyzing the creation of companies from the university setting concludes, "The availability of adequately trained staff are important determinants of a university's success in creating spin-outs and external equity backed spin-outs" (Lockett & Wright 2005, p. 1054). This report notes that "The stock of experience in terms of the number of years involvement with technology transfer does not appear to be important per se, but rather the skills accruing to technology transfer officers and the presence of technology transfer routines" (1054-55). In other words, IURTC and ORTA should hire experienced technology transfer experts from exemplary TTOs while developing consistent and well-known routines so that both internal and external stakeholders in the commercialization process commit more readily to the use of their services. Experienced marketing and business professionals should be utilized in TTOs to identify commercial uses and markets for technologies, while experienced public relations professionals should be focused on building and maintaining relationships with the private sector. Dedicating TTO staff to specific roles in the technology transfer process would likely lead to improvements in the efficiency and effectiveness of their operations. Such staff members should be devoted to roles that match their professional experience and expertise. Finally, TTO staff should hold regular meeting and actively collaborate amongst themselves.

Seek out additional funds to "de-risk" underdeveloped technologies

Although the Department of Defense has dedicated more resources towards commercialization efforts in the 21st century compared to higher education institutions, incentives remain an issue at large. "So long as cooperative technology is an ornament to other missions or a political symbol, resources go to as many claimants as possible with limited concern about impacts" (Bozeman 1999, p. 23). This finding comes in the context of a discussion about collaboration between contractors and government labs in the Cooperative Technology Paradigm. This paradigm arose in the 1980s, as federal labs "moved from a sole focus on public domain research to a mandated role as a technology development partner to industry" (Bozeman, 1999, p. 7). Bozeman suggests that incentives can play a role in undergirding softening

relationships between industry and federal labs. While NSWC Crane deals with large defense contractors, there may be room for more intentional relationship with outside expertise. Bozeman (1999) writes: "Current evidence suggests that industry labs approach cooperation with great caution. But providing incentives, including matching R&D funding, could well alter industry receptivity" (p. 24). Funding for commercializing innovations should not be limited to private investors, matching grants dedicated to industry collaboration could diversify NSWC Crane's portfolio of private sector collaborators. State and federal funds, along with increased private funding from Allied Minds, MilTech, or TechLink, can move military technologies closer to the market.

Create a culture that values internal communication, collaboration, and relationships

After describing the inadequacies of Technology Transfer Offices (TTOs) at large state-run universities, one research report finds that, "The first step toward success for an institution interested in commercializing science is to convince often ambivalent faculty to disclose new technologies to the university" (Owen-Smith & Powell, 2001, p. 112). Acknowledging that private research universities are more effective across the board than public universities, Owen-Smith and Powell ask what makes the difference between the two. They find that the environment of peer researchers, awareness of patent benefits, and the equal importance of research and commercial success to university faculty are all important factors in a professor's decision to seek a patent (p. 112-113). Others find a "divergence with what the university culture and reward systems support… the basic search is considered the legitimate function, while commercial activity is regarded as an inappropriate focus" (Feldman 2000, p. 348). Creating an institutional culture that values both personal and institutional growth, both at IU and NSWC Crane, could be instrumental for a more robust commercialization process.

Increase communication and collaboration between IU, NSWC Crane, and their affiliates

NSWC Crane and IU should develop stronger methods by which to communicate and collaborate with one another. This could be achieved by dedicating additional staff members to act as liaisons between the entities and identifying similar research priorities among themselves. NSWC Crane and IU should develop more research agreements that go beyond simply sharing

facilities. Additionally, it may be necessary to use private companies as moderators or intermediaries between NSWC Crane and IU in order to eliminate conflicts of interest. Face-to-face meetings, as opposed to informal meetings, should take place regularly between the two entities and ongoing research at each institution should be shared to the highest possible degree.

Actively seek out, build, and maintain viable relationships with private partners inside and outside the region

Developing, maintaining, and strengthening internal and external relationships at personal and institutional appears to be the ultimate key to technology transfer success. Increasing collaborative efforts with private sector actors such as Ivy Tech, Cook Medical, or area banks and hospitals could lead to investment opportunities. In one instance, Ivy Tech uses BIC property (a public-private partnership) for laboratory space. IU already provides data protection services to private sector actors, they should leverage these pre-existing relationships into opportunities for innovation commercialization. NSWC Crane and related institutions have brought more business to local economies through partnerships with Vectron Gas and local power suppliers. These relationships should be continued and areas for innovation examined by both parties. Partnering with these entities through Partnership Intermediary Agreements would serve one method to facilitate and build these relationships. Obtaining research grants and other funding mechanisms from private institutions will sponsor local RD&D activities and retain valuable technologies resulting in local economic development. Relationships should not be limited to public-private interactions, however. Building public partnerships throughout SWCI would also enhance collaborative efforts and identify an alignment of goals between entities. Furthermore, TTOs within the major SWCI institutions should be dedicated to identifying, maintaining, and enhancing relationships with past, previous, and potential investors.

Bolster relationship with the Bloomington Certified Technology Park

Developing a stronger relationship with the City of Bloomington's Certified Technology Park will bridge the gap between the IU Technology Corridor. IU should continue to pursue equity in its firms as it did when it sold Angel Learning to Blackboard to create the original seed money for the Innovate Indiana Fund (T. Armstrong, personal communication, September 30,

2013). One research project on the viability of university strategies suggests that universities take a greater interest in not just licensing, but in creating spin-out companies: “In contrast to licensing, a spin-out company enables equity ownership by a range of interested parties drawn from inside or outside the university” (Lockett, Wright & Franklin, 2003, p. 186). The Bloomington CTP could be the ideal location for these spin-off companies.

Realizing the potential for conflict of interest between professor-researcher and professor-entrepreneur, outside support may be needed. With such support, Lockett et al. (2003) recommend a “clear strategy to use surrogate entrepreneurs in the management and development of new technology-based spin-out companies” (p. 187). This means, for example, that the relationship between IU and Allied Minds must also include professors undertaking research. The term ‘surrogate entrepreneurs’ here denotes a close relationship between the inventor and the person tagged with business responsibilities in developing the invention into a company. Another article lists the potential blockages to university spin-outs: “equity split, royalties, academic and university investment in the new venture, academic secondment, identification and transfer of intellectual property and use of university resources in the start-up phase” (Wright, Birley, and Mosey, p. 235). These complications, however, are exactly the impediments that enhancing involvement with the Bloomington CTP could mitigate.

IX. Conclusion

After extensive research and reflection, it is apparent that Southwest Central Indiana has the capacity to improve the transfer of its intellectual property to the commercial market. Several recommendations were proposed that have the ability to facilitate the transfer of knowledge capital to benefit the regional economy. Technology transfer involves a complicated series of relationships between institutions and individuals in the public and private sectors. The growing importance of commercializing public knowledge relates to the growing concern about the American economy’s long-term growth potential in an increasingly competitive world. In SWCI, concerns about competitiveness stem from an increased regional connectivity with the impending completion of the I-69 extension. The region can work more cohesively together, with or without this addition. Intentionally producing the communication channels where technology transfer can flourish means strengthening the relationship between key stakeholders of the SWCI economy. Improved communication will allow room for collaborative relationships

to grow that will in turn add social and economic value for both the private and public sector throughout Southwest Central Indiana.

Task IV: Quality of Life

Summary

The quality of life is closely related to the overall economic performance of a region; good quality of life in a region will have a positive impact on local economy, and better economic performance will bring improvements to the quality of life, producing a virtuous cycle. Therefore, it should be the primary concern for the policy makers, who are interested in the regional economic development, to maintain and improve the quality of life in their regions.

The quality of life is affected by various factors such as health, income, infrastructure, education, and natural amenities. In this chapter, the Indiana Community Asset Inventory and Rankings (CAIR) study conducted by the Center for Business and Economic Research (CBER) at Ball State University is primarily used to analyze the performance of various factors related to the quality of life in the Southwest Central Indiana. The Southwest Central Indiana is comprised of eleven counties: Brown, Crawford, Daviess, Dubois, Greene, Lawrence, Martin, Monroe, Orange, Owen, and Washington. The primary source of the analysis, the CAIR study, is further developed in this chapter by using comparative methods as well as in-depth literature review. Our study examines the quality of life in the region by using four specific categories: government impact and economy, health, people, and arts, entertainment and recreation.

The results of the analysis show that the Southwest Central Indiana is relatively strong in government impact and economy, but relatively weak in the other three categories – health, people, and arts, entertainment and recreation. Also, the findings from the analysis pose issues for improving the quality of life in the region: such issues include dealing with poverty, poor health conditions, and income inequality between the counties. The result implies that there must be a long-term, regional development plan to raise the overall quality of life in the region. Detailed recommendations are made at the end of the chapter.

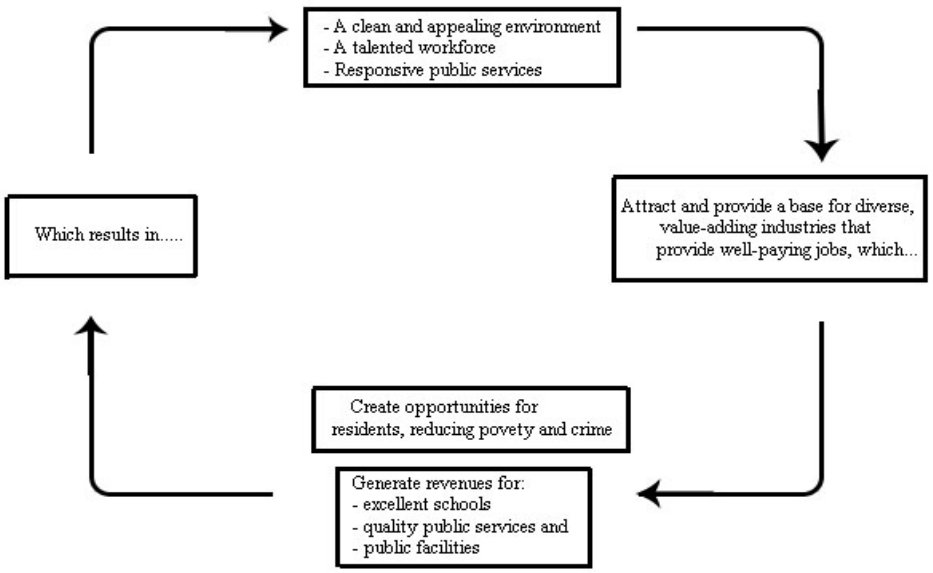
I. Introduction

What is quality of life and why is it important?

It may be easier defining quality of life by first analyzing what it is not. In the past, economists primarily measured development through economic production. Development indicators included the Gross Domestic Product (GDP), the rise of personal income, industrialization, modernization, etc. Lost in the emphasis on economic production was an analysis of life satisfaction, or quality of life. As the renowned economists Joseph Stiglitz and Amatya Sen point out, "there appears to be an increasing gap between the information contained in aggregate GDP data and what counts for common people's well-being" (15). GDP is a good measure of market production, but not necessarily of economic well-being. Conflating the two can be misleading and cause misinformed policy decisions.

The past few decades has seen a shift from measuring economic production to measuring people's well-being. Quality of life should not be confused with the standard of living concept, which is primarily based on income. As Dalia Štreimikienė1 and Neringa Barakauskaitė-Jakubauskienė write, "The standard indicators of the quality of life usually include not only wealth and employment, but also the built environment, physical and mental health, education, recreation and leisure time, crime rate and social belonging. Also frequently with quality of life are related such issues as freedom, human rights, and happiness (589)." The evolving view of economic development as a total-community development also parallels the shift toward more proactive and socially sensitive development strategies (Segedy, 57,58). Segedy emphasizes the importance of quality of life in terms of economic development in the following flow chart (59).

The Quality of Life/Economic Development Loop



In the following we analyze the quality of life of the Southwest Central region by focusing on four components: people, health, government impact and economy, and arts, entertainment, and recreation.

II. Methodology

In order to determine the viability of the Southwest Central Indiana region's quality of life, this paper utilizes the Indiana Community Asset Inventory and Rankings (CAIR) study conducted by the Center for Business and Economic Research (CBER) at Ball State University. CAIR provides policy makers in Indiana with a data-focused assessment of metrics that affect the quality of life within a county. While these rankings provide clear-cut information on measureable factors in Indiana, this paper has taken the provided data further by comparing the region as a whole to state averages, national averages, and national benchmarks. By utilizing a larger scale comparison, the steering committee will be able to better see where the region is performing competitively, and where there is room for improvement. As has been determined by numerous studies, quality of life has a significant impact on economic growth. Through a survey of literature on the specific quality of life topics listed by CBER, this chapter attempts to explain how specific metrics can influence economic development and how the factors can be utilized to spur economic growth.

III. People

People: Why population growth, poverty, and unemployment matter?

This section analyzes the effects of unemployment, poverty, and population growth in the Southwest Central Indiana region. Unsurprisingly, unemployment is directly associated with quality of life. Just the fear of unemployment can have negative consequences for the quality of life of workers, which manifests itself through as increased tensions in family life. Worrying about losing your job has been directly linked to increased cholesterol levels. Thus, the costs of unemployment exceed the income-loss suffered by those who lose their jobs, reflecting the existence of non-pecuniary effects among the unemployed such as loss of friendship, meaning and status (Stigletz et at.). It may provoke detrimental effects on both physical and mental health. Studies have shown that unemployed people are more likely to have poor health habits, characterized by excess drinking, smoking, lack of exercise, and a sedentary lifestyle. Moreover recent research has determined the risks associated with unemployment may be of the same magnitude -- or greater -- as smoking, diabetes and hypertension. Lastly, the psychological risks accompanying unemployment are not only manifested in increased stress, but also in the increased risk of suicide. Unemployment is a potentially dangerous life event.

Secondly, the lack of population growth, or conversely, population decline in rural areas like the Southwest Central region of Indiana is typically linked to a regions distance and isolation from metropolitan areas, lack of accesses to quality services be they educational or health related, low population density, and the absence of compensating natural amenities. Recent studies have found that population decline does not necessarily reflect the presence of agriculture in a region, but rather the absence of other industries.

Poverty, like unemployment, has an undeniable negative effect on quality of life. Low wage or insecure employment is often insufficient in adequately meeting basic costs of living. Often times the poor become dependent on the state or go into debt to meet their needs. Studies have shown that children raised in poverty are more likely to leave school early and without qualifications making it harder for them to find quality employment later in life. Due to less time

for sport or leisure activity and an inadequate diet, the poor are at greater risk of poor mental and physical health. Lastly, poverty can prevent people from participating as equals in society, from feeling part of their community and from developing their skills and talents. The poor have a harder time fitting in and suffer a process known as social exclusion.

People: Factors

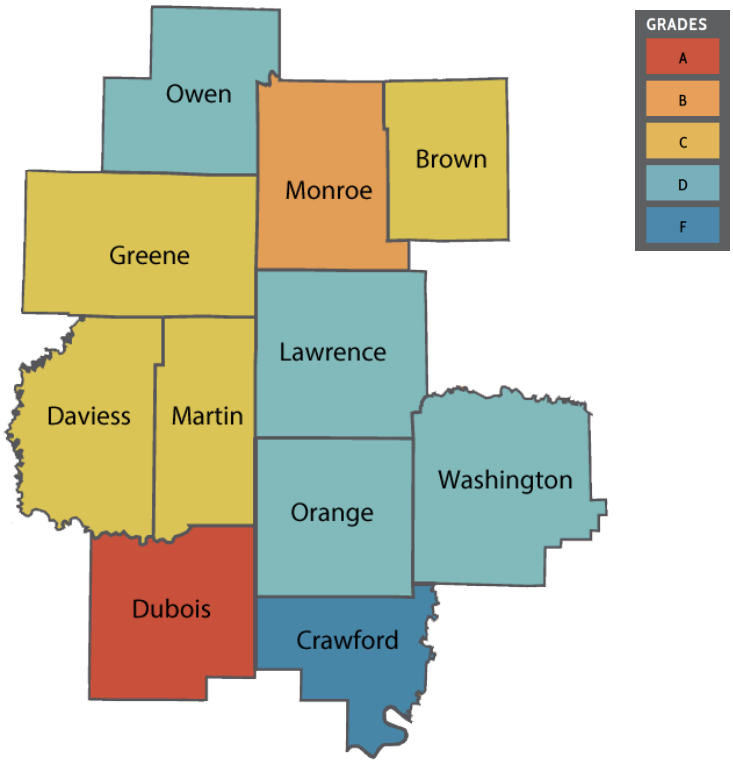
Within the People category, five factors were used: population growth, poverty rate, unemployment rate, private foundations revenue per capita and other nonprofit revenue per capita.

(1) **Population Growth** calculated by dividing the difference between the 2010 population by the 2000 population.
(2) **Poverty Rate** was based on the 2009 poverty percent all ages.
(3) **Unemployment Rate**.
(4) **Private Foundations Revenues per capita** was calculated by dividing private foundations' revenue by the 2010 population.
(5) **All Other Nonprofit Revenues per capita** was calculated by dividing all other nonprofits' revenues by the 2010 population.

People: Inner Regional Comparison

People Asset Inventory Grades (Center for Business and Economic Research):

County	People Grades
1. Brown	C 57.4
2. Crawford	F 26.6
3. Daviess	C 59.4
4. Dubois	A 87.6
5. Greene	C- 48.6
6. Lawrence	D 38.0
7. Martin	C 58.4
8. Monroe	B 67.4
9. Orange	D 44.0
10. Owen	D- 36.4
11. Washington	D+ 45.6



The Southwest Central Indiana has a relatively low performance in the People category. Of its eleven counties, only one county received a grade of B and also only one county received an A. Dubois County is the highest performing county in this region, while Crawford County is the lowest performing county. After averaging all eleven counties scores, the region as a whole would receive a 51.8 points, which equates to a C in comparison with the rest of the state of Indiana.

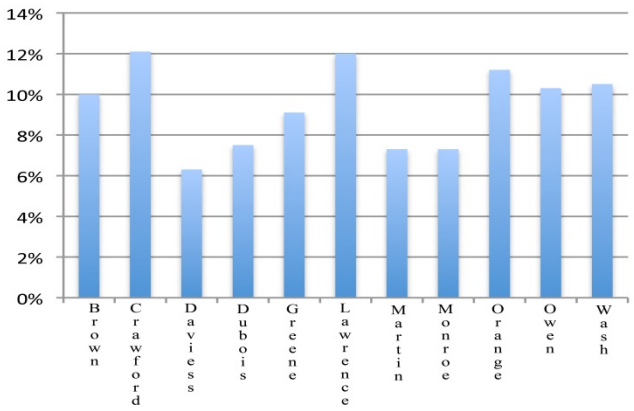
People: Performance by Factors

County	Pop. Growth	Poverty Rate	Unemployment Rate	Private Foundation Revenues per capita	All other nonprofit revenues per capita	People Overall Grades	Ranking
1. Brown	1.91%	12.5%	10.0%	23.4431177	922.1500459	C 57.4	5
2. Crawford	-0.28%	19.0%	12.1%	3.329412863	138.0063474	F 26.6	11
3. Daviess	6.13%	15.6%	6.3%	10.85133342	480.9188574	C 59.4	3
4. Dubois	5.58%	7.2%	7.5%	27.39731194	5122.927021	A 87.6	1
5. Greene	0.02%	16.6%	9.1%	1.258012965	2206.100528	C- 48.6	6
6. Lawrence	0.46%	15.4%	12.0%	0	2468.184593	D 38.0	9
7. Martin	-0.34%	13.5%	7.3%	0	3619.341397	C 58.4	4
8. Monroe	14.44%	21.9%	7.3%	1.438495659	8106.886848	B 67.4	2
9. Orange	2.77%	16.9%	11.2%	0	3084.322681	D 44.0	8
10. Owen	-0.97%	14.3%	10.3%	0	342.2017149	D- 36.4	10
11. Washington	3.82%	15.5%	10.5%	5.276484325	349.7713891	D+ 45.6	7

Factor Analysis:

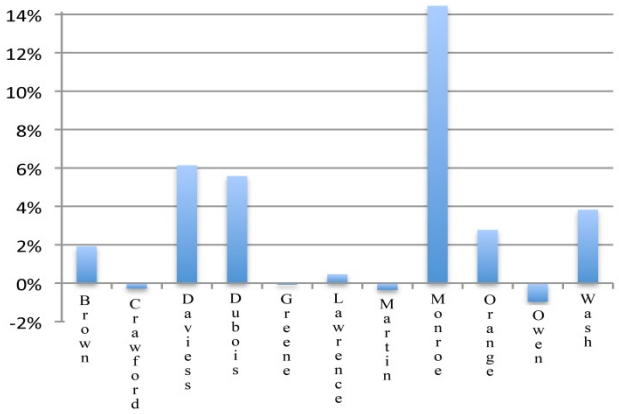
- **Crawford County** is one of three counties to have experienced a population loss and it has the highest unemployment rate in the region. It also has the second highest level of poverty of the eleven counties. Unsurprisingly, it received the lowest overall ranking in the region.
- **Monroe County** has experienced the largest population influx in the region, but it also has the highest poverty rate not only regionally, but also in the entire state. This undoubtedly the presence of the university.
- **Dubois County** scored well across the board. It might be wise for other less populated counties to try to emulate its success.

Unemployment Rate



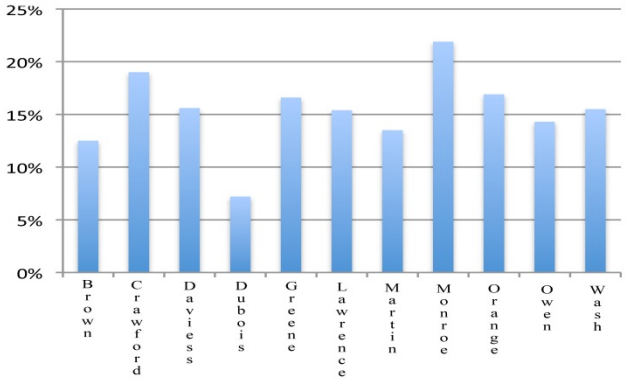
As evidenced by the graph to the right, the unemployment rate varies drastically within the region. Crawford and Lawrence Counties have the highest unemployment rates and nearly double that of Daviess. Six out of the eleven counties have an unemployment rate of 10% or higher. However, the highest populated county in the region, Monroe, boasts the regions second lowest unemployment rate.

Population Growth



From 2000 to 2010, Crawford, Martin and Owen Counties experienced population loss. The losses for all three, however, were fairly insignificant remaining under 1%. These losses are in marked contrast to other counties in the region. Specifically Daviess, Dubois, and Monroe Counties experienced significant population growth within the region. Population grew over 5% over the decade in those counties. It should be noted, however, that the 14.44% influx in Monroe County is primarily the result of students attending the university.

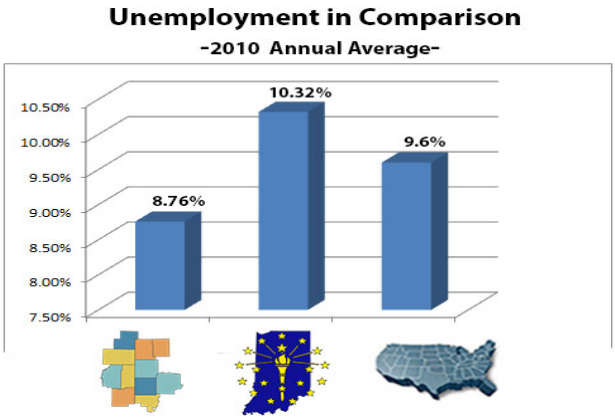
Poverty Rate



Poverty levels vary within the region from a Dubois County low of 7.2% to a Monroe County high of 21.9%. Moreover, Dubois is the only county in the region with a poverty rate below 10%. Six of the counties in the region (Crawford, Daviess, Greene, Lawrence, Monroe,

Orange, and Washington) have poverty rates greater than 15%.

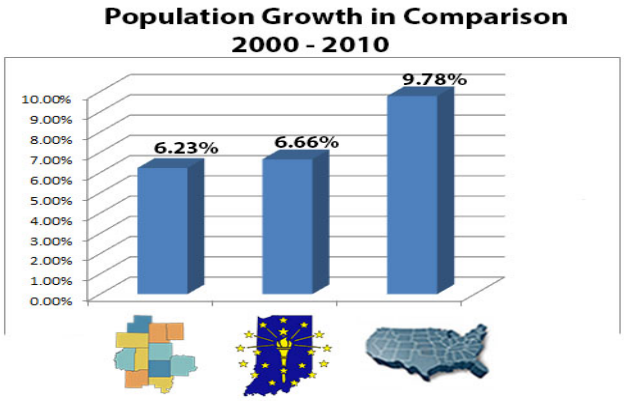
People: Southwest Central Region in State and National Comparison



Unemployment Rate

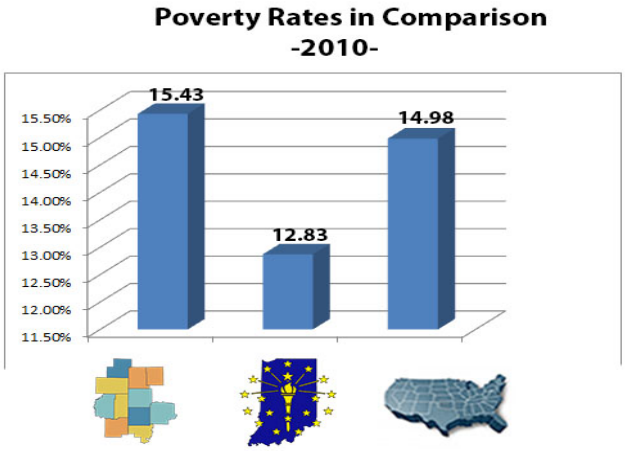
Comparatively, the Southwest Central has a lower unemployment rate than both the rest of the state of Indiana and the nation. The relatively highly populated Monroe County has the second lowest unemployment rate (7.3%), which helps bring the entire region's rate down. As can be seen in the above graph, although the region's rate is below the national average, the rest of the state of Indiana has an unemployment rate greater than the national average. Thus, the region fairs well in terms of unemployment.

Population Growth



Despite hosting the University of Indiana, the region's population growth rate from 2000 to 2010 is under both the state and national averages. This is surely due to the region's isolation from a metropolitan area.

Poverty Rate



The regional poverty rate is higher than both the state and national averages. Apart from the poverty stricken university student residents of Monroe County, five other counties have poverty rates that exceed state and national averages.

People: Conclusion

The Ball State study gave only the Southwest Central's Dubois County an A grade. Conversely, the Lawrence, Orange, Owen, and Washington counties all received Ds. Crawford County received an F. The Southwest Central's exceptionally high poverty rate is perhaps the cause of its exceptionally low population growth rate. Poverty and low levels of quality of life put people in motion and in search of a better life. Indianapolis cannot move closer to the region, but industry can. In order to attract industry, the region needs to promote its natural amenities. Isolation can be offset by compensating natural amenities like lakes, ponds, and state parks, all of which the Southwest Central possesses.

IV: Human Capital: Health

Why Health Matters?

The overall public health of a region, as measured by numerous factors, has been found to have a statistically significant impact on economic development and growth. For example, an area with a healthier population will produce workers who are physically and mentally more productive (Bloom, Canning & Sevilla, 2004). It has been found that a one-year improvement in a community population's life expectancy contributes to a four percent increase in output (Bloom, Canning & Sevilla, 2004). Illness and disability have a negative impact on hourly wages, so as a labor supply becomes healthier income rises (Strauss & Thomas, 1998). As income rises, there is also a stronger demand for better health services and people begin to make housing choices based on the public health infrastructure of the region (Strauss & Thomas, 1998).

A strong health sector also plays a major role in community economic development as many times health related organizations, such as hospitals and nursing homes, are large employers in smaller communities (Doeksen, et.al, 1998). If one hospital in a community shuts down, that will have an effect on not only the health of citizens but also on its economic health (Doeksen, et.al, 1998).

Health: Factors

Within the Human Capital: Health category, twelve factors were utilized to determine whether a community was 'healthy': fertility rate, death rate, premature death rate, poor or fair health percentage, the number of poor physical health days, the number of poor mental health days, the motor vehicle crash death rate, the primary care ratio, the access to healthy foods, the cancer incidence rate, the lung/bronchus cancer incidence rate, and the lung disease rate (CBER, 2012, in Methodology). In the following analysis, fertility rate and access to healthy foods were excluded due to lack of clarity in measurement and lack of matching national level data.

(1) **Death Rate** was measured by calculating the number of total deaths per 100,000 population.

(2) **Premature Death Rate** was measured by years of potential life lost per county.

(3) **Poor or Fair Health** was calculated by the percentage of the population in fair or poor health.

(4) **Poor Physical Health Days** was measured by the number of physically unhealthy day per person in a county.

(5) **Poor Mental Health Days** was measured by the number of physically unhealthy day per person in a county.

(6) **Motor Vehicle Crash Death Rate** was measured by the number of motor vehicle crash deaths per 100,000 population.

(7) **Primary Care Ratio** was measured by the ratio of population to primary care physicians in a county.

(8) **Cancer Rate** was measured by averaging the annual incidence rate of any cancer for the years of 2002 to 2006.

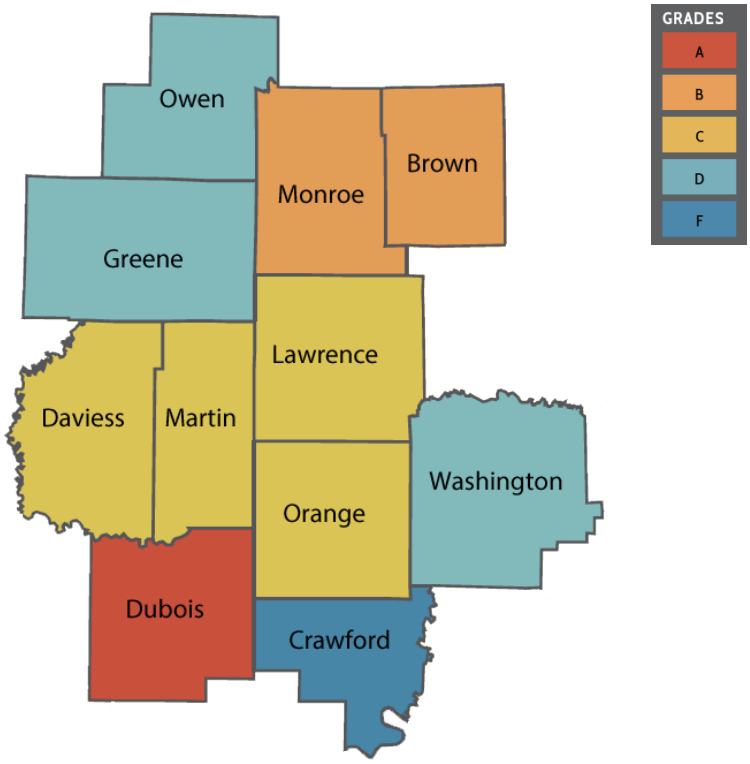
(9) **Lung/Bronchus Cancer Rate** was measured by averaging the annual incidence of lung/bronchus cancer, specifically, for the years of 2002 to 2006.

(10) **Lung Disease Rate** was measured by calculating the total number of asthma cases per 1000 people in 2008.

Health: Inner Regional Comparison

Health Asset Inventory Grades (Center for Business and Economic Research):

County	Health Grades
1. Brown	B 62.3
2. Crawford	F 29.8
3. Daviess	C 52.3
4. Dubois	A 84.1
5. Greene	D 41.1
6. Lawrence	C- 48.2
7. Martin	C 51.8
8. Monroe	B+ 69.8
9. Orange	C 53.7
10. Owen	D- 37.5
11. Washington	D- 37.8



The Southwest Central Indiana has relatively low performance in the Human Capital: Health field. Of its eleven counties, only two counties received a grade of B and only one county received an A. Dubois County is the highest performing county in this region, while Crawford County is the lowest performing county. After averaging all eleven counties scores, the region as a whole would receive a 51.7 points, which equates to a C in comparison with the rest of the state of Indiana.

Health: Performance by Factors

County	Death per 100,000	Premature Death	Poor/Fair Health %	Poor Physical Health Days	Primary Care ratio	Asthma Rate (per 1000)	Lung/Bronchus cancers incidence rate	Cancer Incidence Rate	Motor Vehicle Crash Death Rate	Poor Mental Health Days	Overall Grades	Ranking
1. Brown	672.08	7474	13	2.4	1626:1	92.99	66.9	457.4	27	2.9	B 62.3	3
2. Crawford	866.23	8519	18	5.0	10705:0	92.53	113.9	497.5	28	2.6	F 29.8	11
3. Daviess	879.35	7703	24	4.3	1895:1	92.41	64.6	422.3	24	3.3	C 52.3	5
4. Dubois	727.07	6208	11	1.5	813:1	92.45	51.9	381.1	17	1.6	A 84.1	1
5. Greene	931.01	9055	20	4.3	2170:1	92.40	75.8	424	21	4.4	D 41.1	8
6. Lawrence	828.71	8665	19	3.5	1310:1	92.44	86.6	450.8	21	4.2	C- 48.2	7
7. Martin	693.64	10486	14	4.3	3338:1	92.69	65.5	480	35	2.8	C 51.8	6
8. Monroe	706.03	6374	14	3.5	873:1	90.87	66.4	464.6	9	4.0	B+ 69.8	2
9. Orange	782.60	7201	26	4.6	930:1	92.38	74.7	435.3	25	4.8	C 53.7	4
10. Owen	960.88	7728	15	4.0	3729:1	92.47	104.4	472.8	22	2.9	D- 37.5	10
11. Washington	897.22	8288	27	4.5	1394:1	92.38	86	463.8	23	4.2	D- 37.8	9

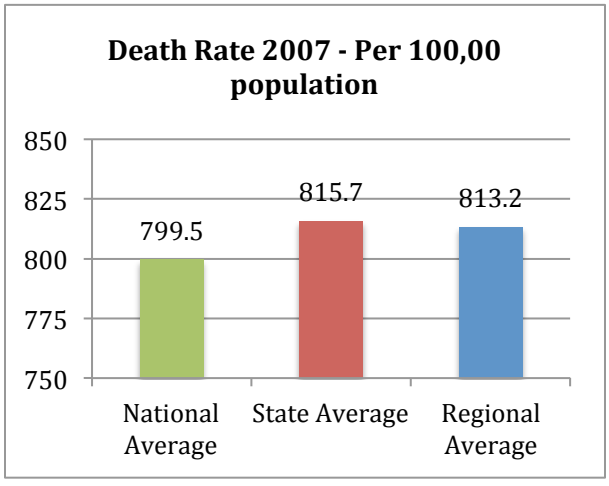
Factor Analysis:

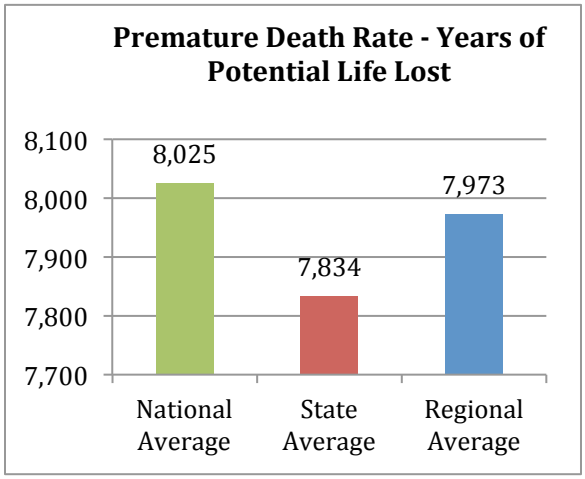
- **Dubois County** is the highest potential asset area in eleven counties. It has the lowest premature death rate, fewest number of poor physical and mental health days, lowest percentage of poor/fair health and the lowest cancer incidence rate.
- **Monroe County** is the second highest potential asset area in eleven counties. It has the lowest death rate, and the lowest motor vehicle crash death rates.

- **Brown County** is the third highest potential asset area in eleven counties. It has the second lowest percentage of poor/fair health in the region, and the second lowest number of poor physical health days.
- **Crawford County** is the least potential asset area in eleven counties. It has the highest cancer incidence rate, as well as the highest motor vehicle crash rate. It also has the highest number of poor physical health days.
- **Owen, Washington and Greene Counties** are also relatively low as potential health assets for the region.

Health: Southwest Central Region in State and National Comparison

The regional average was taken for each of the health metrics in order to complete a comparison to the Indiana state average, as well as the national average for equal metrics. These comparisons demonstrate how the Southwest Central Indiana region fares in its quality of life, and which factors could be improved in order to make the region more competitive. It is also important to look at not just the national averages, but also the national benchmarks. These benchmarks display the point at which only 10% of counties in the nation can perform better. Depending on whether the measure is framed positively or negatively, the benchmark shows the cutoff for the 90th percentile or the 10th percentile.



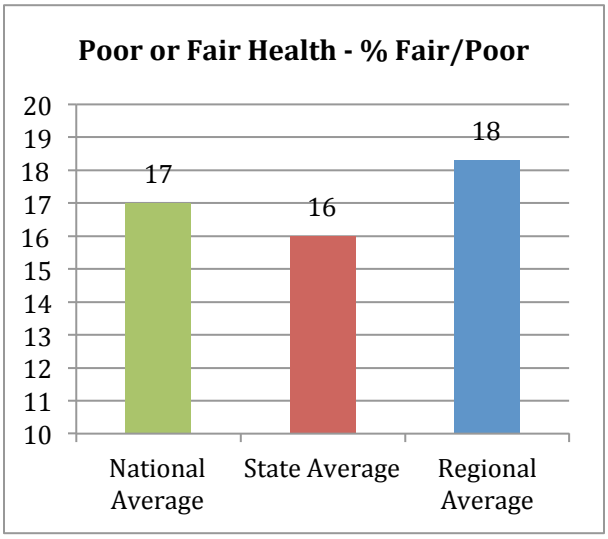


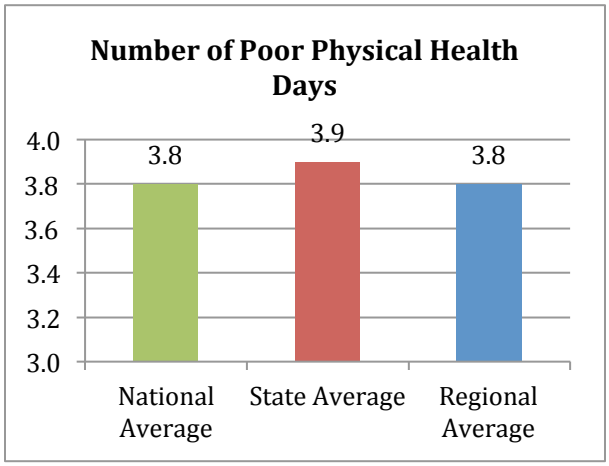
While the regional average **death rate** is slightly higher than the national average, it is also below the state average. While several of the counties have death rates significantly lower

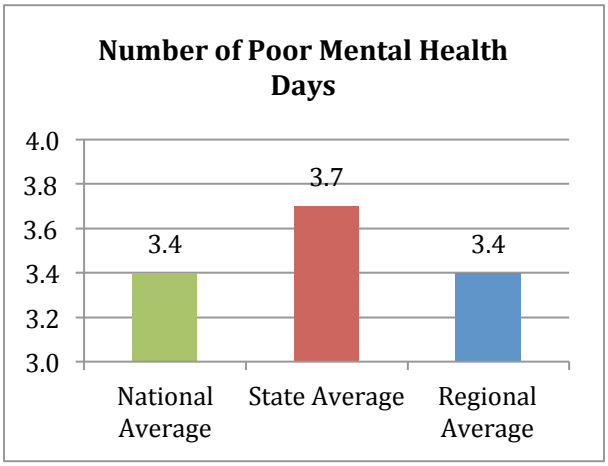
than the national, such as Martin County (693.64), some counties are significantly higher, such as Owen County (960.88).

The national benchmark for **Premature Death Rate** is 5,317. In order to reach this benchmark, each county within the region will need to lower its year of potential life lost significantly.

In the percentage of population in poor or fair health, while the regional average is only slightly higher than the national average, there is much variation between counties. Dubois County has only 11% of its county in poor/fair health, while Washington County has 27% of its county in poor/fair health. In order to improve the overall health of the region, focus should be on the several counties with very high percentages (Washington, Orange and Daviess County). The national benchmark for this county is 10%, meaning that the region and state of Indiana will need to lower their percentage significantly to have a national competitive advantage.

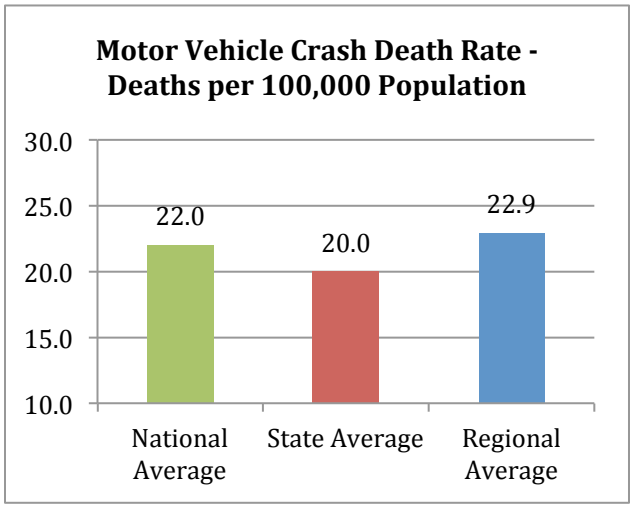


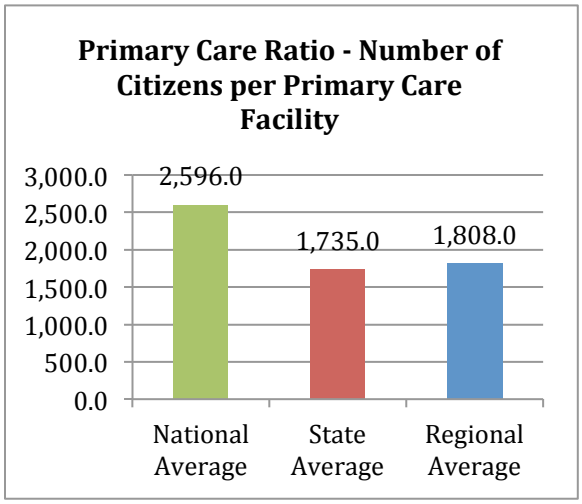




Breaking the previous metric down further, the CBER study observed **the number of poor physical and mental health days** the average county citizen had each year. The regional

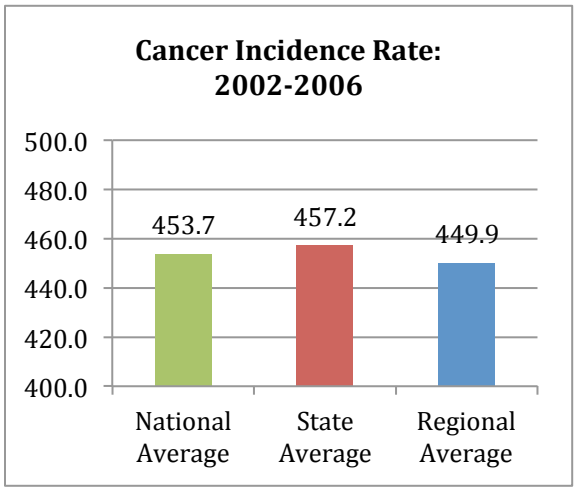
and national average for both mental and physical health days are equal, while the state average is slightly higher in both cases. In these cases, the region does have a competitive advantage in comparison to the state of Indiana.

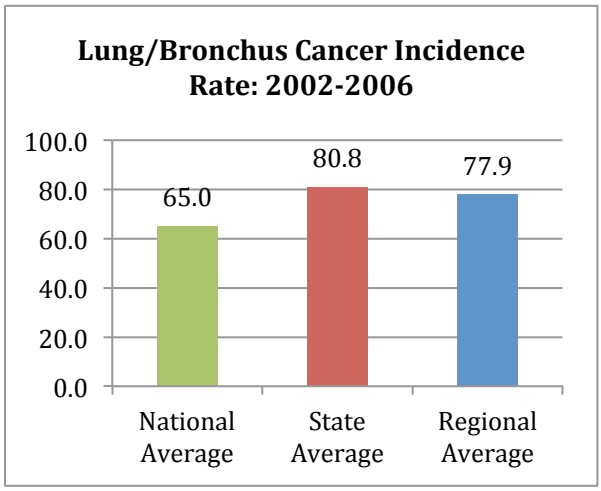


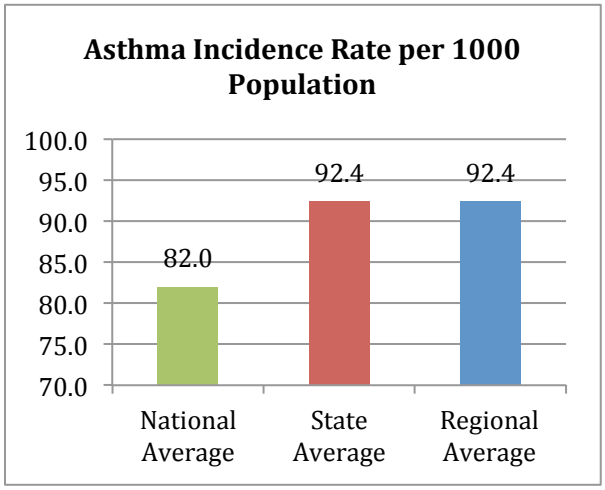


The Motor Vehicle Crash Death (MVCD) Rate in the Southwest Central Region of Indiana is higher than both the national and state average. Monroe County has a much lower MVCD rate (9 deaths per 100,000 population) that is even lower than the national benchmark (10 deaths per 100,000 population). This particular region of Indiana faces a unique challenge of having a much higher percentage of forest area, nature preserves and state parks, which creates more difficult to navigate roadways than farmland and urban areas. However, counties like Martin, which has a MVCD Rate of 35, must work on lowering this rate.

The primary care ratio metric measures the number of citizens per primary care facility in the area. As has been the common theme, there is much variation in performance between individual counties; however, as a region, the ratio is slightly higher than the state average, but is lower than the national average. It is important to note that the region is almost equal to the national benchmark of 1,067:1. The region's performance would be even more competitive if Crawford County had any primary care facilities. The county's high ratio (10705:0) brings the entire regional average up significantly.







The total cancer incidence rate in the Southwest Central Indiana region was lower than both the national and state average; however, all three rates were fairly close.

While the overall cancer incidence rate for the region was low, **the lung/bronchus cancer incidence and asthma incidence rate** for the region were higher than the national average. The entire state of Indiana has a higher rate lung issues, and the region follows suit. Crawford County has the highest incidence rate of lung/bronchus cancer, and the second highest rate of asthma in the region. It will be important to focus on these lower-performing counties when attempting to improve the health quality of life within the region.

Health: Conclusion

For the Southwest Central Indiana Region, the Human Capital: Health metrics identified by the Center for Business and Economic Research pose issues for quality of life. Of the eleven counties, only one received an A, and four counties received a D or lower. Having healthy citizens, and easy access to health care facilities, is critical for sustainable economic growth in a community. As previously mentioned, as income increases, the public health infrastructure of a city becomes more important in the decision to reside in that city. While some counties within the region provide a strong health infrastructure, many do not. Increasing the health sector throughout the region as a whole could improve the health of its citizens, which could improve worker productivity, and could also provide a new source for employment and economic growth. In order for the region to attract permanent citizens, new businesses and new industry, the health sector must be sustainably high-quality.

V: Government Impact and Economy

Why Government Impact and Economy Matter?

Government influences and economic conditions affect the likelihood that a business will settle in a community. For example, government property tax rate or financial subsidies to individual firms is likely to be expensive per job created in the areas (Timothy, 1995, p.21). Also the area's economic condition influences the business's site selection. There is some evidence that well-staffed and targeted enterprise zones can attract jobs (Timothy, 1995, p.25).

Government Impact and Economy: Factors

Within the Government Impact and Economy category, four factors were used: crimes rate, effective tax rate, main street rate and metropolitan development (CBER, 2012, in Methodology).

(1) **The crime rate (crimes per capita)** was calculated by dividing the sum of violent crimes known to police and property crimes known to police by the 2008 population.

FBI crime reports data shows that the crime rate including violent crime and property crime in metropolitan statistical areas is much higher than the ones in cities outside metropolitan areas and nonmetropolitan counties.

Type of crime	United States		Metropolitan statistical area [1]		Cities outside metropolitan areas		Nonmetropolitan counties	
	Total	Rate	Total	Rate	Total	Rate	Total	Rate
Violent crime	1,382.0	454.5	1,242.0	489.0	78.2	392.0	61.7	205.1
Murder and nonnegligent manslaughter	16.3	5.4	14.6	5.7	0.7	3.5	1.0	3.4
Forcible rape	89.0	29.3	74.3	29.3	7.6	38.2	7.0	23.4
Robbery	441.9	145.3	423.3	166.7	13.4	67.1	5.2	17.1
Aggravated assault	834.9	274.6	729.8	287.3	56.5	283.3	48.5	161.1
Property crime	9,767.9	3,212.5	8,514.2	3,352.0	747.7	3,746.5	506.0	1,681.1
Burglary	2,222.2	730.8	1,894.5	745.8	162.4	813.9	165.3	549.2
Larceny-theft	6,588.9	2,167.0	5,732.1	2,256.7	553.4	2,772.6	303.4	1,008.0
Motor vehicle theft	956.8	314.7	887.6	349.5	31.9	159.9	37.3	124.0

Table: Crimes and Crime Rates by Type and Area: 2008. [In thousands (1,382.0 represents 1,382,000), except rate. Rate per 100,000 population; based on Census Bureau estimated resident population as of July 1.] (U.S. Department of Justice, Federal Bureau of Investigation, 2009)

Some studies show that there was a relationship among unemployment rates, wages, and violent crime (Gould et al., 2002), however, the causality of economic conditions and crime rate was not clearly revealed. In fact, there is some data showing the crime rate went down during the recession. It indicates the high/low crime rate would be the result of the multiple causes including both economic and noneconomic factors such as imprisonment, policing, environmental changes and less drug abuse (WSJ, 2011).

(2) **The effective tax rate** was calculated by dividing total tax revenues (the sum of five tax variables: County Adjusted Gross Income Tax (CAGIT)[1], County Economic Development Income Tax (CEDIT)[2], County Option Income Tax (COIT)[3], Inn Keepers Tax and Property Taxed Final Net Levy) by personal income.

In Indiana, the primary sources of local government own source revenue are property taxes (46.9%), income taxes (3.7%), selective sales taxes (0.7%) and current charge (31.6%)[4] (CBER, 2011, p.1). As property tax caps are implemented the share of revenue raised from

[1] CAGIT is a local option income tax (LOIT) that can be used by local governments to provide property tax relief and additional revenue (CBER, 2011, p.2).

[2] CEDIT was authorized by the Indiana General Assembly in 1987. This LOIT provides funding for local economic development projects that increase local employment opportunities and/or attract or retain businesses. CEDIT can be imposed in conjuction with either CAGIT or COIT; however, the combined tax rates are fixed (CBER, 2011, p.4).

[3] COIT provides new tax revenues to local governments for general spending. This was authorized in 1984 as an alternative to CAGIT, which had not been popular in urban counties. Funds are allocated for communication, transportation systems, and financing economic development projects (CBER, 2011, p.3).

[4] Current charges include fees and charges related to public education, hospitals, airports, parking facilities, parks and recreation, sewerage and solid waste. See *U.S. Census Bureau (2008)* for complete list.

property taxes is expected to decrease. For income taxes, local governments levy three legacy local option income taxes (LOIT) including CAGIT, CEDIT and COIT. Local tax structure is important because the types of local taxes levied affect decisions about where people reside, work and do business as well as the level and types of public services that local governments can provide (CBER, 2011, p.1, 2).

(3) **The main street rate** was calculated by summing the number of communities within a county participating in the Indiana Main Street program.

Indiana Main Street encourages the revitalization and restoration of downtown areas in Indiana cities and towns. The program provides technical assistance and educational opportunities to participating communities. Indiana Main Street is the state's coordinating program to the National Main Street Center (State of Indiana webpage).

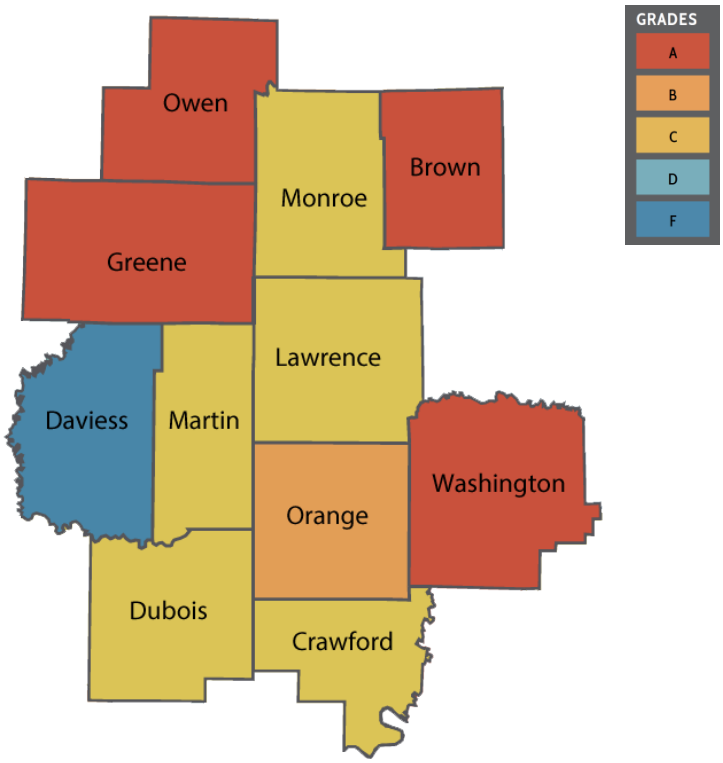
(4) Regarding **the metropolitan development factor**, a dummy variable of 1 was assigned to a county with a Metropolitan Statistical Area (MSA). A dummy variable of 50 was assigned to a county without an MSA.

The Office of Management and Budget defines a Metropolitan Statistical Area as one or more adjacent counties or county equivalents that have at least one urban core area of at least 50,000 population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties (U.S. Census Bureau website).

Government Impact and Economy: Inner Regional Comparison

Government Impact and Economy Asset Inventory Grades (Center for Business and Economic Research):

County	Government Impact Grades
1. Brown	A 86.8
2. Crawford	C+ 74.3
3. Daviess	F 53.3
4. Dubois	C 70.0
5. Greene	A 93.3
6. Lawrence	C 66.5
7. Martin	C+ 74.5
8. Monroe	C 70.5
9. Orange	B 78.0
10. Owen	A 94.0
11. Washington	A 90.5



The Southwest Central Indiana has relatively high potential assets in the Government Impact and Economy field. Four counties (Brown, Greene, Owen and Washington) received grade A and one county (Orange) received grade B, while Daviess Country received grade F. In the all categories of the CAIR study, this category is the second strongest assets that the region has, following static amenities assets. After averaging all eleven counties scores, the region as a whole would receive a 77.43 points, which equates to a B in comparison with the rest of the state of Indiana.

Government Impact and Economy: Performance by Factors

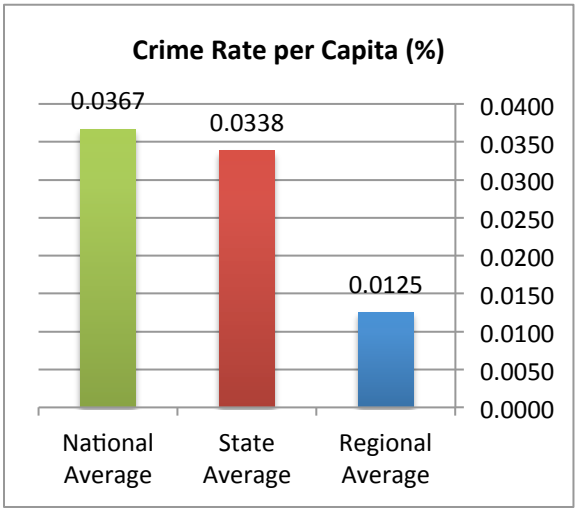
County	Crime rate	Effective tax rate	Main street rate	Metropolitan development factor (1=metro; 0=non metro)	Overall Grades	Ranking
1. Brown	0.0100	25.6	1	1	A 86.8	4
2. Crawford	0.0035	28.9	1	0	C+ 74.3	7
3. Daviess	0.0382	30.8	1	0	F 53.3	11
4. Dubois	0.0096	29.4	2	0	C 70.0	9
5. Greene	0.0050	21.8	0	1	A 93.3	2
6. Lawrence	0.0202	26.6	1	0	C 66.5	10
7. Martin	0.0131	23.1	0	0	C+ 74.5	6
8. Monroe	0.0339	29.6	2	1	C 70.5	8
9. Orange	0.0030	26.6	0	0	B 78.0	5
10. Owen	0.0000	26.2	2	1	A 94.0	1
11. Washington	0.0009	27.3	1	1	A 90.5	3

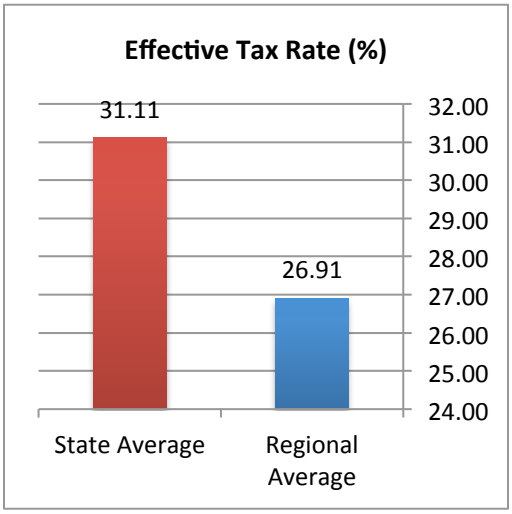
Factor Analysis:

- **Owen County** is the highest potential asset area in eleven counties. It has the lowest crime rate, relatively low effective tax rate, high main street rate and a Metropolitan Statistical Area (MSA).
- **Greene County** is the second highest potential asset area. It has the lowest effective tax rate and a MSA.
- **Washington County** is the third highest potential asset area. It has the relatively low crime rate and a MSA.
- **Brown County** is the fourth highest potential asset area. It has the relatively low tax effective rate and a MSA.

- **Daviess County** is the least potential asset area in eleven counties. It has the highest crime rate and effective tax rate, and also it does not have a MSA.
- **Monroe County** shows the good economic development potentials with two main streets and a MSA, however it also has a high crime rate, which decreases the overall grade.

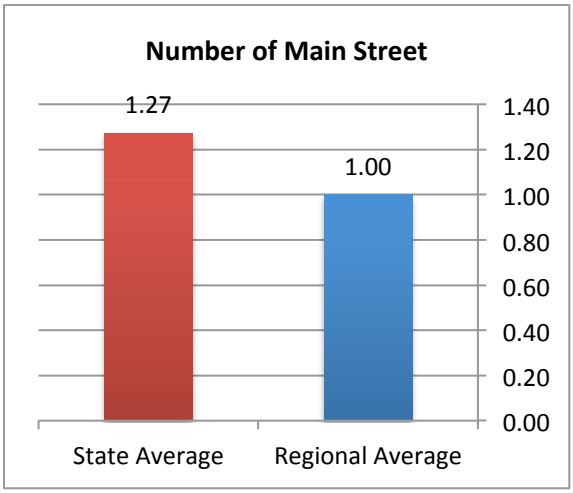
Government Impact and Economy: Southwest Central Region in State and National Comparison

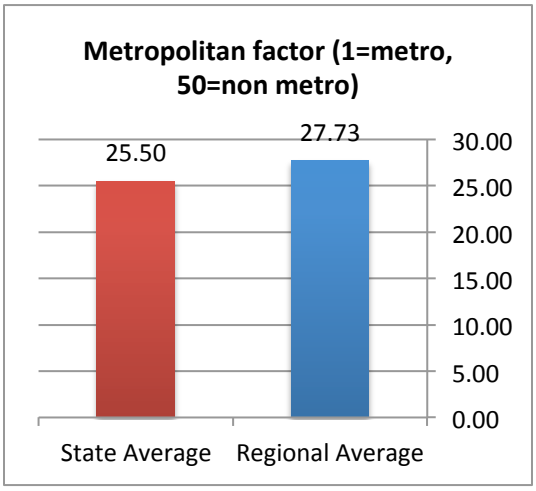




For crime rate per capita, the regional average is about one third of the national and state average. It shows that the southwest central region has the considerably lower crime rate compared to other regions in Indiana and the United States. Daviess (0.0382) and Monroe (0.0339) Counties have the highest crime rates in the region, however the rates are still similar to the national and state average.

For the effective tax rate, the regional average is about 4.2% lower than the state average. Daviess (30.8) and Monroe (29.6) Counties have the highest effective tax rate in the region, however, these rates are still lower the state average.





For the main street rate, the regional average is slightly lower than the state average. The possible reason is that Greene, Martin and Orange Counties do not have implemented any main street program.

For the metropolitan factor, the ratio of the counties with a MSA in the region is slightly higher than the one in the State. It shows that the region has relatively good assets of metropolitan areas for the economic development in terms of population and high level of social and economic integration.

Government Impact and Economy: Conclusion

The Southwest Central Indiana region has extensively good assets in the Government Impact and Economy field. In particularly, Owen, Greene, Washington and Brown Counties show good performance. Owen County has the lowest crime rate, relatively low effective tax rate, two main streets and a metropolitan statistical area. These regions should utilize those high potential assets to attract more residents and companies moving to the region, In addition, it should ensure that these assets contribute to improve the entire quality of life in the region. Noticeably, crime rate and the effective tax rate in the region are particularly low compared to the national and state standards. Even the counties that showed the worst performance are similar to the national and state level. The region should recognize, advertise and take advantages of them for its economic development strategy.

VI: Arts, Entertainment and Recreation

Why Arts, Entertainment and Recreation Matter?

Arts, entertainment and recreational amenities are important factors for deciding how and where to spend one's leisure time. Surveys and researches show that recreational activities are continuously high among other forms of spending free time in the United States. For example, National Survey on Recreation and the Environment (NSRE)'s 1995 survey shows that 94.5 percent of 16 years of age or older participated in various forms of outdoor recreation (NSRE, 1995). Also, it is well-known that those amenities not only increase quality of life in a region but also attract more tourists to a region and bring increased revenue as a result - visitors and residents alike enjoy the quality of a place through its offerings in the arts, entertainment, and recreation (CBER, 2012).

Recently, income inequality is growing in the United States. Disparity among regions, especially the gap between urban and rural areas, is widely reported (Marcouiller et al., 2004). It is also widely reported that the regions with rich natural amenities[5] are experiencing higher rates of economic growth than other regions (Marcouiller et al., 2004). This suggests that developing tourism assets could be a good strategy for a region's economy. In this section, we will first analyze the trends and amenities of arts, entertainment and recreation in the selected eleven counties by using eight specific indicators below. Next, by comparing these eleven counties with the state and the nation as a whole, we could more clearly see the strengths and weaknesses of the region and come up with a suggestion for developing arts, entertainment and recreation amenities in the region.

Arts, Entertainment and Recreation: Factors

(1) **Per capita personal income** was calculated by dividing the earnings in the arts, entertainment & recreation industry by the population (thousands of dollars).

(2) **Employment per 1,000 people** was calculated by multiplying the employment in the arts, entertainment & recreation industry by 1,000 and then dividing by the population.

[5] The definition of natural amenity varies among studies. Some studies focus on climatic characteristics while other studies are more inclusive of forests, water and topography (Marcouiller et al., 2004).

(3) **Average compensation per employee** was calculated by dividing the compensation of employees received in arts, entertainment & recreation industry by the employment in the arts, entertainment & recreation industry.

(4) **Per capita personal income in accommodation & food services** was calculated by dividing the earnings in the accommodation & food services industry by the population.

(5) **The marinas factor** was calculated by dividing the acres of marinas by the total acres in the county.

(6) **The fairgrounds factor** was calculated by dividing the acres of fairgrounds by the total acres in the county.

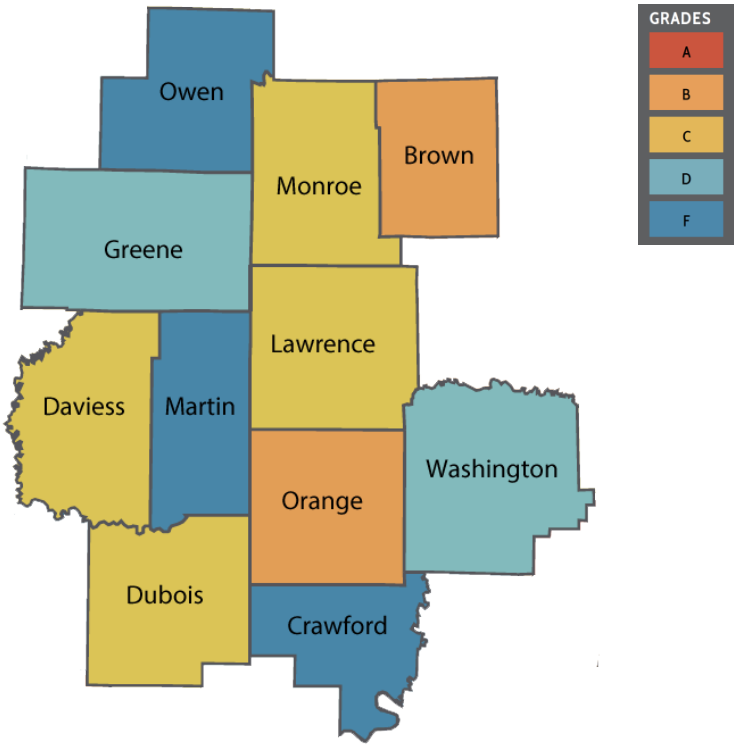
(7) **The athletic fields factor** was calculated by dividing the acres of athletic fields by the total acres in the county.

(8) **The golf courses factor** was calculated by dividing the acres of golf courses by the total acres in the county.

Arts, Entertainment and Recreation: Inner Regional Comparison

Arts, Entertainment and Recreational Asset Inventory Grades (Center for Economic and Business Research)

County	Arts, Entertainment, and Recreation Grades
1. Brown	B 70.9
2. Crawford	F 32.9
3. Daviess	C 59.3
4. Dubois	C 64.3
5. Greene	D 43.5
6. Lawrence	C 59.9
7. Martin	F 34.6
8. Monroe	C+ 65.1
9. Orange	B 70.9
10. Owen	F 34.6
11. Washington	D- 40.1



Overall grades for arts, entertainment and recreation in eleven counties are relatively lower than other counties in Indiana. The best grade is from Brown and Orange counties, as both counties are graded in B (70.9). The lowest grade was F, and three counties fell into this grade – Crawford, Martin and Owen. The regional average score is 52.4 points which fall between grade C~D.

Arts, Entertainment and Recreation: Performance by Factors

County	Per capita personal income (thousands of dollars)	Employment per 1000 population	Average compensation per employee	Per capita personal income (accommodation and food services)	Marina /Area	Fairground/ Area	Athletic Field/ Area	Golf Course/ Area	Overall Grades	Ranking
1. Brown	83.035	18.35	4,741.6	862.52		2.96E-05	0.000123	0.001131	B 70.9	1
2. Crawford									F 32.9	11
3. Daviess	31.842	4.44	7,227.9	370.93		0.000143	0.000143	0.000691	C 59.3	6
4. Dubois	40.875	6.88	6,010.5	575.27			7.9E-05	0.00189	C 64.3	4
5. Greene	8.040	3.36	2,715.6	253.18		8.59E-05	0.000109	0.0001	D 43.5	7
6. Lawrence	28.184	4.84	4,504.5	408.25		0.000173	3.46E-05	0.002092	C 59.9	5
7. Martin						5.51E-05			F 34.6	9
8. Monroe	76.932	11.82	3,812.3	894.12	3.61E-05			0.001749	C+ 65.1	3
9. Orange	137.021	10.02	13,693.9	2862.67		7.66E-05	2.68E-05	0.000184	B 70.9	1
10. Owen						3.63E-05	2.02E-05		F 34.6	9
11. Washington	10.062	3.28	3,197.8	243.97		8.48E-05		0.000233	D- 40.1	8

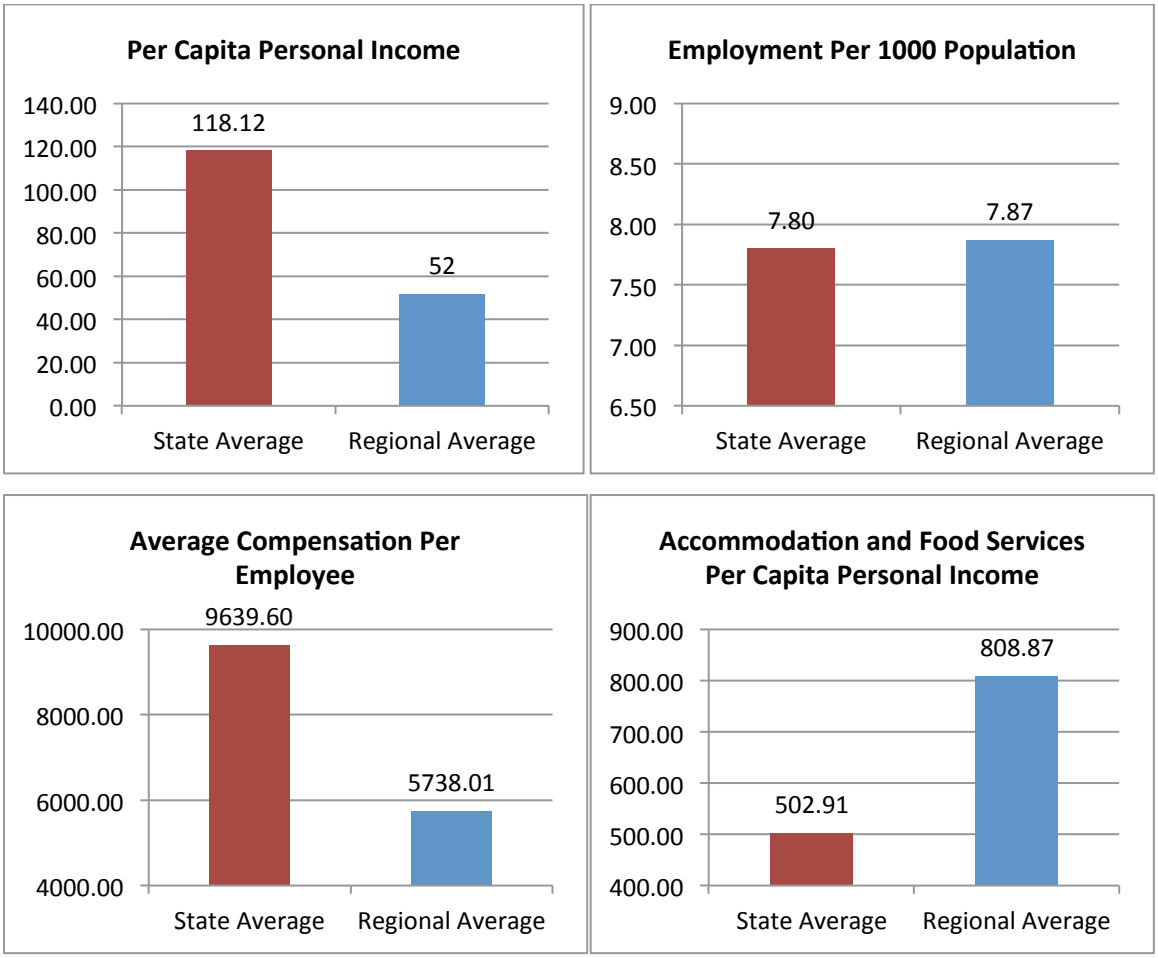
**Some data are not shown in the box but it is included in the totals. This is because some counties wanted to avoid disclosure of confidential information.*

Factor Analysis:

- Population does not seem to be related to promoting arts and entertainment industry in eleven counties. **Monroe** has the largest population among eleven counties, but the overall grade is C+. On the contrary, **Brown and Orange** counties are relatively less populated than other counties, but they marked the best overall grade (B).
- Although many counties are rich in lakes, only Monroe has marinas. Other infrastructures such as fairgrounds and athletic fields are not fully developed as well; the number of those facilities in the region is small.

- Among four recreational facilities (marina, fairground, athletic field and golf course) in the region, the most developed and the biggest in number is the golf course.
- **Monroe**'s low compensation rate suggests that the character of the population and the forms of employment might be important factors influencing the average compensation per employee.
- **Orange County** has significantly higher per capita personal income from accommodation and food services than other counties.

Arts, Entertainment and Recreation: Southwest Central Region in State and National Comparison[6]



[6] Three counties that did not open the data are excluded from the comparison.

The region's **per capita personal income** and **average compensation rate in the industry** is significantly lower than the state average.

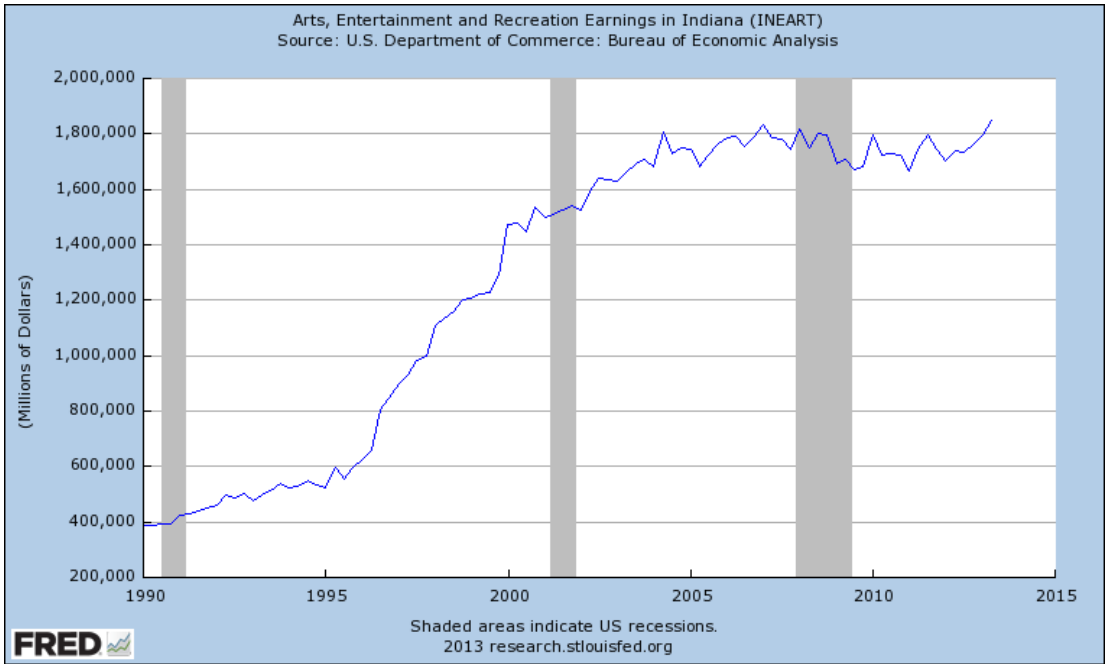
Employment in the industry is on par with the state average.

Per capita personal income from accommodation and food services is however significantly higher than the state average. Region's high per capita personal income in accommodation and food services is attributable to the high performance in Orange County – Orange County has the only casino hotel in the region.

Other recreational facility indicators are not in the comparison. Those indicators are greatly affected by topography and demography, and direct comparison of numbers or total acreages of facilities would have little meaning.[7]

The comparison shows that employees in the region are not enjoying the boon of industry compared to other counties in Indiana. The high performance of Orange County in accommodation and food sector is skewing the data. However, this also shows the impact of casino industry on local economy.

Arts, Entertainment and Recreation Earnings in Indiana

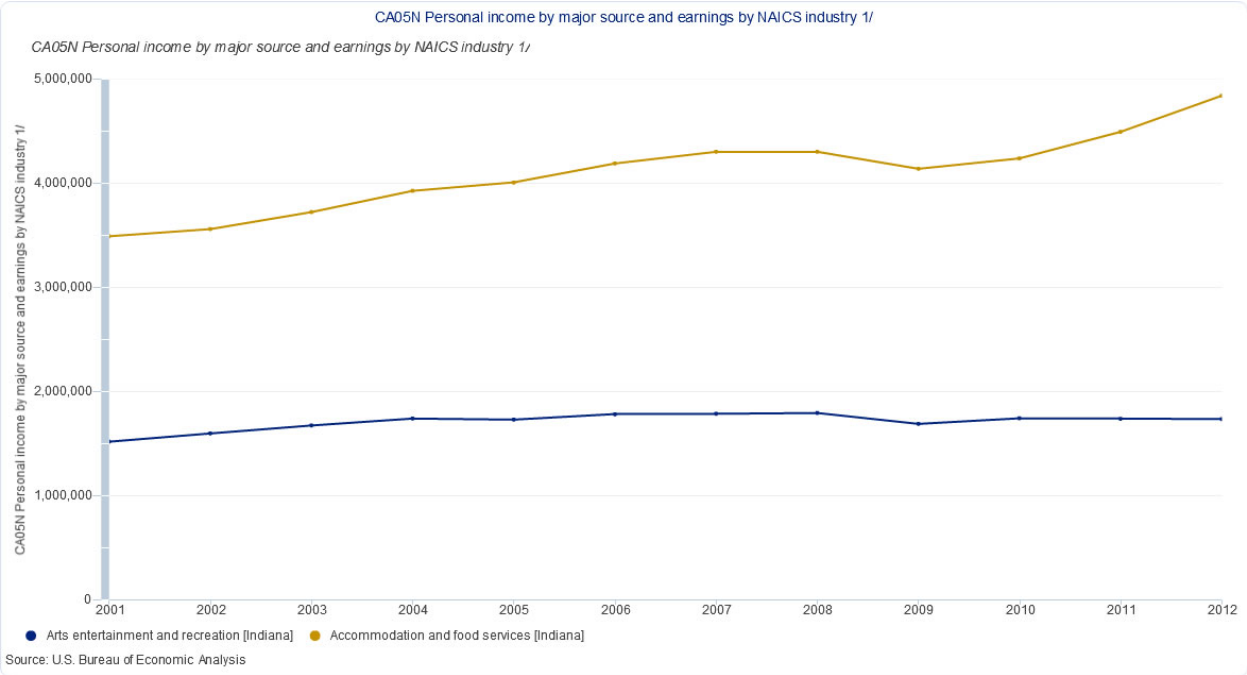


(Source: Arts, Entertainment and Recreational Earnings in Indiana. Federal Reserve Bank of St.Louis Economic Research)

[7] For example, comparing the number of marinas with other no-lake counties is meaningless.

The graph above shows that earnings from arts, entertainment and recreation industry in Indiana has been steadily increasing. However, fluctuating trend from 2005 suggests that expecting continuous increase might be wrong.

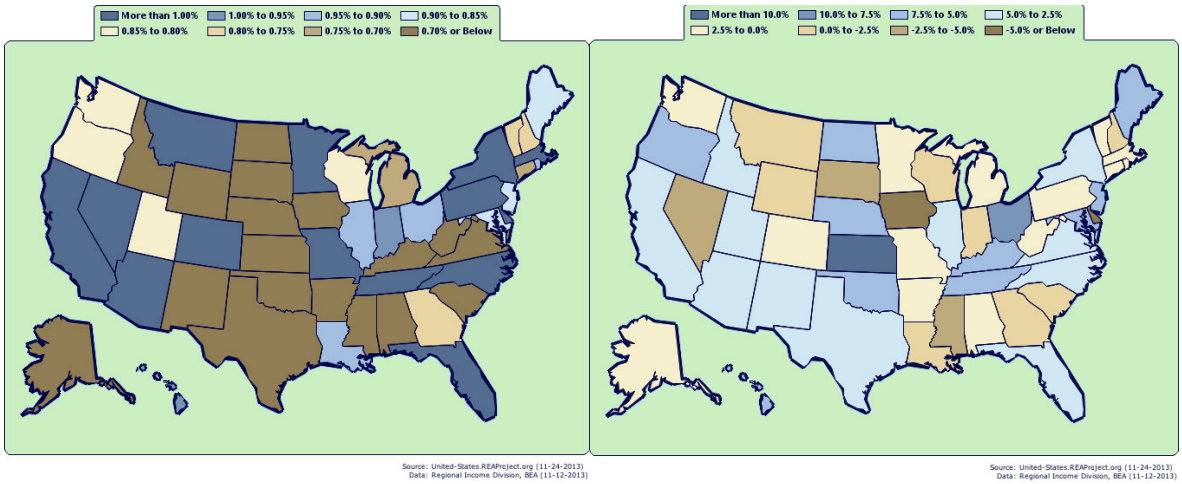
Personal Income Change in the Industries in Indiana



The graph above shows the trend of personal income in arts, entertainment and recreation industry as well as accommodation and food services in Indiana. The trend shows the increasing trend in personal income from accommodations and food services. The trend in arts, entertainment and recreation industry is static.

According to the US Census Bureau, accommodations and food services is the 4th largest industry by employment in Indiana (US Census Bureau, 2007).

Arts, Entertainment, and Recreation Earnings and Growth by State



(Percent of Total Earnings, 2012) (Growth Rates, 2012)

(Source: United-States REAProject.org)

The maps above show the position of arts, entertainment and recreation industry of Indiana in the national context. Indiana's earning from the industry was 1% of the total earnings of the state in 2012. The national average was 1.1%.[8] This suggests that contribution from arts, entertainment and recreation industry is fairly strong in Indiana, compared to the rest of states in the country.

Indiana's average growth rate from 1991 to 2012 was 5.2%, which exceeds the national average of 3.7%. However, the growth rate of the industry in 2012 was actually negative, at -2.2%.

Arts, Entertainment and Recreation: Conclusion

The findings from above sections show that the arts, entertainment and recreation industry in Indiana has shown a relatively high growth in 1990s but the growth has become static in recent years. Also, the industry's contribution to the state's economy has been fairly good. However, the industry's performance in selected eleven counties is far behind the state's average. Although the number of people working in the industry is never less than the state average, their per capita income and compensation rate are quite behind the state average. This

[8] Earnings are the sum of wage and salary disbursements (payrolls), supplements to wages and salaries, and proprietors' income. (United-States REAProject.org)

may affect the quality of life of people living in the region. However, recent increase of personal income in accommodation and food services sector in Indiana seem to have a positive implication to the local economy, since the accommodation and food services are one of the major industries for providing jobs in Indiana. The special case of Orange County also shows the contribution of accommodation and food services in the region. However, introducing more casinos might be a controversial issue.

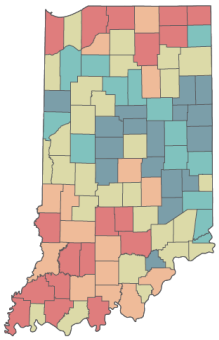
As for developing other recreational facilities in the region, pilot research should come first, since those facilities – marinas, fairgrounds, athletic fields and golf courses – are greatly affected by demography and topography of each county. For example, the number of golf courses in the U.S. is not growing since 2005 (U.S. Census Bureau, 2012). This may suggest that there is no demand for more golf courses in the region. As a matter of fact, golf courses are the most developed recreational facilities among those four. The region has many lakes and state parks. Developing marinas might increase revenue for the counties with good lake environment. However, for more regional and holistic approach for development, a pilot research is necessary to analyze the strengths and weaknesses of arts, entertainment and recreational amenities in the region. The selected eleven counties need a development plan which could best utilize the existing amenities in the region as well as the unique characteristics of the region.

VII: Findings

1. The Southwest Central Indiana region has substantial Static Amenities and Government Impact and Economy assets.

For Static Amenities assets, the region is covered with the large area of Indiana forests and it affects the high points of this category. As well as preserving and maintaining these assets, the region can utilize them for the nature tourism and expand advertisement to emphasize the high quality of life in the region.

For Government Impact and Economy assets, four of nine counties that received grade A in Indiana are located in the region. It indicates that the region has relatively low crime rate, effective tax rate and good economic development factors (main street programs and metropolitan areas).



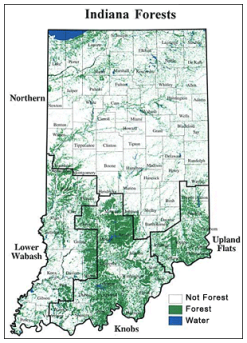


Figure (left): Indiana Community Asset Inventory, Public Amenities: Static (CAIR report, 2012)

Figure (right): Indiana Forests map (Source: Indiana land cover produced by cooperative project between the U.S. Geological Survey and the U.S. Environmental Protection Agency based on Landsat TM5 Imagery acquired by the Multi-resolution Land Characterization (MRLC) Consortium. The images date from 1989 to 1993. Classes 41-43 and 91 were used to represent Indiana forests. http://fhm.fs.fed.us/fhh/fhh-00/in/in_00.htm)

2. Economic performances and human capital assets are related each other.

Looking at the region's overall grade maps, People, Education, Arts, Entertainment and Recreation performances are relatively low in the region, and they seem to be related each other. The CAIR report shows that there is the correlation between economic performance and county grades for human capital. It means that the low performance of human capital factors may result in the low economic performance and vice versa, although the study does not provide the evidence of the causality. Looking at each county in the region, Owen, Crawford, Washington and Lawrence Counties are seriously lack of the human capital assets.

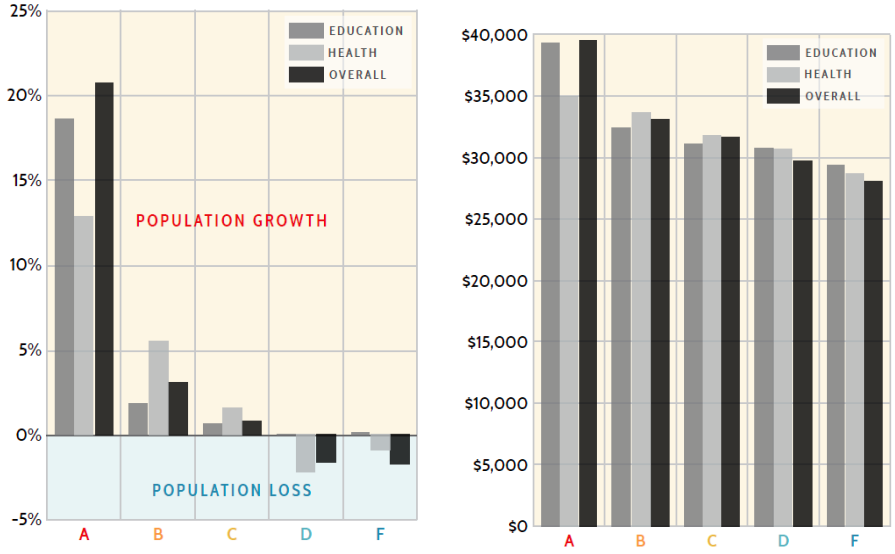


Figure (left): Population Change by County Grades for Human Capital, 2000-2009 (CAIR report, 2012)

Figure (right): Per Capita Income by County Grades for Human Capital, 2009 (CAIR report, 2012)

3. The government policies on economic development do not significantly affect the improvement of Quality of Life in the region.

It is important to know that while the region has substantial assets in Government Impact and Economic category, these assets do not necessarily affect the human capital factors such as education and health in the region. For example, Owen and Washington Counties received grade A in Government Impact and Economy, but they received relatively low grades such as D or F in Education and Health categories. On the contrary, Dubois and Monroe Counties are the highest overall community assets areas in the region, however they received the intermediate grade, C, in the Government category.

4. Comparatively, the region shows a good performance in the unemployment rate, crime rate and effective tax rate.

Looking at each indicator more specifically, the region shows a fairly well performance in the unemployment rate, crime rate and effective tax rate. The regional average of the unemployment rate is 8.8% despite the national average (9.6%) and the state average (10.3%). The regional average of the crime rate per capita is 0.0125% despite the national average (0.0367%) and the state average (0.0338%). The regional average of the effective tax rate is 26.91% despite the state average (31.11%).

5. Comparatively, the region shows a poor performance in the poverty rate and economic development in arts, entertainment and recreation industry.

The region shows a relatively poor performance in the poverty rate and per capita personal income and average compensation per employee in arts, entertainment and recreation industry. The regional poverty rate is as high as 15.43% despite the national average (14.98%) and the state average (12.83%). The regional per capita personal income in the industry is $52 thousands despite the state average ($118.12 thousands). The regional average compensation per employee in the industry is $5738 despite the state average ($9640).

6. There are big gaps between the counties in arts, entertainment and recreation industry.

The Orange county has the highest per capita personal income from arts, entertainment and recreation industry (USD 137,021). The Greene County's per capita personal income from the industry is only USD 8,040. The gap between the counties is apparent in other indicators as well. The discrepancy between the counties suggests more equitable policy in promoting arts, entertainment and recreation industry in the region.

7. Investment in the public/private facility affects substantially to economic development in the region.

While the performance of each quality of life indicator varies within the region, the presence of the major public/private facilities considerably affects each county's performance. For example, Monroe County, which owns Indiana University, shows very different trends in several factors from other counties. In particular, Monroe County experiences the high population growth (14.4%) and high poverty rate as a result of students attending the university. Crawford County faces very high primary care ratio (10705:1) because of the limited access to the health care facilities. Also, Orange County, which owns French Lick Resort Casino, shows a particularly high performance in per capita income in accommodation and food services in the region.

8. The region has high potential for developing natural amenities and promoting tourism.

As mentioned above, the region has many state parks and also rich in natural amenities such as forests and lakes. Indiana's annual revenue from the state parks and recreational areas is among top 5 in the United States (The National Association of State Park Directors, 2011). This

shows that the region is in an advantageous position to increase tourism revenue. However, some amenities in the region are not fully developed yet. For example, there is potential for developing more marinas in the region since many counties are rich in lakes and waterways. As for promoting tourism, more research is needed to know the number of tourists coming from other regions.

Overall Community Asset Inventory Grades

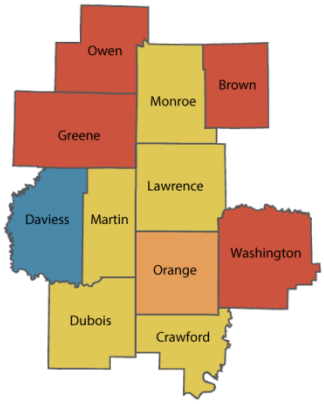
Source: Indiana Community Asset Inventory and Rankings 2012 by Center for business and economic research at Ball State University)

1) People

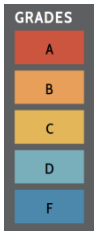
2) Education

3) Health

4) Government Impact and Economy



5) Arts, Entertainment, and Recreation



6. Changeable Amenity

7. Static Amenity

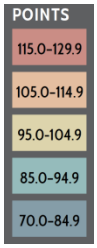


Table 1. Community Asset Inventory Grades and Index Points

County	People	Education	Health	Government Impact and Economy	Amenities: Changeable	Amenities: Static	Arts, Entertainment, and Recreation	Total Index Points **(Ranking)**
1. Brown	C 57.4	B 71.5	B 62.3	A 86.8	116.1	115.8	B 70.9	580.8 **(3)**
2. Crawford	F 26.6	C 49.8	F 29.8	C+ 74.3	101.4	114.0	F 32.9	428.8 **(10)**
3. Daviess	C 59.4	D 37.3	C 52.3	F 53.3	90.9	124.4	C 59.3	476.9 **(6)**
4. Dubois	A 87.6	B+ 81.8	A 84.1	C 70.0	105.9	114.2	C 64.3	607.9 **(1)**
5. Greene	C- 48.6	C 47.8	D 41.1	A 93.3	94.5	108.4	D 43.5	477.2 **(5)**
6. Lawrence	D 38.0	D 39.8	C- 48.2	C 66.5	96.6	107.4	C 59.9	456.4 **(8)**
7. Martin	C 58.4	C 53.0	C 51.8	C+ 74.5	87.1	116.0	F 34.6	475.4 **(7)**
8. Monroe	B 67.4	B 73.3	B+ 69.8	C 70.5	113.9	122.0	C+ 65.1	582 **(2)**
9. Orange	D 44.0	F 27.5	C 53.7	B 78.0	104.9	113.0	B 70.9	492 **(4)**
10. Owen	D- 36.4	F 19.0	D- 37.5	A 94.0	92.8	102.4	F 34.6	416.7 **(11)**
11. Washington	D+ 45.6	D- 31.3	D- 37.8	A 90.5	93.1	102.0	D- 40.1	440.4 **(9)**
Total (Ranking)	569.4 **(5)**	532.1 **(6)**	568.4 **(3)**	851.7 **(2)**	**(3)**	**(1)**	576.1 **(4)**	

Category:

- Strong: 1) Static amenities, 2) Government Impact and economy
- Weak: 1) Education 2) People 3) Health 4) Arts, Entertainment, and Recreation

County:

- Strong: 1) Dubois County, 2) Monroe County, 3) Brown County
- Weak: 1) Owen County, 2) Crawford County

VIII. Conclusion and Recommendations

1. Develop the strategic tourism plan to utilize the ample static amenities.

The region should consider the static amenities as a tool of economic development as well as the Quality of Life factors. The region can create more outdoor recreational activities, collaborated with the nonprofits working with Indiana forests and other amenities, and advertise them within and outside the region. Recognizing the value of the amenities, visitors would increase in the region.

2. Develop the forest products industry.

Most Indiana forests are located in the southern half of Indiana, and forest products manufacturing is a $3 billion a year industry in Indiana. Using regional economic modeling, that figure grows to $17 billion (Source - Indiana's Hardwood Industry-Its Economic Impact). The Southwest Central region should consider expanding the forest-based manufacturing, increase employment and improve the region's economy.

3. Increase the easy access to health care facilities.

Having healthy citizens in the region has a significant impact on economic development and growth. For the purpose of this, easy access to health care facilities is critical. As income increases, the public health infrastructure of a city becomes more important in the decision to reside in the city. Increasing the health sector throughout the region ultimately improves worker productivity and provides a new source for employment and economic growth.

4. Implement the comprehensive policy to improve both economic performance and human capital assets.

The region should utilize the high potential assets in Government Impact and Economy field such as fairly low crime rate and effective tax rate to attract more residents and companies moving to the region. When the government implements the policy to improve the region's economy, it should ensure that the policy affects not only the economic performance such as the number of industries or employees increased but also the entire quality of life in the region

including human capital assets such as education and health. The comprehensive policy will assure the real sustainable economic development followed by population growth and improvement in the quality of life.

5. Selective approach for promoting arts, entertainment and recreation industries.

A pilot research is necessary to find the region's strengths and weaknesses as well as distinct characteristics in arts, entertainment and recreation industry. Select the items with the highest potential for promoting the industry. Also, the selected items should reflect the characteristics of the region, so that it can be easily incorporated into the bigger regional economic development plans.

6. Narrow the income gap between the counties

The gap between the rich and the poor counties is wide. This must be dealt if our policy concern is to improve the quality of life in the region. Equitable economic development plan should be included in our top priorities.

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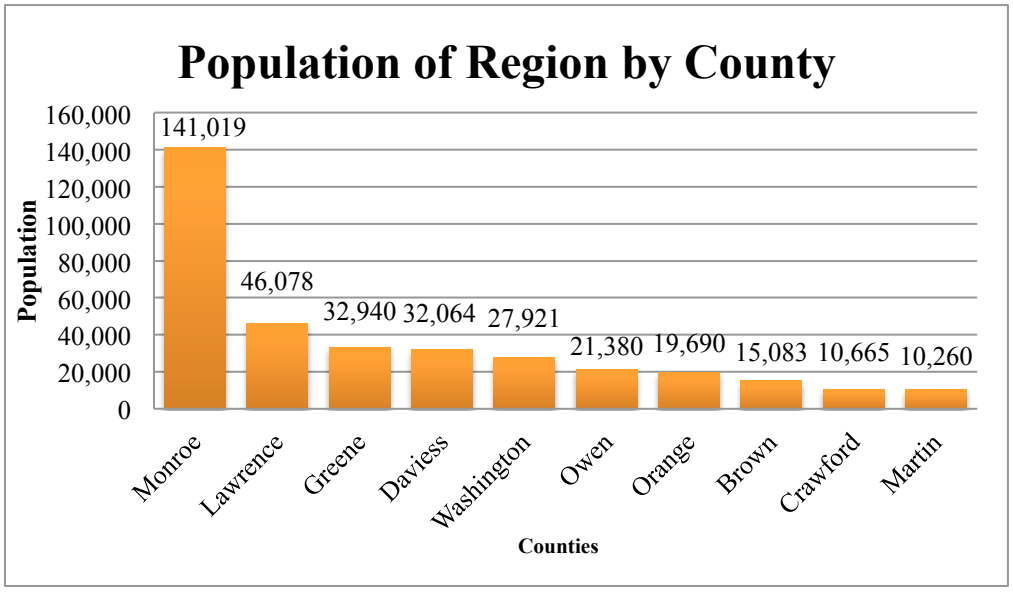
Appendix 1: Human Capital Data

Population

	Population	Growth since 2010 survey	Households (2011)
Monroe	141,019	2.2%	53,108
Owen	21,380	-0.9%	8,494
Brown	15,083	-1.0%	6,079
Orange	19,690	-0.8%	7,677
Daviess	32,064	1.3%	10,944
Greene	32,940	-0.7%	12,886
Lawrence	46,078	-0.1%	18,659
Martin	10,260	-0.7%	4,017
Washington	27,921	-1.2%	10,744
Dubois	42,071	0.4%	15,905
Crawford	10,665	-0.4%	4,242



Source: US Census

Age Demographics

Population Estimates by Age (2012)						
Counties	Preschool (0 to 4)	School Age (5 to 17)	College Age (18 to 24)	Young Adult (25 to 44)	Older Adult (45 to 64)	Older (65 plus)
Monroe	6389 (4.5%)	16372 (11.6%)	40581 (28.8%)	34071 (24.2%)	28,545 (20.2%)	15061 (10.7%)
Owen	1113 (5.2%)	3637 (17%)	16749 (7.9%)	4714 (22%)	6814 (31.9%)	3423 (16%)
Brown	662 (4.4%)	2318 (15.4%)	963 (6.4%)	2985 (19.8%)	5216 (34.6%)	2939 (19.5%)
Orange	1108 (5.6%)	3678 (18.7%)	1489 (7.6%)	4539 (23.1%)	5626 (28.6%)	3250 (16.5%)
Daviess	2605 (8.1%)	6641 (20.7%)	2867 (8.9%)	7427 (23.2%)	7934 (24.7%)	4590 (14.3%)
Greene	1831 (5.6%)	5690 (17.3%)	2525 (7.7%)	7682 (23.3%)	9541 (29%)	5671 (17.2%)
Lawrence	2597 (5.6%)	8028 (17.4%)	3444 (7.5%)	10766 (23.4%)	13330 (28.9%)	7913 (17.2%)
Martin	620 (6%)	1765 (17.2%)	756 (7.4%)	2334 (22.7%)	3074 (30%)	1711 (16.7%)
Washington	1613 (5.8%)	5195 (18.6%)	2266 (8.1%)	6739 (24.1%)	8019 (28.7%)	4089 (14.6%)
Dubois	2659 (6.3%)	7784 (18.5%)	3051 (7.3%)	10049 (23.9%)	12167 (28.9%)	6361 (15.1%)
Crawford	583 (5.5%)	1823 (17.1%)	829 (7.8%)	2406 (22.6%)	3310 (31.%)	1714 (16.1%)

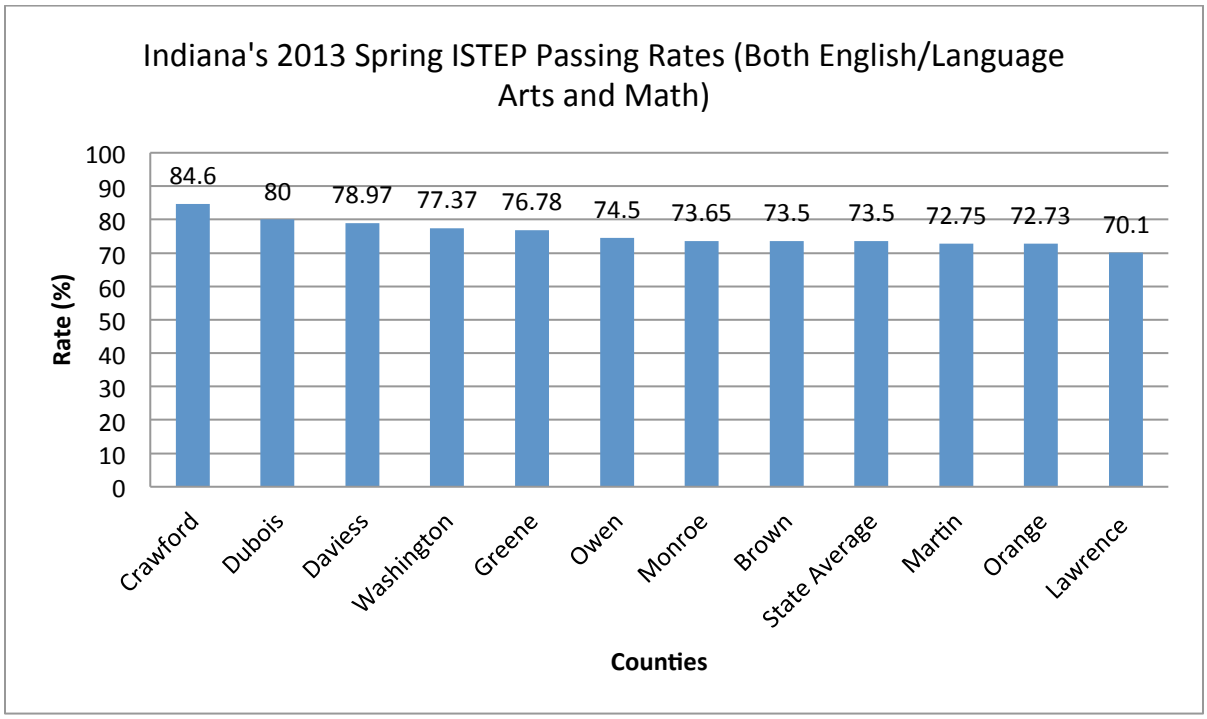
Source: US Census

Regional Diversity

Population Estimates by Race and Hispanic Origin, 2011	Number	Percent in Region	Percent in State
American Indian or Alaska Native Alone	1,155	0.30%	0.40%
Asian Alone	8,797	2.40%	1.70%
Black Alone	5,749	1.60%	9.40%
Native Hawaiian and Other Pac. Isl. Alone	153	0.00%	0.10%
White	344,797	94.20%	86.70%
Two or More Race Groups	5,219	1.40%	1.70%
Hispanic or Latino (can be of any race)			
Non-Hispanic	355,955	97.30%	93.80%
Hispanic	9,915	2.70%	6.20%

* US Census - http://www.hoosierdata.in.gov/custom_profile2.asp

Education



Source: Indiana Department of Education

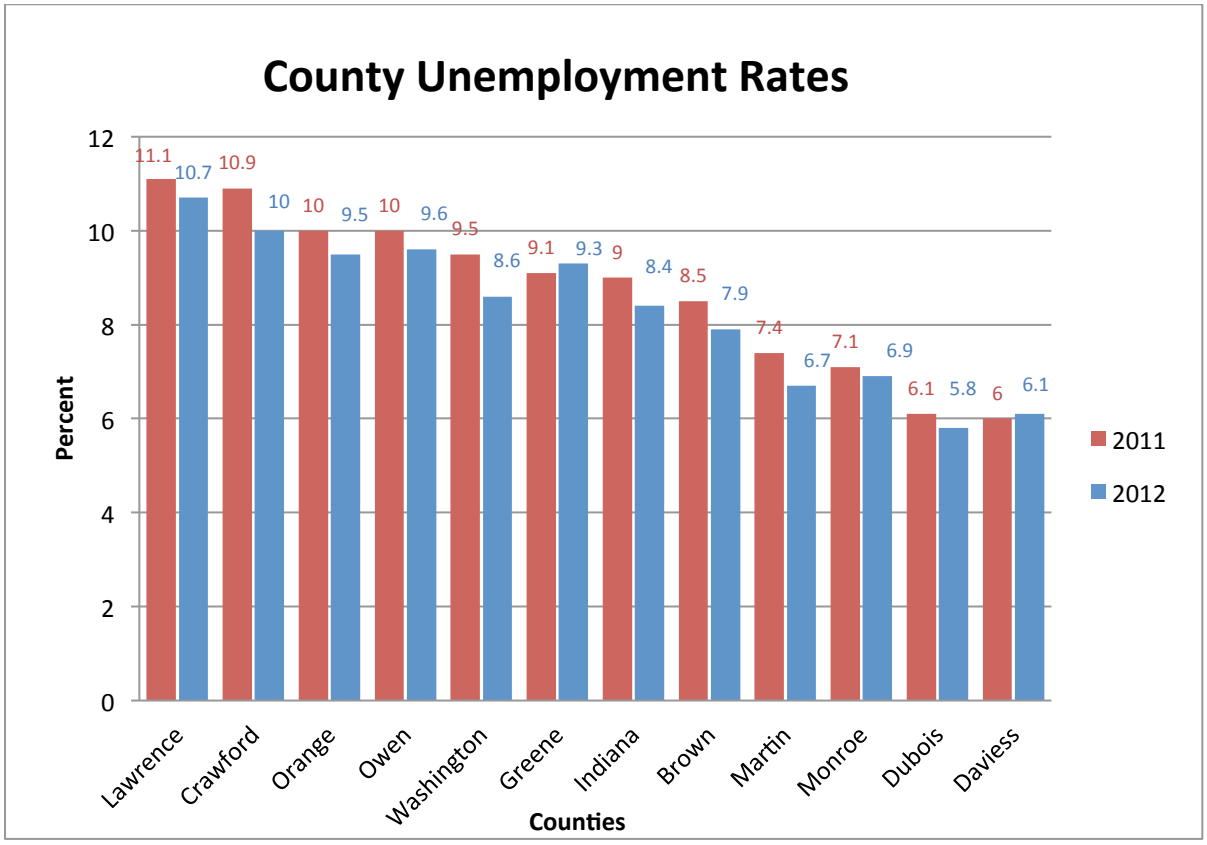
ISTEP passing rates provide a standardized measurement of local school education.

Educational Attainment
(2011)

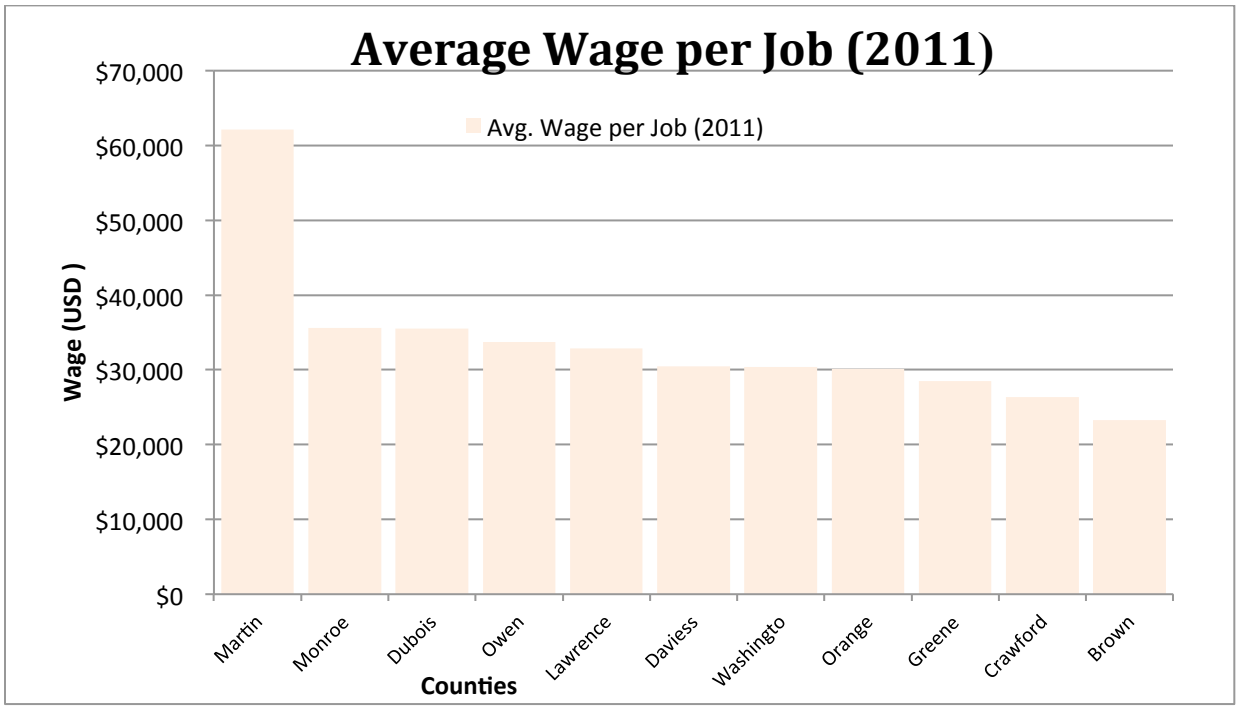
Counties	Total Population 25+	Less than 9th Grade	9th to 12th Grade, No Diploma	High School Graduate (incl. equivalency)	Some College, No Degree	Associate's Degree	Bachelor's Degree	Graduate or Professional Degree**
Monroe	74130 (100%)	1956 (2.6%)	4322 (5.8%)	17803 (24%)	14363 (19.4%)	4209 (5.7%)	15856 (21.4%)	15621 (21.1%)
Owen	14899 (100%)	807 (5.4%)	1914 (12.8%)	7053 (47.3%)	2779 (18.7%)	983 (6.6%)	925 (6.2%)	438 (2.9%)
Brown	11104 (100%)	208 (1.9%)	1065 (9.6%)	4246 (38.2%)	2326 (20.9%)	721 (6.5%)	1564 (14.1%)	974 (8.8%)
Orange	13363 (100%)	976 (7.3%)	1740 (13%)	5968 (44.7%)	2347 (17.6%)	696 (5.2%)	972 (7.3%)	664 (5%)
Daviess	19580 (100%)	2645 (13.5%)	2175 (11.1%)	7562 (38.6%)	3145 (16.1%)	1749 (8.9%)	1265 (6.5%)	1039 (5.3%)
Greene	22641 (100%)	808 (3.6%)	2642 (11.7%)	9852 (43.5%)	4613 (20.4%)	2246 (9.9%)	1514 (6.7%)	966 (4.3%)
Lawrence	31970 (100%)	1814 (5.7%)	3878 (12.1%)	13903 (43.5%)	5925 (18.5%)	2328 (7.3%)	2675 (8.4%)	1447 (4.5%)
Martin	7077 (100%)	393 (5.6%)	868 (12.3%)	2975 (42%)	1381 (19.5%)	790 (11.2%)	381 (5.4%)	289 (4.1%)
Washington	18842 (100%)	1214 (6.4%)	2801 (14.9%)	8560 (45.4%)	3126 (16.6%)	1195 (6.3%)	1010 (5.4%)	936 (5%)
Dubois	28354 (100%)	1678 (5.9%)	2416 (8.5%)	11828 (41.7%)	4399 (15.5%)	2457 (8.7%)	3611 (12.7%)	1965 (6.9%)
Crawford	7,371 (100%)	424 (5.8%)	967 (13.1%)	3577 (48.5%)	1127 (15.3%)	351 (4.8%)	486 (6.6%)	439 (6%)

Source: Indiana Department of Education

Employment/labor



Source: Bureau of Labor Statistics



Source: Bureau of Labor Statistics

Regionalized Labor Force, Income, and Poverty Data

Labor Force, 2011	Number in Region	Percent of State	Indiana
Total Resident Labor Force	180,595	5.70%	3,158,063
Employed	166,097	5.80%	2,874,722
Unemployed	14,498	5.10%	283,341
Annual Unemployment Rate	8	88.90%	9
August 2013 Unemployment Rate	7	93.30%	7.5
Income and Poverty	**Number**	**Percent of State**	**Indiana**
Per Capita Personal Income (annual) in 2011	**$32,279**	**90.40%**	**$35,689**
Welfare(TANF) Families in 2011	**689**	**3.00%**	**23,162**
Food Stamp Recipients in 2011	**38,635**	**4.40%**	**884,135**
Free and Reduced Fee Lunch Recipients in 2013	**21,075**	**4.10%**	**509,427**

Sources: U.S. Bureau of Economic Analysis; U.S. Census Bureau; Indiana Family Social Services Administration; Indiana Department of Education

Appendix 2: Social Capital Data

Social Capital Data

Table 1 displays the charitable giving, number of non-profits, and religious associations in all 11 Southern Indiana counties. Data for the state of Indiana as well as the United States as a whole are also included for comparison.

Table 1

County (State)	Population	Total charitable giving	Charitable Giving per captia	total # of non-profits	# non-profits per 10,000 people	Congregations (2010)	Adherents (% of pop.)
Brown	15,242	3,315,000	$217.49	76	49.8622	25	22.8
Crawford	10,713	1,478,000	$137.96	45	42.0050	33	36.3
Daviess	31,648	6,953,000	$219.70	144	45.5005	89	55.4
Dubois	41,889	13,307,000	$317.67	317	75.6762	57	75.1
Greene	33,165	6,560,000	$197.80	159	47.9421	88	37.3
Lawrence	46,134	12,681,000	$274.87	229	49.6380	97	43.9
Martin	10,334	1,828,000	$176.89	68	65.8022	34	60.1
Monroe	137,974	54,091,000	$392.04	716	51.8938	144	30.3
Orange	19,840	3,895,000	$196.32	118	59.4758	64	43.3
Owen	21,575	4,685,000	$217.15	122	56.5469	50	24.4
Washington	28,262	4,489,000	$158.84	113	39.9830	73	40.7
(Indiana)	6,376,792	2,581,900,000	$404.89	33,082	51.8788	9,061	44.3
USA	308,700,000	155,103,000,000	$502.44	1,406,820	45.5724	344,894	48.8

Sources: National Center for Charitable Statistics and stats.indiana.edu

Table 2 displays rates of homeownership and rentals in all 11 Southern Indiana counties. Data for the state of Indiana and United States as a whole are also included (where available) for comparison.

Table 2

County (State)	Population	Owner-Occupied Housing Units (2011)	% Owner-Occupied of all HU	Renter-Occupied Housing Units	% Renter-Occupied of all HU
Brown	15,242	5,176	63.2	903	11
Crawford	10,713	3,572	64.7	670	12.1
Daviess	31,648	8,568	68.8	2,376	19.1
Dubois	41,889	12,336	71.3	3,569	20.6
Greene	33,165	10,038	65.7	2,848	18.6
Lawrence	46,134	14,632	69.3	4,027	19.1
Martin	10,334	3,436	71.6	581	12.1
Monroe	137,974	29,010	49.4	24,098	41
Orange	19,840	5,914	64.7	1,763	19.3
Owen	21,575	6,869	68	1,625	16.1
Washington	28,262	8,505	69.7	2,239	18.3
(Indiana)	6,376,792	1,758,192	63	714,678	25.6
USA	308,700,000		57.9		29.7

Sources: U.S. Census Bureau and stats.indiana.edu

Appendix 3: Arts, Entertainment, and Recreation Data

Owen

Overall personality:

Rural and small town focus. Some outdoor activities focused on camping, boating, fishing, hiking, and horseback. Quiet. Organized Tourism site. Easy to navigate. No particular strengths in this area. Weakness in lack of activities and personality

Arts, Theaters, and Music Venues

- Owen County Art Guild – Provides Art education by member artists - http://www.owencountyartguild.org/
- Tamarack Stoneware – handmade pottery gallery - http://www.etsy.com/shop/TamarackStoneware
- Ken Bucklew - http://kenbucklew.com/

Theaters

- Stable Studios – A recording studio and live performances almost every weekend

Heritage and Museums

- Owen County Heritage Museum, Spencer
- Ten O'Clock Line Treaty Museum, Gosport
- Soldier's Memorial Pavilion, Spencer
- Cataract Covered Bridge, Cataract

Outdoor Facilities

- Cataract Falls & Covered Bridge, Cloverdale
- Greens Bluff Nature Preserve, Spencer
- McCormicks Creek State Park, Spencer
- Owen County Fair Grounds, Spencer
- Stable Studios, Spencer

PARKS & RECREATION

- Cooper Park, Spencer
- Gosport Town Park & Gazebo, Gosport
- Hickory Hills Campground, ,

Spencer
- Lieber SRA (Cagle's Mill Lake), Cloverdale
- McCormicks Creek State Park, Spencer
- Owen County Family YMCA, Spencer
- Owen-Putnam State Forest, Spencer
- Owen Valley Sportsplex, Spencer
- Pine Woods Golf Course, Spencer
- Rolling Meadows Golf Course, Spencer

Sporting Events and Venues

- Owen County Family YMCA, www.owencountyymca.org, Spencer
- Rolling Meadows Golf Course www.golfrollingmeadows.com, Gosport
- The Barn Archery, Spencer, www.thebarnarchery.com
- Parker's Archery, Spencer www.parkersarchery.com
- Cliff Edge Paint Ball, Spencer www.cliffedgepaintball.com
- Cathleen's Gymnastics, Spencer

Festival, Carnivals, Community Events

May-Oct	Owen county Community Farmer's Market, Spencer	Saturdays
May	Patricksburg Community Hog Roast/ Euchre Tournament, Patricksburg	
June	Rock and Run, 5K run, Spencer	5K run
June	Antique Machinery Show, Jones Stables, Gosport, IN	
June	Arts in the Park, McCormicks's Creek State Park, Spencer	
June	Commotion in the Commons, Owen County Art Guild, Spencer, IN	Local Artists and Youth Chalk art event
July.	Freedom Fest, Spencer	4th of July celebration
July	Owen County 4-H Fair, Spencer	Traditional 4-H fair

August	Gosport Lazy Days, Gosport	Food, music
August	White River Poultry Show, Spencer	Owens County Fair Grounds
Sept.	Hyperion Music & Arts Festival, Spencer	
Sept.	BBQ and Blues, Spencer	Food and Music
Sept.	Spencer Riverfront Festival Duck Race and Jonah Fish Fry, Spencer	
Sept.	Apple Butter Festival, Spencer	Food, crafts and family fun
Oct	Cataract VFD Bean Dinner Festival, Cataract	
Dec.	Christmas on the Square, Spencer	
Dec.	Gosport Holiday Festival, Gosport	

Monroe

Overall Personality:

College town with sports and culture associated with the University, Artsy, Outdoorsy, Vibrant. Bloomington dominates. Strengths include activities at IU, sports, music, the arts, and food.

Talked to Julie Warren 10/29 at Tourism. Excited about I69. Feels that Tourism will explode once the highway is finished.

Arts, Theaters, and Music Venues

Galleries

- Blueline Gallery, Bloomington, studio and exhibition space
- El Norteno Gallery, Bloomington, restaurant and art gallery
- Royal Hair Parlor – Bloomington, hair salon and art gallery
- Stone Belt Art Gallery, Bloomington
- By Hand Gallery, Bloomington, showcase works of local artists and craftsmen
- Gallery Group, Bloomington, Art gallery featuring 2-D art by local artists and IU faculty
- Gallery406 – Spectrum Studio of Photography and Design, Bloomington
- Grunwald Gallery of Art, IU, Bloomington, Art Gallery
- Indiana University Art Museum, IU, Bloomington,
- Pictura Gallery, Bloomington, contemporary photography
- The Venue Fine Art and Gifts, Bloomington, Art gallery and gift shop

Organizations

- Arts Alliance of Greater Bloomington – association of artists, organizations and arts advocates
- Indiana Festival Theater, Bloomington, summer professional theatre for IU Department of Theatre and Drama

Theaters, music and other entertainment

- African American Arts Institute, Bloomington, IU Soul Revue, The African American Dance Company, and the African American Choral Ensemble performing in concert, at nightclubs, conventions, and other engagements
- BCT Box Office, source for event tickets in Bloomington
- Bluebird Nightclub, Bloomington, Live music
- Indiana University Cinema Bloomington– 300 seat cinema, film exhibitions, film festivals, and other film showings.
- Black Film Center, Bloomington, archives and film showings
- Bloomington Playwrights Project, Bloomington, professional theater dedicated to new works

- Buskirk-Chumley Theater, Bloomington, Performance Theater
- Cardinal Stage Company, Bloomington, Performance Theater
- IU Theatre - Lee Norvelle Theatre and Drama Center, IU, Bloomington, Performance theater
- IU Auditorium, IU, Bloomington, concerts, Broadway shows and student events
- IU Jacobs School of Music, IU Bloomington, Opera, ballet and musical performances
- IU Summer Music, Various venues, Bloomington, orchestral, jazz, opera, chamber and outdoor band concerts
- IVY Tech John Waldron Arts Center, Bloomington, Artists, performers and educators. Plays, concerts, art galleries, and art lessons
- Spirit of ’68 Promotions, various venues, Bloomington, live music
- Players Pub, Bloomington, live music
- Bloomfield Apple Festival, Bloomfield, IN
- Oliver Winery Harvest Wine Festival, Between Bloomington and Martinsville

Heritage and Museums

- Monroe County History Center, Bloomington
- Wylie House Museum, Bloomington
- The Farmer House Museum, Bloomington
- Hinkle Garton Farmstead Community Historical Site, Bloomington
- Indiana University Lilly Library, Bloomington
- Indiana University Archives, Bloomington
- Mathers Museum of World Cultures, Bloomington
- Tibetan Mongolian Buddhist Cultural Center, Bloomington
- Wonderlab, Bloomington
- Asian Culture Center, Bloomington
- Dagom Gaden Tensung Ling Monastery, Bloomington
- First Nations Education and Cultural Center, Bloomington
- Glenn A. Black Laboratory of Archaeology, Bloomington
- La Casa Latino Cultural Center, Bloomington
- Leo R. Dowling International Center, Bloomington
- Rose Hill Cemetary, Bloomington

Outdoor Facilities

- B-Line Trail - 3.1 mile trail through downtown Bloomington.
- Bloomington Rail Trail - Trailheads at West Country Club Road and Church Lane 1.8 mile gravel trail
- Cedar Bluff Nature Preserve, Bloomington
- Charles C. Deam Wilderness and Blackwell Horsecamp, Hoosier National Forest, Bloomington – overnight camping area for equestrians and trails
- Clear Creek Trail, Bloomington – 2.5 mile paved trail for biking, walking, jogging, rollerblading
- Fairfax State Recreation Area, Bloomington – on Lake Monroe. Beach, boat ramp and picnic area. Also home to Fourwinds Resort and Marina
- Griffy Lake Nature Preserve, Bloomington, 1,200 acre nature preserve with a 109 acre lake. Hiking, canoe, kayak and rowboat rentals
- Hardin Ridge Recreation area, Hoosier National Forest, 1,200 acre recreational complex on the shore of Monroe Lake. Hiking, biking, swimming beach, boat ramp, picnic areas and shelters, and 200 developed campsites and lakeside cabins
- Hickory Ridge Horse Camp, Hoosier National Forest, primitive campground designed for horse camping
- Hoosier National Forest – 200,000 acre encompassing nine counties in South-Central Indiana.
- Jackson Creek Park, Bloomington
- Jellystone Park at Lake Monroe, full hook-up campsites, cabins, resort
- Karst Farm Park & Athletic Complex – 120 acre park with shelters, playgrounds, basketball courts, shuffle board courts, horseshoe pits, volleyball courts, a 9-hole disc golf course, splashpad, and more.
- Lake Lemon Conservancy District, Unionville, 1650 acre lake with 25 miles of shoreline. Boat launch ramp, picnic areas, swimming beach and fishing
- Little Africa Wildlife Viewing Area, Unionville, 25 acre peninsula on Lake Lemon
- Lake Monroe Village, Bloomington, 130 acre resort with camping and cabin rentals
- Leonard Springs Nature Park, Bloomington, 95.5 acres with caves, wetlands, hiking trails
- Lower Cascades Park, Bloomington, playground, picnic area, shelters on Cascades Creek
- Monroe Lake, State's largest inland lake, 10.750 acres of water surrounded by thousands of acres of forest.
- Stillwater North Fork Waterfowl Resting Area, Monroe Lake wildlife management area.
- Morgan-Monroe State Forest. Between Bloomington and Martinsville, 24,000 acres of state forest land
- Paynetown State Recreation Area, Lake Monroe, camping, marina, DNR staffed Interpretive Center
- Beanblossom Bottoms Nature Preserve, large wetland preserve
- Will Detmer Park, Bloomington
- Hilltop Garden and Nature Center, Bloomington, youth gardening program

Sporting Events and Venues

- Cascades Golf Course, Bloomington
- Student Recreational Sports Center, Indiana University, Bloomington
- The Health, Physical Education and Recreation Building, Indiana University, Bloomington
- Eagle Pointe Golf Resort, Bloomington
- Frank Southern Ice Arena, Bloomington, public ice skating and skate rental
- Hilly Hundred Bicycle Tour, Elletsville, annual event, 5,500 bicyclists from over 40 states participate
- IU Golf Course, Bloomington
- IU Outdoor Pool, Bloomington
- IU Tennis Center, Bloomington
- Mills Pool, Bloomington, public pool
- Taylor's Par 3 Golf Course
- Twin Lakes Recreation Center, Basketball, indoor soccer, weightroom, etc
- Upper Cascades Skate Park, Bloomington, skateboard park
- Wapehani Mountain Bike Park, Bloomington
- IU Little 500 Weekend. IU Bloomington. IU men's and women's bike races
- Indiana University Sports including basketball, football, swimming, diving, baseball, soccer, softball, volleyball, ice hockey, and more

Festival, Carnivals, Community Events

Year-round	Gallery Walk, Bloomington	6 Fridays yearly, Bloomington Galleries coordinate exhibits and food
Year-round	Downtown First Fridays, Bloomington	First Friday every month
Jan	Week of Chocolate-Chocolate Bingo, Bloomington	
Jan-Feb	Pride Film Festival, Bloomington	Festival exploring issues involving LGBT communities
Feb.	Eagle Watch Weekend, Lake Monroe	Nesting sites of Bald Eagles
Feb.	Raas Royalty, IU Auditorium, Bloomington	Festival celebrating the Gujaratti (India) traditions of dance
March	Indiana Heritage Quilt Show, Bloomington	
April-Nov.	Bloomington Community Farmers Market, Bloomington	Every Saturday
April	Bloomington Craft Beer Festival,	

	Bloomington	
April	Little 500 Weekend, Bloomington	IU students compete in a bike race
April	Annual Bloomington Craft Beer Festival, Bloomington	
May	WFHN's Accoustic Roots Festival, Bloomington	Music
May	Strawberry Shortcake Festival, Bloomington	Boys and Girls Club fundraiser
May	Gadabout Film Festival, Bloomington	
May-July	Kinsey Institute Juried Art Show, Bloomington	Art show
May-August	IU Summer Festival of the Arts, IU Campus, Bloomington	
June	Limestone Month, various venues	
June	Indiana Limestone Symposium, Ellettsville	
June	The Limestone Comedy Festival, Bloomington,	3-day multi venue comedy festival
June	Arts Fair on the Square, Bloomington	Art fair
June	Taste of Bloomington, Bloomington	Food fair
June	Bloomington Gardenwalk, multiple venues, Bloomington	Garden tours
June	Aluminum Pour, A Community Celebration, Solsberry	
June	Bloomfield Art Festival, Bloomfield	
July	4th of July Parade & Festivities, Bloomington	
July	USA Harp International Competition, Bloomington	
July	Uncork the Uplands, Bloomington	Celebration of Indiana Wine and Food
July	Grant Street Jazz Festival, Bloomington	
July	Kaleidoscope Festival at the Tibetan Mongolian Buddhist Cultural Center, Bloomington	

July-August	Monroe County Fair, Bloomington	Traditional county fair
August	Flavors of 4th Street Festival, Bloomington	Food fair
August	Hillbilly Haiku Americana Music Series	Bluegrass music
August	King's – Blues, BBQ & Funkfest, Bloomington	
August	Annual Cornfest and FARMbloomington, Bloomington	
August-Sept.	4th Street Festival of the Arts and Crafts, Bloomington	
Aug.-Sept.	Community Art Fair and Garlic Fest, Bloomington,	features local talent and local food
Sept.	Kiwanis Balloon Festival, Bloomington	Hot-air balloons
Sept.	Lotus World Must & Arts, Bloomington	Celebrating world music and culture
Sept.	Monroe County Fall Festival, Ellettsville	
Oct.	Dark Carnival Film Festival, Bloomington	Horror movies for Halloween
Oct.	Bloomfield Apple Festival, Bloomfield	
Nov.	IU Homecoming, Bloomington	
Nov.	Bloomington Handmade Market, Bloomington	Hand made crafts
Nov.	Annual Glass, Clay and Fiber Art Guild Shows, multiple venues, Bloomington	
Nov.	Canopy of Lights, Bloomington	
Nov.	Holiday Market	
Nov.	Chimes of Christmas, Bloomington	Holiday music concert

Brown:

Overall personality:

Dubbed the Art colony of the Midwest and one of the oldest art communities in America, Art, Music and Natural Outdoor Activity focused. Well-branded for tourism.

Arts, Theaters, and Music Venues

B3 Gallery http://www.b3.bussert.com	125 South Van Buren Street #2E, Artists Colony Shops, Nashville, IN, 47448	812-988-6675	Offers Indiana fine and functional art.
Barb Brooke Davis Studio and Gallery	61 West Main Street, 2nd Level, Historic Village Green Building, Nashville, IN, 47448	812.360.0478	Hand-dyed textiles
Brown County Art Gallery http://www.browncountyartgallery.org	1 Artists Drive, Nashville, IN, 47448	812-988-4609	Brown County's original art gallery.
Ferrer Gallery	61 West Main Street, 2nd level of the Village Green Building, Nashville, IN, 47448	812-988-1994	Local and Regional Art
Gallery North http://Gallery-North.org	50 East Main Street, Nashville, IN, 47448	812.-988-6855	Fine Art
Hoosier Artist Gallery http://www.hoosierartist.net/	45 South Jefferson Street, Nashville, IN, 4748	812.988.6888	Local and Indiana Fine Art
Spears Gallery http://www.spearspottery.com	South Van Buren Street & 5110 St. Rd. 135 South, Nashville, IN, 47448	812.988.1286 & 812.988.1287	Pottery
Amy Greely Studio http://www.amygreely.com/index.html	118 South Van Buren Street, Nashville, IN, 47448	1.812.988.1058	Jewelry and metalsmithing
Anne Ryan Miller Glass Studio http://www.anneryanmillerglassstudio.com	425 North Jefferson, Nashville, IN, 47448	812.988.9766 / 812.325.7485	Stained Glass
Cox Creek Mill	4705 Annie Smith Road,	812.988.6690 /	Metal Art

	Nashville, IN, 47448	812.344.9967	
Faerie Hollow Studio http://www.cheriplatter.com/	1650 Salt Creek Road, Nashville, IN, 47448	812-988-8378	Lampworked Glass beads, Jewelry, hand painted Silk scarves, Precious Metal Clays
Fantasy Manor Art Studio http://www.fantasymanorartstudio.com	Lanam Ridge Rd, Nashville, IN, 47448	812.988.0222	Hand dyed and Sculpted Leather,
Nashville Image Old Time Photography http://www.nashvilleimage.com	75 South Jefferson Street in Antique Alley near water fountain/public restrooms, Nashville, IN, 47448	812.988.8292	Tourist Photos
Oak Grove Pottery http://www.oakgrovepottery.com	942 Oak Grove Road, Nashville, IN, 47448	812-344-4186	Pottery
The Uncommon Gourd http://www.facebook.com/roseys.uncommon.gourd	4021 Vaught Road, Nashville, IN, 47448	(812) 322-3398	Folk Art

Music

Chateau Thomas Winery and Gift Shoppe http://www.chateauthomas.com/locations/nashville/	225 South Van Buren Street, Coach light Square, Nashville, IN, 47448	888.761.9463 / 812.988.8500	Indiana Wine and Live Music
Corn Crib Lounge at the Brown County Inn http://www.browncountyinn.com	51 East State Road 46, Nashville, IN, 47448	1.800.772.5249	Live Music
Gazebo at Hotel Nashville http://www.hotelnashville.com	245 North Jefferson Street, Nashville, IN, 47448	800.848.6274 / 812.988.8400	Live Music in the Spring Summer and Fall

Golden Ticket Productions http://www.goldenticketproductions.com/	61 S. Van Buren St, Nashville, IN, 47143	812-720-9509	Live Performances. Theater, and Music
Mike's Music & Dance Barn http://mikesmusicbarn.com/	2277 West State Road 46, Nashville, IN, 47448	812.988.8638	Live Country Music and Dancing
The Saloon at Seasons Lodge http://www.seasonslodge.com/content/saloon	560 East State Road 46, Nashville, IN, 47448	988-2284	Food, Wine and Live Music

Theaters

Brown County Playhouse http://www.browncountyplayhouse.org	70 South Van Buren Street, Nashville, IN, 47448	812.988.6555	Live Productions
Melchior Marionette Theatre http://melchiormarionettes.com	West side of South Van Buren, Nashville, IN	800.849.4853 317.535.4853	outdoor marionette theater

Heritage and Museums

- Brown County Historical Museum, Nashville
- Pioneer Museum, Nashville
- TC Steele State Historic Side, Nashville
- Shireman Homestead, Columbus
- Brown County Log Museum, Nashville

Outdoor Facilities

- Valley Branch Retreat, Nashville http://explorebrowncounty.com/
- Brown County State Park, Nashville
- Brown County Canoe, Nashville

http://www.browncountycanoe.com

- Hoosier National Forest
- Most High Adventure
  http://soilandwater.com/mosthigh/
- Yellowwood State Forest, Nashville
  http://www.in.gov/dnr/forestry/4817.htm
- Knobstone Trail, Nashville
  http://www.in.gov/dnr/outdoor/4224.htm
- Tecumseh Trail, Nashville
  http://www.in.gov/dnr/forestry/4817.htm
- Copperhead Creek Gem Mine and Rock Shop, Nashville
  http://www.visitbrowncounty.com/mine.asp

Sporting Events and Venues

Focused on Youth and School sports

Festival, Carnivals, Community Events

May	Spring blossom arts festival, Nashville	3 day festival every spring showcasing local and regional artists and live music
May	Morel mushroom festival, brown county state park	mushroom hunting, music, art
June	Annual Bill Monroe bean blossom bluegrass festival, Bean Blossom	50 live bands
October	Annual Fallfare, Nashville	art, antiques, collectibles, games, live entertainment, etc

Greene

Overall Personality:

Rural. Entertainment focused on community fairs and school activities. Weak in arts and entertainment, although there are a couple of art fairs in the summer. Not much outdoor activity either.

Arts, Theaters, and Music Venues

Theaters

- Shawnee Theatre, Bloomfield, IN – Indiana's oldest professional summer theatre
- Linton Cinemas, Linton, IN – Current Film Releases

Outdoor Facilities

- Greene-Sullivan State Forest. 9,000 acres with 120 lakes. Fishing, horse riding, family campsites
- Shakamak State Park. 1,766 acre park. 400 acres in 3 man-made lakes. Boating, hiking, camping, cabins, picnic areas, saddle barn, bridle trails and fishing
- Sunset Park Recreation Area. 300 acre features 8 lakes, scuba diving, PADI certification programs, fishing, camping, boating, swimming, biking

Sporting Events and Venues

Focused on Youth and School Sports

Festival, Carnivals, Community Events

APRIL-MAY

- Bloomfield town-wide Yard Sale
- Linton City-wide Yard Sale
- Lyons Town-wide Yard Sale
- Newberry Town-Wide Yard Sale
- Race Day
- Spring Turkey Hunting
- Worthington Old Fashioned Days

June-July

- Bloomfield Art Festival. Arts and Crafts of Southern Indiana
- Greene County Fair
- Linton Freedom Festival. Features arts and Crafts, Live bands, July 4th
- Shawnee Theatre, Bloomfield, IN – Indiana's oldest professional summer theatre

Daviess

Overall Personality:

Amish. Amish food, entertainment, antiques and crafts, and livestock auctions. Website is below average. Called the Chamber of Commerce for information. Must be aware that online or telephone surveys may not work well in this county due to the size of the Amish population

Arts, Theaters, and Music Venues

None found other than Amish crafts sold at Festivals (see below)

Outdoor Facilities

- Country Oaks Golf Club, Montgomery, In
- Eastside Park, Washington, In – City Park
- Glendale Fish And Wildlife Area, Washington, In 1,400 Acre Lake Featuring Campsites, Boating, Turkey, Deer, Rabbit And Squirrel Hunting
- Washington Country Club, Washington, In – 9 Hole Semi-Private Golf Club
- West Boggs Park, Loogootee, In, Camping, Fishing, Swimming, Water Skiing, Boating, Golfing

Sporting Events and Venues

Focused on Youth and School Sports

Festival, Carnivals, Community Events

All year	Dinky's Auction, Montgomery, IN	Auctions every Friday evening
Jan.	New Year's Horse and Tack Auction, Cannelburg	
Feb.	Building Material Auction, Cannelburg	
Feb.	Bridal Show, Montgomery	
Feb.	Farm Machinery Auction, Cannelburg	
March	Washington Conservation Club Gun Show, Washington	
March	S. Indiana Spring Draft Horse, Carriage and Machine Auction, Cannelburg	
March	Washington Conservation 3D Archery Bow Shoot, Washington	
March	Haiti Benefit Auction, Cannelburg	
April	White River Valley Antique Association	

	Swap Meet, Elnora	
April	Lawn and Garden Auction, Cannelburg	
April	Taste of Daviess County, Washington	
April-Nov	Gasthof Amish Flea Market, Montgomery, IN	Outdoor flea market open tues, Wed, and Sat. Weather permitting
May	Senior Fair, Washington	
May	Washington Conservation 3D Archery Bow Shoot, Washington	
May	Horse and Tack Auction, Cannelburg	
May	Daviess County Rail Fest, Washington	
May	Wool Fiber Arts Fair, Washington	
June	Gasthof Spring Festival, Montgomery IN	Vendors, Music, Carriage Rides and Gifts (Amish)
June	Washington Catholic Summer Social, Washington	
June	Gasthof Village Spring Festival, Montgomery	
June	Washington Conservation 3D Archery Bow Shoot, Washington	
July	Washington Conservation 3D Archery Bow Shoot, Washington	
July	4H Fair, Washington	
August	Daviess County Amish Quilt Auction, Odon, IN,	
August	Washington Conservation 3D Archery Bow Shoot, Washington	
August	Old Settler Festival, Odon	
August	Wine, Cheese and Art Festival, Washington	
August	Dillon Amish Quilt Auction, Cannelburg	
Sept.	Daviess County Horse and Tack Auction, Cannelburg, IN	Vendors, Music, Carriage Rides and Gifts (Amish)
Sept	White River Valley Antique Show, Fairgrounds	
Sept	Washington Conservation 3D Archery	

	Bow Shoot, Washington	
Sept.	Gasthof Fall Festival and Quilt Auction, Montgomery IN,	
Sept	Fall Standard Bred Auction, Cannelburg	
Sept	Fall Machinery, Carriage & Antique Machine Auction, Cannelburg	
Sept	Daviess County Turkey Trot Festival, Montgomery	
Sept	20th Century Chevy Car Festival, Washington	
Sept.	Knepp's Horse and Colt Auction, Montgomery, IN	
Oct.	Terror on Main Street,	
Oct.	Building Material Auction, Montgomery, IN	
Oct.	Registered Boar Goat Auction, Cannelburg	
Oct.	Gasthof Holiday Bazaar, Montgomery IN	
Nov.	North Daviess Community Craft Show, Odon	
Nov.	Special Horse & Tack Auction, Cannelburg	
Dec.	Bullet Fall Farm Gathering, Cannelburg	
Dec.	Dinky's Christmas Auction, Cannelburg	

Martin

Overall Personality:

Community centered, not much found on the internet.

Arts, Theaters, and Music Venues

None found

Outdoor Facilities

- West Boggs Park, Loogootee, IN, camping, fishing, swimming, water skiing, boating, golfing
- Martin State Forest, Shoals, IN – Woodland Arboretum and trails

Sporting Events and Venues

- White River Bait & Tackle
  249 Hendrickson St
  Williams
  (812) 388-7362
- Sugar Creek Hunting Preserve and Sport Shooting
  www.indianapheasant.com
  910 Scenic Hills Camp Rd
  (812) 849-2296
- Detox Oasis
  www.detoxoasis.net
  8799 Ridge Rd
  Shoals
  (812) 709-0827
- Loogootee Martial Arts
  www.loogooteemartialarts.com
  204 W Main St
  Loogootee
  (812) 709-1239
- Persimmon Ridge Golf Course
  2326 Yockey Rd
  Mitchell
  (812) 849-5188
- Strike Zone
  409 John C Strange St
  Loogootee
  (812) 295-5054

Festival, Carnivals, Community Events

March	Ag Day - Purdue Extension Office
April	Easter Egg Hunts - Jr. Leader's, Shoals Lions Club & City of Loogootee
April	Kids First Health Fair - Purdue Extension Office
April	Pancake Breakfast - Shoals Lions Club
May	Spring Clean Up - Recycling Center
June	St. John's Summer Social - St. John's Church
June	Relay for Life - American Cancer Society
June	Parks & Sparks Car Cruise Show - West Boggs
June	Free Fishing Weekend - West Boggs Park
June	Kids Fishing Tournament - West Boggs Park
June	SummerFest - Loogootee
July	Car Cruise - Loogootee & Boggs Park
July	Catfish Festival - Shoals
July	Martin County Fair - 4-H Fair Grounds
July	Fireworks - West Boggs Park & Shoals Sports Park
Sept.	Health Fair - Martin County Healthcare & Rehabilitation Center
Sept.	Fish Fry - State Forest & Shoals Lions Club
Sept.	Corn Maze - Lark Farms (thru Oct.)
Sept.	Fall Clean Up - Recycle Center
Oct.	Rose Day Deliveries - Shoals Lions Club
Oct.	Civil War Re-enactment - West Boggs Park
Nov.	Martin County Christmas Boutique - 4-H Fairgrounds
Nov.	Chili Day - St. John's Lutheran Church
Dec.	Christmas Parades - Shoals & Loogootee
Dec.	Old Fashion Christmas Stroll & Carriage Rides - Loogootee

Lawrence

Overall Personality:

Limestone caverns, and astronauts, community focused, Weak in activities and art

Arts, Theaters, and Music Venues

- Lawrence County Concert Association
- Wiley Art Center, Bedford
- Little Theatre of Bedford
- Performing Arts Center (Bedford North Lawrence)
- Otis Park Limestone Bandshell, Bedford
- Limestone Trail
- Kat's Performing Arts Studio, Bedford

Heritage and Museums

- Lawrence County History Museum, Bedford
- Pioneer Village at Spring Mill Park, Mitchell
- Foote's Tomb, Bedford
- Land of Limestone Museum, Bedford
- Greenhill Cemetery, Bedford
- Grissom Memorial, Mitchell
- Otis Park Red Brick House, Bedford
- Williams Dam
- Williams Covered Bridge

Outdoor Facilities

- Spring Mill State Park, Cave springs, Virgin Timber, hiking, biking, picnic, nature preserve
- BlueSpring Caverns, 15 acre sink hole, boat rides, hiking
- Limestone Trail
- Hoosier National Forest, Bedford, IN, trails, camping,
- Spring Mill State Park
- Donaldson Woods
- Twin Caves
- Bluespring Caverns
- Lawrence County Recreational Park (ATV)
- Hoosier National Forest
- Midwest Trail Ride & Outpost
- Most High Adventure Outfitters
- Murray Park (softball fields, picnic areas, shelters, walking trails)
- White River

Sporting Events and Venues

- Sugar Creek Sporting Clays, Mitchell,

2191 Bono Rd
Mitchell
(812) 849-5020

- Otis Park Golf Course
  www.otisparkgolf.com
  607 Tunnelton Rd
  Bedford
  (812) 279-9092
- Stone Crest Golf Community
  www.stonecrestgolf.com
  727 Bennett Rd
  Bedford
  (812) 276-4653
- Hardin Ridge Recreation Area
  www.fs.usda.gov
  6464 Hardin Ridge Rd
  Heltonville
- In Golf
  www.golf-components.com
  819 18th St
  Bedford
  (812) 275-0865
- Sugar Creek Sporting Clays & Hunting Preserve

Festival, Carnivals, Community Events

April	Lawrence County History Festival
May	International Bowhunters Association, 1st Leg National Championship Triple Crown
June	Lawrence County Rock Club (Gem, Mineral & Fossil Show)
July	The Annual Abate Boogie. Third weekend in July, biker fest at the Lawrence County Recreational Park that draw around 15,000 plus from all across the country
July	Limestone Heritage Festival
Sept	Persimmon Festival, Mitchell Indiana, Mid-September

Orange

Overall Personality:

Tourism and gaming. Outdoor sports and resorts.

Arts, Theaters, and Music Venues

- Fox Hollow Gallery
  8820 Indiana 56
  French Lick
  (812) 936-3110
- Body Reflections
  448 S Maple St
  French Lick
  (812) 936-4064
- Renegade Music
  2024 W Main St # 1
  Paoli
  (812) 723-4929
- Blackhawk Sound
  8565 W College St
  French Lick
  (812) 936-2662

Outdoor Facilities

- Paoli Peaks – Ski resort
- Hoosier National Forest, French Lick, Hiking, horseback riding and primitive camping
- French Lick Zip Lines, French Lick, 4,000 foot canopy tour
- Patoka Lake Marina and Lodging, Rentals of Houseboats, Pontoons, Fishing boats
- Lost River Game Farm, Orleans, IN, Hunt pheasant, quail and chkars
- Orangeville Rise & Wesley Chapel Gulf of the Lost River, Orleans, IN, A national natural landmark. Site features a "lost" river that emerges from a cave. 187 acre
- Pioneer Mothers Forest, Paoli, IN, 88 acres of old growth forest. Hiking
- Springs Valley Lake and Trail, French Lick, IN, In Hoosier National Forest, 13 miles of trails
- Wilstem Guest Ranch, French Lick, 30 miles of trails. hiking, biking, horseback, 4,000 foot zip line French Lick, West Baden, IN, golf, swimming, boating, gaming, resort
- French Lick Scenic Railway, West Baden, 20 mile historic train ride through parts of Hoosier National Forest

Entertainment Venues

- French Lick, West Baden Resort and Casino

Sporting Events and Venues

None found

Festival, Carnivals, Community Events

April	Blackhawk manor renaissance festival, French lick	Renaissance fair
April-May	Orleans dogwood festival, Orleans	Arts & crafts, carnival, dogwood viewing
Sept.	Block bash, French lick	Live music, art, bike show, carved wood auction
Sept.	Paoli fall festival, Paoli	Arts & crafts, carnival rides, food and contests

Washington

Overall Personality:

Rural and Proud of its Heritage

Arts, Theaters, and Music Venues

- Washington County Actors Community Theater, Salem, IN

Heritage and Museums

Outdoor Facilities

- Elk Creek Lake - 1.5 Miles south of S.R.56 and about 10 miles east of Salem, Indiana- A 48 acre lake. Fishing, access to Knobstone Trail.
- Lake John Hay - On S.R. 135, 6 miles northwest of Salem, Indiana- Website: WWW.CITYOFSALEMIN.COM
- Rush Creek Valley - . 300 acre lake offering boating and fishing. The lake offers tournament fishing or just a day of leisurely angling. This primitive area affords the opportunity to observe birds and animals in their natural habitat. Lake access includes one boat ramp. The use of gasoline powered motors is band, only electric trolling motors are allowed as this is a drinking water source.
- Lake Salinda - On S.R. 135, 2 miles south of Salem, Indiana - Website: WWW.CITYOFSALEMIN.COM - This 90 acre lake is a popular fishing spot. For your walking, running or jogging pleasures, the road from the boat launch area to the dam is marked at 1/4 mile intervals, for a total of 1 1/2 miles back and forth. For exercise or health reasons, you will know how far you've traveled. The use of gasoline powered

motors is band, only electric trolling motors are allowed as this is a drinking water source.

- Spurgeon Hollow Lake - North of Salem, Indiana on State Road 135, South of Delaney Creek Park- A 10 acre lake. Fishing with access to the Knobstone Trail. Boat motors are limited to electric trolling motors.

Sporting Events and Venues

- Salem Speedway
  www.salemspeedway.com
  2729 Indiana 56
  Salem
  (812) 883-6504
- Salem-Washington County Senior
  1705 N Shelby St
  Salem
  (812) 883-4986

Festival, Carnivals, Community Events

Feb.	Leane and Michael's Sugarbush Maple Syrup Festival	art, antiques, collectibles, games, live entertainment, etc
May	Friday Night on the Square	
May	All-American Country Hoedown – Campbellsburg	
July	Pekin 4th of July Celebration, Pekin	5K Walk/Run, Garden Tractor Pull, Horseshoe Pitching Tournament, Rides, Games, Food and Craft Booths, Continuous Entertainment and much more for the whole family to enjoy, Pancake Breakfast, BBQ Chicken
July-Aug.	Washington County Farmers Merchant Fair, Salem,	Exhibits, Quarter Horse Show, Horseshoe Pitching Tournament, 4-H Night, Senior Citizens Day, Kid's Day, 4-H Livestock Auction, Tractor & Truck Pull, Antique Tractor Pull, Horse Pull, Queen Pageant, Teen Pageant, Hoosier Idol Talent Show, Stock Car and Truck Races, Mud bogs, Quad Drags, Demolition Derby, and Carnival Rides!
Sept.	Eikosi Beer & Wine Festival, Salem	
Sept.	Friday night on the Square, Fall Edition,	

	Salem	
Sept.	Old Settler's Day, Salem,	
Sept.-Oct.	Cornucopia Farm, Scottsburg	
October	Oktoberfest at Historic Beck's Mill, Salem	
Dec.	Stevens Memorial Museum Christmas Open House, Salem	

Dubois

Overall Personality:

Vibrant, Artsy and Outdoorsy. Jasper Arts Center seems to be a strength.

Arts, Theaters, and Music Venues

- Jasper Arts Center, Jasper, IN, 700 seat theater, promotes participation in and enjoyment of the arts
- Copper Box, Jasper, IN, Art Glass studio and art gallery for local artists
- Dr. Ted's Musical Marvels, Dale IN, museum of restored mechanical musical instruments
- Dubois County Museum, Jasper, IN, dedicated to the German heritage of Dubois County
- Snaps, Jasper, IN, Food and Live Music
- Yaggis, Jasper, IN, Food and Live Music

Outdoor Facilities

- Patoka Lake
- A Day at Patoka Lake
- Patoka Lake is Southern Indiana's #1 recreation area. Experience nature at its finest, enjoying the day in the sun at Patoka Lake and the surrounding area.
- 4th Street Walkway - 2/3 mile path along Patoka River
- Birdseye Trail in Hoosier National Forest-An 11.8 mile long multiple-use trail allowing hiking, horseback riding, and mountain biking.
- Bohnert Park Walking Path - 1/2 mile asphalt track at Bohnert Park
- Dubois Community Park Walking Path=1/2 mile asphalt looped walking pathway
- Dubois County Park / 4-H Fairgrounds Walking Trails-Trails and pathways surrounds Dubois County Lake and Wetlands
- Ferdinand 18th Street Park Walking Trail-Walking trails on a paved pathway at the 18th Street Park
- Ferdinand Forest Walking Trails-A variety of trails, including the Kyana Trail, Firetower Trail, Twin Lakes Trail, plus additional trails.
- Habig Center Walking Paths (Seniors)-Indoor and outdoor walking paths on the grounds of the Habig Center
- Huntingburg City Park Walking Trail-Walking paths and trails near Huntingburg League Stadium
- Irene Bartelt Trails-Trails around Lakeside Park near the Holland Windmill
- Jasper Riverwalk (Trail)-2.1 mile paved path along Patoka River
- Niehaus Park Walking Trail-Scenic trails in Charles C. Niehaus Memorial Park
- Patoka Lake Dam Walking Trails-Scenic nature trails and hiking paths around the Patoka Lake Dam area

- Patoka Lake Walking Trails-Hiking trails around Patoka Lake and the Hoosier National Forest
- Sisters of St. Benedict Walking Paths-Serene setting for a reflective walk on the grounds of the Monastery Immaculate Conception
- St. Anthony Walking Path-1/2 mile looped concrete pathway
- St. Charles Street Multi-Use Path-2.25 mile paved path along St. Charles Street
- Timber Challenge Obstacle Course-Obstacle course on the grounds of Jaycee Park

Entertainment Venues

Sport Facilities:

- 30th Street Park-This 13 acre park includes shelter houses, ball fields, volleyball courts, and a playground.
- 5th Street Park-Features a playground and a variety of ball fields
- Buehler Park-This three acre park offers a shelter house, basketball court, tennis court, ball fields, a grill, a playground, and horseshoe pits.
- Celestine Park-This park features a community center, playground, sand volleyball, a small soccer field at the bottom of the hill, and a baseball/softball field.
- Church Avenue Park-This 1 acre park land features a shelter house, basketball court, tennis court, a playground, and horseshoe pits.
- Dubois Community Park-Home to the annual Dubois Septemberfest
- Dubois County Park / 4-H Fairgrounds-Features a variety of outdoor recreation, including a new professionally designed Disc Golf Course.
- Ferdinand 18th Street Park-Great for outdoor recreation and home to festivals, such as the Ferdinand Folk Fest that takes place in mid-September.
- Gutzweiler Park-This 3.2 acre park features a shelter house, basketball court, tennis court, ball fields, a grill, playground, and horseshoe pits.
- Huntingburg City Park-Features include: walking paths, ball fields and sports facilities, shelter houses, restrooms, water fountains, and a great playground for children.
- Huntingburg League Stadium-Home field to the Rockford Peaches in the movie, "A League of Their Own"
- Jasper Youth Sport Complex-Baseball and Softball Complex
- John Bohnert Park-This 17 acre park offers a wide variety of outdoor recreational activities.
- Lakeside Park-This park includes shelter house, log cabin, playground area, basketball courts and sports facilities, boat ramp, Holland Lake, and great trails.
- State Police Park-This 3 Acre Park features ball fields, basketball court, and a playground.
- Tri-County YMCA
- Uebelhor Park-This 3 Acre Park features ball fields.
- William Schroeder Soccer Complex-Soccer fields and facilities, Sporting Events and Venues, Focused on Youth and School Sports, Festival, Carnivals, Community Events

2014 Calendar

Year Round	Jasper Arts Center, Jasper	Art Events , Music and Entertainment shows
Jan.	20th Annual Winter Antique Show	
Jan.	19th Annual Ferdinand Gun & Knife Show	
Feb-March	Fr. Thad Sztuczko's Paintings on Exhibit, Dubois County Museum	
March	Holland Kiwanis Annual Gun & Knife Show, Huntingburg	
March	Ireland St. Patrick's Celebration, Ireland	
March	Jasper Home Expo, Jasper	
April	Daffodil Stroll, Huntingburg	
April	Ferdinand Town-wide Yard Sale, Ferdinand	
April	Garden Gate Festival, Huntingburg	
April	Garden Gate Jazz, Wine, & Craft Beer Festival, Huntingburg	
April	Spring Family Heritage Days	
April	Huntingburg Kiwanis Antique Car Show	
April	Ferdinand Herb and Garden Days	
May	JCAC Chalk Walk Art Festival, Jasper	
May	Blessing of Bikes/ Tim Fromme Ride (Motorcycles),	
May	Huntingburg City-Wide Yardsale, Huntingburg	
May	Old Jasper Day and Strawberry Festival, Jasper	
June	St. Henry Heindrichsdorf Fest, St. Henry	
June	29th Anniversary of Uhl Pottery Collectors Society, Jasper	
June	Ferdinand Heimatfest, Ferdinand	
June	Celestine Summer Street Festival, Celestine	

July	YMI Picnic and Car Show, Huntingburg	
July	Thunder Over Patoka, Patoka Lakes	
July	Summer Sidewalk Sales, Huntingburg	
July	Haysville Sommerfest, Haysville	
July	Dubois County 4-H Fair	
July	Youth Triathalon, Huntingburg	
July	Ferdinand Firemen's Festival, Ferdinand	
July	Big Johns Ride (Motorcycle)	
Aug.	Jasper Strassenfest, Jasper	
Aug.	Zoar Mosquito Festival,	
Aug.	A Tribute to Our Military Veterans, Dubois County Museum	
Aug.	St. Anthony Sesquicentennial, St. Anthony	
Aug.	20th Annual Summer Antique Show, Huntingburg	
Aug.	Birdseye Picnic, Birdseye	
Aug.	Celestine Tractor Pull, Celestine	
Sept.	Archaeology Day, Dubois	
Sept.	Southern Hills Bash, Ireland	
Sept.	Ferdinand Folk Fest Fondo, Ferdinand	
Sept.	"Halfway to St. Patty's Day" Irish Road Bowling Tournament, Ireland	
Sept.	Ferdinand Folk Festival, Ferdinand,	
Sept.	Schnellville Hometown Fest & Picnic, Schnellville	
Sept.	Huntingburg Herbstfest, Huntingburg	
Sept.	Kid's Day, Jasper	
Sept.	Anderson Woods Riverwalk Tasters Fest,	

	Jasper	
Sept.	Toys for Tikes Ride (Motorcycle)	
Oct.	Old Fashioned Bargain Days, Huntingburg	
Oct.	Haunted Huntingburg, Huntingburg	
Oct.	Primitive Days, Ferdinand	
Oct.	Fall Harvest Day, Dubois County Museum	
Oct.	Primitive Corn Shredding Festival, Francis Lindauer	
Nov.	Huntingburg Christmas Stroll, Huntingburg	
Nov.	Festival of Christmas Trees & Santa Claus Exhibit, Dubois County Museum	
Nov.	Ferdinand Christkindlmarkt , Ferdinand	
Dec.	Festival of Christmas Trees & Santa Claus Exhibit, Dubois County Museum	
Dec.	Jasper O'Tannenbaum Days, Jasper	
Dec.	Cookie Walk, Dubois County Museum	

Crawford

Overall Personality:

Rural and community focused. Sleepy

Arts, Theaters, and Music Venues

- Nine Dragon Pottery and Bonsai, Milltown, IN – local crafts, pottery, watercolors, carved walking sticks
- O.U.R. Antiques, Leavenworth, IN – antiques - seasonal

Outdoor Facilities

- Marengo Cave – walking tour, picnic, camping cabins
- O'Bannon Woods State Park/Harrison-Crawford State Forest 25,000 acres of hardwood and a 3,000 acres park. Blacksmith Forge, Biking, Boating, Camping, Caves, Fishing, Hiking, Horse Trails, Hunting, Picnic, Swimming, and Pioneer Farmstead with a blacksmith forge, historic Haypress, and demonstrations
- Patoka Lake – 25,800 acre park with 8,800 acres of water. Archery, Biking, Boating, Cabin rentals, Camping, Fishing, Frisbee golf course, Hiking, Hunting and Trapping, Picnic areas, RV camping, Swimming, Water Sports, Winter Sports – Ice fishing and Cross-country skiing
- 4-H Community Park, Crawford County

Sporting Events and Venues

- Lucas Oil Golf Course, English, 18-hole course

Focused on Youth and School Sports

Festival, Carnivals, Community Events

June	Flintknapping and Primitive Art Fest	-Learn the art of making stone tools just like native people did thousands of years ago. Rocks, minerals, and Native
June	English Reunion Festival-, English	
July	Thunder over Patoka Lake	Fireworks
July	Marengo 4th July Festival, Marengo	
Sept.	Crawford County 4H Fair	
	Leavenworth Riverfest-Leavenworth	offers many activities including music, demonstrations, wood carving, painting,

Sept		crafts, chicken barbecue, and carnival
Sept	Milltown Community Festival, Milltown	features antique tractors, inflatables for the kids, parade on Saturday, annual chicken barbecue dinner
Sept	Old Eckerty Days, Eckerty	Features arts & crafts, and a parade.
Oct.	Autumn Music Festival, Schwartz Family Restaurant	
Oct	Sorghum Festival	This annual fall event showcases the outstanding work of our local artists and craftsmen. Live demonstrations, food booths, and lots of entertainment.
Oct.	Eckerty Car Show, Eckerty	
Dec.	Holiday Gift Show	The 2013 “Holiday Gift Show” showcases local crafters, which includes candies, candles, Christmas ornaments, hair bows, crochet items, primitive crafts, Amish rugs and jewelry.

Appendix 4: Task III List of Interviewees

Linda Williamson - September 18, 2013

Tony Armstrong - September 30 & November 15 2013

Kirk White - October 15, 2013

Will Reardon, Dan Espinal - *Allied Minds* - October 24, 2013

Tom Hutton - Purdue Research Foundation (PRF), Associate Director, Life Sciences, October 29, 2013

Brooke Pyne - NSWC Crane, SBIR Program Manager, November 1, 2013

John Dement – Office of Research and Technology Applications (ORTA), Technology Transfer Manager, November 1, 2013

Brian Blackwell - Director, Office of Engagement, Applied Science, November 1, 2013

Donald Schulte - WestGate Technology Park, Executive Director, November 1, 2013

Chuck LaSota – BIC, President & CEO, Battery Innovation Center, November 1, 2013

Samantha Nelson – Stimulus Engineering, November 1, 2013

Appendix 5: Community Asset Inventory Factor List

1. **People**
    1) Population growth
    2) Poverty rate
    3) Unemployment rate
    4) Private foundations revenues per capita
    5) All other nonprofits revenues per capita

2. **Human Capital: Education**
    1) Percent of students who passed ISTEP English section
    2) Percent of students who passed ISTEP Math section

3) Educational attainment of 25 year old & older adults
4) High school graduation rate

3. Human Capital: Health

1) Fertility rate
2) Death rate
3) Premature death rate
4) Poor of fair health
5) Poor physical health days factor
6) Poor mental health days factor
7) Motor vehicle crash death rate
8) Cancers incidence rate
9) Lung and bronchus cancers incidence rate
10) Asthma rate
11) Ratio of primary care providers
12) Access to healthy food

4. Government Impact and Economy

1) Crime rate (crimes per capita)
2) Effective tax rate
3) Main street rate
4) Metropolitan development factor (County with a Metropolitan Statistical Area (MSA) is a dummy variable of 1)

5. Changeable Public Amenities

1) Public parks & recreational areas factor
2) Historic & cultural sites factor
3) Fishing & boating areas factor
4) Camping & RV park areas factor
5) Hiking/walking trails factor
6) Beach areas factor
7) School grounds factor

6. **Static Public Amenities**
    1) Forest areas factor
    2) Fish and wildlife areas factor
    3) Dedicated nature preserves factor
    4) Bodies of water factor
    5) Shore line perimeter in kilometers

7. **Arts, Entertainment & Recreation**
    1) Per capita personal income
    2) Employment per 1,000 people
    3) Average compensation per employee
    4) Marinas factor
    5) Fairgrounds factor
    6) Athletic fields factor
    7) Golf courses factor
    8) Per capita personal income in accommodation & food services

Appendix 6: Community Asset Inventory Factors Data

People		1	2	3			4	5		
COUNTY	Population 2010	Population GROWTH	Poverty Percent All Ages	Unemployment rate (2010)	Private Foundations revenues	All other nonprofits revenues	Percapita private foundations revenue (as of Nov 2011)	Percapita other nonprofit revenue (as of Nov 2011)	People Ranking	Grade
Brown	15242	1.91%	12.5	10.0	357320	14055411	23.4431177	922.150046	5	C
Crawford	10713	-0.28%	19.0	12.1	35668	1478462	3.32941286	138.006347	11	F
Daviess	31648	6.13%	15.6	6.3	343423	15220120	10.8513334	480.918857	3	C
Dubois	41889	5.58%	7.2	7.5	1147646	214594290	27.3973119	5122.92702	1	A
Greene	33165	0.02%	16.6	9.1	41722	73165324	1.25801297	2206.10053	6	C-
Lawrence	46134	0.46%	15.4	12.0	0	113867228	0	2468.18459	9	D
Martin	10334	-0.34%	13.5	7.3	0	37402274	0	3619.3414	4	C
Monroe	137974	14.44%	21.9	7.3	198475	1118539606	1.43849566	8106.88685	2	B
Orange	19840	2.77%	16.9	11.2	0	61192962	0	3084.32268	8	D
Owen	21575	-0.97%	14.3	10.3	0	7383002	0	342.201715	10	D-
Washington	28262	3.82%	15.5	10.5	149124	9885239	5.27648433	349.771389	7	D+
	6,483,802	6.63%								

Education	1	2	3	3	4		
County	ELA Percent Pass	Math Percent Pass	High School diploma or more	Higher degree or more	High School Graduation Rate	Education Ranking	Grade
Brown	83.67%	71.43%	83.63%	23.79%	89.33%	3	B
Crawford	73.73%	91.53%	70.63%	11.89%	81.51%	5	C
Daviess	68.63%	76.71%	71.80%	16.34%	82.46%	8	D
Dubois	78.83%	87.77%	80.16%	21.92%	89.86%	1	B+
Greene	67.20%	72.92%	79.16%	17.21%	90.93%	6	C
Lawrence	70.32%	76.02%	77.36%	15.45%	83.13%	7	D
Martin	75.43%	86.93%	74.21%	16.87%	78.57%	4	C
Monroe	76.09%	76.76%	88.49%	44.50%	85.43%	2	B
Orange	61.95%	67.77%	73.83%	13.47%	87.98%	11	F
Owen	69.46%	62.34%	74.85%	13.49%	73.53%	10	F
Washington	68.73%	65.00%	75.18%	14.57%	87.57%	9	D-

Govt Impact	1	2	3	4		
County	*Crimes per capita*	Effective tax rate per $1000s personal income	# of Communities in County with Mainstreet Program	County's with MSA's (1=metro; 50=non-metro)	Government Ranking	Grade
Brown	0.00997745	25.6159017	1	1	4	A
Crawford	0.00345633	28.9108561	1	50	7	C+
Daviess	0.03816215	30.8377865	1	50	11	F
Dubois	0.00955552	29.3992801	2	50	9	C
Greene	0.00500753	21.7949052	0	1	2	A
Lawrence	0.02023726	26.5727944	1	50	10	C
Martin	0.01308169	23.1061056	0	50	6	C-
Monroe	0.03387522	29.6434097	2	1	8	C
Orange	0.00302022	26.6118384	0	50	5	B
Owen	4.4693E-05	26.1795532	2	1	1	A
Washington	0.0008966	27.306127	1	1	3	A
State	0.03669525	33.6264192		-		
National	0.03667019	-		-		

Recreation	1	2	3	4	5	6	7	8		
County	per capita personal income (Arts, entertainment and	(Arts, entertainment and recreation)Employment per	(Arts, entertainment and recreation)avergae	Accomodation and food services per capita personal	Marina/ Area	Fairground/ Area	Athletic Field/ Area	Golf Course/ Area	Recreation Ranking	Grade
Brown	83.035	18.35	4,741.6	862.52		2.9622E-05	0.00012342	0.00113056	1	B
Crawford									11	F
Daviess	31.842	4.44	7,227.9	370.93		0.00014325	0.00014325	0.00069117	6	C
Dubois	40.875	6.88	6,010.5	575.27			7.9033E-05	0.00188961	4	C
Greene	8.040	3.36	2,715.6	253.18		8.5926E-05	0.00010884	0.00010025	7	D
Lawrence	28.184	4.84	4,504.5	408.25		0.00017291	3.4581E-05	0.00209217	5	C
Martin						5.5135E-05			9	F
Monroe	76.932	11.82	3,812.3	894.12	3.6118E-05			0.00174885	3	C+
Orange	137.021	10.02	13,693.9	2862.67		7.6591E-05	2.6807E-05	0.00018382	1	B
Owen						3.6307E-05	2.017E-05		9	F
Washington	10.062	3.28	3,197.8	243.97		8.4766E-05		0.00023311	8	D-

(D) Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.
(L) Less than $50,000, but the estimates for this item are included in the totals.

Health	1	2	3	4	5	6	7	8	9	10	11	12		
County	Total Fertility Rates 2006	DEATH RATE 2007 Age-Adj	Premature death (Years of Potential Life Lost) YPLL Rate	Poor or fair health % Fair/Poor	Poor physical health days Physically Unhealthy Days	Poor mental health days Mentally Unhealthy Days	Motor vehicle crash death rate MV mortality rate	Primary care providers PCP Ratio	Access to healthy foods % Healthy Food	All Cancers *Annual Incidence Rate (2002 to 2006)*	Lung and Bronchus Cancer Annual Incidence Rate (2002 to 2006)	Lung disease Per thousand population 2008 Total Asthma	Health Ranking	Grade
Brown	1145	672.08	7474	13	2.4	2.9	27	1626:1	100	457.4	66.9	92.99	3	B
Crawford	1884	866.23	8519	18	5.0	2.6	28	10705:0	25	497.5	113.9	92.53	11	F
Daviess	2964	879.35	7703	24	4.3	3.3	24	1895:1	50	422.3	64.6	92.41	5	C
Dubois	2358	727.07	6208	11	1.5	1.6	17	813:1	56	381.1	51.9	92.45	1	A
Greene	1943	931.01	9055	20	4.3	4.4	21	2170:1	56	424	75.8	92.40	8	D
Lawrence	1934	828.71	8665	19	3.5	4.2	21	1310:1	67	450.8	86.6	92.44	7	C-
Martin	2238	693.64	10486	14	4.3	2.8	35	3338:1	67	480	65.5	92.69	6	C
Monroe	1245	706.03	6374	14	3.5	4.0	9	873:1	50	464.6	66.4	90.87	2	B+
Orange	2068	782.6	7201	26	4.6	4.8	25	930:1	75	435.3	74.7	92.38	4	C
Owen	1696	960.88	7728	15	4.0	2.9	22	3729:1	17	472.8	104.4	92.47	10	D-
Washington	1884	897.22	8288	27	4.5	4.2	23	1394:1	60	463.8	86	92.38	9	D-

Appendix 7: Tourism Asset for Brown, Owen and Monroe County

AG AND CULINARY TOURISM

Owen County (14)

- Owen Valley Winery
- Owen County Community Farmer's Market (May-October)
- Coal City Market
- The Birdhouse Restaurant
- Chambers Smorgasbord
- China Wok
- Dairy Queen
- El Ranchero
- Franklin's Mercantile
- Freedom Diner
- Hilltop Family Restaurant
- The Muffin Top
- Skid Row Bar & Grill
- Millie McGee's Gosport Diner

Monroe County (92)

- Bites of Bloomington Food Tours
- Bloomington Brewing Company
- Bloomington Community Farmer's Market
- Butler Winery & Vineyard
- Oliver Winery
- Oliver Winery Downtown Tasting Room
- Scholars Inn Bakehouse Bakery

- Taste of Bloomington
- Upland Brew Pub
- Upland Production Brewery and Tasting Room
- Week of Chocolate
- Wine & Food Festival
- FARM
- The Irish Lion Restaurant & Pub
- Grazie Italian Eatery
- Finch's Brasserie
- Runcible Spoon
- The Trojan Horse
- Uptown Café
- Taste of India
- Restaurant Talent?
- Sweet Grass Resaurant
- Scotty's Brewhouse?
- Mother Bear's Pizza
- Janko's Little Zagreb
- Esan Thai Restaurant
- Anyetsang's Little Tibet Restaurant
- Samira Restaurant
- Crazy Horse
- Anatolia
- Yogi's Grill & Bar
- Turkuaz Café
- Chocolate Moose

- Darn Good Soup
- Lennie’s
- Nick’s English Hut
- Soma Coffee House
- Bloomington Bagel Company
- Aver’s Pizza
- Video Saloon
- Bloomingfoods
- Feast
- The Owlery Restaurant
- Laughing Planet Café
- BLU Boy Chocolate Café and Cakery
- My Thai Café
- Dagwood’s Deli
- The Village Deli
- Bluebird Nightclub
- Scholars Inn Gourmet Café & Wine Bar
- Hatzell’s
- La Charreada
- Falafels Middle Eastern Grill
- Malibu Grill
- Chow Bar
- House Bar
- Le Petit Café
- Restaurant Ami
- The Rail

- Bombay Café
- The Pourhouse Café
- The Butcher's Block
- Bub's Burgers & Ice Cream
- El Norteno Restaurant
- Naughty Dog
- Rockit's Famous Pizza
- Dat's
- Max's Place
- The Tap
- Pizza X
- Baked of Bloomington
- Buffa Louie's
- Siam House
- Café Pizzaria
- Peach Garden
- Smokin' Jack's Rib Shack
- Opie Taylor's
- Scenic View Restaurant Bar
- Sahara Mart
- Sweet Claire's Bakery
- Kilroy's Bar and Grill
- Square Donuts
- Z&C Teriyaki and Sushi Restaurant
- Trailhead Market & Noshery
- Macri's

- Serendipity Martini Bar
- Short Stop Food Mart
- Kilroy's Sports Bar
- Bloomington Sandwich Company
- Rachael's Café
- Chomp Burger
- Jiffy Treat

Brown County (31)

- 19th Hole Sports Bar and Grill
- Accent Dining Room at the Seasons Lodge
- Artists Colony Inn Restaurant
- Big Woods Brewing Company
- Big Woods Pizza Company
- Casa Del Sol
- Darlene's at Hotel Nashville
- Harvest Dining Room at the Brown County Inn
- Harvest Moon Pizzeria
- Hobnob Corner Restaurant
- Little Gem Restaurant at Abe Martin Lodge
- Muddy Boots Café
- Nashville General Store and Bakery
- Nashville House
- Out of the Ordinary
- Pine Room Tavern
- That Sandwich Place
- 19th Hole Sports Bar and Grill

- Brown County Winery
- Cedar Creek Winery
- Chateau Thomas Winery and Gift Shoppe
- Hickory Sports Bar
- Candy Dish
- Candy Emporium
- Carmel Corn Cottage
- Miller's Ice Cream House
- Nashville Fudge Kitchen
- Schwab's Fudge
- Sunshine Shack
- Sweetea's Tea Shop
- Nashville Daily Grind

ARTS AND CULTURAL TOURISM

Owen County (21)

- Coal City Festival
- Apple Butter Festival
- Gosport Lazy Days Festival
- Gosport Holiday Festival
- Patricksburg Community Hog Roast / Euchre Tournament
- Rock and Run @ Stable Studios
- Spencer Pride
- Antique Machinery Show @ J W Jones Stables
- Community Picnic / Hog Roast / FOP Car and Motorcycle Show
- Arts in the Park
- Commotion in the Commons Featuring Chalk It Up
- Freedom Festival
- Owen County 4-H Fair
- White River Poultry Show
- Hyperion Music and Arts Festival @ Stable Studios
- BBQ and Blues
- Spencer River Front Festival, Duck Race and Jonah Fish Fry
- Patricksburg Homecoming
- Cataract VFD Bean Dinner Festival
- Christmas on the Square
- Bean Blossom- Patricksburg Water Corporation Tours

Monroe County (47)

- Afro-American Art Festival
- African American Music and Culture Showcase

- Black Pride Film Festival
- Bloomington Farmers Market
- Bloomington Playwrights Project
- BlueSanct
- Buskirk-Chumley Theater
- Cardinal Stage Company
- Chocolate Festival
- Dark Carnival Film Festival
- Eastfest
- Echo Park Studios
- El Centro Comunal Latino (Latino Community Center)
- Eradicator Records
- Fall Festival on Fairfax
- Farmer House Museum
- First Nations Education and Cultural Center
- Fourth Street Festival of the Arts
- Plan-It-X Fest
- Fourth Street Arts and Crafts Festival
- Helene G. Simon Hillel Center
- Indiana Festival Theatre
- Indiana University Auditorium
- Indiana University Department of Theatre & Drama
- Indiana University Musical Arts Center
- IU Summer Festival of the Arts
- IU Summer Music
- Ivy Tech Waldron Arts Center

- Indiana Heritage Quilt Show
- Jacobs School of Music at Indiana University
- Jagjaguwar
- La Casa Latino Cultural Center
- Limestone Comedy Festival
- Lotus World Music and Arts Festival
- Mathers Museum of World Cultures
- Monroe County Civic Theater in Third Street Park
- Monroe County Fair
- Neal-Marshall Black Culture Center
- Pride Film Festival
- Secretly Canadian
- Taste of Bloomington
- Theater of the People
- Theta Antique Show
- Third and High Festival
- The Combine
- Tibetan Mongolian Buddhist Cultural Center
- Waldron Arts Center

Brown County (30)

- B3 Gallery
- Barb Brooke Davis Studio and Gallery
- Brown County Art Gallery
- Ferrer Gallery
- Gallery North
- Hoosier Artist Gallery

- Spears Gallery
- Amy Greely Studio
- Anne Ryan Miller Glass Studio
- Cox Creek Mill
- Faerie Hollow Studio
- Fantasy Manor Art Studio
- Ferrer Gallery
- Nashville Image Olde Tyme Photography
- Oak Grove Pottery
- The Uncommon Gourd
- Chateau Thomas Winery and Gift Shoppe
- Corn Crib Lounge at the Brown County Inn
- Gazebo at Hotel Nashville
- Golden Ticket Productions
- Mike's Music & Dance Barn
- The Saloon at Seasons Lodge
- Brown County Playhouse
- Melchior Marionette Theatre
- Brown County Massage
- Gaia's Touch
- Laughing Womyn Ashonosheni
- Ethereal Day Spa and Salon
- Michael's Massage
- River Light Yoga

HERITAGE TOURISM

Owen County (7)

- The Ten O'clock Line Treaty Museum
- Owen County Heritage and Culture Center
- David Enoch Beem House
- Spencer Town Hall and Fire Station
- Cataract Covered Bridge
- Old Iron Bridge
- Camp Hughes

Monroe County (16)

- Buskirk-Chumley Theater
- Dagom Gaden Tensung Ling Monastery
- Downtown Bloomington
- Farmer House museum
- Fountain Square Mall
- Glenn A. Black Laboratory of Archaeology
- Helene G. Simon Hillel Center
- Hinkle-Garton Farmstead Community Historic Site
- Hoagy Carmichael Room
- Indiana Heritage Quilt Show
- Indiana Limestone Symposium
- Monroe County Court House
- Monroe County History Center
- Red Men's Lodge
- Rose Hill Cemetary
- Wylie House

Brown County (10)

- Bill Monroe's Music Park
- Hall of Fame Museum
- TC Steele State Historic Site
- C. Dawn Livery Carriage Rides
- Nashville Express Tour Trains
- Shireman Homestead
- Whispering Pines Alpacas and Specialty Gifts
- Pioneer Museum
- Brown County Courthouse
- Selma Steele Nature Preserve

OUTDOOR REC AND SPORT TOURISM

Owen County (20)

- McCormick's Creek State Park
- Owen-Putnam State Forest
- Cataract Falls
- Richard Lieber State Park
- Cagles Mill Lake
- Camp Romona
- Indian Oaks Camp Ground
- Hickory Hills Camp Ground
- Clover Meadows Golf Course
- Owen Valley Sports Complex
- Hollybrook Lake
- Wasatch Lake
- Amazon Lake
- Timber Ridge Lake
- Thomas Lake
- Barnes Lake
- Cottons Little Pine Lake
- Greybrook Lake
- Ralph Ketchum Lake
- Salter Lake

Monroe County (76)

- Beanblossom Bottoms Nature Preserve
- Bloomington Rail Trail
- B-Line walking trail

- Born Learning at Clear Creek Trail
- Buckner Cave
- Building Trades Park
- Butler Park
- Broadview Park
- Bryan Park Pool
- Campbell's Park
- Cascades Park
- Cascades Golf Course
- Cave Mural
- Cedar Bluff Nature Preserve
- Charles C. Deam Wilderness
- Clear Creek Trail
- Crestmont Park
- Eagle Pointe Golf Resort
- Fairfax State Recreation Area
- Ferguson Dog Park
- Flatwoods Park
- Frank Southern Ice Arena
- Goat Farm
- Griffy Lake Nature Preserve
- Hoosier National Forest
- Highland Village Park
- Hilly Hundred Bicycle Tour
- Indiana University Student Recreational Sports Center
- Indiana University School of Public Health Building

- IU Golf Course
- IU Outdoor Adventures
- IU Outdoor Pool
- IU Tennis Center
- Jackson Creek Trail
- Kady Lynn Park
- Karst Farm Park & Athletic Complex
- Kirkwood Observatory
- Lake Monroe
- Lake Lemon
- Latimer Woods
- Leonard Springs Nature Park
- Little Africa Wildlife Viewing Area
- Little 500
- Lower Cascades Park
- McCormick's Creek State Park
- Mills Pool
- Morgan–Monroe State Forest
- Monroe Reservoir
- Monroe County Fairgrounds
- Marcy Jane Lewis Park
- Miller-Showers Park
- Olcott Park
- Paradise Boat Rental
- Park Ridge East Park
- Park Ridge Park

- Paynetown State Recreation Area
- Peoples Park
- Putter's Park
- RCA Community Park
- Rev. Ernest D. Butler Park
- Schmalz Farm Park
- Seminary Park
- Sherwood Oaks Park
- Skate Park at Upper Cascades
- Southeast Park
- Stillwater North Fork Waterfowl Resting Area
- Summer Garden Walk
- Taylors' Par 3
- The Waldron, Hill and Buskirk Park (Third Street Park)
- Twin Lakes Recreation Center
- Twin Lakes Sports Park
- Wapehani Mountain Bike Park
- Will Detmer Park
- Willie Streeter Community Gardens
- Winslow Sports Complex
- Winslow Woods Park

Brown County (13)

- Brown County State Park
- Rawhide Ranch
- Schooner Valley Stables

- Brown County Wilderness Canoe
- Most High Adventure
- Explore Brown County at Valley Branch Retreat
- Hoosier National Forest
- Yellowwood State Forest
- Copperhead Creek Gem Mine and Rock Shop
- Salt Creek Golf Retreat
- Knobstone Trail
- Tecumseh Trail
- Holler Hoppin' Zip Lines